Research Policy 53 (2024) 105073

Contents lists available at ScienceDirect

Research Policy

journal homepage: www.elsevier.com/locate/respol

Path release among practices in the process of path constitution: How the MP3-path appeared in the field of recorded music

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A B S T R A C T

Adopting a practice-based approach informed by structuration theory, we report on the establishment of the MP3-path from 1997 to 2004 as a process of path constitution that introduced a new path-dependent patterning among the practices in the field of recorded music. This case helps us elaborate a practice-based and more integrated theory of path constitution that incorporates both the production of path dependence and the release from the limitations that path dependence imposes on choice. The empirical investigation rests on a mixed-methods approach combining topic modeling with longitudinal historical research. By distinguishing between practices and entrepreneurial initiatives, we explain how a critical path-release juncture emancipated practices from existing path dependence (the CD-path), which was followed by a path-creation juncture that triggered the production of a new MP3-path. We synthesize the concepts and findings to develop an integrated model of path constitution and thereby contribute to the literature on path dependence.

1. Introduction

The theory of path dependence explains not only how choice becomes restricted over time but also that it is difficult to break that hold by overriding a self-reinforcing feedback effect that entices actors to limit how they act (Arthur, 1994; David, 1985). Path dependence often is colloquially summarized with the statement that "history matters" (e.g. Acciai, 2021; Krafft et al., 2014; Marquis and Qiao, 2024). However, since David's (1985) and Arthur's (1994) development of the theory to explain *how* history matters for path dependence and potentially leads to a lock-in, notions such as path generation (Djelic and Quack, 2007), path constitution (Meyer and Schubert, 2007), path creation (Garud et al., 2010), path extension (Sydow et al., 2012), path-breaking (Sydow et al., 2020), and path transformation (Su et al., 2023) have been added to the theoretical vocabulary. Although the production of path dependencies regarding technology, institutions, and organizations is reasonably well understood, this literature also indicates that there is less clarity about how choice can be released from the limitations imposed by path dependence. This process, we argue, is significantly influenced by path-release and path-creation junctures.

Building on structuration theory (Giddens, 1984) to specify a practice approach, we focus on path release within an integrated theory of path constitution. Path constitution is positioned as including both the well-theorized production of and the hardly understood release from path dependence. Garud et al. (2010), like Sydow et al. (2012) and Singh et al. (2015), refer to structuration theory as the underpinning process theory. A structuration-based practice approach understands path constitution as situated activities that are both constrained and enabled by the very structures (rules and resources) that they produce, reproduce, and possibly transform (Giddens, 1984). By incorporating path production and path release into one perspective, this duality of agency and structure makes such an approach particularly well-suited as a way to conceptualize path constitution. By elaborating structuration theory as a practice-based approach to path constitution, we will be able to look into how path release happens and how path production and path release relate to each other as part of the same process.

To elaborate the theory of path constitution with respect to practices, we turn to the field of recorded music to investigate the emergence of downloading and listening to MP3s as a path rivaling the existing CD-based path. For the starting point of our inquiry, we took 1997, the year in which MP3.com was established as the first firm based on distributing MP3-files over the Internet. We set 2004 as the year for the end of our analysis. By then, online music distribution was well established, with the two main competitors considered to be Apple's iTunes Music Store and the second incarnation of Napster as devised by Roxio. As of 2004 music downloads also took off, whereas CD sales diminished. The MP3-path had been produced by that time and eventually led, at least potentially, to a new lock-in.

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https://doi.org/10.1016/j.respol.2024.105073
Received 22 February 2023; Received in revised form 27 June 2024; Accepted 9 July 2024
Available online 20 July 2024

We contribute to existing theory by developing a practice-based approach that integrates path release and path production into a theory of path constitution, draws on structuration theory, and distinguishes between entrepreneurial initiatives and practices. We find path dependence appearing as a patterning in the enactment of practices. We then present a process model of path constitution as featuring subsequent periods of path dependence, from preformation to path formation that potentially leads to a new lock-in (Schreyögg and Sydow, 2011; Sydow et al., 2009, 2020). In an already path-dependent process, agency at the critical path-release juncture returns to the preformation period, during which choice is emancipated from path dependence, though still influenced by imprints from the past. Agency at the path-creation juncture triggers the path-formation period, during which path dependence is produced and reproduced, possibly leading again to a lock-in. Although the importance of the concept of junctures has recently been highlighted for history-sensitive studies in general (Marquis and Qiao, 2024), we present the path-release juncture as a necessary conceptual complement to the path-creation juncture to specify the integrated theory of path constitution further.

We report our investigation by first introducing our practice-based theoretical framing of path constitution in order to develop our research question. We then describe our research setting and design as well as the manner of our data collection and analysis. We present our findings and explain our integrated theory of path constitution in two steps, focusing on (a) how path dependence appears as a patterning in the enactment of practices, and (b) how practices in the field of recorded music were released from the CD-path and how a new MP3-path was produced. The paper concludes with a discussion highlighting our empirical and theoretical contribution and pointing at future research opportunities.

2. Elaborating the theory of path constitution

Our review of the literature covers the proliferation of path-related terms, how they compare, and what they are meant to explain. We concentrate on the integrative notion of path constitution as referring to a process that includes both path production as that part of the process by which path dependence appears and is maintained, and path release as the part of the process by which choice is emancipated from path dependence. We also argue that path release is the conceptually least developed of the two and needs further investigation and theorization. To this end, we turn to structuration theory to specify our research question of how path release can be understood in relation to path production as part of a process of path constitution.

2.1. From path dependence to path production and path release

Arthur (1983) and David (1985) developed path dependence as an explanation of how actors end up having limited choice. According to those two authors, path dependence appears when a trigger event initiates a feedback effect such that rational actors experience increasing returns with a specific choice. Rational actors find themselves irreversibly locked in because viable alternatives accrue increasing returns more slowly (Arthur, 1989) or even become subject to negative feedback (Vergne and Durand, 2010).

Structuration-based approaches to path dependence as well as path production have further specified the feedback effects as resulting from the interplay between agency and structure (Garud and Karnøe, 2001; Garud et al., 2010; Sydow et al., 2012). Agency or choice, rational or not, is enabled and constrained by structure (i.e., the rules and resources within which activities occur), whereas the social structure is simultaneously reproduced or transformed by those activities. Over time, this duality of structure and agency can devolve into a limitation of choice because of positive feedback (including increasing returns) generated individually or concurrently by the effects of coordination, complementarity, learning, and adaptive expectation (Dobusch and Schüßler, 2013; Schreyögg and Sydow, 2011; Sydow et al., 2009). The coordination effect increases returns, for choices across different activities are adjusted to each other to achieve a common goal. Complementarity sees returns enhanced through activities that coalesce or through practices that fit together. Learning increases returns because actors become more efficient at what they do. Adaptive expectation enhances returns when actors anticipate the expectations of others.

Noting these four effects, Sydow and colleagues go on to propose what Fortwengel and Keller (2020) call a "strong" path-dependence theory that sees path dependence being produced as an unintended consequence of not necessarily coordinated activity (Schreyögg and Sydow, 2011; Sydow et al., 2009). This theory distinguishes between the three periods of (a) "preformation", with actors having several choices; (b) "formation", during which the self-reinforcing dynamics generate a dominant activity patterning that sees the same choices being made more frequently; and (c) "lock-in", during which the dominant activity pattern generates a lack of choice from which it is hard to escape. The transition between periods 1 and 2 is marked by a critical path-creation juncture that sets the process on its way.

Garud and colleagues assume that entrepreneurial initiative has a rather prominent role in purposefully developing path dependence. For this very reason, they name the whole process "path creation" (Garud and Karnøe, 2001, 2003; Garud et al., 2010; Karnøe and Garud, 1998). They also see entrepreneurs by using "mindful deviation" and "disembedding activities" find ways to reduce being locked into one specific path. Furthermore, they see these entrepreneurs inducing the self-reinforcing feedback effects to bring the new path to light rather than these effects manifesting mostly as an unintended consequence as suggested by Schreyögg and Sydow (2011) and Sydow et al. (2009). Adding this role to entrepreneurial initiative is what Fortwengel and Keller (2020) call the "weak" approach.

Djelic and Quack (2007), characterizing their approach as path generation, argue similarly, though they do acknowledge an element of coincidence when various initiatives coalesce by chance to produce a path. Simmie (2012) also proposes an active role for an entrepreneur who operates in a niche away from path-dependent activity, but at some point seeks the confrontation to overcome barriers posed by an existing path and then possibly sees an alternative path emerging. Unlike Garud and colleagues, who see paths developing sequentially, Simmie envisions a constant coexistence of path-dependence and path-creation initiatives, with existing paths always being contested. With path dependence constantly being contested, the implication is that lock-in is not taken for granted and perhaps requires path defenders who actively try to preserve path dependence.

Fortwengel and Keller (2020), like Meyer and Schubert (2007) and Singh et al. (2015), present the distinction between weak and strong path dependence as a continuum rather than as different explanations for the same phenomenon, with actual processes leaning one way or the other over time. This conceptualization turns the role of entrepreneurial initiatives into an empirical matter because it requires recognition of the direction in which the process is leaning. We therefore prefer to speak of producing path dependence, which includes both intentional path creation and path dependence appearing as an unintended consequence.

Overall, there is a reasonable consensus on how path dependence is produced (Djelic and Quack, 2007; Dobusch and Schüßler, 2013; Garud and Karnøe, 2001, 2003; Garud et al., 2010; Karnøe and Garud, 1998; Schreyögg and Sydow, 2011; Sydow et al., 2009). Path production begins with a critical path-creation juncture, features entrepreneurial initiatives depending on how the process is leaning, and has positive feedback effects that become operative (Fortwengel and Keller, 2020; Meyer and Schubert, 2007; Singh et al., 2015). Nevertheless, there remains a question about path release and how it relates to path production, especially when path dependence is about limiting choice, and this limitation somehow must be dealt with to allow for a new path to emerge or be created. The point of departure for most theorizing about producing path dependence has been where no preexisting path

dependence existed. More recent research, however, has begun to address this gap of how to understand path release.

There are suggestions that path release requires path-breaking, that an existing path must disappear for a new path to appear (Sydow et al., 2020). This assertion turns the process into a struggle between innovative entrepreneurs and path defenders, with change-seekers mobilizing the qualities of an alternative path and leveraging them against an existing path (De Groote and Kammerlander, 2023; Stache and Sydow, 2023). Su et al. (2023) describe this switching from one path to another path as path transformation. Others question whether paths are mutually exclusive, suggesting that an alternative path can appear alongside an existing one (Bergek and Onufrey, 2013; Onufrey and Bergek, 2015; Simmie, 2012), with an existing path possibly exhibiting change or continuation, such as path extension (Sydow et al., 2012). Storz (2008) submits that there is plasticity to a path in any case, depending on the number of other choices that might exist.

Apart from the variety of propositions about path release, they tend to treat it as a process largely unrelated to path production. Alternatively, the notion of path constitution has been put forward to refer to the process by which path dependence appears, is maintained, but also disappears (Meyer and Schubert, 2007). An integrated theory of path constitution therefore aims to explain path production (the part of the process by which paths appear and persist) as well as the way in which choice again becomes possible through release from path dependence—all within the same basic process of recursive interplay between agency and structure. It is only by making path release and path production part of an overarching process that one can understand how both relate to each other. With the production of path dependence having been elaborated as a structuration process (Garud and Karnøe, 2001; Garud et al., 2010; Sydow et al., 2012), we turn also to structuration theory to see how we can start to incorporate path release in relation to path production as part of an integrated theory of path constitution.

2.2. A structuration-based practice approach to path constitution

Continuing with structuration theory (Giddens, 1984) and recognizing it as essentially a theory of practice (Nicolini, 2012; Whittington, 2015), we move forward by adding some texture to the notion of practice. We do so by distinguishing between agency, activity, and agents as practices, praxis, and practitioners, respectively (Reckwitz, 2002; Sminia, 2011; Whittington, 2006), and see these components as encompassed by the duality of structure (Giddens, 1984). Taking a practice as a reflection of both agency and structure and, hence, as "a capability of doing things" (Giddens, 1984, p. 9) deviates somewhat from its more usual interpretation as coherent regular activity. This understanding of the term makes activity appear to be praxis when practitioners enact practices. By also expecting that a practice normally allows for several alternative courses of conduct to achieve the "things" in Giddens's definition (Sminia, 2011), we introduce a clear element of choice that can be limited or expanded by path effects. Activity or praxis takes place when actors choose and enact an existing or possibly new course of conduct to achieve what the practice is intended to achieve, thereby also reproducing or transforming this practice. A practice then becomes characterizable not only through recurrence but through what it achieves when enacted: its "normativized ends" (Schatzki, 2002).

The specific actions required to enact one of the courses of conduct in a practice are what we call the "detail" of a practice. Detail therefore refers to the specific activities – the 'doings and sayings' (Schatzki, 2002) – by which a course of action is manifested into praxis. Structure in the form of rules and resources (Giddens, 1984) pertains to a practice in that it enables and constrains the enactability of the different courses of conduct within a practice. Such institutional and technological facilitations, requirements, and impediments are what we characterize as being in the "depth" of a practice. Depth then respectively refers to the norms, values, understandings, meanings, ideas, and cognitions and the tools, equipment, material conditions which allow or disallow the actions by which a course of action is manifested into praxis. Path constitution thus applies to the degree of enactability of different courses of conduct (or choice) with a practice or, more likely, across a set of practices that is of interest. Practices that generate a recognized area of recurrent activity in combination are called a *set* of practices (Sminia, 2011). We expect this enactability to decrease or increase depending on whether we are looking at path production or path release. This further specification of structuration allows us to focus on practices and the ways in which their enactments relate to effects of self-reinforcement for path production and on the manner in which enactments play a role in path release.

Following this practice-based approach, we can remain agnostic about levels of aggregation. Path dependence initially concerned technology (Arthur, 1983; David, 1985), and it still largely does as Garud and Karnøe (2003) see it (see also Garud et al., 2010; Schubert et al., 2013; Sydow et al., 2012). To Djelic and Quack (2007), by contrast, path dependence pertains to the level of society (see also Bothello and Salles-Djelic, 2018). Sydow et al. (2009; see also Sydow et al., 2020) are concerned with organizational path dependence. Others regard path dependence as cognitive (Thrane et al., 2010) or strategic (Koch, 2011), or they apply it to knowledge (Zhang et al., 2023). In our structuration-based practice approach, levels of aggregation are more of an empirical than a theoretical issue. Whether a set of practices relates to a part of an organization, an entire organization, an interorganizational arrangement, an organizational field, or society at large depends on the process one has in mind, for each of these phenomena exist by way of enacted practices.

Our exploratory research question of how path production and path release relate to each other can be posed in terms of our practice-based approach: *In a set of practices how are practices released from path dependence to possibly becoming path dependent again*? We thus seek to combine path release with path production into an integrated theory of path constitution.

3. Research setting, design, and methods

We chose the field of recorded music for our investigation because it had seen the rise of an Internet-based digital music path utilizing MP3 and rivaling the existing CD-path. According to Rosenblatt (2018)—a study based on data from the Recording Industry Association of America (RIAA)—the CD and the MP3 signified the third and fourth eras in recorded music, which were preceded by vinyl and tape and succeeded by streaming. CD sales started in 1984 and peaked in 2000; MP3 downloads began in 1997, and their numbers soared as of 2004 (RIAA, 2023). Zentner (2006) saw a similar patterning based on data from the International Federation of the Phonographic Industry (IFPI). Our analysis extends from 1997, when MP3.com was established as the first business involving MP3 and the Internet, to 2004, the year in which online music distribution took off as part of a new MP3-based path, with Apple's iTunes Music Store and Napster-by-Roxio competing for customers.

With our research setting situated in the past but our research intended to add to theory about path constitution, our research design is best described as what Maclean et al. (2016) call "conceptualizing": using history to develop theory. It means marrying the requirements of historical analysis with the often-contradictory criteria for theory development (Kieser, 1994; Kipping and Lamberg, 2017; Rowlinson et al., 2014). We are in the paradoxical situation that, with path constitution, our ambition is best described as bringing "history *to* theory" for a theoretical approach that uses "history *in* theory" (Kipping and Üsdiken, 2014/italics in original). Combining historical analysis with theory development, we collected and analyzed historical data and evidence in two consecutive steps. Step 1, topic analysis, was aimed at letting historical data speak to provide an initial exploration of what has been going on in terms of practices and entrepreneurial activities. This

endeavor allowed us to concentrate on those developments that stood out as having a bearing on path constitution in our second step, longitudinal and historical analysis. It was during this second step that most of our theory development emerged.

3.1. Initial field exploration with topic modeling

Step 1, topic analysis, consisted of topic modeling combined with an initial analysis, all intended to give an overview of what had been occurring over the 1997–2004 period. Topic modeling is particularly suited to capturing the volume of activities in a field in which many actors use a variety of different practices and courses of conduct. It was therefore ideal for our study (Bohn and Rogge, 2022; Croidieu and Kim, 2018). We collected time-authentic data in the form of 8684 press releases on the usage of MP3[1] via PR Newswire, available at nexis.com. They are press releases from various sources, including large companies such as Apple, Microsoft, and Sony, but also from start-ups and smaller companies such as Diamond Multimedia, Napster, MP3.com, MusicMatch, and pressplay. Of course, press releases only reveal the part of the process about which they were issued. Activities that were not covered by a press release will be missed out on, so analyzing press releases is just a beginning. As primary data, press releases have the advantage that they are formulated and made public by actors heavily involved in the process. This characteristic sets press releases apart from sources such as trade journals, the contents of which have been influenced by editorial decisions. Fig. 1 affords an overview of press releases per year and some of the notable events in the process.

To analyze and systematically compare this large volume of data, we chose topic modeling (Latent Dirichlet Allocation, LDA), an unsupervised machine-learning approach (Hannigan et al., 2019; Schmiedel et al., 2019). Topic modeling enabled us to gain an initial understanding of what had been happening in the field of recorded music as far as the new MP3 technology was concerned. The topic-modeling algorithm offers statistical methods that compare texts and thereby discern latent patterns (Blei et al., 2003). These patterns, known as topics, are presented as clusters of words that frequently appear together. It is an unsupervised algorithm, meaning that topics are identified solely by the co-occurrence of words within the documents, not on predetermined guidelines. This capability allows us to adopt an explorative approach to the practices in the field and what is taking place with them (Bohn and Gümüsay, 2024; Croidieu and Kim, 2018).

For a topic-modeling analysis, several rendering procedures are necessary (Hannigan et al., 2019). We followed recommendations by Hannigan et al. (2019), Hickman et al. (2022), and Schmiedel et al. (2019) (see Appendix A). The final topic model consisted of 200 topics, with each topic being a distribution of words that are listed in Excel tables and visualized in word clouds. Table 1 offers examples of topics, the related word clouds, and representative text examples.

We then took each topic and subjected it to a coding exercise (with NVivo). We coded each topic independently (for a similar approach see Bohn and Gümüsay, 2024), using topic vocabulary (top 20 words), related press releases (with a high probability of occurrence; similar to Kaplan and Vakili, 2015, for instance) and the analyzing tool LDAVis (Sievert and Shirley, 2014). We found 49 topics that had to be dismissed for three reasons: (a) Nine topics had nothing to do with music. They were based on our sample's press releases that happened to contain letter combinations that matched one of the search terms. (b) Twenty-five topics were spurious because press releases had been grouped together because they shared some words by chance but had nothing further in common. (c) Fifteen topics had captured common activities such as announcing management appointments or quarterly or annual results. These notices are common reasons for press releases.

Of the remaining 151 topics, 59 were found to be indicative of a practice. A practice is recognized through its recurrence and what the practice is supposed to achieve. On closer inspection, 24 of these topics had captured the same practice. Consolidation of the practice topics left us 25 of them. However, it was only after the historical analysis of step 2 that we were able to recognize each of these 25 practice topics had captured only a course of conduct, some detail of the activity pertaining to a practice, or an enabler or constraint present in the depth of practice, rather than a whole practice. As will be explained below, in step 2 we identified the eight practices by which the recorded music field exists. This insight and the fact that the press releases pertained to MP3 made it plain that the courses of conduct with each practice at this stage were themselves relevant mainly to the new MP3-path. The eight practices that emerged were artist and repertoire development (A&R), contracting, recording, promotion, copyright management, reproduction, distribution, and listening. Appendix B presents an overview of the practice topics and how these topics map out over the practices in the field of recorded music.

We also found an initial 92 topics that can best be described as pertaining to entrepreneurial initiatives, with these initiatives understood as being a sequence of moves by various interested actors to establish or change something about the practices. On closer inspection, 18 of these initiatives—although referring to the MP3-format—were not in the field of recorded music. Another 21 topics were, in effect, duplicates and, after consolidating them, we ended up with 57 entrepreneurial initiatives. We attached the names of organizations to these entrepreneurial initiatives but stress that an initiative must be understood as consecutive moves, with the eponymous organization never being the only participant (see Appendix C for further explanation of what these initiatives were about).

The topic modeling and initial coding lent us a first broad insight into the multifaceted process of path constitution in the field of recorded music, for the data allowed us to recognize the presence of distinct practices and to make out several different entrepreneurial initiatives. This distinction also reflects the fact that, with our structuration-based practice approach to path constitution guiding the next step of our analysis, our methodology is best described as 'abductive' (Sætre and Van de Ven, 2021). Additionally, several topics were indicative of entrepreneurial initiatives, so we suspected that these initiatives would be relevant to how the practices evolve and contribute to path constitution.

3.2. Longitudinal analysis and historical investigation

For step 2 we adopted a more historical approach, concentrating on analyzing the effects of the entrepreneurial initiatives over time. As is common in historical and in process research (Gill et al., 2018; Langley, 1999), we developed historical accounts of the various entrepreneurial initiatives that we had encountered in step 1. Those press releases used for step 1 and found to pertain to any of the entrepreneurial initiatives changed from data for topic modeling into evidence, facilitating a historical investigation of these initiatives (Rowlinson et al., 2014). We supplemented our evidence base with additional press releases found through searches of the PR Newswire database, this time under search terms specific to the entrepreneurial initiatives. Because historical research relies on corroboration for internal validity, we opted for triangulation across different sources (Gill et al., 2018; Kipping et al., 2014). For this reason and to also capture what did not appear in the press releases, we fed further sources into the evidence base, striving to have at least two sources for each observation. Internet sources such as CNET.com, engadget.com, theregister.com, and theverge.com supplied contemporary accounts of what was going on, such as product reviews and journalistic reflections on the situation. Websites also featured retrospectives of what had taken place in the past, including interviews

[1] We used the following search terms: "digital music," "MP3," "WMA," and "WAV." The last three are digital-music file formats. MP3 became synonymous with "music file" in general; WMA was developed by Microsoft and WAV by IBM and Microsoft as rival formats.

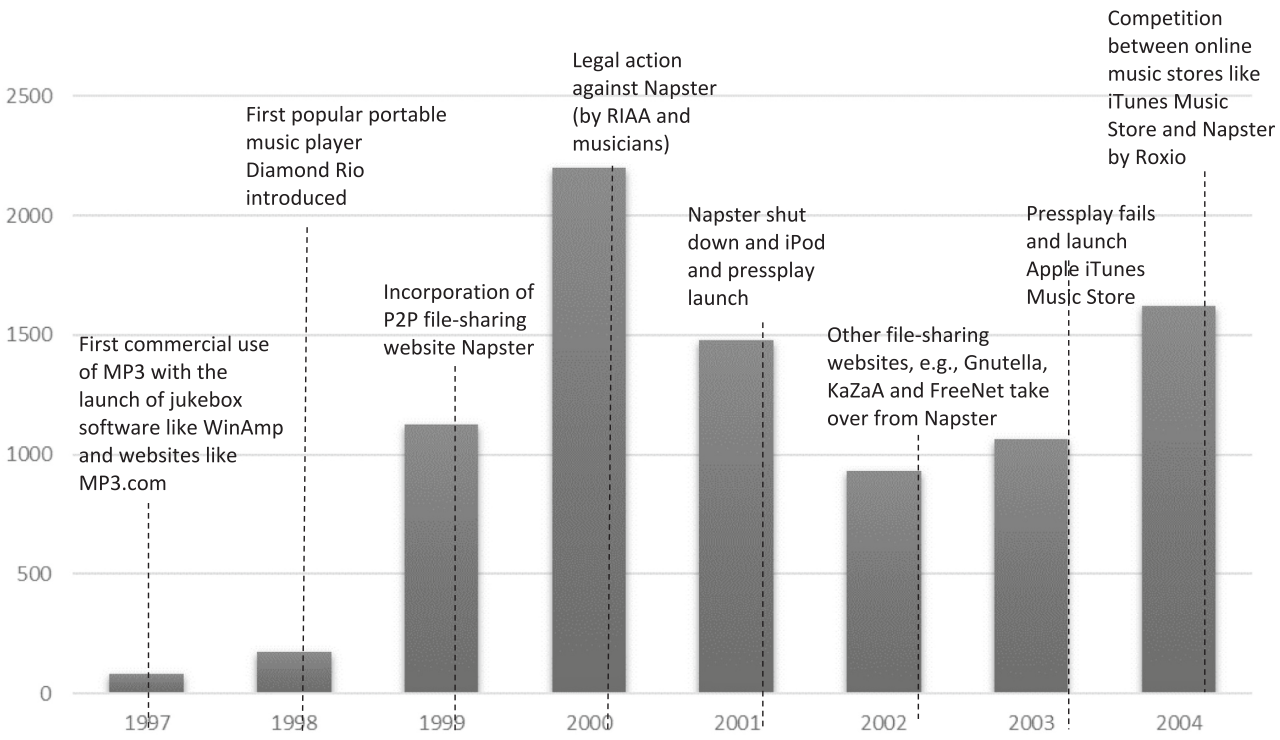
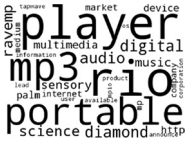
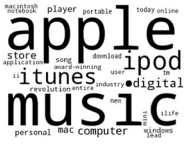
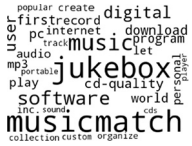


Fig. 1. Number of press releases and notable events.

Table 1
Topic examples.

Topic	Topic 19	Topic 17	Topic 125	Topic 143
Word cloud				
Text example	InterTrust (…) the leading developer of peer-to-peer, distributed digital rights management (DRM) technology, announced today that it will showcase its (…) software with Nokia (…) Nokia Music Player, which uses InterTrust's DRM technology for the secure delivery and persistent protection of digital music. (PR ID 4641_2001)	Diamond also introduced the world's first mass-market portable digital audio player in 1998, the Rio PMP300, bringing the term "MP3" broadly into the mainstream media. (PR ID 788_1999)	Apple has done a stellar job of expanding its brand into the digital music arena with its iPod portable player, iTunes software and this year's iTunes Music Store, which aims to satisfy both consumers and artists by making downloaded music legal and affordable. (PR ID 6074_2003)	MusicMatch and Xing Technology Corporation today announced MusicMatch Jukebox, the first completely integrated digital music management software for the home market. MusicMatch Jukebox allows people to build extensive collections of CD quality digital music on their PCs, consisting of music downloaded over the Internet and of tracks recorded from music CDs. (PR ID 211_1998)

with people who were involved. We consulted journalistic investigations (Menn, 2003; Witt, 2015), biographies of key people (Isaacson, 2015; Kahney, 2013; Lashinsky, 2012), and academic studies (Donahue, 2001; Guichardaz et al., 2019; Kunow et al., 2013; Leyshon, 2001; Leyshon et al., 2005; McCourt and Burkart, 2003; Tschmuck, 2012). These other sources reassured us that we were capturing the wider stories of the entrepreneurial initiatives appearing in the process (see Appendix D for more detail).

Coming to grips with the entrepreneurial initiatives and beginning to understand what moves were being made and why, we developed a hermeneutic interpretation (Kipping et al., 2014) by abductively taking concepts introduced in our theoretical framing and combining them (Sætre and Van de Ven, 2021) with our observations about our collected evidence. We took what we had learned about the practices in step 1 and combined it with what we learned from the historical accounts of the entrepreneurial initiatives, forming a basis for a synchronic analysis to specify how practices were being enacted and fit together in time. We thereby arrived at a more elaborate and finer-grained understanding of the practices than the topic analysis showed us, revealing more about the practices, alternative courses of conduct within each practice, and specific structural constraints and enablers that are peculiar to particular practices. This insight confirmed and added to the courses of conduct relevant for the MP3-path with each practice. Moreover, the historical analysis revealed the courses of conduct among the practices relevant for the CD-path. This additional insight then laid the basis for our first conceptual leap (Klag and Langley, 2013) in understanding how path dependence persists as a patterning of enactments among the practices. We observed this patterning to be occurring through what was being

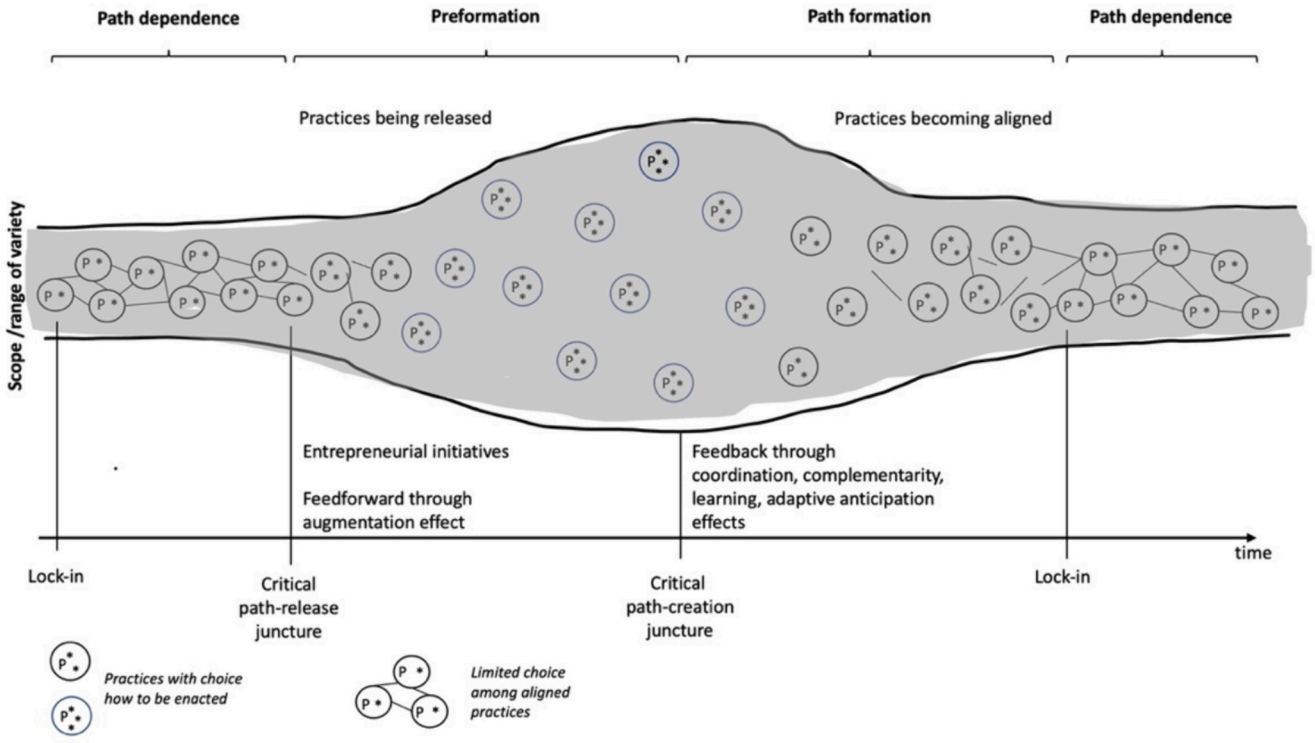


Fig. 2. Path constitution.

achieved with one practice and noted how these dynamics aligned with the enactments of other practices. Our historical approach can thus be regarded as "consequential" (Kipping and Lamberg, 2017).

The entrepreneurial initiatives then became the basis for further analysis—this time diachronic, that is, aimed at understanding how practices and their enactments developed over time. In this regard, too, we learned that the topic analysis had picked up on only some entrepreneurial initiatives, for we were able to identify additional ones. The analysis of the entrepreneurial initiatives promoted a second conceptual leap (Klag and Langley, 2013). It showed how choice within a practice expands and contracts and how such change liberates the enactments of practices from an existing path, making a new path become apparent also because enactments of newly appearing courses of conduct became path dependent again. We observed path release in that we saw new possible courses of conduct for practices emerge with the entrepreneurial initiatives and saw the enactment of that conduct. We noticed a new path being produced, for choice became restricted again—but involved new courses of conduct that had appeared with some of the entrepreneurial initiatives.

4. Findings: path constitution through path release and path production

Our findings confirmed that path dependence results from agency at a critical path-creation juncture, at which self-reinforcing feedback effects become manifest to produce path dependence, eventually leading to subsequent lock-in (e.g., Schreyögg and Sydow, 2011). Existing path dependence, however, entailed an additional path-release juncture and preformation period (see Fig. 2). If the path-creation juncture was about triggering a self-reinforcing centripetal feedback effect that limits choice, then the critical path-release juncture was about triggering a process of increasing choice and overcoming that path dependence and the limitations of lock-in, as suggested, but not yet elaborated (Sydow et al., 2020). More choice came about through an augmentation effect characterized by a self-emancipating centrifugal feedforward effect. More specifically, a critical path-release juncture came with affordances that inspire entrepreneurial initiatives, which generated more affordances,[2] generating additional initiatives and, eventually, more choice.

Path constitution—conceived here as subsequent and possibly repeated periods of preformation, path formation, and path dependence that are punctuated by critical path-creation junctures, lock-ins, and critical path-release junctures (see Fig. 2)—became apparent when we conceive of a field as existing by virtue of a set of interrelated practices. As stated in the section on "Initial field exploration with topic modeling" (3.1.), we define a practice as normally allowing for alternative courses of conduct, indicating choice within a practice. From this perspective activity ensuing from enaction of a practice when a particular course of conduct is embarked on (Sminia, 2011). We found there to be eight practices through which the field of recorded music exists: A&R development, contracting, recording, promotion, copyright management, reproduction, distribution, and listening. They all featured choice, at least in the preformation period, by way of alternative courses of conduct through which each practice could be enacted. The data also suggested that path dependence and a potential lock-in came about among the practices when a specific activity pattern of enactments appeared, with choice shrinking because the coordination, complementarity, learning, and expectation effects became operative.

This finding is explained in greater detail when we first report on how paths exist as a patterning in the enactment of practices with both the existing CD-path and the new MP3-path. We go on to explain how a critical path-release juncture was followed by the augmentation effect in the preformation period, which released the field from the CD-path though without breaking that path. We then elucidate how the MP3-path appeared in the wake of a critical path-creation juncture and the manifestation of the attendant coordination, complementarity, learning, and expectation effects.

[2] The notion of affordance originally was put forward by Gibson (1986) and derived from the verb "to afford," referring to a potential opportunity that is specific to a situation and the actor who notices it.

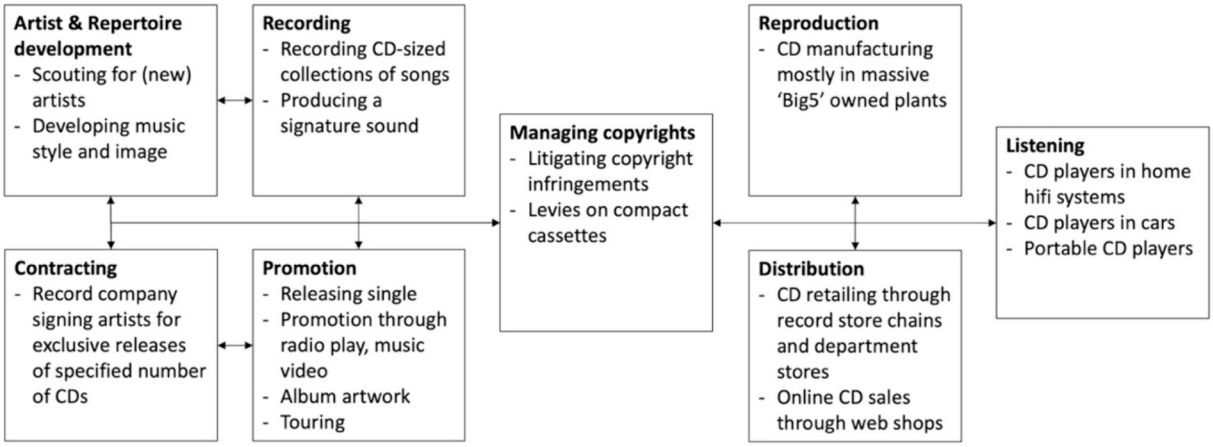


Fig. 3. The CD path as an activity pattern across recorded music field practices.

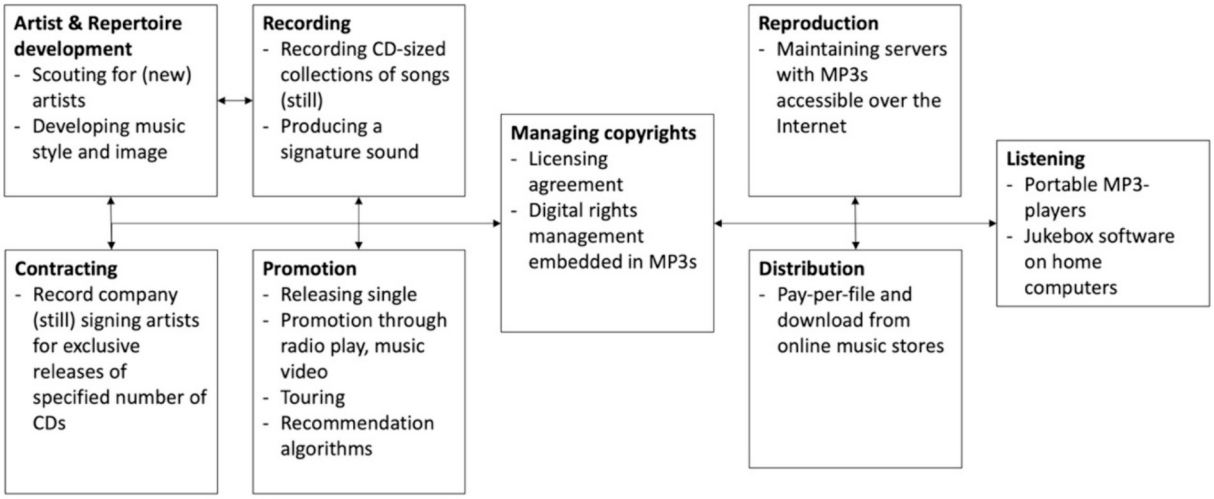


Fig. 4. The MP3 path as an activity pattern across recorded music field practices.

4.1. Path dependence as a patterning in enacting practices

Fig. 3 shows the activity pattern of the CD-path, which was present, albeit declining, throughout the 1997–2004 period. Each practice was enacted in a particular way because it was locked into path dependence. The coordination effect was operative because practices were organized and attuned to each other. For instance, the CD format indicated how much music there was to record with the recording practice. Contracting specified the number of CDs to be recorded for a record company. The CD represented a certain value that translated into a sales price that allowed for a profit margin in the distribution practice. Lastly, the agreed file format allowed for music to be put on CD in digital form in the reproduction practice, to be decoded again in a CD-player in the listening practice. The complementarity effect was present, with listeners buying more CDs because they have CD-players in their cars and at home, and record companies recorded music in album format to fit a CD because people kept buying them. A learning effect developed, for record companies became more efficient at manufacturing CDs in large numbers by investing in massive CD plants. And A&R development was geared to developing artists and their music on a CD-by-CD basis. The adaptive expectation effect was experienced by artists, who saw career success in terms of the number of CDs they record and how well these were selling.

Fig. 4 shows the same practices but with a different activity pattern typical of the MP3-path, for it had established itself by 2003. Again, there was path dependence, but with practices enacted differently than was the case along the CD-path, particularly with the listening, distribution, reproduction, and copyright management practices. The enactment of A&R development, contracting, recording, and promotion was still largely like the CD-path. However, there were signs that these four yet unaffected practices were beginning to show alternative enactments as well, according to which recorded music pertained increasingly to a single song or MP3-file, rather than to a collection of songs or an album that fits a CD. This new pattern started to show signs of path dependence by 2003, appearing with increasing frequency from then on.

A coordination effect was evident, with enactments taking place through which MP3s were reproduced and distributed over the Internet and listened to on MP3-players or home computers. After all, MP3s, as a compressed format that were much smaller than previous formats, made the files suitable for these courses of conduct with each of these practices. They could be processed within the limited capacities of the Internet, the computers, and MP3-players of that era.

There was a complementarity effect in that the availability of MP3s, Internet connections, home computers, and MP3-players allowed music files to be sold, downloaded, exchanged, and listened to, which then also created an adaptive expectation effect. It made more music available for downloading and led to development of more capable MP3-players because these courses of conduct were enacted more and more.

The learning effect was apparent, with people becoming adept at consuming recorded music as a music file, especially because the

portability of MP3-players and the convenience of having your music collection in your pocket increased the number of occasions for people to listen to music. Moreover, firms initially outside the field, such as Apple and Napster-by-Roxio, became engaged in it and realized that they could make money with recorded music.

4.2. The augmentation effect: CD-path release and MP3-path preformation

As depicted in Fig. 2, what we observed is that practices are released from path dependence during what we have labeled as the preformation period. This period is triggered by a critical release juncture. In our case, the critical release juncture was the invention of the MP3 file format. Such a juncture is critical because it generates new affordances that are picked up on by entrepreneurial initiatives. When these entrepreneurial initiatives generate more new affordances and when these affordances are also picked up on by more entrepreneurial initiatives, a self-emancipating centrifugal feeding forward dynamic of affordances and initiatives appears, which has an augmentation effect that leads to more choice, i.e., more courses of conduct becoming available to be enactable with the practices. With more courses of conduct becoming available for enactment, a set of practices then is released from path dependence.

To explain how choice increased in this preformation period, it is necessary to consider the detail and depth of the practices because changes there made affordances appear. Take the listening practice, for example. For the CD-path, the detail of the listening practice is about all the activities of handling a CD and using a CD-player. Depth is about this being technologically enabled and constrained by laser optics, electronic circuitry, and the mechanics by which the disk spins around. We can go even more deeply and look at the physics that allows this technology to work. Institutionally, using a CD relies on standards published by Sony and Philips in 1980. A contrasting description of the details of playing an MP3 features all the activities involved in using a portable MP3-player. The technological and institutional depth includes electronic circuitry and connectivity formats, such as USB, that allow a player to upload MP3-files. (Appendix B indicates more about the depth and detail of the different courses of conduct with each of the eight practices).

The MP3-format and software called L3Enc, created by the Fraunhofer Institute in Germany, served as the critical juncture for releasing the field of recorded music from the CD-path. It did so because this new file format changed some aspects in the detail and depth of the recorded music field practices, which in turn allowed for new affordances to appear. An affordance is defined in this context as an inspiration and invitation for imagined activity that deviates from the existing enactable courses of conduct within a particular practice that comes about with a change in circumstances (cf. Gibson, 1986). It is not possible to pin a path-release juncture down to a particular moment in time. Nor was it already determined from the outset that this new file format and this piece of software would eventually lead to the establishment of the MP3-path. Be that as it may, L3Enc was written in early 1995. It is a piece of software that enables a home computer to play MP3-files. Although MP3 refers to a file format with which to digitalize music, digitalized music already existed, with the format used for CDs being particularly prevalent. In the late 1990s file size was a constraint because the content on one CD exceeded both the capacity of home computer memories, which had just moved on from floppy disks to internal hard-disk drives, and Internet bandwidth, which limited the size of the data stream. MP3, by lifting the size constraint, allowed for new affordances.

The solution to the size constraint was to compress the amount of music data to make the file smaller without having an audible effect. The trick is to have the compression algorithms filter out information that is less important for the listening experience. The initial application of this technology was in movie soundtracks, with the Moving Picture Experts Group (MPEG) organizing a contest to establish an industry standard. Eventually, Fraunhofer and its MP3 format lost to the MUSICAM consortium and their MP2 format.

L3Enc was written in response to losing the contest and to provide an alternative application for MP3. It was made available for free. The MP3 file format in combination with L3Enc and WinPlay3, a later and more user-friendly version of L3Enc, offered new affordances to Internet communities who were exchanging shareware or free software through messenger groups. L3Enc and WinPlay3 made it feasible for computers to be used for listening to music as an alternative course of conduct in the listening practice. This software also had a capacity to rip CDs and turn songs into MP3s, enabling these Internet communities to start sharing music as well, opening an alternative course of conduct to buying CDs in the distribution practice. Sharing music had been impossible with the much larger CD files. By 1997 an MP3 had become known as a manageable music file. Justin Frenkel took the affordance of playing music on a computer as offered by WinPlay3 and turned it into an entrepreneurial initiative by creating Winamp. He also founded a firm dedicated to selling it. In 1997 Michael Robertson established MP3.com (E201),[3] the first firm based on the affordance of exchanging MP3s over the Internet.

The exchange of music files in Internet messenger groups is a primitive form of peer-to-peer (P2P) file-sharing, albeit flouting copyright legislation and inspired a movement that declared music should be free. L3Enc, WinPlay3, and Winamp were the first incarnations of what was later referred to as “jukebox software,” which made the use of a computer possible as a course of conduct in the listening practice. MP3.com was the first experiment in commercializing MP3s through a website. It was presented as a facility for unsigned music artists who were made to pay for making their music available to the listening public and who could use it as a promotional tool to be signed up by a record company as part of the A&R practice. Furthermore, 1997 was the year that mention of MP3 appeared in press releases for the very first time.

The affordance of exchanging MP3s over the Internet inspired many more entrepreneurial initiatives to establish music websites, such as Emusic (E210), Epitonic.com (E181), Mjuice.com (E166), Musicmaker.com (E75), musicmusicmusic (E185), and Virgin Digital (E100). They experimented with different courses of conduct, offering subscriptions for a set number of downloads per month, a pay-per-file download system, or downloads that were free but laced with advertising. Alternatives such as Virgin Jamcast (E113), which offered a streaming model, and Live365 (E89), which tried out Internet radio, were launched as well. MP3.com also inverted its business model around by beginning to charge the listening public rather than the budding music artist. This growing cascade of entrepreneurial initiatives added more courses of conduct and further choice to the distribution practice, all drawing on affordances that came with the Internet and the MP3 format. Additionally, parallel initiatives such as Liquid Audio (E28), Loudeye (E202), RealNetworks (E218), and Supertracks (E117), but also MP3.com, worked in the depth of these new courses of conduct by concentrating on developing software, webservices, and the infrastructure that make these websites work. This includes experimentation in the reproduction practice on how webservers containing databases full of MP3s and metadata (e.g., Gracenote [E99]) can service music websites. Such initiatives in the depth of the practices underpinned emerging courses of conduct by making them better enactable. These initiatives also develop the detail of how courses of conducted are to be enacted.

What we have described in the preceding paragraphs is the augmentation effect starting to emerge with various entrepreneurs embarking on entrepreneurial initiatives, in effect experimenting with initial new affordances that appeared with the critical path-release juncture of the new MP3-format. Many of these experiments, in turn, generated additional new affordances, notably in the depth of a practice

[3] These codes refer to entrepreneurial initiatives that were identified through our topic analysis. Initiatives without a code are those identified in the historical investigation.

to sort out the detail and enactability of a new course of conduct, to which entrepreneurs reacted with more entrepreneurial initiatives and experimentation, resulting in still more affordances. When the imagined activity becomes enactable, the chain reaction of entrepreneurial initiatives, experimentation and proliferation of affordances gives rise to additional courses of conduct, resulting in more choice being established within the practices.

Nevertheless, such proliferation of affordances and the experimentation through entrepreneurial initiatives can run into trouble. One problem that all these music websites experienced lay in the lack of accessibility to music that people wanted to listen to. The so-called Big5 record companies—at that time BMG, EMI, Sony, Universal, and Warner—all refused to make their music available. The music that did become accessible on these websites was either sourced from unsigned artists or from the many small independent record labels that had no objection to having an alternative outlet.

However, entrepreneurial initiatives based on the P2P model for exchanging MP3s in the reproduction and distribution practices had no difficulty sourcing music. The most notorious initiative in this regard was Napster (E123), founded as a company in 1999. It had developed from Shawn Fanning's writing of what came to be known as P2P file-sharing software. He found that exchanging files in the early Internet messenger groups was very cumbersome, an issue that, as an affordance, inspired him to write software that automated the search and download process. With the jukebox software, the files were ripped from people's CD collections, or at some point even from CDs stolen from CD factories before their official release. During Napster's short existence it was engaged solely in maintaining a P2P file-sharing website as a course of conduct in the distribution practice and in developing the underlying software in the depth of this course of conduct. Napster offered its services for free and, in doing so, ignored copyright legislation. The company never made any money.

What Napster did was an institutional experiment by ignoring copyright legislation as a new course of conduct in the copyright-management practice. Through RIAA, record companies initiated legal proceedings against Napster and its users. This response by RIAA succeeded, with Napster being forced to go offline in 2001 and into bankruptcy in 2002. Nonetheless, Napster was superseded by alternative P2P websites such as Gnutella, KaZaA and FreeNet. Drawing on the same affordances, they could not be stopped by legal means because of how they were organized. Parallel to this development, initiatives like Cyberkey (E45), InterTrust (E19), and NTRU (E88) developed technical solutions in the depth of what became known as Digital Rights Management (DRM) to restrict the ability to listen to and distribute MP3s outside the official channels, in effect developing a new and alternative course of conduct for copyright management.

Two more strings of initiatives afforded by MP3s and adding to the augmentation effect emerged as of 1997, both regarding the listening practice. One string followed on from Winamp through development of jukebox software. This included MusicMatch (E219), RealPlayer by RealNetworks, and Soundjam. These initiatives firmly established home computers as a course of conduct for listening to MP3s. If a computer had a CD-ROM drive, it could already act as a CD-player and as such was part of the CD-path. However, with jukebox software, the computer became recognized as a device that could not only play MP3s but also rip CDs and convert their content into MP3-files.

The other string of initiatives in the listening practice was about MP3-players. The MPMan F10 was the first commercially available player, introduced in March 1997 by Eiger (E66). This device, manufactured by the South Korean firm Seahan, had a 32 MB memory that allowed for six to eight songs. It was quickly followed by Creative Technology (E72) and Diamond (E17). Creative Technology developed a succession of players branded as Nomad. Diamond was responsible for the RIO series of players. These devices, too, initially had small memories. The Apple iPod was relatively belated, the first one (E125) being introduced in 2001. This first-generation iPod could hold approximately 1500 songs in 10GB of memory, compared to the then current RIO (only 64 MB) and Nomad (6GB). Apple's first iPod had a miniature hard disk just developed by Toshiba, which negated the use of limited capacity memory chips. This narrative illustrates how entrepreneurial initiatives that increase choice by adding alternative courses of conduct to a practice rely on further initiatives by which more affordances appear in the depth of a practice. In this instance it was about a component that increases the capability of a device used for these activities.

This cascade of entrepreneurial initiatives and increasing affordances shows the augmentation effect in the preformation period in operation. It set in with affordances that first arose with the MP3-format, with early initiatives creating additional affordances that fed forward into later initiatives. They eventually encompassed new and alternative courses of conduct and, hence, increased choice about how copyrights, reproduction, distribution, and listening practices could be enacted. The MP3-format as a critical release juncture set in motion a cumulative self-emancipating centrifugal feedforward dynamic of affordances and entrepreneurial initiatives. These initiatives worked in the depth of a practice by experimenting with technological and institutional aspects of a new course of conduct and developed the detail of the activities through which a new course of conduct within a practice was to be enacted. With mounting choice, the field of recorded music experienced release from the CD-path as the preformation period of a new MP3-path was happening. The augmentation effect is self-emancipating because it developed its own momentum by generating affordances, entrepreneurial initiatives, and choice.

4.3. *The feedback effects: MP3-path production*

We also observed a period of path formation by which a new MP3-path was produced. This period followed on from the preformation period by which the recorded music field was released from the CD-path. As illustrated in Fig. 2, path formation is triggered by a critical path-creation juncture that sets a self-reinforcing centripetal feedback dynamic in operation that eventually limits choice regarding how practices are enacted. The critical path-creation juncture in our case is marked by the incorporation of pressplay, an entrepreneurial initiative of the Big5 record companies. From this juncture, feedback started to appear across practices with specific courses of conduct. This feedback could emerge because courses of conduct across practices became aligned in way so that enacting a course of conduct in one practice requires or feeds into a specific course of conduct of other practices in the whole set of practices This mutual prompting between practices – as will be explained below - is at the heart of the coordination, complementarity, learning, and adaptive anticipation effects as put forward by, eventually resulting in the MP3-path illustrated in Fig. 3 and described in Section 4.1. When this alignment is absent, we argue, these four effects will not occur.

Again, it is difficult to pinpoint the exact moment of the critical path-creation juncture, but it coincided approximately with the 2001 founding of pressplay, the music website incorporated by the then Big5 record companies. This incorporation was preceded by a now infamous meeting of record company executives on 24 February 2000, the day after the Grammy Awards. In that meeting the participants were challenged to check the availability of any song for download from a P2P website. To their astonishment, and despite all their efforts invested in copyright litigation, every song they chose was available, even songs that had not yet been officially released. This experience made them realize that the Internet, as an alternative course of conduct in the distribution practice, could no longer be resisted.

The entrepreneurial initiative of pressplay began as a joint venture between Sony and Universal. Simultaneously, BMG, EMI, and Warner incorporated Musicnet (E157). The two amalgamated almost immediately, retaining the pressplay name. It is another music website, yet unlike all previous initiatives, it is furnished with licensing agreements from the Big5. A licensing agreement is an alternative course of conduct to ignoring copyrights as enacted by the P2P websites in the copyright-

management practice. The course of conduct in the distribution practice offered by pressplay is subscription packages that provide a way of streaming songs to be listened to on a home computer, but only a few may be downloaded, with quantity depending on the monthly fee. Because the Big5 were paranoid about piracy, the DRM that was deployed in the copyright-management practice meant that MP3s available through pressplay could not be copied and therefore not uploaded to MP3-players. Such restrictions meant that few downloaded or streamed MP3s could still be listened to. The course of conduct that was permitted in the listening practice was therefore highly impracticable. Consequently, pressplay was not a commercial success.

What made this initiative a critical path-creation juncture is that it started to allow for coordination, complementarity, learning, and expectation effects to appear because practices became aligned. The feedback could flow between new reproduction and distribution courses of conduct involving MP3s. In the reproduction practice, servers holding MP3-files were already linked to music websites in the distribution practice. Pressplay relied on software in the depth of these courses of conduct, developed by MP3.com, to do this. What was new with pressplay was the copyright-management practice being enacted by way of license agreements and DRM (furnished by Microsoft in this case). This made pressplay the mark for the critical path-creation juncture because the Big5's A&R development, contracting, recording, and promotion practices are now supplying the servers in the reproduction practice, which in turn linked up with the pressplay website in the distribution practice. This alignment between courses of conduct across these practices, which now includes the Big5's creative practices, is particularly important because it took music that people wanted to listen to and made it legally available. However, pressplay failed commercially because the listening practice was not allowed to align with the other practices. The Big5 picked a course of conduct in the copyright-management practice with very restrictive DRM, which made it almost impossible to listen to music. With pressplay, the MP3-path was not yet established, nor had it become inevitable that the MP3 would be established. The contours had begun to appear, however.

In April 2003, Apple introduced the iTunes Music Store (E125). Steve Jobs personally met with CEOs of the Big5 to persuade them to license their music to Apple. Because pressplay was failing, because the CEOs were offered $0.70 from the $0.99 price for a download, and because DRM was to be applied, they agreed one by one. Steve Jobs' offer incorporated the newly established, but specific, courses of conduct and their alignment, which came with the pressplay initiative, albeit all geared to Apple variants. Additionally, the listening practice became aligned as well, as it incorporated Apple's iPod. The iTunes Music Store worked as part of iTunes jukebox software, which was already the means to upload songs to the iPod. Apple had acquired the jukebox software firm Soundjam in 2000, renamed it as iTunes, and made it available for free on all Macs. At the time it was just a ploy to sell more computers. The iPod was developed and introduced in 2001 for a similar reason: to establish an Apple universe of applications and devices that centered on the Mac. iTunes was updated with a facility to upload MP3s to the iPod. Dissatisfied with the limited availability of music, and given pressplay's failure to deliver, Apple established its own music website, the iTunes Music Store. Recognizing that the website had commercial potential beyond the Apple universe, Apple added a Windows version a year later. The iTunes Music store used the pay-per-file option within the distribution over the Internet's course of conduct. Unlike pressplay, the Apple initiative with the iPod enabled that feedback to flow across all practices as specific courses of conduct in each practice became aligned.

It was not just the Apple initiative that helped the MP3-path begin to take shape. Roxio (E2) had bought Napster out of bankruptcy and had also acquired pressplay—including its licensing agreements—after the Big5 had abandoned it. Roxio relaunched Napster as a legal music website in October 2003. As a rival to the iTunes Music Store, Napster-by-Roxio facilitated the use of RIO and Nomad MP3-players, which by then had memories that rivaled the iPod. This initiative, too, aligned the Big5's creative practices through licensing agreements and DRM for copyright management, a music website in the distribution practice, web servers with MP3s in the reproduction practice, and jukebox software and MP3-players in the listening practice.

The Apple and Napster-by-Roxio initiatives not only made it possible to enact the practices in the field of recorded music differently than with the CD-path; the initiatives also added to them. The practices subsequently had specific, but new, courses of conduct aligned with each other. As a result, the effects of coordination, complementarity, learning, and expectation started to produce the feedback by which choice became subject to limitations (albeit now as the MP3-path), generating the patterning explained above (in Section 4.1.). In 2004 Apple and Napster-by-Roxio were tipped as the two principal competitors in music distribution over the Internet. In addition, the volume of downloaded music increased significantly, whereas CD sales were in decline.

5. Discussion and conclusion

Drawing on a practice-based approach informed by structuration theory (Giddens, 1984), we asked *how practices are released from path dependence to possibly becoming path dependent again*? To answer this question, we developed an integrated theory of path constitution by distinguishing not only between entrepreneurial initiatives and practices but also more explicitly between junctures and periods (Marquis and Qiao, 2024). Path constitution is presented as successive periods of preformation, path formation, and path dependence, punctuated with a critical path-creation juncture and lock-in, and a critical path-release juncture for when choice is to be liberated from path dependence. In the sections that follow we show the strengths of such a practice-based perspective on path constitution and discuss our contributions to theory. We conclude by outlining limitations and future research opportunities.

5.1. Contribution to theory

Path dependence was observed in a set of practices as a patterning among the courses of conduct that are enacted with each practice. This idea of patterning by itself already further specifies how path dependence occurs. This conceptualization relies on a practice being defined as "a capability of doing things" (Giddens, 1984, p. 9) and normally allowing for several alternative courses of conduct for enaction to achieve these things (Sminia, 2011). Among the set of practices by which the field of recorded music existed between 1997 and 2004, the CD-path was present throughout this period. During that period, we saw what we called the MP3-path being produced without the CD-path having been broken. With the new path, some practices (A&R, contracting, recording, and promotion) were enacted in the same way as before. Others (copyright management, reproduction, distribution, and listening) were enacted differently. Because both paths existed during the period under study, we found that they are not mutually exclusive, as those who argue for path-breaking have suggested (De Groote and Kammerlander, 2023; Stache and Sydow, 2023). Rather, the two paths coexist and may even overlap in the enactment of some practices and/or in the light of new courses of conduct. A structuration-based practice perspective permits such a differentiated analysis and prevents us from prematurely concluding that one path has been either replaced by or transformed into another.

To explain the production of a new path in relation to an existing one, we proposed the notion of a critical path-release juncture that allows for a new preformation period to commence as the enactments of practices are being liberated from an existing path. We thereby supplement theory that concentrates mostly on path production (Djelic and Quack, 2007; Dobusch and Schüßler, 2013; Garud and Karnøe, 2001, 2003; Garud et al., 2010; Karnøe and Garud, 1998; Schreyögg and Sydow, 2011; Sydow et al., 2009) with path release to formulate a more integrated theory of path constitution. A critical path-release juncture

comes with new affordances that can be seized upon and developed into entrepreneurial initiatives. These initiatives pertain to possibly new courses of conduct for one or more practices or to changes in the detail or depth of an existing practice. Detail, as shown, refers to the specific activities by which a practice is enacted, whereas depth refers to the rules and resources that enable and constrain the enactment of a practice. The critical path-release juncture that we identified is the appearance of the MP3 file format and a piece of software called L3En as early as 1995. The affordances that came with this is the possibility of playing recorded music with a home computer and of transferring music files over the Internet. By 1997 the first entrepreneurial initiatives that made use of these affordances appeared with WinPlay3 and MP3.com.

Despite the lack of commercial success of many initiatives, these two instigated an overall augmentation effect that was operative in the preformation period. This augmentation effect was characterized by a self-emancipating centrifugal feedforward dynamic with initial affordances taken up and developed into entrepreneurial initiatives, momentum that generated additional new affordances that, in turn, developed into further initiatives. This proliferation of initiatives eventually developed into several new enactable courses of conduct, which added choice to the way in which practices could be enacted. Practices were thereby released from existing path dependence. This henceforth more integrated theory of path constitution shows how path release relates to path dependence. Moreover, it explains how choice can be emancipated from the restrictions posed by path dependence.

As expected on the basis of the existing literature (Dobusch and Schüßler, 2013; Schreyögg and Sydow, 2011; Sydow et al., 2009, 2020), the path-formation period includes the positive feedback of coordination, complementarity, learning, and expectation effects. These effects generated a self-reinforcing centripetal dynamic that limited choice and led to path dependence and, potentially, to lock-in. The critical path-creation juncture that we observed was the founding of pressplay in 2001. Although this entrepreneurial initiative, too, was commercially unsuccessful, it was crucial for aligning some of the new courses of conduct in the practices of reproduction, distribution, listening, and copyright management, which then elicited positive feedback among them. Indeed, each practice had a specific course of conduct that, when enacted in conjunction, created an overall improved overall experience. By 2004 the patterning that was appearing was in the process of becoming the new MP3-path, with Apple and Napster-by-Roxio positioned to take advantage of it.

Although we did not observe path-breaking (De Groote and Kammerlander, 2023; Stache and Sydow, 2023), our model does not exclude the possibility of it. We observed that paths can coexist in a field (Bergek and Onufrey, 2013; Onufrey and Bergek, 2015; Simmie, 2012), even within one organization (Zientara and Müller-Seitz, 2024), and are not necessarily mutually exclusive in terms of courses of conduct, but path release and the production of a new path can well lead to the demise of an existing path. What we suggest is that path-breaking is not necessary for a new path to surface, as some path-dependence researchers have assumed (e.g., Stache and Sydow, 2023). What we did observe and what the model allows for is path-defending, that is, resistance to path release and disinclination to join in the production of a new path. These responses appeared mostly during some entrepreneurial initiatives, even despite counterinitiatives that were taken. It would be enlightening to conduct further research into whether and how some entrepreneurial initiatives become a pivotal battleground for path release and path production. Moreover, our model is consistent with path plasticity (Storz, 2008) in that choice is rarely eliminated completely and that alternative courses of conduct can remain in the background. It is more a matter of whether courses of conduct become more or rather less enactable as path dependence grows. In our model, a weakening of path dependence with the enactability of alternative courses of conduct increasing can even account for path extension (Sydow et al., 2012).

What our findings suggest is that innovation entailing the emancipation of choice from path dependence requires many entrepreneurial initiatives. Entrepreneurial initiatives can fail commercially but can nevertheless appear to be critical for path release or path production. Rather than investigating innovation and entrepreneurship by studying individual initiatives or characteristics of the entrepreneurial ecosystem, researchers must regard entrepreneurial initiatives as wavelike, with many foundering along the way. More specifically, an entrepreneurial initiative is to be conceived as a sequence of moves to have practices enacted differently either by targeting one or more practices through new activities in the detail of alternative courses of conduct or by trying to change structural arrangements of rules and resources in the depth of a practice. Failure or success depends on whether and how these alternative courses of conduct become part of a newly established path.

As for the role of agency in path constitution (see Fortwengel and Keller, 2020), we agree with Garud and Karnøe (2001, 2003) that individuals such as Michael Robertson from MP3.com, Shawn Fanning from Napster, and Steve Jobs from Apple appear as important actors in initiatives. We also have evidence of many other individuals who made contributions. However, we argue that their effect depends heavily on what else is going on around them. We have found contributions by collectives such as organizations, interorganizational alliances, associations, communities, and crowds (Sydow et al., 2012). A prime example of a collective agent in our case is RIAA, acting on behalf of the record companies, especially the Big5, by tracking down copyright infringements. Moreover, agency in terms of increasing and limiting choice within a practice does not fluctuate solely with the existence of path dependence. Opportunities to interfere more strategically in path constitution depend on whether critical path-release and path-creation junctures have come about and whether the field is going through a period of preformation or rather of formation. The former is characterized by more openness to alternative courses of conduct than the latter is.

5.2. Limitations and suggestions for further research

Our practice-based approach on path constitution has allowed us to explain how path release contributes to the emancipation from an existing path, yet it also has its limitations.

First, the data that we used for the topic analysis and the evidence that was obtainable for the longitudinal historical analysis all come with caveats. A press release covers only those events about which it was issued. Historical evidence, too, is selective in that a historian must work with what can be made available and to make choices as to how the past is to be reconstructed based on those sources. Furthermore, use of secondary data and evidence, which is common for historians (see Rowlinson et al., 2014) and not uncommon in the study of practices (see Bohn and Gümüsay, 2024), did not enable us to observe practices and their enactments in situated action. To explain why people enact practices in particular ways, researchers would do well to focus on them doing just that—ideally in a real-time fashion. In all these moments that a practitioner enacts a practice by opting for a specific cause of action, what goes in to making this choice? How exactly do considerations of enact-ability play a part?

Second, we focus on the specific case of the MP3-path within the recorded music field and thus on one of the earlier disruptions afforded by digital technology (Bohnsack et al., 2021). While this case is indicative of a release from the choice constraints imposed by path dependence, it remains a single historical case study. It is worthwhile to investigate our integrated path constitution model's transferability (Van de Ven, 2007) by delving into other cases focusing, for instance, on the emergence of new practices and how they contribute to path release.

In this respect, it would be instructive to look at paths that currently are being challenged by novel ideas and technologies that could function as a path release juncture. An example is generative AI. This technology is currently playing out by way of uniquely human courses of conduct, such as creative writing, possibly being replaced by courses of conduct involving a technology that helps perform them. What our theory

suggests is that the affordances that come with AI will develop into waves of entrepreneurial initiatives, with ChatGPT by Open AI being just one prominent example of many. It tells us these initiatives need each other to have choice emancipated from an incumbent path and to produce a new path, yet these initiatives also compete to become part of a new path that is still in the making. However, given that this is how the process plays out, we know little about what it is about entrepreneurial initiatives that makes some of them to become successful while others fall by the wayside as they all contribute to path release and path production. Does the way in which an entrepreneurial initiative is managed makes a difference for its success as path constitution plays out and to what extend can we attribute this success to the activities of an entrepreneur?

Finally, we observed that path release does not happen uncontested. The record companies initially resisted the use of MP3s in the recorded music field. We mentioned the possibility of path defenders appearing, but did not elaborate on them very much. Their effect on the process of path constitution needs to be further investigated. Again, generative AI is an area where this could be done. However, energy transition, where many incumbents associated with fossil fuels react to entrepreneurial initiatives that involve alternative power applications would also be an interesting process to study, especially because there are so many alternatives that currently are being pursued. How do path defenders resist path release and prevent the production of a new path, or at least remain relevant for a new path that is being produced?

Furthermore, because our theory in effect explicates how innovation is playing out as a process of path constitution, it can guide those who participate in it. Seeing how alternative courses of conduct with various practices become enactable because new affordances that come with a new technology as a path release juncture lead to a proliferation of entrepreneurial initiatives with many of these initiatives failing yet contributing to path release, and as the augmentation effect becomes operational, all of this would indicate the likelihood of a field opening up to the possibility of a new path and an innovation becoming feasible. The way in which new courses of conduct of various practices in the field starting to align following a path creation juncture indicates the way in which a possible new path can take shape and what the innovation is going to look like. For example, whether energy is going to be produced and used differently, or whether AI allows for practices to be enacted differently, firstly, depends on whether path release is accomplished and, secondly, on whether and which new courses of conduct subsequently align to allow for the four feedback effects to occur, which makes path production happen as a patterning among practices.

Albeit, path constitution, despite the importance of self-reinforcing dynamics, by and large is indeterministic. The invention of the MP3 file format did not make it inevitable that Apple and Roxio became the two main rivels with the pay-per-file business model and that we would be using portable MP3-players to listen to music. However, while the process is progressing, our model allows for it to be 'readable' in terms of whether release is happening and how a new path is taking shape. Moreover, the model recognizes that innovation relies on many initiatives and involves changes across the practices in a field as well as in the depth and the detail of individual practices.

CRediT authorship contribution statement

Harry Sminia: Writing – review & editing, Writing – original draft, Methodology, Investigation, Conceptualization. **Stephan Bohn:** Writing – review & editing, Methodology, Conceptualization. **Jörg Sydow:** Writing – review & editing, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Rendering topic models and best practices for reporting text mining

For a topic modeling analysis, several rendering procedures are necessary (Hannigan et al., 2019; Schmiedel et al., 2019). First, we had to make the texts machine-readable, meaning that a tokenizer divided the text into single words. We used part-of-speech tagging and lemmatizing (DiMaggio et al., 2013; Schmiedel et al., 2019) to make the texts easier for the algorithm to analyze (see Table A1). Part-of-speech tagging is a classification process that aims to assign a particular part of speech to each word in the corpus. This procedure allowed us to filter the corpus for meaningful words like nouns and adjectives and to exclude, for example, articles or relative pronouns. Second, we used lemmatizing to group the inflected forms of a word (e.g., supporting, supported, support transformed to its base form; support). Both procedures make the topic-modeling algorithm faster and increase the quality of the findings (Hickman et al., 2022) because topics consisting solely of different declensions of the same word will be avoided (Schmiedel et al., 2019).

Table A1
Best practices for reporting text mining (Hickman et al., 2022).

	Best practice reporting
Source of data	8684 press releases
Preprocessing	Tokenizer; lower-case conversation; stop word removal (extremely common words like auxiliaries); POS-tagging and removing meaningless words like prepositions, articles, or relative pronouns; lemmatizing (Hannigan et al., 2019; Hickman et al., 2022; Schmiedel et al., 2019)
Software and version used	Python 3.X, lda 1.0.5 package (https://pypi.python.org/pypi/lda); beta = 0.01, alpha = 1/K (K = number of topics) and tmtoolkit (Konrad, 2020)

We then used standard software (python and the LDA package; see Hannigan et al., 2019; Nelson, 2020) to calculate 8 models from 50 to 400 topics (50, 75, 100, 150, 200, 250, 300, 400) based on the complete sample of 8684 texts. The specific python code is available from the authors. In line with DiMaggio et al. (2013), we evaluated each of the models and selected the model with 200 topics because that number aligned best with the aims of the study in terms of interpretability (logic-of-fit in terms of Hannigan et al., 2019). The model needed to be fine-grained enough to capture the theoretical categories, especially the practices. The smaller models (50 and 100 topics) were unable to provide sufficient distinction; they often grouped different issues or practices together in one topic. Conversely, the models with 300 and 400 topics produced more noise, that is, topics that could not be interpreted.

Appendix B. Practices of the recorded music field

Appendix Table B1 provides an overview of the practices in the field of recorded music that have been identified and through which this field exists. It concentrates mostly on depicting alternative courses of conduct for the copyright-management, reproduction, distribution, and listening practices because that is where alternative courses of conduct appeared as a consequence of the many entrepreneurial initiatives involved. Table B1 is designed so that it can be read from left to right, practice-by-practice, starting with the column labeled as "practice." This column contains the eight recorded music-field practices that have been identified.

Appendix Table B1
Overview of the practices of the recorded music field.

#	Practice		Alternative courses of conduct enactable through specific activities referred to as the detail of a practice		Enabler/constraint in the depth of a practice as pertaining to a course of conduct within a practice	
		A&R development				
		Contracting	By independent record company			
			By major record company			
		Recording				
129			Digitally		Editing software	
170					MP3 keyboard	
		Promotion	For signed artists			
	Creative practices		For unsigned artists	Using website	Recommendation algorithms	
14					"Payback-for-playback"	
90						
		Copyright management	With Digital Rights Management (DRM)		SDMI	
					Fingerprint software	
108			With licensing agreements			
137			With litigation			
			By ignoring the law			
		Reproduction	With CD manufacturing plants			
			With servers linked to an online music store			
			By ripping CDs and linking to a P2P website			
210						
					Web services	Streaming server software
						Distributed content architecture
					Encoding service	
22					Music recommendation software	
82					Music search software	
214					Payment technology	
					Metadata	.
						Music recognition software
53			Via the Internet			
		Distributing		By streaming muzak		Music box
						eJukebox
57				With a subscription		
211				By streaming		
				By paying-per-file		
				For free with added advertising		
				For free	P2P software	
128						Malware
				For free with added promotion		
			On CD	Through a website		
				Through retail store		
24					Sound quality enhancer	
212			With a home computer		Jukebox software	
63					Data storage	
208					Data-processing	
					File management	
10		Listening				
24				.	Sound quality enhancer	
205						
43			With a music player		Power management	
				That is portable (MP3-player)		
126					Connectivity	USB
						Firewire / IEEE-1394 standard

(*continued on next page*)

Appendix Table B1 (*continued*)

#	Practice	Alternative courses of conduct enactable through specific activities referred to as the detail of a practice	Enabler/constraint in the depth of a practice as pertaining to a course of conduct within a practice	
206			Data storage	Hard-disk drive Solid state
208			Data-processing	
204		That is part of a home hi-fi system		
207		Mounted in car		
		With CD-player in home hi-fi		
		With CD-player in a car		

The column to the right of the one headed "practice" identifies courses of conduct for each practice. In several instances, this column is subdivided into two because some courses of conduct entail subcourses. In the case of "listening with music player", for example, one can use a portable MP3-player, an MP3 capable music player that is part of a home hi-fi system, or an MP3-capable music player that is mounted in a car. The specific activities through which a course of conduct is enacted are referred to as the detail of a practice.

The column at the far right provides information about enablers and constraints relating to each course of conduct, or being in the "depth" of a practice. For instance, the MP3-player requires power management, connectivity with a computer, data storage, data-processing, an audio amplifier, and headphones to make it work. This column, too, is divided into two in some places in order to make further distinctions.

We found that the topic modeling did not generate topics that capture a whole practice. The practices in the field of recorded music were identified through historical analysis, after which we discovered that the identified topics of practice could be classified as courses of conduct or as enablers/constraints with the recorded music field practices, though mostly referring to courses of conduct relevant to MP3 rather than CD. What we found out about depth and detail of courses of conduct relevant for the CD-path surfaced during the historical analysis.

The numbers in the first column are topic numbers from the topic modeling in step 1. Rows without a topic number indicate that we became aware of the named practice or of specifics about it through the historical analysis conducted in step 2. What this distinction shows is that the practice topics that surfaced through the topic modeling captured either a course of conduct within a practice or an enabler/constraint for a course of conduct. Step 2 enabled us to put the topic analysis findings into perspective, for we identified the practices in the field of recorded music and more detail about those practices and the alternative courses of conduct between them.

Appendix Table B2 contains short descriptions of the 25 practice topics that were identified with the topic modeling. The first column in the table refers to the topic numbers of an identified course of conduct or constraint/enabler that was subsequently recognized through the historical analysis as being part of one of the eight field practices. Brief descriptions of the topics are in the second column. Numbers above 200 indicate that these topics have been consolidated.

Appendix Table B2
Detail of practice identified by the topic modeling in step 1.

#	Description of practice
10	Listening to music with an MP3-player is a course of conduct within the listening practice. The MP3-player is a device that plays compressed music files. Activities include connecting the device to a home computer, uploading files into its internal memory, navigating songs on the device, and choosing which songs to listen to.
14	'Payback-for-playback' is an enabler in the promotion practice for courses of conduct that use a website to promote unsigned artists. This practice refers to a program run by MP3.com through which unsigned artists who uploaded their songs onto the MP3.com website would be paid, depending on how many times their songs were downloaded.
22	Music recommendation software is an enabler of the search and choose activities in the distribution of music over the Internet course of conduct. It is an automated facility that gathers data on the music choices that people make and performs statistical analyses with these data in order to suggest to a website user which other music they might like when they are looking for specific songs or artists to listen to.
24	Sound quality enhancement software is an enabler in the listening practice for both the use of a home computer and the use of a music-player course of conduct. It makes the music sound better, either for the small speakers that are built into a computer or for the headphones that are being used.
43	Power management is an enabler for the MP3-player course of conduct in the listening practice that determines how long an MP3-player can be used between charging or replacing batteries. It is about the electronic circuitry that uses a battery for powering an MP3-player.
53	Streaming muzak is a more specific course of conduct for distributing music over the Internet. It is a paid-for service that provides background music in restaurants or factories by streaming MP3-files that are stored in an online music database.
57	Distributing music over the Internet based on a subscription is a more specific course of conduct than distributing music over the Internet. Activities include people paying a subscription fee that allows them to download a set number of MP3s in a specified period.
63	Data storage is an enabler for the use of a home computer course of conduct in the listening practice. It refers to where a computer stores and from where it retrieves MP3-files. Data storage tend to be hard-disk drives with a limited storage capacity, but there was an entrepreneurial initiative that offered online storage facilities. There is a similar but different enabler for MP3-players.
82	Music search software is an enabler in the distributing-music-over-the-Internet course of conduct. It facilitates people's music search activity because MP3-files are stored in databases accessible through a particular website or with some software on the whole worldwide web.
90	Copyright management with DRM is a course of conduct in the copyright-management practice. Two different solutions were identified as enablers. SDMI or the Secure Digital Management Initiative is a scheme through which interested parties agreed on the principle of DRM for copyright management. Fingerprinting is a technology through which music files would become individually identifiable so that limitations regarding file copying could be incorporated.
108	Copyright management with license agreements is a course of conduct in the copyright-management practice. Activities include a copyright holder licensing a reseller of music to sell music files in exchange for a pre-arranged fee.
126	USB is an enabler and alternative to the IEEE-1394 standard (aka FireWire) through which an MP3-player connects to a home computer for uploading songs to the device. Connecting an MP3-player to a home computer to upload music files is an activity in the listening to a music-player course of conduct.
128	Malware is a constraint for the Peer-to-Peer (P2P) file-sharing course of conduct in the distribution of music over the Internet course of conduct. All shared files of pirated music (files that are distributed without the consent of the copyright owner) involve a risk that they contain a computer virus or other malicious software.
129	Editing software is an enabler for digital recording in the recording practices. It refers to software packages intended for home-computer use and designed so that music can be recorded and edited to create MP3s.
137	Copyright management by litigation is a course of conduct in the copyright-management practice. Activities include a copyright holder sending cease and desist letters to people suspected of having illegally downloaded MP3s, or suing somebody for alleged copyright infringements.
170	MP3 Keyboard is an enabler for digital recording in the recording practices. It refers to a device that connects to a home computer and enables a user to play music and record it as an MP3.

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Appendix Table B2 (*continued*)

#	Description of practice
204	Listening to music by using a home music player made to be part of a home hi-fi system in addition to a CD-player, tuner, record player, and cassette tape deck is a more specific course of conduct within the listening-to-music practice.
205	Listening to music by using an MP3 player is a more specific course of conduct within the listening-to-music practice. It refers to portable devices such as an iPod, a Diamond Rio, and a Creative Nomad.
206	Data storage is an enabler for the MP3-player course of conduct within the playing music practice. It refers to the electronic memory through which music files are stored in the device, either by means of a memory chip or a miniature hard-disk drive. There is a similar but different enabler for home computers.
207	Listening to music by using a music player that is mounted in a car is a more specific course of conduct within the listening-to-music practice. Car-based devices that can play MP3s are either additions or alternatives to the CD/radio car-entertainment system with which cars are equipped.
208	Data-processing is an enabler for the MP3-player course of conduct as well as the home-computer course of conduct within the listening practice. Data-processing refers to the dedicated preprogrammed microchip by means of which digital music files are processed to be fed into a digital-to-analogue converter (DAC).
210	Distributing music over the Internet is a course of conduct in the distribution practice. Within this course of conduct, however, there are a number of more specific alternatives for how it can be done, and being able to do any of them is a matter of various enablers and constraints.
211	Streaming music is a specific course of conduct for distributing music over the Internet. Activities include people paying a subscription fee, having a connection over the Internet to a web server for the time that music is listened to, streaming of music data, decoding it, and playing it.
212	Jukebox software is an enabler in the listening-to-music-by-using-a-home-computer course of conduct. It allows for MP3s to be played on a home computer. Many can also rip and play CDs. It also provides a form of database management through which MP3s are stored and retrievable on a computer.
214	Payment technology is an enabler for the distributing-music-over-the-Internet course of conduct. It is the part of an online music store through which people can make payments to buy music files or pay a subscription fee.

When we further analyzed the effect of the entrepreneurial initiatives on the field's practices through our longitudinal historical analysis, we found that the topic analysis had identified quite a few practices, but not all. We also realized that the topics of practice had captured courses of conduct and enablers/constraints rather than a complete practice. The historical analysis also added more detail about courses of conduct and about depth regarding the constraints and enablers of these activities. We therefore basically added to our findings as we went along. Table B1 therefore contains more information about practice than was captured by the topic modeling. A full account in Table B2 would require too much space.

Appendix C. Entrepreneurial initiatives

Appendix Table C provides brief descriptions of the entrepreneurial initiatives in the field of recorded music, which were identified with topic modeling in step 1 and further analyzed with historical analysis in step 2. The first column contains the topic number. The topic modeling was made to generate 200 topics, with the topics automatically numbered 1 to 200. Some topics were found to have captured the same entrepreneurial initiative. These were consolidated and given a number above 200.

Appendix Table C1
Entrepreneurial efforts in the recorded music field.

Topic no.	Entrepreneurial initiative
183	Beatnik refers to developing sound quality enhancement software in the depth of the home-computer course of conduct in the listening practice, aiming to enhance the sound quality of playing sound files on a home computer.
38	BMG refers to Bemusic, owned and operated by Bertelsmann Music Group. Bemusic is an online CD shop, a course of conduct in the distribution practice and part of the CD-path.
58	CMJ refers to creating a website for disseminating information about digital music and music software, facilitating the development of the MP3 path.
122	Corus Entertainment refers to developing music websites in Canada because the firm is Canadian, aiming at developing this course of conduct in the distribution practice.
72	Creative Technology refers to developing MP3 players, initially branded as Nomad (with other labels appearing later as well), in the portable-music-player course of conduct in the listening practice.
45	CyberKey refers to developing encryption software for Digital Rights Management (DRM) in the depth of the DRM course of conduct in the copyright-management practice, aiming at making DRM feasible.
180	DSP refers to developing Bluetooth chips to be used in MP3-players to communicate wirelessly with home computers. Communication between home computers and MP3-players is an activity in the portable-music-player course of conduct in the listening practice. The aim is to upload MP3s into the player. The chips are in the depth of this activity.
66	Eiger refers to developing MP3-players, marketed by Compaq and Samsung, in the portable-music-player course of conduct in the listening practice.
118	Embedded wireless devices refer to developing wireless technology with the expectation that Wi-Fi is to be used with MP3-players. This technology is in the depth of the portable-music-player course of conduct in the listening practice.
210	Emusic refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
181	Epitonic.com refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
81	EZCD.com refers to developing an online retailer in CDs. The CD-web-shop course of conduct is in the distribution practice and part of the CD path.
67	Flash VOOM is a topic that captures two entrepreneurial initiatives. Flash refers to Micromedia Flash webservices software for applications that use MP3s. This software is in the depth of the distribution practice in the MP3 W-path. VOOM refers to adding digital music to their HD TV content provision over cable, aiming at developing this course of conduct in the distribution practice.
189	Gateway refers to a sales ploy of preloading the company's PCs with jukebox software and weblinks to online music stores. This initiative pertains to both the use of a home-computer course of conduct in the listening practice and the online-music-store course of conduct in the distribution practice.
99	Gracenote refers to collecting and providing music file metadata. It is in the depth of the distribution practice and the listening practice in the MP3 path, as it allows for identifying and navigating MP3s that are stored on webservers and home computers.
19	InterTrust refers to developing encryption software for DRM. It is in the depth of the DRM of conduct in the copyright-management practice, the aim being to make DRM feasible.
125	iPod iTunes refers to Apple's initiative that introduced iTunes jukebox software, developed the iPod, and created the online iTunes Music Store. This initiative not only aimed at the home-computer and portable-music-player courses of conduct in the listening practice and at the pay-per-file-and-download course of conduct in the distribution practice; it also linked up these practices by making these courses of conduct dependent on each other.
172	iRock refers to developing MP3-players and portable CD-players that can play CDs containing MP3s in the portable-music-player course of conduct in the listening practice.

(*continued on next page*)

Appendix Table C1 (*continued*)

Topic no.	Entrepreneurial initiative
160	Java Savaje refers to developing Java-based operating systems for mobile phones with the capability of playing MP3s in the depth of the portable-music-player course of conduct in the listening practice.
28	Liquid Audio refers to developing webservice software for online music stores in the depth of this course of conduct in the distribution practice.
70	Listen.com refers to developing a hub website for browsing and searching the Internet for music. Browsing and searching are activities in the distribution course of conduct.
89	Live365 refers to developing Internet radio, aiming at developing this course of conduct in the distribution practice.
202	Loudeye refers to developing webservice software for online music stores in the depth of this course of conduct in the distribution practice.
220	Microsoft refers to that company's activities in developing Windows Media software in the depth of using a PC in the listening practice.
166	Mjuice.com refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
201	MP3.com refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
157	Music Choice refers to record companies Sony, EMI, and Warner Bros. developing an online music store, aiming at developing this course of conduct in the distribution practice.
75	Musicmaker.com refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
219	MusicMatch refers to developing MusicMatch Jukebox software in the depth of the home computer course of conduct in the listening practice.
185	Musicmusicmusic refers to developing an online music store, aiming at developing this course of conduct in the distribution practice.
26	Myplay refers to developing their Music Locker online music-file storage service. This is an activity in using a home-computer course of conduct in the listening practice.
151	Nam Tai Electronics refers to chip design and manufacturing pertaining to MP3 applications. This is in the depth of the portable-music-player course of conduct in the listening practice.
123	Napster refers to developing Peer-to-Peer (P2P) technology for sharing MP3s over the Internet and a free online music website where this software is used. This entrepreneurial initiative is about both the technology and the institutional arrangement (by ignoring copyrights) in the depth of this course of conduct in the distribution practice as well as about this course of conduct itself.
2	Napster-by-Roxio refers to Roxio developing an online music store using the Napster brand name, aiming at developing this course of conduct in the distribution practice.
21	New.net refers to domain name registration activity with the MP3 extension. This is in the depth of the online music store course of conduct in the distribution practice.
88	NTRU refers to developing encryption software for DRM in the depth of the DRM course of conduct in the copyright-management practice, aiming at making DRM feasible.
196	Orchard refers to music consolidation, representation, and music-rights sales activities. These are activities in the copyright-management course of conduct.
9	Parthus refers to developing Bluetooth connectivity to be used with MP3-players to communicate wirelessly with home computers. Communication between home computers and MP3-players is an activity in the portable-music-player course of conduct in the listening practice to upload MP3s into the player. The chips are in the depth of this activity.
163	PC Data refers to collecting and publishing Internet usage data that includes visits to music websites. This is an activity in the distribution practice.
31	Polaroid refers to adding an MP3 playback facility to their cameras in the portable-music-player course of conduct in the listening practice.
152	PortalPlayer refers to developing music file encoder chips in the depth of the portable-music-player course of conduct in the listening practice. An encoder chip processes a digital music file to be fed into a Digital Analogue Converter (DAC) with the analogue signal being amplified and played through headphones.
13	Rare Medium Group refers to developing a range of differently branded music websites, a course of conduct in the distribution practice.
40	ReadyWire refers to a chip developed by Phonex for managing connected devices that process music data, among other things. It is in the depth of the distribution and listening practices.
218	RealNetworks refers to developing software for streaming music over the Internet in the depth of the distribution and listening practices.
17	Rio refers to Diamond developing Rio-branded MP3-players in the portable-music-player course of conduct in the listening practice.
178	Seagate refers to developing hard-disk drives with specific reference to storing music files in the depth of the MP3-player course of conduct in the listening practice.
203	Sharp Zaurus refers to Sharp's Zaurus branded PDA that has an MP3 playback facility in the portable-music-player course of conduct in the listening practice.
91	Sony refers to developing MP3-players and Walkman CD-players that can play CDs containing MP3 files in the portable-music-player course of conduct in the listening practice.
217	Spatializer refers to developing sound quality enhancement software in the depth of the home computer course of conduct in the listening practice, aiming to enhance the sound quality of playing sound files on a home computer.
20	SRS Labs refers to developing sound quality enhancement software in the depth of the home computer course of conduct in the listening practice, aiming to enhance the sound quality of playing sound files on a home computer.
117	Supertracks refers to the webservices and infrastructure by which online music stores operate. It is an activity in the online-music-store course of conduct in the distribution practice.
187	TCI refers to developing several differently branded music websites, aiming at developing this course of conduct in the distribution practice.
100	Virgin Digital refers to Virgin Megastore developing an online music presence that includes downloading MP3s and CD retail. These courses of conduct are in the distribution practice.
113	Virgin Jamcast refers to developing an online music-streaming website, aiming at developing this course of conduct in the distribution practice.
195	Visionionic refers to incorporating MP3 playback in their professional PC-based music systems for DJs and musicians. It is in the using-PCs course of conduct in the listening practice.
68	Vitaminic refers to developing MusicMatch Jukebox software in the depth of the using-a-home-computer course of conduct in the listening practice.
135	Voquette refers to developing software by which PCs can record music in MP3 file format. It is an activity in the using-PCs course of conduct in the listening practice.

Although the entrepreneurial initiatives are given organization names, an initiative is defined as a sequence of moves by various interested parties to change something regarding one or more field practices. The brief descriptions in the second column characterize the entrepreneurial initiative in terms of the practices at which the effort was aimed. Some initiatives are in the depth of a practice's course of conduct in that they concern a technology and/or an institutionalized arrangement that enables or constrains a specific course of conduct. Other initiatives are about a whole course of conduct in one of the field practices. Some initiatives concern more than one practice by aiming to link up courses of conduct across practices. These details all are briefly described in the second column of Table C1. Through these short descriptions this table supports our point that the entrepreneurial initiatives can be characterized as pertaining to the practices by which the field of recorded music exists.

Appendix D. Sources used for the historical analysis

The historical analysis tracked various entrepreneurial initiatives and how they interact with the practices in the field of recorded music (see Appendix Table D). We used a variety of sources to allow for triangulation/corroboration by having more than one source to support each of our observations, for credibility by contextualizing sources while questioning their content as we compared what each one told us, and for confirmability by grounding our interpretations in evidence (Gill et al., 2018; Kipping et al., 2014). We believe that the historical analysis and the many sources we used also enhance transferability (Gill et al., 2018) of our key concepts, such as entrepreneurial initiative or practices as part of our theory of path constitution. After all, similar sources yielding data about other cases would help us understand and explain path constitution taking place in those

cases as well, albeit with different practices and paths.

Appendix Table D
List of sources used for a historical analysis of path constitution.

Time-authentic on-line corporate press coverage of MP3	
Press releases	Topic analysis had already identified press releases as pertaining to either practices or entrepreneurial initiatives in the field of recorded music. We selected the press releases that were identified with the entrepreneurial initiatives (at large companies such as Apple, Microsoft, and Sony, as well as at start-ups and relatively small companies such as Diamond Multimedia, Napster, MP3.com, MusicMatch, and pressplay). We also identified additional press releases by combing through the PRNewswire database in nexis.com, using search terms that identified specific entrepreneurial initiatives. Sequencing these press releases chronologically provided an initial account of what happened with and to each entrepreneurial initiative and which course of conduct, practice, or practices the entrepreneurial initiative targeted.
Websites	
Product reviews	CNET (iTunes Music Store; MPIO MP3-player; NetGear MP3-player); MP3newswire (Nomad MP3-player); PC Magazine (Samsung MP3-player); TechHive (Gateway MP3-player); The Register (DRM; iRiver MP3-player)
Interviews	BBC (Jeremy Lascelles: downloading pioneer), Guardian (Tony Wilson: downloading pioneer); MacDailyNews (Steve Jobs); Rolling Stone (Steve Jobs); Salon.com (Eileen Richardson (Napster CEO)); Technologizer (Steve Jobs); The Technology Chronicles (Shawn Fanning); The Telegraph (Tony Fadell: Apple iPod project manager); The Verge (Tony Fadell)
Comments and retrospections	BBC (Napster); Bloomberg (MP3 format); Computer Business Review (RIAA versus Diamond lawsuit); Cult of Mac (iPod); Guardian (Napster); InternetVideoMagazine (Real Networks); The Economist (digital music); EXPLAINTHATSTUFF (streaming); Fortune (Napster); iLounge (MP3 player); Lifewire (iPod; Napster); tedium (pressplay and Musicnet); The Register (Musicnet; MPMan F10 MP3 player); The Verge (iTunes Music Store); Engadget (Apple music)
Journalistic writing	
Menn (2003)	This book describes the fall and rise of Napster as a P2P file-sharing website and is a biography of Napster's founder Shawn Fanning. It informed the Napster entrepreneurial initiative as well as depth and detail about P2P file-sharing in the distribution practice. This book also provides insight into the inner workings of Napster as well as how investments in general were secured for dot.com businesses.
Witt (2015)	This publication describes how the MP3-file gained traction in the field of recorded music. It concentrates on Karlheinz Brandenburg as the inventor of the MP3 format; on Benny Lydell Glover, an employee at the PolyGram CD-plant in Kings Mountain, NC, who became heavily involved in illegally securing CDs for file-sharing; and on Doug Morris, CEO of Universal, one of the Big5 record companies. The book provides numerous insights into many entrepreneurial initiatives and the practices in the field of recorded music.
Biographies	
Isaacson (2015)	This book is a biography of Steve Jobs, cofounder of Apple. The part of the biography covering the 1997–2004 period is used to inform the iPod/iTunes entrepreneurial initiative and the development of the MP3-path in general, especially regarding how the Big5 record companies behaved when initially persisting with the CD-path. The biography also gives insight about the inner workings of Apple.
Kahney (2013)	This biography of Johny Ive, principal designer at Apple and responsible for the design of the iPod, contains a part that covers how the iPod came together. The book informed the iPod/iTunes entrepreneurial initiative and provides insight about the inner workings of Apple.
Lashinsky (2012)	This publication is another biography of Steve Jobs and was similarly insightful to Isaacson (2015)
Scholarly investigation	
Dedrick et al. (2009)	This study of the global value, or supply chain, of the iPod was useful for understanding the depth and detail of the MP3-player course of conduct.
Donahue (2001)	This analysis of pressplay and Musicnet yielded insight into these two entrepreneurial initiatives and into the distribution practice they targeted.
Guichardaz et al. (2019)	This analysis of digitization in the recording industry helped to understand how the MP3-path had an impact on the record companies and how the field of recorded music is dominated by the major labels.
Kunow et al. (2013)	This analysis of the competences of two record companies provided insight particularly into the creative practices in the field of recorded music and how record companies enact them.
Leyshon (2001); Leyshon et al. (2005)	This analysis of the development of the use of the MP3 format in the recorded music industry as well as the resistance of record companies to MP3. It provides insight into the practices in the field of recorded music, how they are enacted, and how change has been resisted.
McCourt and Burkart (2003)	This case study of Napster informed the Napster entrepreneurial initiative and provided depth and detail about P2P file-sharing in the distribution practice.
Tschmuck (2012)	This monograph about innovation in the field of recorded music provided an in-depth understanding of the practices of the field. A dedicated chapter about MP3 gave insight into ways in which the CD-path differs from the MP3-path.

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