Fishing via Meaning Infrastructure:
Entrepreneurial Search and Possibility Development in the Emergent AI & ML Field

by

Rodrigo Valadao Alves

A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Strategic Management and Organization

School of Business
University of Alberta

ABSTRACT

This monograph broadens the scope of cultural entrepreneurship by exploring the link between entrepreneurial search activities and the level of institutionalization of fields. Cultural entrepreneurship involves manipulating cultural repertoires to gather support from relevant audiences, but this relationship between institutionalization and entrepreneurial activity has been underexplored. Additionally, the assumption that entrepreneurs and their target audiences share cultural overlap is not always true in fields with a low level of institutionalization. These aspects have limited cultural entrepreneurship's ability to explain, for example, entrepreneurial search and possibility development in nascent and disintegrating fields.

To address these limitations, this dissertation proposes the metaphor of fishing as a mechanism through which entrepreneurs explore possibilities and advance or demobilize institutionalization. The concept of meaning infrastructure is also introduced, representing a network of cultural repertoires that constitute the underlying meaning system of an institutional field. Four archetypes of meaning infrastructure are theorized: ethereal, condensed, plasmatic, and crystallized. Successful fishing occurs when entrepreneurs develop ties among cultural repertoires at the meaning infrastructure level.

Empirically, this dissertation examines how cultural repertoires become available for startup organizations in an emerging field (i.e., the artificial intelligence and machine learning field in Canada between 2011 and 2020) and how fishing strategies are used effectively. Four major cultural repertoires are available for startups in an emerging field, enabling four fishing strategies: visionary, steward, communitarian, and pragmatic. The pragmatic strategy focusing

on a crystallized infrastructure from adjacent mature fields is the only one that increases the chance of securing initial funding.

This dissertation concludes with a discussion on the overall significance of the responses to the three research questions addressed, as well as directions for future research. Theoretically and empirically, this monograph contributes to advancing the relational turn in cultural entrepreneurship, a move that is fundamental to understanding entrepreneurial activity as part of a broader macro-cultural context.

PREFACE

The research conducted in this dissertation required no ethics approval. Also, it was written in a monograph format, containing no co-authored articles.

To my late grandfather João, who started the navigation and always inspired me,
to my wife Flavia, who kept the ship on course through turbulent waters,
and to my brother Fernando, who kept the port safe under all circumstances.

Ancient navigators had a glorious phrase: "Navigating is necessary; living is not necessary."
I want for myself the spirit of this phrase, transformed the form to marry it to who I am:
Living is not necessary; what is necessary is to create.
I don't count on enjoying my life; I don't even think of enjoying it.
I only want to make it great, even if my body and soul must be the wood for this fire.

Fernando Pessoa

ACKNOWLEDGEMENTS

Completing a doctoral program requires an incredible amount of dedication, but it is far from an individual endeavor. I would like to acknowledge and thank a large group of individuals without whom this achievement would not be possible. My first thanks go to my supervisory committee for their unwavering encouragement and support. More specifically, I would like to express my gratitude to my advisors, Tim Hannigan and Vern Glaser, who, in complementary ways, provided all the intellectual and emotional support I needed along the way of this venture. Also, I gained immensely from the mentorship of Dev Jennings and Mike Lounsbury. I would like to express my appreciation to both of you for raising my standards and helping me to identify ways to make my work more impactful.

I am additionally grateful to an outstanding group of scholars and fellow students who played a significant role in my scholarly formation and academic growth: Mary Ann Glynn, Tammar Zilber, Santi Furnari, Royston Greenwood, Emily Block, David Deephouse, Joel Gehman, Jennifer Jennings, Trish Reay, Marvin Washington, Angelique Shantz, Chris Steele, Lloyd Steier, Madeline Toubiana, Ian Gellatly, Tony Briggs, Marc-David Seidel, David Kirsch, Richard Haans, Ana Aranda, Fabio Fonti, Guillermo Casasnovas, Hovig Tchalian, Joe Porac, Marc Ventresca, Mark Kennedy, Lianne Lefsrud, Renate Meyer, Charlene Zietsma, Luciana D'Adderio, Stine Grodal, Bernard Forgues, Laura Nelson, David Clough, Augusto Rocha, Anna Plotnikova, Anna Fung, Jean-François Soublière, Leanne Hedberg, Asma Zafar, Paola Ometto, Milo Wang, Rongrong Zhang, Lei Emma Jing, Natalie Eng, Yunjung Pak, Jennifer Sloan, Teddy Carter, Andrea Carlo Lo Verso, Charles Kirschbaum, Celeste Ferraro, Jason Windawi, Jacy Anthis, Mark Hand, Mayur Joshi, and Tanja Olson.

I gratefully acknowledge funding support from the Canadian Social Sciences and Humanities Research Council (SSHRD), as well as the Business Ph.D. Office, the Department of Strategic Management and Organization, the Graduate Students' Association at the University of Alberta, and my advisors Vern Glaser and Tim Hannigan.

I feel incredibly grateful to have shared this exciting journey with my amazing Ph.D. siblings: Maggie Cascadden, Bandita Deka Kalita, and Kylie Heales. It's been an incredible adventure filled with challenges and hard work, but having them by my side has made it all incredibly enjoyable and rewarding.

Furthermore, I would like to express my gratitude to my loved ones, who, even from afar, always gave me the strength to persist: my grandmother Aida, my late Grandfather João, my mother Cristina, my late father Carlos, my brother Fernando, my sister-in-law Aline, my goddaughter Elis, my aunt Fátima, my uncle Eduardo, my cousins Taís and Lívia.

The list of loved ones who have supported me would not be complete without my close friends: Leandro, Vini, Dudu, Chiba, Gota, Erni, Dácio, Felipe, Mauro, and Douglas. In particular, Leandro and I pursued doctorates simultaneously in the same country. Having a long-time friend going through the experiences and challenges with me gave me much strength, for which I will always be grateful.

Also, I am thankful for the new friends I have made along the way, who have become my family in a foreign country: Flávio, Talita, Anthony, Cathy, Renata, Stephan, Gabi, Felipinho, Teo, Marina, Juliano, Dani, Marininha, e Gabizinha.

Above all, I am grateful to my wife, Flávia, for her unwavering love and support, which has been an invaluable source of fortitude throughout my journey.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

Intrigued by how entrepreneurs convince relevant audiences to invest in their new ventures, Lounsbury and Glynn (2001) proposed a framework that initiated a stream of research known as Cultural Entrepreneurship (Gehman & Soublière, 2017; Glynn & Lounsbury, 2022; Lounsbury et al., 2019). This sets up entrepreneurs as skilled actors capable of manipulating cultural repertoires (Swidler, 1986) to shape discourse and resonate with target audiences, such as investors. Over the last two decades, management scholars have developed several contributions to this research domain. In recent years alone, for example, studies have shown how entrepreneurs (a) revise and reconcile early narratives to culturally resonate with late-stage audiences (Chapple et al., 2022), (b) bridge institutional voids to entice large organizations into moral markets (Hedberg & Lounsbury, 2021), (c) tap into foreign cultural repertoires to frame global-level narratives (Park & Zhang, 2020), (d) calibrate their distinctiveness to specific characteristics of target categories (Taeuscher et al., 2022) and audiences (Taeuscher et al., 2021), and (e) leverage entrepreneurial hype to gather early support and resources (Logue & Grimes, 2022).

Despite much progress and promise, two aspects of cultural entrepreneurship that are critical for furthering the recently proposed relational direction for this literature remain underdeveloped. First, Lounsbury and Glynn acknowledged that "there has been a relative neglect of the macrofoundations of entrepreneurship." (2019, p. 26). As a solution, they proposed the notion of *entrepreneurial possibilities*, which "exist at the interstices of distinct identity positions in and around institutional fields where novel entrepreneurial identities and practices may be constructed (p. 39)." In doing this, they embraced a relational ontology (e.g., Bourdieu, 1984; Emirbayer & Johnson, 2008; Granovetter, 1985) and defined institutional fields

(for reviews, see Martin, 2003; Wooten & Hoffman, 2008; Zietsma et al., 2017) as the cosmos within which entrepreneurial activity ought to be contextualized. However, an important underdeveloped aspect here is the relationship between the level of institutionalization of the field and entrepreneurial activity. This is relevant because fields exist at a diverse range of institutionalization levels, from low (e.g., emerging fields; see Maguire et al., 2004) to high (e.g., mature fields; see Greenwood et al., 2002), both enabling and constraining entrepreneurial action in different ways (Hinings et al., 2017; Zietsma et al., 2017).

Second, as recently noted, much of the work done in cultural entrepreneurship has been based on the unexamined assumption that both entrepreneurs and their target audiences share a good deal of overlap in their respective cultural repertoires (Soublière & Lockwood, 2022). Cultural repertoires (or toolkits) provide entrepreneurs and their target audience with the various elements (such as categories, identities, vocabularies, and logics; see Wry et al., 2011) necessary to craft and evaluate discourse. They constitute the "higher-order cognitive and symbolic building blocks" (p. 450) that entrepreneurs deploy, and that also shape the process of cultural resonance (i.e., the extent to which an audience connects to a narrative; Giorgi, 2017) – the primary mechanism that enables actors to rally support for their endeavors (Lockwood et al., 2019). While it might make sense that entrepreneurs and relevant audiences should largely share common cultural repertoires in highly institutionalized fields, this is not a reasonable assumption in the case of fields that have a low degree of institutionalization, such as fields that exist at the interstices of other fields (Furnari, 2014; Rao et al., 2000). In such fields, actors come from adjacent fields, which have diverse underlying meaning systems, and no one "is likely to dominate discussions on the issue [as] logics are multiple and fragmented,

and boundaries are permeable." (Zietsma et al. 2017, p. 25). Especially under circumstances of low institutionalization, it is unclear how entrepreneurs can deploy cultural repertories to explore possibilities and achieve cultural resonance with relevant audiences.

Taken together, these aspects limit cultural entrepreneurship when it comes to explaining how entrepreneurial search and possibility development occur in nascent and disintegrating fields – an argument that I further develop in Chapter 2. To address this gap in cultural entrepreneurship, in chapter 3, I examine the research question: *How do startup organizations explore possibilities in fields with different levels of institutionalization?* I approach this by abductively theorizing via the metaphor of fishing as a key mechanism through which entrepreneurs explore possibilities, either advancing or demobilizing the institutionalization of a field. Supporting this, I propose the concept of meaning infrastructure as a field-level network of cultural repertoires that represent the underlying meaning system of institutional fields. When *fishing via casting*, entrepreneurs (i.e., fishers) cast cultural repertoires (i.e., hooks with baits) within an institutional field (i.e., a pond) aiming at a material exchange with a relevant audience (i.e., to reel in a fish). Such activity happens both at the cultural and material levels, as success at the material level (e.g., reeling in a fish) happens when a tie between the cast cultural repertoire and an extant meaning infrastructure is established at the cultural level. With this, fishing via casting operates as a mechanism of tie-formation among cultural repertoires, which develops the meaning infrastructure of an institutional field.

While fishing via casting advances the institutionalization of a field, its counterpart, *fishing via severing*, has the opposite effect: it contributes to the deinstitutionalization of a field

as it severs ties among cultural repertoires within a meaning infrastructure. Fishing via severing can happen as rival entrepreneurs (i.e., other fishers) dispute meanings aiming at material exchanges (i.e., try to fish via casting) within the focal or adjacent institutional fields (i.e., ponds), pulling cultural repertoires from extant meaning infrastructures apart for different ends, to the point that existing ties might be severed. Taken together, the entrepreneurial activity of fishing via casting and severing serves to institutionalize or deinstitutionalize a field as it builds up or deconstructs a field meaning infrastructure. By the same token, the available meaning infrastructure of a field both enables and constrains fishing activity. As fields have different levels of institutionalization, I theorize four types of meaning infrastructure: *ethereal*, *condensed*, *plasmatic*, and *crystalized* (from less to most institutionalized). These archetypical meaning infrastructures are characterized by different types of ties (i.e., *attemptive*, *feeble*, *stable*, and *sturdy*) among cultural repertoires, each of which can have different statuses (i.e., *unsettled*, *settling*, *settled*).

These different types of meaning infrastructure have important implications for fishing activity. First, they affect what successful fishing by an entrepreneur means. In an ethereal meaning infrastructure, success is characterized as catching the attention of audiences that are relevant to entrepreneurs (e.g., investors, potential customers), even though securing a material exchange (e.g., getting seed investment, selling the first version of a new product) is likely to be a rare event. This means that success, at this stage, is luring fish from adjacent locations to start populating the pond and reeling in a fish is an exceptional event. In the condensed type, successful fishing starts being considered as securing ad-hoc material exchanges (e.g., occasionally reeling in a fish). In a plasmatic meaning infrastructure, success

starts being perceived as a more or less stable form of material exchange (e.g., reeling in fish is frequent). Finally, in the crystallized type, successful fishing is regarded as securing material exchanges as a regular endeavor (e.g., reeling in fish is taken for granted).

A second implication theorized herein for the four types of meaning infrastructure proposed is that they affect the character of entrepreneurial activity. In ponds (i.e., fields) with less developed meaning infrastructures (i.e., ethereal, condensed), *exploratory fishing* will be predominant, as there are several to many entrepreneurial possibilities and rare to few entrepreneurial opportunities. By contrast, in ponds with more developed meaning infrastructures (i.e., plasmatic, crystallized), *exploitative fishing* will be predominant, as there are few to rare entrepreneurial possibilities and many to several entrepreneurial opportunities. The higher degree of exploitative fishing in ponds with the most developed meaning infrastructure should also happen because, at those stages, governance elements (e.g., fishing cooperatives, regulators, arbiters of taste) are expected to be salient or full-fledged. By the same token, the absence or low relevance of such governance structures at less developed stages favors *exploratory fishing*.

While the mechanism of fishing (via casting and severing) and the concept of meaning infrastructures articulated herein address the question of how startup organizations explore possibilities in fields with different levels of institutionalization, they open up important empirical questions. The fishing activity not only requires fishers to be skilled regarding the hooks and baits (i.e., cultural repertoires) to be cast. Fishing also encompasses technique (i.e., the means of mobilization of cultural repertoires; e.g., rumors or gossip, public discourse) and a broader fishing strategy, which might take into account several other aspects beyond hooks,

baits, and technique (e.g., a regional component, such as choosing a specific fishing spot in the pond, or a time component, such as fishing during specific periods). With this, for example, much work will be necessary to unveil, for example, which hooks and baits are available for fishers at different types of ponds (i.e., fields with different levels of institutionalization) or which fishing strategies are more effective for different ponds.

To begin examining some of these aspects, in this dissertation, I further elaborate on how entrepreneurial search and possibility development can occur in an emerging field. To do this, I examine two additional research questions: *How can startup organizations access cultural repertoires in an emerging field?* and *How can startup organizations effectively use fishing strategies in an emerging field?* To address the first of these questions, in chapter 4, I use the rendering approach (Hannigan et al., 2019) and computational techniques to map discourse (using big textual data) in the emerging field of artificial intelligence and machine learning (AI & ML) in Canada between 2011 and 2020. Such an inductive process unearths that four major cultural repertoires are available for startup organizations in an emerging field (i.e., *envisioned possibilities*, *finance and governance*, *community engagement*, and *existing markets*).

In chapter 5, I answer the second research question. I start by using the findings from chapter 4 (i.e., the four major cultural repertoires available in an emerging field) to distinguish four possible fishing strategies (i.e., *visionary*, *steward*, *communitarian,* and *pragmatic*). After that, I generate hypotheses about how those strategies should affect or constrain startup organizations' ability to reel in a fish (i.e., to secure funding). In the sequence, I identify 733 startups in the same empirical context from chapter 4 (i.e., the emerging field of AI & ML in Canada between 2011 and 2020) and map out how they have deployed the four fishing

strategies. Then I assess the relationship between fishing strategies and startup organizations' ability to secure initial funding. As foreseen, the fishing strategy that focuses on a crystallized infrastructure from adjacent mature fields (i.e., the pragmatic strategy) is the only one that increases the chance of startups obtaining the first round of funding. Strategies that focus on the ethereal meaning infrastructure either reduce the chances of securing initial funding (i.e., the visionary and steward strategies) or have no relationship with it (i.e., communitarian). Table 1 indicates the chapters in which the three research questions are addressed in this dissertation and summarizes how those questions are examined and the major findings.

Table 1. Summary of Research Questions and Findings

Research question	How do startup organizations explore possibilities in fields with different levels of institutionalization?	How can startup organizations access cultural repertoires in an emerging field?	How can startup organizations effectively use fishing strategies in an emerging field?
Where is it addressed?	Chapter 3	Chapter 4	Chapter 5
How is it addressed?	Reasoning by abductive analogs (metaphors)	Rendering theory (with topic modeling) by investigating the AI & ML emerging field in Canada between 2011 and 2020	Testing hypotheses (with event history analysis; Cox models) in the context of the AI & ML emerging field in Canada between 2011 and 2020
What are the major findings?	• Meaning Infranstructure: field-level network of cultural repertoires • Different types of meaning infrastructure exist (i.e., ethereal, condensed, plasmatic, and crystalized) • Startup organizations fish via casting and via severing, developing or demobilizing a meaning infrastructure	• Four major cultural repertoires are available to starup organizations in an emerging field: (1) envisioned possibilities, (2) finance & governance, (3) community engagement, and (4) existing markets	• The four major cultural repertoires (identified in chapter 4) enable four fishing strategies: (1) envisioned possibilities → visionary, (2) finance & governance → steward, (3) community engagement → communitarian, and (4) existing markets → pragmatic • The pragmatic fishing strategy is the only one that increases the chance of a startup securing initial funding

I discuss the implications of the findings and key concepts advanced in this dissertation in Chapter 6. The mechanism of fishing and the typology of meaning infrastructures proposed herein should be of interest to both entrepreneurship scholars and institutional theorists. This happens because fishing and meaning infrastructure constitute the missing link between processes of entrepreneurial search and actualization and processes of field (de)institutionalization, which should not be examined as decoupled. Also, in the final chapter, I draw attention to the combination of theory and methods used in this research, which represents a novel theory-method package for scholars interested in interpretive approaches to big textual data, and emphasize that this also has important implications for practitioners and policymakers. Finally, before bringing the manuscript to an end with a short reflection, I discuss some limitations of this research and indicate some promising directions for future research.

CHAPTER 2: THEORETICAL BACKGROUND

The broad objective of this dissertation is to examine entrepreneurial activity as part of a broader macro-cultural context. To develop a theoretical background for this investigation, in the first part of this chapter, I examine the current state of the academic field of entrepreneurship, paying particular attention to the concept of *entrepreneurial opportunities*. I show that the construct has been central to the field but also problematic on several dimensions. Then I review cultural entrepreneurship as a stream of research in entrepreneurship that has been concerned with the cultural context within which entrepreneurial activity unfolds. A key argument that comes from this is that mainstream entrepreneurship lacks a rich understanding of cultural context. More specifically, I examine the recent direction of *entrepreneurial possibilities* and elaborate on how it has the potential to sidestep some of the issues with entrepreneurial opportunities. In the second part of this chapter, I delve into the concept of *institutional fields* from institutional theory, as it is a consequential component of the cultural entrepreneurship perspective. In doing that, I draw attention to two aspects that need further development in cultural entrepreneurship. Addressing these aspects then becomes the focus of this dissertation. Although it would be challenging to pinpoint precise definitions for the main concepts explored in this chapter, Table 2 offers a descriptive overview of such concepts alongside references that were foundational for the arguments advanced herein.

Table 2. Overview of Key Concepts

Concept	Description	Reference
Entrepreneurial Opportunities	Situations or conditions in which entrepreneurs can create and/or capture economic value by developing and implementing a new idea, product, or service	Shane & Venkataraman, 2001
Cultural Entrepreneurship	Stream of research in entrepreneurship that considers entrepreneurs as skilled actors capable of manipulating cultural repertoires to shape discourse and resonate with target audiences, such as investors	Lounsbury & Glynn, 2001
Cultural Repertoires	Sets of cultural tools, symbols, and meanings that individuals use to make sense of the world and to construct strategies of action	Swidler, 1986
Entrepreneurial Possibilities	Interstitial positions in and around institutional fields that represent potential novel ways to engage in entrepreneurial action	Lounsbury & Glynn, 2019
Institutional Fields	Relational spaces that encompass social network relationships and cultural forms, which provide meaning and differentiate actors and practices	Bourdieu, 1977, 1984
Institutional Infrastructure	A combination of governance elements and the underlying meaning system that populate an institutional field	Hinings et al., 2017
Entrepreneurial Exploration	Entrepreneurial activity that predominantly involves search, variation, and experimentation	March, 1991
Entrepreneurial Exploitation	Entrepreneurial activity that predominantly involves implementation, execution, and refinement	March, 1991
Ambiguity	Lack of clarity about particular events or situations, which leads to multiple potential interpretations	Santos & Eisenhardt, 2009
Uncertainty	Situations in which it is not possible to calculate or attribute numerical values to the probability of outcomes	Frank Knight, 1921

2.1 Exploring Entrepreneurial Possibilities

In this section, I review the classic entrepreneurship literature. I focus on the material derived from economics and examine some important problems with the concept of entrepreneurial opportunities. I then review cultural entrepreneurship, focusing on efforts to address a major issue in mainstream entrepreneurship literature: the lack of attention to the macro-cultural context of entrepreneurial activity. After that, I elaborate on the notion of entrepreneurial possibilities, recently advanced by cultural entrepreneurship. I conclude this

section by elaborating on how entrepreneurial possibilities might sidestep some of the issues with entrepreneurial opportunities through the lenses of exploration versus exploitation.

2.1.1 Entrepreneurial Opportunities

Most of the progress in entrepreneurship as an academic field has come at the cost of bracketing entrepreneurs and novel organizations from their macro-cultural context (Bjørnskov & Foss, 2016; Bradley & Klein, 2016; Lounsbury & Glynn, 2019). As Foss and colleagues 2019) pointed out, the scholarly field of entrepreneurship initially emerged from economics, and classic accounts of entrepreneurship in that literature were mainly focused on outcomes. With that, the entrepreneur, as articulated by Schumpeter (1911), Kirzner (1973), and Knight (1921), has been studied and theorized as decoupled from its antecedents and contextual elements. Such heritage from economics has, in other words, biased the entrepreneurship literature towards micro-analyses of entrepreneurial phenomena focusing on startups, sole heroic individuals, and entrepreneurial opportunities (see Foss & Klein, 2012). Within this triad of elements, the concept of entrepreneurial opportunities has been particularly problematic since the early days of the field, when Venkataraman (1997) articulated that "two issues [should be] of particular interest to scholars in entrepreneurship: the sources of opportunities and the nexus of opportunity and enterprising individuals" (p. 121).

Despite the relevance of the concept, economists and entrepreneurship scholars could never find common ground on what an opportunity meant, which led to the co-existence of heterogeneous definitions. For example, opportunities have been described as stemming from imperfect knowledge (Kirzner, 1973), errors (Kirzner, 1997), other pre-existing opportunities

(Holcombe, 2003), unintended consequences (Buenstorf, 2007), underexploited opportunities (Plummer et al., 2007), and unexploited projects (Casson & Wadeson, 2007). Also, as pointed out by Buenstorf (2007), despite best efforts towards a general theorization of entrepreneurial opportunities (e.g., Shane, 2003), "entrepreneurship researchers have not converged on a universally agreed upon definition of entrepreneurial opportunities, and the alternative views incorporate … concepts [from economics] in different ways" (p. 5).

Although the lack of agreement on the definition of opportunities poses a challenge to the acquisition of knowledge, it is not the primary obstacle associated with this concept. The most intractable problem with entrepreneurial opportunities lies within the debate whether they are discovered (e.g., Shane, 2000; Shane, 2003; Shane & Venkataraman, 2000) or created (e.g., Aldrich & Ruef, 2006; Alvarez & Barney, 2007, 2010; Alvarez et al., 2013). Leveraging Kirzner's notion of entrepreneurial "alertness" (1973, 1979), Shane and Venkataraman's (2000, p. 218) foundational piece in entrepreneurship has set forth the notion of opportunities as discovered, as they "define[d] the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited (Venkataraman, 1997).

Although dominant in entrepreneurship studies, the opportunities-as-discovered perspective has been recurrently contested by scholars that consider entrepreneurs as agents capable of ideating and creating novel opportunities. As pointed out by Sarasvathy (2001, p. 249), "in cases involving spectacular successes (Silver, 1985), the effectuating entrepreneurs' vision appears to involve more than the identification and pursuit of an opportunity; it seems to include the very creation of the opportunity as part of the implementation of the

entrepreneurial process." Along these lines, others have proposed more agentic approaches to opportunities. Aldrich and Ruef (2006), building on the work of Katz and Gartner (1988), argued that venture creation is not a linear process and highlighted the importance of the social networks within which entrepreneurs are embedded. As another example, Dimov (2007) conceptualized an opportunity as a social process in which it "can be represented as a stream of continuously developed ideas, driven and shaped by one's social interaction, creative insights, and action at each stage" (p. 714).

The core reason why this debate (i.e., discovery versus creation) has never been settled is an underlying ontological incompatibility, which, as so, cannot be resolved on an empirical basis (Kuhn, 1970; Lakatos, 1978). While the discovery perspective assumes a critical realist epistemology, the opportunities-as-created stream assumes evolutionary realism (Alvarez & Barney, 2010), and "to a large extent, these two sets of assumptions are mutually exclusive—adopting the epistemology assumed by discovery research makes it difficult to study creation opportunities, and vice versa" (p. 558). Although efforts have been made to reap theorizing benefits from such an incompatibility (Alvarez et al., 2013) or to find a middle ground (e.g., Ramoglou & Tsang, 2016), these approaches serve to foreshadow something that has plagued entrepreneurship since its origins as an academic field, namely: the lack of attention to the macro-cultural contexts within which entrepreneurial activity unfolds.

Joining this "discovery-versus-creation debate threatens to reinvent the unhelpful structure-versus-agency dualism" (Lounsbury & Glynn, 2019, p. 38), which has been long overcome in social sciences by sophisticated, balanced approaches to structure and agency, such as those developed by Bourdieu (1977) and Giddens (1979). According to these

perspectives, structures “are constituted by mutually sustaining cultural schemas and sets of resources that empower and constrain social action and tend to be reproduced by that action” (Sewell, 1992, p. 27). Through this lens, then, it makes little sense to debate over the primacy of structure or agency, as they are mutually constitutive. Also, keeping that debate alive only serves to drain the attention of scholars from what should be the “core puzzle of entrepreneurship research — [namely,] where entrepreneurial opportunities come from” (Suddaby et al., 2015, p. 1). As Companys and MacMullen (2007) argued, if anything, the term opportunity should represent “an opportunity to engage in entrepreneurial action” (p. 303). Such an argument has been taken up seriously by cultural entrepreneurship.

2.1.2 Cultural Entrepreneurship

Theory in the cultural entrepreneurship literature (DiMaggio, 1997; Gehman & Soublière, 2017; Lounsbury & Glynn, 2001, 2019; Thompson et al., 2018) has been thriving over the past two decades. Although this is not at the core of the mainstream entrepreneurship literature, it has opened space for culturally situated studies of entrepreneurial phenomena. DiMaggio's (1982; 1986) work on "highbrow" organizations (e.g., art museums, opera houses) constitutes an early development in this stream of research, but its foundation and tenets as a theoretical framework were first laid out by Lounsbury and Glynn (2001), who “define[d] cultural entrepreneurship as the process of storytelling that mediates between extant stocks of entrepreneurial resources and subsequent capital acquisition and wealth creation” (p. 545). In a nutshell, that first version of cultural entrepreneurship articulated that all entrepreneurial activity should be regarded as a process of meaning-making that aims to craft a distinctive

organizational identity to obtain the necessary capital for the novel enterprise. Such a perspective embraced Swidler's (1986) notion of cultural repertoires that can be accessed and deployed by skilled entrepreneurs and enabled a series of studies examining how entrepreneurial narratives culturally resonate with key audiences (e.g., Dalpiaz et al., 2016; Martens et al., 2007; Rindova et al., 2011).

Cultural entrepreneurship, as articulated by Lounsbury and Glynn (2001), therefore, was in the avant-garde of the management research cultural "renaissance" (Weber & Dacin, 2011) that would follow. Within organization studies, various studies have examined, for example, how actors deploy cultural resources to attain specific strategic objectives (Delmestri & Greenwood, 2016; Navis & Glynn, 2010; Rao et al., 2003; Sine & Lee, 2009; Weber et al., 2008a). Within entrepreneurship, more specifically, several scholars have extended the cultural perspective proposed by Lounsbury & Glynn (2001). For example, (a) Wry et al. (2011) showed how entrepreneurs legitimate a nascent collective identity, (b) Zhao and colleagues (2013) examined how entrepreneurs can overcome the illegitimacy discount, (c) Überbacher et al. (2015) delved into the process through which entrepreneurs become skilled cultural operators, (d) Glaser and Lounsbury (2021) theorized how legitimacy could be designed, and (e) Taeuscher and colleagues (2022) demonstrated how categories and narratives could be deployed by entrepreneurs aiming to be distinctively positioned.

Despite the volume and quality of work advancing cultural entrepreneurship, a recent special issue on the theme (Lockwood & Soublière, 2022) highlighted the need for deeper (i.e., closer examination of the interplay between culture and entrepreneurship) and broader investigations (i.e., scope extension). Such an appraisal was aligned with Lounsbury and Glynn's

(2019) reflections on the almost two decades of their initial work. Despite putting culture at the core of every entrepreneurial process, the authors lamented that their original framework's (2001) potential to situate entrepreneurial activity within macro-cultural contexts had not been realized yet. Situating entrepreneurship in macro-cultural contexts meant, according to them, truly acknowledging that culture is pervasive and that every entrepreneurial process happens within broader "webs of significance" (Geertz, 1973). Following Giorgi et al. (2015), I acknowledge that culture itself might be an elusive term that has been conceptualized in diverse ways (e.g., values, frames, stories, categories, toolkit) and that the central concern for those studying culture should be the collective meaning-making processes, and how they affect and are affected by social life (Mohr, 2020; Spillman, 2002, 2016).

2.1.3 Entrepreneurial Possibilities

To address the lack of attention to macro-cultural aspects in entrepreneurship, Lounsbury and Glynn (2019) reformed their original framework (2001) by articulating the notion of *entrepreneurial possibilities*, which are discursively constituted and exist in interstitial spaces (e.g., cultural holes; see Lizardo, 2014; Pachucki & Breiger, 2010) within and across institutional fields. According to Lounsbury and Glynn, then, a promising way to culturally situate entrepreneurial processes would be to study them as embedded in institutional fields, as fields' underlying symbolic meaning systems have a consequential role in shaping the behavior of actors (Friedland et al., 2014). Building on the work of Bourdieu (1977, 1984), fields (see Zietsma et al., 2017 for a review) can be defined as relational spaces that connect actors in multiple ways (Lounsbury & Ventresca, 2003; Zald & Lounsbury, 2010) and where cultural forms

(e.g., categories, frames) provide meaning to actors and practices. With that, the solution for situating entrepreneurship in a macro-cultural context, as advocated by Lounsbury and Glynn (2019), comprises taking seriously that "the true object of social science is not the individual … [but] the field, which is primary and must be the focus of the research operations" (Bourdieu & Wacquant, 1992, p. 107).

Entrepreneurial possibilities, therefore, have two important characteristics. First, they are catalyzed by interstitial spaces, which are the locus of ambiguity par excellence, and where institutional change is more likely to happen (Lounsbury & Glynn, 2019). As highlighted by Lounsbury and Rao (2004), ambiguity is an important trigger for meaning-making processes (Louis & Sutton, 1991; Weick, 1995), which, as previously mentioned, should be the focus of studies concerned with culture and entrepreneurship. Also, while most institutional studies to date have focused on intra-field dynamics – regarding fields as self-contained worlds (Fligstein & McAdam, 2012; see Evans & Kay, 2008; Furnari, 2014, 2016; Greenwood & Hinings, 1996 for exceptions) – Lounsbury and Glynn clearly articulate that possibilities can take place across fields. This is particularly relevant because, as demonstrated by Furnari (2016), co-dependence and power imbalance can make institutional change more likely to occur in interstitial spaces where fields intersect.

The second important characteristic of entrepreneurial possibilities is that they are discursively constituted. Discourse represents a central cultural manifestation through which actors demarcate institutional fields (Lounsbury & Glynn, 2019) and achieve important entrepreneurial outcomes, such as becoming optimally distinctive to access capital (Lounsbury & Glynn, 2001). As Phillips and colleagues put forward (2004; 2002), once texts are embedded

in a bundle of coherently intermeshed discourses, they give origins to institutions. Texts serve as carriers of meanings (Leibel et al., 2018), and discourse may construct meaning through various strategies (Zilber, 2017). For example, it can redefine the values in a field (Khaire & Wadhwani, 2010), it can enable an ongoing reinterpretation of meanings (Hardy & Maguire, 2010), and it can enable the co-constitution of meanings and actor positions in new fields (Hannigan & Casasnovas, 2020). With that, while attention to the intrinsic co-constitution of practices and meanings is of paramount importance in analyzing institutional fields, discourse plays a vital role (e.g., Oberg et al., 2017).

The entrepreneurial possibilities concept enables us to examine entrepreneurial activity as being embedded in a macro-cultural cultural context (i.e., institutional fields). This is important for several reasons. First, the collective meaning system that underlies every entrepreneurial activity (within and across fields) is the critical element that enables both entrepreneurs – who engage in the symbolic construction of their enterprises – and key audiences – who evaluate and legitimate enterprises – to operate together (Lounsbury and Glynn, 2019). Second, fields comprise a repository of stories (Zilber, 2007) and cultural accounts (Creed et al., 2002) that entrepreneurs and novel organizations draw upon to craft optimally distinctive narratives (Lounsbury & Glynn, 2001). Thus, narratives are crafted and evaluated much more as relational and collective endeavors (Burress & Cook, 2009; Lounsbury et al., 2003; Lounsbury, 1999; Sine & Lee, 2009; Wry et al., 2011) than as single and isolated occurrences. Third, cultural possibilities for entrepreneurial action might precede resource investment and the flow of material resources (Lounsbury & Glynn, 2019; Porac et al., 1995). As recently demonstrated by a study of an emerging entrepreneurial ecosystem (Hannigan et al.,

2021), this seems particularly relevant in the early moments of a field, when the underlying meaning system is more subject to contestation than in more developed fields (Greenwood et al., 2002; Maguire et al., 2004; Zietsma et al., 2017).

2.1.4 Exploring Possibilities

As discussed in the prior section, entrepreneurship scholars have paid little attention to where entrepreneurial opportunities come from (see Suddaby et al., 2015, for notable exceptions). The explanation for this is two-fold. First, entrepreneurship research has been biased not only in that it has largely focused on startups, sole entrepreneurs, and opportunity discovery (see Foss & Klein, 2012). Also, "confining studies of entrepreneurship and entrepreneurial ventures to high growth companies introduce[d] a strong selection bias into research" (Aldrich & Ruef, 2006, p. 63). As Aldrich and Ruef (2018) have highlighted, for example, despite the rarity of IPO (initial public offering) events, "entrepreneurship conferences and journals have been filled with papers on various aspects of the process of 'going public'" (p. 458, quotes in the original). This success has made entrepreneurship scholars myopic about the "public benefits [from entrepreneurial activity, which come] at the expense of many entrepreneurial failures." (Loasby, 2007a, p. 1096; see also Levie et al., 2011).

The second reason why entrepreneurship scholars lacked attention to where opportunities come from can be traced back to Shane and Venkataram's (2000) agenda-setting paper. Drawing from economics, that study repeatedly emphasized that entrepreneurship should be concerned with "the discovery and exploitation of profitable opportunities" (p. 217) and that entrepreneurs are "the set of individuals who discover, evaluate, and exploit

[opportunities]" (p. 2000). Within these assertions, it is not only the allusion to a discovery event that connotes opportunities as elements that can be taken for granted but also the focus on *exploitation*. In his influential piece, March (1991) identified that exploitation is associated with selection and execution, whereas exploration relates to search, risk-taking, and experimentation. Therefore, it is surprising that entrepreneurship scholars have dedicated so much effort to exploitation to the detriment of exploration, as it is undisputable that entrepreneurship activity is strongly related to the latter.

Attentive to this incoherence, Lounsbury and Hannigan (2022) directed attention to the exploratory portion of entrepreneurial activity. The solution, according to them, would encompass leveraging the concept of entrepreneurial possibilities as the early moments of opportunity formation, "before anyone even senses that there is an opportunity to exploit; well before the *fools rush in* (Aldrich & Fiol, 1994)" (p. 1). In that study, Lounsbury and Hannigan (2022) hinted at the two main characteristics of entrepreneurial possibilities that make them suitable for studying entrepreneurial exploration. As previously discussed, entrepreneurial possibilities inhabit interstitial spaces within and across institutional fields and are discursively constituted. These characteristics are important because interstitial spaces are the loci where novel opportunities can come into existence, and discourse is the main vehicle through which entrepreneurs explore potential lines of action and future projections (see Emirbayer & Mische, 1998; Mische, 2009, 2014). According to this perspective then, entrepreneurs explore possibilities by projecting futures into a "field of dreams" (Lounsbury & Hannigan, 2022, p. 1), and "while most dreams fizzle, some possibilities can become translated into opportunities that can be constructed, discovered and exploited" (p. 4). With this, if entrepreneurship scholars are

to truly understand where opportunities come from, more attention needs to be given to entrepreneurial search.

An important aspect to be considered here is that most dreams fizzle because, when exploring possibilities, entrepreneurs are frontally tackling fundamental uncertainty. The economist Frank Knight (1921) distinguished fundamental uncertainty from risk, suggesting that risk encompasses situations in which one can calculate the probability of outcomes, whereas in cases of uncertainty no numerical values can be attributed to potential results (see also Davis et al., 2009; Weick, 1995). Entrepreneurial exploration is, therefore, an activity in which "there is too much to learn and know before 'outcomes' can be identified and 'risks' evaluated. [Entrepreneurs] … must first make sense of what is happening … and construct scenarios of what they feel and imagine is even possible" (Alvarez & Porac, 2020, p. 735; quotes in the original). Another economist, George Shackle (1966) – a radical subjectivist (Earl & Littleboy, 2014) so radical that he was even regarded as a "dissenting" economist (Ford, 1994) – also theorized on the exploration of possibilities, which was aptly summarized by Chell (2008):

> [The entrepreneur] takes a gamble based on their imagination: the imagined sequence of possible events yet to come. At that point, the individual cannot attach a probability to their choice working out; all they can say is that they believe that it will. Thus, those favoured *possibilities* are characterised by an absence of disbelief, with disbelief representing an obstacle to the pursuit of a particular course of action. (p. 39; italic in the original).

Adding to this conversation, Gartner (in Chell & Karataş-Özkan, 2014) conjectured that the exploration of possibilities is an activity that (a) intrinsically relates to imagination and potentiality, (b) lies at some point between the conceivable and the feasible, (c) is a necessary antecedent of opportunities discovery or creation, and (d) happens through entrepreneurial narratives. Furthermore, as Gartner noted, it provides a theoretical alternative to exploitation-

centered perspectives that biased mainstream entrepreneurship "towards a more deterministic view of entrepreneurial phenomenon than is actually experienced by the individuals who are engaged in it" (p. 28).

In addition to uncertainty, entrepreneurs exploring possibilities also face substantive ambiguity, a term that can be defined as a "lack of clarity about the meaning and implications of particular events or situations … [which leads] to confusion and multiple potential interpretations" (Santos & Eisenhardt, 2009, p. 644). Despite the negative connotations, it is important to notice that uncertainty and ambiguity are conditions that both enable and constrain entrepreneurial exploration. As Loasby (2007b) highlighted, for Knight, "entrepreneurship… depend[s] on uncertainty, defined as the absence of correct procedures for dealing with a range of *possibilities*" (p.4, italic added) and for George Shackle, "[there are no] correct procedures for defining the range of *possibilities"* (p. 4, italic added). Also, as noted by Aldrich & Fiol (1994), skillful entrepreneurs take advantage of ambiguity by editing and adjusting their narratives as they explore possible interpretations vis-a-vis others. However, from a constraining perspective, "while there is potentially an infinite array of entrepreneurial *possibilities* that could be conceived, not anything is possible" (Lounsbury & Glynn, 2019, italic added). While ambiguity and uncertainty will eventually make most dreams fizzle, the collective dreaming process that characterizes the exploration of possibilities is at the core of what entrepreneurs do. The lack of attention to this process in mainstream entrepreneurship (to the benefit of studies focusing on the exploitation of opportunities) is precisely what makes the question *Where do opportunities come from?* still a puzzle for entrepreneurship scholars more than 20 years after the foundational work of Shane and Venkataraman (2000).

2.2. Institutional Fields & Infrastructure

In the prior section, I argued that the academic field of entrepreneurship has been dominated by economic perspectives that paid little attention to the macro-cultural context within which entrepreneurial activity unfolds. This prevalence, alongside other biases (e.g., success bias), resulted in entrepreneurship scholars severely under-examining where entrepreneurial opportunities – a problematic but still central construct – come from. Despite these issues, I identified that cultural entrepreneurship literature has blossomed over the past 20 years and has recently proposed the notion of entrepreneurial possibilities to address the lack of attention to where entrepreneurial opportunities come from. Although promising, the most recent direction articulated by the cultural entrepreneurship perspective (i.e., considering entrepreneurial possibilities within and across institutional fields; Lounsbury & Glynn, 2019) has two critical limitations that must be addressed for it to deliver on its promise. In this section, I review the notions of institutional fields and institutional infrastructure and elaborate on how they closely relate to these limitations.

2.2.1 Institutional Fields

Since its inception, cultural entrepreneurship (Lounsbury & Glynn, 2001) has been intrinsically connected with institutional theory, particularly through the concept of cultural repertoires from Swidler (1986) – the elements to be manipulated by skilled entrepreneurs in their pursuit of resources for their ventures. The revised version of cultural entrepreneurship (Lounsbury & Glynn, 2019) doubled down on the bridging between entrepreneurship and institutional theory, as the proposed notion of entrepreneurial possibilities builds on the

concept of institutional fields, which has been central for institutional theorists for a long time (see Martin, 2003; Scott, 2014; Wooten & Hoffman, 2008). A wealth of studies in institutional theory have examined important aspects regarding institutional fields, such as how they can gradually change (e.g., Nigam & Ocasio, 2010; Oakes et al., 1998), be disrupted (e.g., Glynn, 2008; Zietsma & Lawrence, 2010), and emerge over time (e.g., Hoffman, 1999; Yoshikawa et al., 2007). Such studies have allowed institutional theorists to understand, for example, how change in fields can happen (a) as institutional entrepreneurs create new categories by engaging incumbent organizations (Anand & Jones, 2008), (b) because of the introduction of a new organizational form (Greenwood & Suddaby, 2006), or (c) as result of an exogenous shock (Maguire et al., 2004).

The institutional field concept has been theorized and operationalized in different ways, with relevant consequences. In many ways, conceptualizations of the field concept have been overlapping, leading to some theoretical slippage. DiMaggio and Powell (1983) developed the concept of organizational field as "a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies and other organizations that produce similar services or products" (p. 148), which Scott (2014) considered as "a collection of diverse, interdependent organizations that participate in a common meaning system" (p. 106). Zietsma et al. (2017) conducted a thorough review of the ways that field concepts were used in institutional theory, finding similarities around an emphasis on the locus of stability and similarity among organizations. However, they also noted that some perspectives on fields, such as that of Bourdieu (1985) and Fligstein & McAdam (2012), emphasized fields as arenas of institutional disputes and conflicts. Ultimately, for Bourdieu, fields are spaces of a struggle for

the legitimate right to monopolize the exercise of symbolic meanings (Swartz, 1996; e.g., Lefsrud & Meyer, 2012), which Fligstein & McAdam (2012) consider as "embedded in a broader environment consisting of countless proximate or distal fields as well as states" (p. 3). Lounsbury & Glynn (2019) leaned into the Bourdiesien relational conceptualization of institutional fields as being well-suited for studies interested in cultural dynamics and cultural approaches to entrepreneurship.

2.2.2 Institutional Infrastructure

More recently, institutional theorists have started to examine fields through the perspective of underlying institutional infrastructure, a concept that traces back to Greenwood et al. (2011) discussion of institutional complexity. Even though the concept was not formally defined in that piece, the authors leveraged existing work to describe it as comprising structural processes and sets of roles that orient the action of field actors. Previous research has examined, for example, the role of media and consultants (Deephouse & Heugens, 2009; Hoffman & Ocasio, 2001; King, 2008), professional associations (Greenwood et al., 2002; Lounsbury, 2002; Purdy & Gray, 2009; Washington, 2004), rituals (Anand & Watson, 2004), and theorization processes (Greenwood et al., 2002; Maguire et al., 2004) in organizing activities in different fields. By calling attention to structural elements that underpin field activity, Greenwood and colleagues (2011) developed at least two relevant theoretical advancements. First, they highlighted how logics alone could not account for institutional dynamics. Second, and perhaps more importantly, they pointed out that institutional infrastructure could come to constitute a framework to contrast fields with different levels of institutionalization (e.g.,

exchange versus issue fields), a theme of growing interest (e.g., Anand & Peterson, 2000; Child et al., 2007; Lawrence et al., 2002; Maguire et al., 2004; Wooten & Hoffman, 2008).

While subsequent studies examined a wealth of institutional infrastructure elements (e.g., professional associations, inspection agencies, and media in Raaijmakers et al., 2015; governmental organizations and courts in Bell et al., 2014; market information providers in Marquis & Raynard, 2015), the concept of institutional infrastructure only started to be refined in Zietsma et al. (2017) work. That piece articulated institutional infrastructure as comprising "the mechanisms of social coordination by which embedded actors interact with one another in predictable ways" (p. 5) in any given field. Also, it detailed how field infrastructure includes organizations such as formal governance units (e.g., industry regulators), arbiters of taste (e.g., ratings and awards), and field coordinators (e.g., professional associations). While such an attempt at developing the concept of institutional infrastructure privileged governance elements – formal mechanisms that enable or constrain field activity (see Kraatz & Block, 2008; Scott, 2014) – it was Hinings et al. (2017) that formally defined and expanded the construct, establishing that an institutional infrastructure also encompasses an underlying meaning system, composed of taken-for-granted cultural norms and understandings. With that, as suggested by Greenwood and colleagues (2011), the construct of institutional infrastructure started embodying a framework that would enable institutional theorists to understand and contrast the level of institutionalization as stages of a field rather than an intrinsic and fixed condition.

2.2.3 Two Aspects for Further Development in Cultural Entrepreneurship

As elaborated earlier in this chapter, considering that entrepreneurial possibilities exist within and across institutional fields (Lounsbury & Glynn, 2019) offers a promising approach to understanding macro-cultural aspects of entrepreneurship. However, two aspects must be further developed for cultural entrepreneurship to fully deliver on this promise. The first is that the cultural entrepreneurship literature has not yet leaned into conceptualizing institutional fields (and their underlying institutional infrastructure) as existing in different conditions (i.e., degrees of institutionalization; Zietsma et al., 2017). In articulating that entrepreneurial possibilities exist within and across fields, Lounsbury and Glynn (2019) explicitly subscribed to a Bourdiesian definition of field:

> Anchoring on the work of Bourdieu (e.g., 1977, 1984, 2000), we conceptualize institutional fields as relational spaces that can have multiple dimensions that clump or connect actors in different ways (Lounsbury & Ventresca, 2003; Zald & Lounsbury, 2014). These include concrete social network relationships, as well as cultural forms such as categories, classifications, conventions, and stories that provide meaning and help to differentiate actors and practices in a field.

This choice is particularly appropriate considering Bourdieu's focus on socio-cultural relationality and cultural entrepreneurship's attention to how entrepreneurs carve out distinct identity positions (Lounsbury & Glynn, 2001). However, although Lounsbury and Glynn (2019) acknowledge that "in more mature fields, efforts to theorize more radical entrepreneurial possibilities may be difficult" (p. 40), they did not elaborate on the relationship between institutionalization and entrepreneurial possibilities.

Expanding on this is important because, as institutional theorists have long known, there is a close relationship between the level of institutionalization and behavior within fields (DiMaggio & Powell, 1983). The institutionalization of fields has been described as a process

consisting of four main parts, namely, an increased (1) interaction among organizations, (2) interorganizational structures of domination, (3) information load, and (4) degree of mutual awareness among participants (Dimaggio, 1982). Adding to that, Scott (2014) also explained it as a process of convergence and agreement on institutional logics, which are sets of material practices and symbolic constructions (Friedland & Alford, 1991; Thornton et al., 2012). According to these processual perspectives, then, fields exist in a spectrum ranging from a low level of institutionalization, where "certain institutional features [such as] clearly defined leading actors, a coherent discourse, structures of cooperation and domination, sets of accepted norms, [and] stable interorganizational relationships" (Maguire et al., 2004, p. 675) are still to be developed, and a high level of institutionalization, where such features are well-developed. Yet, cultural entrepreneurship still lacks theorization on how these field-level differences affect entrepreneurial activity and vice-versa.

The lack of attention to the interplay between the level of institutionalization of the field and how entrepreneurs go about exploring possibilities is likely to be a serious obstacle to the accumulation of knowledge in cultural entrepreneurship. It is already difficult, for example, to understand to which extent findings from studies that examined entrepreneurial activity in fields with disparate levels of institutionalization speak to each other (e.g., the energy industry in South Africa in Constantinides & Slavova, 2020; the concrete industry in Italy in Cavotta & Dalpiaz, 2022; the sex industry in Canada in Ruebottom & Toubiana, 2021; and the professional field of entrepreneurship in Chile and Kenya in Värlander et al., 2020). There is a stark difference, for example, between the issue field of geoengineering (in Augustine et al., 2019), which exists much more in discourse and inhabits a distant future, and the industry of online

display ads (in Glaser et al., 2020), which has mediated vast volumes of material exchanges for decades now. Yet, we know very little about the relationship between institutionalization and entrepreneurial possibilities.

The second aspect that must be further developed in cultural entrepreneurship becomes more apparent through the conceptualization of emerging fields. Since the first version of the framework, Lounsbury and Glynn (2001) depicted entrepreneurs as skilled actors capable of deploying cultural repertoires – sets of elements such as logics, categories, identities, vocabularies, beliefs, skills, and habits (Wry et al., 2011) — to devise strategies of action (Swidler, 1986) in the pursuit of resources necessary for their ventures. To be successful, the stories produced by entrepreneurs need to "*resonate* with the expectations, interests, and agendas of potential stakeholders" (Lounsbury and Glynn, 2001, p. 552). Cultural resonance – a cognitive process that "consists of striking a chord with an audience" (Giorgi, 2017, p. 716) – is, therefore, the major mechanism through which entrepreneurs gather support for their enterprises (Lockwood et al., 2019). However, as recently noticed, "resonance assumes that actors and audiences share compatible elements in their respective repertoires, which enable both parties to align their meaning-making" (Soublière & Lockwood, 2022). While this is likely to be the case in mature fields, which are highly institutionalized, it cannot be assumed true within emerging fields, which have a low degree of institutionalization.

In emerging fields, logics tend to be multiple and fragmented, boundaries are permeable, and no actor is likely to dominate the discussion of the issue at hand (Zietsma et al., 2017). In other words, these fields are characterized by an institutional infrastructure quite different from that of mature fields. With that, although "possibilities for entrepreneurial action

exist at the interstices of distinct identity positions in and *around institutional fields*" (Lounsbury and Glynn, 2019, p.39), we know little about how cultural resonance can be achieved outside of the boundaries of mature fields, which are spaces of low institutionalization of practices and meanings. A study by Soublière & Lockwood (2022) suggested strategies that entrepreneurs might deploy to achieve cultural resonance (i.e., retooling producers' repertoires, channeling audiences' meaning-making, and seeding audiences with novel elements) when the assumption of fixed socially shared repertoires (Cornelissen & Clarke, 2010) is relaxed. Yet, Soublière and Lockwood's analysis (2022) did not explore how this might happen through the lens of entrepreneurial possibilities that exist within and across institutional fields.

The lack of attention to how entrepreneurs can effectively go about exploring entrepreneurial possibilities in emerging fields that originate within intra-fields interstitial spaces is particularly problematic because institutional change often occurs where fields intersect (Furnari, 2016). Also, as the segments of contemporary global society become increasingly interdependent, it is somewhat surprising that institutional theory still lacks more comprehensive perspectives of fields. Although it has been known that field members also interact with members of other fields (Hoffman, 1999) and that they can bring in practices and resources from other fields (Greenwood et al., 2002; Smets et al., 2012), it was not long ago when a study – building on resource dependence theory (Emerson, 1962; Pfeffer & Salancik, 1978; see Wry et al., 2013 for a review) – established that institutional fields can be linked as arenas (Furnari, 2016). While that study advanced a relational view of fields as linked ecologies (Abbott, 2005), it did not account for the mobilization of cultural repertoires, which would be

key for understanding the entrepreneurial exploration of possibilities that is at the core of cultural entrepreneurship.

With this, as articulated in this section, two aspects require further development in cultural entrepreneurship: (1) the interplay between entrepreneurial possibilities and field institutionalization and (2) the mobilization of cultural repertoires in fields with a low level of institutionalization. Addressing such aspects is key to casting light on how entrepreneurial search and possibility development occur in nascent and disintegrating fields. In this dissertation, I expand on these aspects by responding to three research questions. In chapter three, I respond to the following question: *How do startup organizations explore possibilities in fields with different levels of institutionalization?* While chapter three introduces a framework that explains entrepreneurial activity in fields with different levels of institutionalization, in the following two chapters, I focus my inquiry on a lowly institutionalized field (i.e., an emerging field). In chapter four, I answer the question: *How can startup organizations access cultural repertoires in an emerging field?* Then, in chapter five, extending the discussion from chapter four, I develop the following research question: *How can startup organizations effectively use fishing strategies in an emerging field?*

CHAPTER 3: EXPLORING POSSIBILITIES IN FIELDS WITH DIFFERENT LEVELS OF INSTITUTIONALIZATION

In this chapter, I examine the research question: How do startup organizations explore possibilities in fields with different levels of institutionalization? In approaching this question, I identify four levels of field institutionalization that have been broadly discussed in organizational theory (i.e., insignificant, low, moderate, and high). Then I revisit what has been discussed about how those institutionalization levels relate to two core entrepreneurial activities: the exploration of possibilities and the exploitation of opportunities. In doing this, I expose two aspects that lack theorization: an underlying mechanism connecting field institutionalization to entrepreneurial activity and an account of how cultural repertoires relate to institutionalization and entrepreneurial exploration/exploitation. I approach these gaps by theorizing via abductive analogs.

More specifically, I use the metaphor of a *network* to introduce *meaning infrastructure* as a novel construct, which highlights that cultural repertoires exist as interconnected elements within institutional fields. In doing that, I develop a typology with four types of meaning infrastructure (i.e., *ethereal*, *condensed*, *plasmatic*, and *crystallized*). Then, I use the metaphor of *fishing* to describe entrepreneurial activity. I articulate *fishing via casting* as the main mechanism of entrepreneurial exploration of possibilities, which serves to further develop an existing meaning infrastructure, advancing field institutionalization. Then, I propose *fishing via severing* as a mechanism of de-institutionalization that operates as a counterpart to fishing via casting. Finally, I extend Swidler's notions of cultural repertoires and (un)settled times by proposing that cultural repertoires can also be (un)settled.

3.1 Institutionalization and Entrepreneurial Activity

In the previous chapter, I argued that cultural entrepreneurship still lacked theorization on how entrepreneurial exploration could happen in different field conditions (i.e., different levels of institutionalization; Zietsma et al., 2017). This undertheorized domain of cultural entrepreneurship is important because entrepreneurial activity is both enabled and constrained by the institutional infrastructure available. Fields with a low level of institutionalization – also deemed as emerging fields (Maguire et al., 2004) – have a sparsely developed institutional infrastructure (Hinings et al., 2017) and, by contrast, highly institutionalized fields – also labeled as mature fields (Greenwood et al., 2002) or stable fields (Fligstein, 1996) – have a highly developed institutional infrastructure. As described by Zietsma et al. (2017, p. 30),

> "fields with a highly elaborated institutional infrastructure, consisting of meanings, practices, identities, power structures, subject positions and governance mechanisms (Hinings et al., [2017]), will feature relatively clear conceptions about what is appropriate or allowed in most situations. Infrastructure elements will tend to reinforce one another, providing relatively unambiguous and often taken-for-granted guidelines about appropriate action via both formal and informal mechanisms. In fields with limited institutional infrastructure, networks, rules, identities, practices, meanings and governance mechanisms may be ambiguous, unelaborated, provisional, subject to reflexive debate rather than being taken for granted, and mutually reinforcing."

As also highlighted by Zietsma et al. (2017), "fields vary in their degree of institutionalization, their evolutionary stage and their complexity." With that, only considering fields at a low or high level of institutionalization would not represent what is known from extensive work in institutional change (e.g., Battilana et al., 2009; Greenwood et al., 2002; Greenwood & Suddaby, 2006; Lawrence et al., 2009; Lefsrud et al., 2017; Lefsrud & Suddaby, 2012; Maguire & Hardy, 2009; Meyer & Höllerer, 2010a; Purdy & Gray, 2009; Reay & Hinings, 2005; Smets et al., 2012). That fields have also been described as contested (Hensmans, 2003; Meyer & Höllerer, 2010), complex (Reay & Hinings, 2009), and patchy (Quirke, 2013) hints at a

stage of moderate institutionalization between emerging and mature fields. More specifically, we know that the process of institutionalization is one of "competitive convergence, involving experimentation undertaken by multiple actors" (Zietsma & McKnight, 2009, p. 4), whereas "competing candidates for institutionalization, or proto-institutions (Lawrence et al., 2002)," (p. 8) might co-exist and even persist as institutional fragments (Schneiberg, 2007).

In addition to fields existing in these three field conditions (i.e., low, moderate, and high institutionalization), recent work examining the early moments of institutional change (see Hannigan & Casasnovas, 2020; Hannigan et al., 2021; Kirsch et al., 2014) and the conceptualization of fields at the interstices of mature fields (see Furnari, 2016; Zietsma et al., 2017), indicate the possibility of early cultural activity at inter-fields interstitial spaces. While in those spaces the level of institutionalization would be insignificant, they would constitute promising cultural holes (i.e., contingencies of meaning and discourse; see Pachucki & Breiger, 2010) for entrepreneurs to explore possibilities and, therefore, also ought to be conceptualized as a field in potentiality. With this, the extant literature on institutional fields indicates four prototypical levels of field institutionalization: insignificant (i.e., an interstitial space as a field in potentiality), low (e.g., emerging fields), moderate (e.g., patchy or contested fields), and high (e.g., mature fields).

Although cultural entrepreneurship has not yet addressed how entrepreneurial possibilities are explored in fields with such different levels of institutionalization, Lounsbury and Hannigan (2022) explored the argument of field institutionalization being intrinsically related to the exploration of possibilities and exploitation of opportunities. While the lack of institutionalization makes opportunity exploitation a rare event in intra-field interstitial spaces,

it is also the condition that enables entrepreneurs to make future projections (see Ermibayer & Mische, 1998; Mische, 2009, 2014), exploring possibilities in a "field of dreams" (Lounsbury & Hannigan, 2022, p. 1). Conversely, highly institutionalized fields, in having addressed much of the ambiguity and uncertainty of earlier institutional moments, offer the conditions under which the "best strategy for any individual organization is often to emphasize the exploitation of successful [previous] explorations" (Levinthal & March, 1993, p. 104). With this, the exploration of possibilities and exploitation of opportunity occur at inverse degrees in fields with different levels of institutionalization (see Table 3). But still, it is unclear the mechanism that connects the levels of field institutionalization and entrepreneurial activity. Also, cultural entrepreneurship lacks theorization on how cultural repertoires – the "building blocks" (Wry et al., 2011, p. 450) used by cultural entrepreneurs (Lounsbury and Glynn, 2001, 2019) – relate to these elements.

Table 3. Levels of Field Institutionalization and Entrepreneurial Activity

		Level of Field Institutionalization			
		Insignificant	Low	Moderate	High
Level of Entrepreneurial Activity	Exploration of Possibilities	High	Moderate	Low	Insignificant
	Exploitation of Opportunities	Insignificant	Low	Moderate	High

3.2 Reasoning by Abductive Analogs

An exercise of reasoning is necessary to address the theoretical gap identified in the previous section. As pointed out by Mantere & Ketovi (2013), "both in everyday life and in scientific inquiry, we use three basic forms of reasoning to draw conclusions on matters of importance: we argue for a case, we make generalizations, and we construct explanations and

interpretations" (p. 71). These three forms of reasoning correspond to deduction, induction, and abduction, respectively. Among these, abduction is "the only logical operation which introduces any new idea; for induction does nothing but determine a value, and deduction merely evolves the necessary consequences of a pure hypothesis" (Peirce, 1958, p. 216). Also, as highlighted by Sætre & Van de Ven (2021), "abductive reasoning is not a single flash of inspiration; instead, it is a sensemaking process (Weick, 1995)" (p. 6) that enables disciplined imagination (Weick, 1989) in theory generation. With this, I use abductive reasoning to respond to the research question at hand and theoretically expand cultural entrepreneurship.

More specifically, I employ analogical reasoning, a theorizing approach that has been widely adopted by scholars interested in organizations (e.g., organizations as governance structures in Williamson, 1981; as information systems in March & Simon, 1958; as an evolving organism in Nelson & Winter, 1982), strategy, entrepreneurship, and innovation (Cornelissen & Clarke, 2010; Cornelissen & Durand, 2014; Gavetti et al., 2005; Grégoire et al., 2010). Analogs are particularly useful for theory generation because they enable linking two domains of meaning (Gentner & Markman, 1997), allowing the researcher to focus on what is relevant to address the puzzle at hand and to abstract out irrelevant components (March & Heath, 1994). Also, as articulated by Ketokivi et al. (2017), abductive reasoning through analogs is particularly adequate for "the pre-empirical stage of introducing a novel [analog] (Shepherd & Sutcliffe, 2011)" (p. 650).

When reasoning through analogs, scholars can deploy either analogies or metaphors. Analogies consist of "mapping knowledge from one domain (the base) into another (the target)" (Gentner & Jeziorski in Ortony, 1993, p. 449), whereas metaphors are established through

"figurative language that represents one thing in terms of another" (Cornelissen, 2012, p. 119). Despite this difference, some organizational theorists have argued that using metaphors for theorizing is like using analogies (Cornelissen, 2005; Morgan, 2016; Tsoukas, 1991) and that there are no relevant distinctions between the two in organization theory, with analogies and metaphors being treated, in practical terms, as equivalent terms (Cornelissen & Durand, 2014).

Still, as Mohr (2005) aptly noticed, metaphors play a consequential role in organizational theory, especially at meso-level analyses, which is particularly evident through the concepts of niche, field, and network. This happens because "metaphors are not merely analytical tools, they are also complex interpretations of social life that convey implicit assumptions about how social scientific research should be conducted" (Mohr, 2005, p. 3). An example of how metaphors can enable this is to be found in the recent academic conversations around *reversing entrepreneurship's arrow*. Such a metaphor "push[s] entrepreneurial and organization theorists to think more about the 'reversed arrow' from entrepreneurial processes to societal effects (rather than from societal to entrepreneurial ones); and … to build a research community devoted to reversing this arrow" (Jennings et al., 2022, p. 1). Taking these aspects into account, in this chapter, I leverage metaphors to theorize how entrepreneurs explore possibilities in fields with different levels of institutionalization.

3.3 Introducing Meaning Infrastructure

Before elaborating on a mechanism of entrepreneurial exploration, it is necessary to address an important aspect undertheorized in cultural entrepreneurship: the interplay between cultural repertoires and field institutionalization. According to Swidler (1986), "culture

is not a unified system that pushes action in a consistent direction. Rather, it is more like a 'tool kit' or repertoire (Hannerz, 1969: 186-88) from which actors select differing pieces for constructing lines of action" (p. 277, quotes in the original). Such repertoires are, therefore, the "building blocks" (Wry et al., 2011, p. 450) or cultural elements (Rao, 1994; Weber et al., 2008) that skilled entrepreneurs deploy (Aldrich & Fiol, 1994) to construct stories that need to resonate with target audiences (e.g., venture capitalists) so that they can access resources needed for their ventures (Lounsbury & Glynn, 2001). Despite the centrality of cultural repertoires in explaining the exploratory, collective meaning-making activity in which entrepreneurs engage, the concept of entrepreneurial possibilities (Lounsbury & Glynn, 2019) exposes a lack of theorization on how cultural repertoires are weaved together to form "webs of significance" (Geertz, 1973, p. 5) at the field level. This happens because possibilities are discursively constituted, and cultural repertoires need to be coherently discursively connected as entrepreneurial stories – which populate fields (Creed et al., 2002; Zilber, 2007).

To represent such a field-level web of cultural significance, I introduce the concept of *meaning infrastructure*. This concept extends institutional infrastructure (Greenwood et al., 2011; Zietsma et al., 2017; Hinings et al., 2017) in which it focuses on the informal meaning system that underlies formal governance structures within fields. I define meaning infrastructure as a field-level network of cultural repertoires. This network metaphor draws from early work on social network analysis (Lewin, 1951, 1951) that was also present in DiMaggio & Powell's (1983) conceptualization of the field, particularly through the notions of connectivity and structurally equivalent positions (Mohr, 2005). While "the field perspective rejects the often-artificial distinction between organization and environment and views these

organizations as part of the system to be analyzed" (DiMaggio & Powell, 1982, p. 11, in Mohr 2005), the notion of a meaning infrastructure as proposed herein rejects the artificial distinction between cultural repertoires and institutional fields and views cultural repertoires as part of the system to be analyzed. This definition is fundamental to explaining how entrepreneurs use cultural repertoires to explore entrepreneurial possibilities in fields with different levels of institutionalization, as will be demonstrated in this chapter. Also, it sets the foundation to address the long-standing lack of attention to cultural meanings (Mohr, 1998, 2005; Zilber, 2002, 2017) as key elements of field-level institutionalization (i.e., structuration) processes. As described by Mohr (2013, p. 121):

> DiMaggio and Powell's use of the concept of structuration reflects their recognition that meanings and practices are co-constitutive. Informational conduits don't exist without the information that flows through them nor does the informational flow exist without those conduits. Yet, in their [1983] essay, DiMaggio and Powell define structuration in a way that emphasizes structures and minimizes meaning.

Building on the four levels of field institutionalization identified in section 3.1. (i.e., insignificant, low, moderate, and high), and to start responding to the question of how entrepreneurial activity unfolds in fields with different levels of institutionalization, I elaborate four types of meaning infrastructures. I call the first type of an *ethereal* meaning infrastructure, which happens in fields with an insignificant level of institutionalization (i.e., an interstitial space as a field in potentiality). An ethereal meaning infrastructure is characterized by the ties among cultural repertoires at the early stages of interstitial field formation, being mostly *attemptive*, with entrepreneurs trying to mobilize and connect cultural repertoires from and with adjacent fields as a manner to explore entrepreneurial possibilities. I will explain what the ties among cultural repertoires entail in the next section.

I define the second type of meaning infrastructure as *condensed*, which corresponds to fields with a low level of institutionalization and is characterized by a prevalence of *feeble* ties among the cultural repertoires that constitute it. I label the third type of meaning infrastructure as *plasmatic*, which is a characteristic of fields with an intermediate level of institutionalization. In a plasmatic meaning infrastructure, the prevailing ties among cultural repertoires are *stable*, or there is a relative balance between feeble and sturdy ties, not being possible to clearly categorize the meaning infrastructure as one of the types that are more or less developed. Finally, I define the fourth type of meaning infrastructure as *crystallized*, which is typical of highly institutionalized fields and is characterized by the ties among cultural repertoires being mostly *sturdy*. Put together, in a crescent order of field institutionalization, I, therefore, propose four types of meaning infrastructure: ethereal, condensed, plasmatic, and crystallized.

3.4 Fishing Via Casting: Building a Meaning Infrastructure

To cast light on the mechanism through which entrepreneurs explore possibilities, it is important to examine the key challenges that pitching – the core activity in cultural entrepreneurship – addresses. Reflecting on one of Pinch's studies on elementary sales pitches on the streets of London in the mid-80s, Callon (2021) described the challenge that entrepreneurs face in the following terms:

> How do you convince a random person lost in thought—it could be you, it could be me—to develop a sudden enthusiasm for perfumes with unfamiliar names or an avid interest in Chinese porcelain seen a million times before? How do you get them to be attracted to ordinary bath towels, to feel a sudden emotion at the sight of banal kitchen utensils, or to be drawn by compositions of freshly cut flowers? In short, the activity involves producing *cupido emptrix*, the passion, the fever to acquire, in this passerby. Not only to interest them, attract their attention, divert them from their trajectory, persuade them that all this is good for them, that they need it, that they are in a state of lack, but

> above all … to convince them to shell out cash. If that does not happen, the pitcher will have pitched in vain" (p.15).

In another study of market vendors in the UK in the 80s, Pinch and Clark (1986) characterized those vendors' entrepreneurial activity as fundamentally social and interactive, and highlighted that for pitch lines such as "we'll give [you] more value for money now, in the next two minutes, than the shops and stores will give [you] up there in two years" (p. 170) to resonate with passersby, they "must be based upon some body of cultural resources" (p. 169).

This imagery of street vendors trying to *fish* passersby in the hope of an exchange at a material level is charged with ambiguity and even fundamental uncertainty. While pitchers will shape their pitches in the best attempt to resolve ambiguity, they can never be completely sure that they will succeed in such an endeavor. With this, I use fishing as a metaphor for the mechanism through which entrepreneurs explore possibilities.

Fishing is an adequate metaphor to describe entrepreneurial activity for at least three main reasons. First, from cultural entrepreneurship, we know that entrepreneurs can be more or less skilled in deploying cultural repertoires to achieve resonance with certain audiences. Fishing also is an activity that requires skills, which, likewise in entrepreneurship, can be learned and developed. Second, entrepreneurial activity happens within an institutional field, and fishing, likewise, is intrinsically connected to an external environment (e.g., a pond), being affected by competition (e.g., number of fishers), regional components (e.g., specific fishing spots), timing (e.g., fish biting more at certain times/periods), and exogenous factors (e.g., pollution). Taken together, these elements serve as parallels to explain the complexity of a macro-cultural environment in which entrepreneurial action unfolds. Third, fishing can be exploratory (i.e., tap into entrepreneurial possibilities) or exploitative (i.e., tap into

entrepreneurial opportunities). This parallel is particularly useful to illuminate the interplay between entrepreneurial activity and meaning infrastructure, as I will demonstrate in the following sections chapter.

More specifically, I propose that entrepreneurs (i.e., fishers) *fish via casting* as they deploy available cultural repertoires (i.e., hooks with baits) in a given institutional field (i.e., a pond) in an attempt to secure a material exchange with a member from a relevant audience (i.e., to reel in a fish). This mobilization can happen through different means (i.e., fishing techniques), such as rumors or gossip, and public discourse (see Hannigan et al., 2021; Seidel et al., 2020). Together with other aspects, such as, for example, regional (i.e., a specific fishing spot in the pond) and time components (i.e., fishing at specific periods), the use of cultural repertoires and particular techniques of mobilization constitute the broader strategy of action devised by entrepreneurs (i.e., fishing strategies). With that, fishing is an activity that happens both at the cultural and material levels. Success at the material level (e.g., reeling in a fish) indicates that the entrepreneur has succeeded in establishing a tie between the cast cultural repertoires and an extant meaning infrastructure. In other words, fishing via casting is a mechanism of tie-formation among cultural repertoires, which develops the meaning infrastructure and advances the institutionalization of a given field.

3.5 Meaning Infrastructure's Constitutive Ties

At this point, I can better characterize the ties and explain the four types of meaning infrastructure in more detail. I start with the less institutionalized type and advance in the typology by describing field-level institutionalization as a process that unfolds from

entrepreneurial activity. As mentioned, an ethereal meaning infrastructure (i.e., the one that exists in inter-field interstitial spaces with an insignificant level of institutionalization) is characterized by mostly attemptive ties among cultural repertoires. The term *attemptive* here represents what entrepreneurs try to do when exploring possibilities in such space. At the meaning infrastructure level, they attempt to connect cultural repertoires from and with existing adjacent fields by discoursively deploying cultural repertoires as casting a hook with a bait in a pond. Most of those attempts, however, will fail to establish a tie among cultural repertoires, and skilled entrepreneurs will notice that by paying attention to what happens at the material level. Traction here can be characterized as catching the attention of relevant audiences (i.e., luring fish from adjacent locations to populate the pond). Suppose entrepreneurs notice that this is not happening. In that case, they will most likely change their fishing strategies, which could be achieved, for example, by changing the hooks and baits used (i.e., the cultural repertoires).

An *ethereal* meaning infrastructure is, therefore, the result of entrepreneurs' first efforts to infuse an interstitial space with meaning, which is attained by leveraging cultural repertoires from adjacent spaces. Although the end goal of fishing is to establish recurrent exchanges with relevant audiences (e.g., customers, investors) at the material level, at such early moments of institutionalization where typifications are not yet set (Berger & Luckmann, 1966), those results are far on the horizon. It will be rare enough to reel in a single fish (e.g., selling the first version of a new product, getting seed investment) in that pond, let alone having several fishers (i.e., entrepreneurs) going there every day to fish for subsistence. While there are several possibilities for exploration, exploiting an opportunity will indeed be a rare

event here. However, while Callon (2021) would argue that the entrepreneur who has not caught a fish (i.e., has not been able to secure a material exchange) has fished in vain, I argue that the fishing activity is fundamental for exploring possibilities, developing the meaning infrastructure, and advancing the institutionalization of a field. It is precisely this exploratory entrepreneurial activity that, once successful, triggers the process of field institutionalization and establishes a common base of shared meanings (i.e., the meaning infrastructure), which are fundamental for the exploitation of opportunities at subsequent moments.

If successful while striving to fish in a space with an ethereal meaning infrastructure, entrepreneurs will have started to learn which hooks and baits (i.e., cultural repertoires) work and do not work in that space, as well as developing a better understanding of the technique (i.e., how to cast cultural repertoires). As some combinations of bait and technique become repeatedly used, two things happen. First, at the cultural level, the meaning infrastructure starts coalescing into a condensed state, with some clusters of cultural repertoires getting hooked together through *feeble ties*. I call feeble the ties that represent at least a slim chance of successful fishing. While attemptive ties that do not enable any successful fishing will most likely be abandoned by entrepreneurs, attemptive ties that have demonstrated success become feeble ties, which entrepreneurs are likely to continue nurturing, as these represent the best strategies of action available for the moment. Second, at the material level, as fish (i.e., relevant audiences) from adjacent spaces start navigating more often through the new space, the chances of successful fishing naturally increase. At this point, success is regarded as securing an ad-hoc form of material exchange, such as getting venture capital or selling a product (i.e., occasionally reeling in a fish), instead of just being attention-based. The consequences of this

will also be two-fold. First, even though there are still many possibilities to be explored, there are fewer than at earlier moments because entrepreneurs have learned some fishing strategies that do not work. Second, new entrepreneurs are likely to be attracted to that space as well, as they will perceive other entrepreneurs successfully fishing there as a sign that a few opportunities might exist and be exploitable.

If more and more fish (i.e., relevant audiences) and fishers (i.e., entrepreneurs) are attracted to that space with a condensed infrastructure, again, several changes are likely to happen as the fishing activity (i.e., exploration/exploitation) increases. At the cultural level, the meaning infrastructure shifts into a plasmatic state, in which some predominant clusters of cultural repertoires become interconnected mostly through *stable ties*. I define stable ties as those that represent a good chance of successful fishing. While feeble ties that do not prove fruitful over time are most likely abandoned by entrepreneurs, the ties that repeatedly result in successful fishing acquire a status of stable, which will start to be regarded as the “right" ways to fish. Changes at the material level accompany these changes at the cultural level, as both fish and fishers start inhabiting the space more permanently around stable clusters of repertoires. Successful fishing now is equated with securing a more or less stable form of material exchange (i.e., reeling in fish is frequent) instead of just being regarded as ad-hoc events. With that, many opportunities are now recurrently exploited based on those “right” combinations of hooks, baits, and techniques.

At this stage, the institutionalization of the field becomes unequivocally noticeable through institutional infrastructure governance elements. For example, fish are likely to be found in distinct schools (i.e., more clearly defined audiences), fishers might be associated in

cooperatives and sell their fish in onshore markets (i.e., professionalization, subsequent material exchanges), and local journals and chefs are likely to be engaged in the fishing activity (i.e., media, arbiters of taste). While some of these elements could be present at the previous stage, it is at this stage that they truly become salient to the fishers fishing in that pond. Finally, it is worth noticing that the meaning infrastructure is described as plasmatic for two main reasons. First, the stable clusters of meaning and material activity represent competing projects for institutionalization – recall that a patchy institutional arrangement is characteristic of an intermediate level of field institutionalization. Second, while those stable clusters are likely to drive most entrepreneurs into exploiting opportunities, there should still exist a few entrepreneurs exploring possibilities in inter-/intra-clusters interstitial spaces.

Over time, some of the stable clusters of cultural repertoires within the plasmatic meaning infrastructure might prove to be better for fishing than others. If that happens, the meaning infrastructure is likely to evolve into a crystalized stage, with the competition among different institutionalization projects being mostly settled. Within a crystalized meaning infrastructure, the ties among cultural repertoires are mostly sturdy. I define sturdy ties as those that have proved over time to be the most successful ones in terms of fishing. They are, therefore, the most reliable for fishing when compared to alternative options. Whereas in the previous stage disputing "right" ways of fishing co-existed, in this stage, the dispute has been resolved, and the prevalent option(s) is(are) just taken for granted. Also, as this type of meaning infrastructure is present in highly institutionalized fields, institutional elements (e.g., governance bodies) that started becoming salient in the previous stage are now expected to be fully fledged. Within this scenario, the crystallization of the meaning infrastructure enables the

extensive exploitation of what are now regarded as several fishing opportunities in that space. Successful fishing is now securing material exchanges as a regular endeavor (e.g., reeling in fish is taken for granted). And by the same token, it discourages fishers from exploring novel possibilities, which become rare. This discouragement stems from a dual effect. First, fishers now know that many others like them have already broadly tried different baits and techniques in that space without success. Second, the ones that succeeded have been institutionalized as enticing options for exploitation.

With this description, I advanced toward responding to how entrepreneurs explore possibilities in fields with different levels of institutionalization. The mechanism of fishing via casting explains that as entrepreneurs (i.e., fishers) try to secure an exchange with relevant audiences at a material level (i.e., to reel in a fish), they create ties among cultural repertoires. In doing that, they contribute to consolidating the underlying meaning infrastructure of the space in which it takes place, advancing the level of institutionalization of the field. Also, it is important to highlight that the extent to which the fishing activity is exploratory (i.e., taps into possibilities) or exploitative (i.e., taps into opportunities) is intrinsically related to the stage of development of the existing meaning infrastructure. In addition to that, the four types of meaning infrastructure articulated herein (i.e., ethereal, condensed, plasmatic, crystalized) simply represent snapshots of what, in practice, unfolds as a process. The ethereal and crystalized infrastructure represents the ends of a continuum. Within the former, uncertainty and ambiguity are prevalent, and fishing is mostly an exploratory activity that enables tapping into possibilities. Within the latter, uncertainty and ambiguity are much lower, and fishing

becomes mostly exploitative, enabling entrepreneurs to tap into what has been constituted as opportunities.

3.6 Fishing Via Severing: Demobilizing a Meaning Infrastructure

Although fishing via casting sheds light on how entrepreneurs can advance the institutionalization of a field as they attempt to hook up cultural repertoires to explore possibilities, the theorization advanced herein is still incomplete for two reasons. First, it does not properly account for the "symbolic struggles of which the different fields are the site" (Bourdieu, 1985, p. 723). This is particularly relevant because "the field is the locus of relations of force— and not only of meaning— and of struggles aimed at transforming it, and therefore of endless change" (Bourdieu & Wacquant, 1992, p. 103). Given that the field is an arena over which meanings are disputed, it would not make sense to assume that entrepreneurs can simply tap into cultural repertoires and attempt to create novel ties as part of their fishing efforts without facing resistance or challenges. Also, the second lacuna in the proposed theorization is that it does not account for deinstitutionalization, therefore depicting institutionalization as a uni-directional process. This is a broader issue among institutional theorists. As noted by Zietsma et al. (2017), "it is surprising… that there are nearly no explicit studies on the demise of fields (although some work considers processes of deinstitutionalization, such as the work of Oliver, 1992)" (p. 44). To address these two aspects, in this section, I introduce fishing via severing.

As elaborated thus far, the entrepreneurial use of cultural repertoires to explore possibilities can be understood as an exercise of throwing a hook with a bait while hoping for a fish to bite (at the material level) and for a tie to be established with an existing meaning

infrastructure (at the cultural level). A common result of this activity is that casting will simply fail, and most ties will never develop beyond the attemptive stage. This outcome should be particularly frequent at the early moments of exploratory fishing (the apex of ambiguity and uncertainty) when fishers have just started experimenting with hooks and baits and techniques to learn what works in that space. The learning, in this case, comes at the cost of failed attempts of a singular nature, which can be described in terms of the fishing analogy as fish simply not biting. Although a common occurrence, this is not the only stance in which fishing can be unsuccessful. Even when entrepreneurs can successfully tie cultural repertoires with an extant meaning infrastructure, many forces are likely to be at play at that tie, and the cultural repertoires that have been once connected can end up being severed.

Severing can happen as various competing entrepreneurs (i.e., other fishers) dispute meanings (i.e., to also fish via casting) within an institutional field (i.e., pond), pulling cultural repertoires from extant meaning infrastructure apart for different ends, to the point that ties created by others might be severed. While attemptive ties that never hook up to an extant meaning infrastructure result in unsuccessful fishing because fishes do not bite in the first place, unsuccessful fishing has a different nature in the case of other types of ties, all of which have at some point led to successful fishing. The chance of getting a fish is the measure of the development of ties among cultural repertoires, which increases from slim in the case of feeble to very high in the case of sturdy ties. However, there is no guarantee that this progression will indeed happen, nor that it will remain at the same level indefinitely. This is the case because fishers are not fishing alone, and fish might always be lured to swim elsewhere or to bite other kinds of bait. With that, unsuccessful fishing can be experienced and described with the fishing

analogy in various ways. For example, the struggle over the same repertoires and audience can be represented as a scenario in which an increasing number of fishers start using the same hook and bait and technique aiming for the same fish in a space, therefore making successful fishing a less frequent event for all of them – assuming the schools of fish do not grow at the same rate. As another example, the struggle over the same audience but using different repertoires can be described as a circumstance in which some fishers start using a more efficient technique and/or bait targeting the same fish, which would make fishing less successful for others in that space. As a third example, the struggle over the same repertoires aiming at different audiences could be exemplified as a case in which fishers have difficulty accessing the worms they need as bait because another group of fishers recently found out that the same worms are a great bait for a different type of fish.

Through this imagery, I illustrate that severing can happen through competing fishing via casting activities that might take place in the same pond or its adjacencies. Severing will often occur as entrepreneurs explore novel possibilities, pulling and exerting tension on the ties of a meaning infrastructure to the point that cultural repertories can be split apart. Although such entrepreneurial competition over meanings is an important and common cause of severing, it is not the only one. Still related but often broader in effects is the case of technological breakthroughs. Extending the fishing analogy, this would be represented, for example, as a scenario in which fishers invent and start to use a fishing net, whereas all others are just fishing with a simple fishing pole. The new technology has the potential to completely re-signify what it means to fish in that space and can reverberate to adjacent spaces. Also, another particularly relevant alternative cause of severing is an exogenous shock, which has the

potential to affect a vast number of ties within the meaning infrastructure and with great intensity. For example, an oil blowout at an offshore platform might completely disrupt the fishing activity in that space, forcing fishers to explore alternative possibilities. With that, I propose that severing is, at the cultural level, the manifestation of the disputes and struggles that are characteristic of institutional fields and explains why ties among cultural repertoires might fail to develop or can eventually suffer a process of deinstitutionalization.

3.7 The Status of Cultural Repertoires

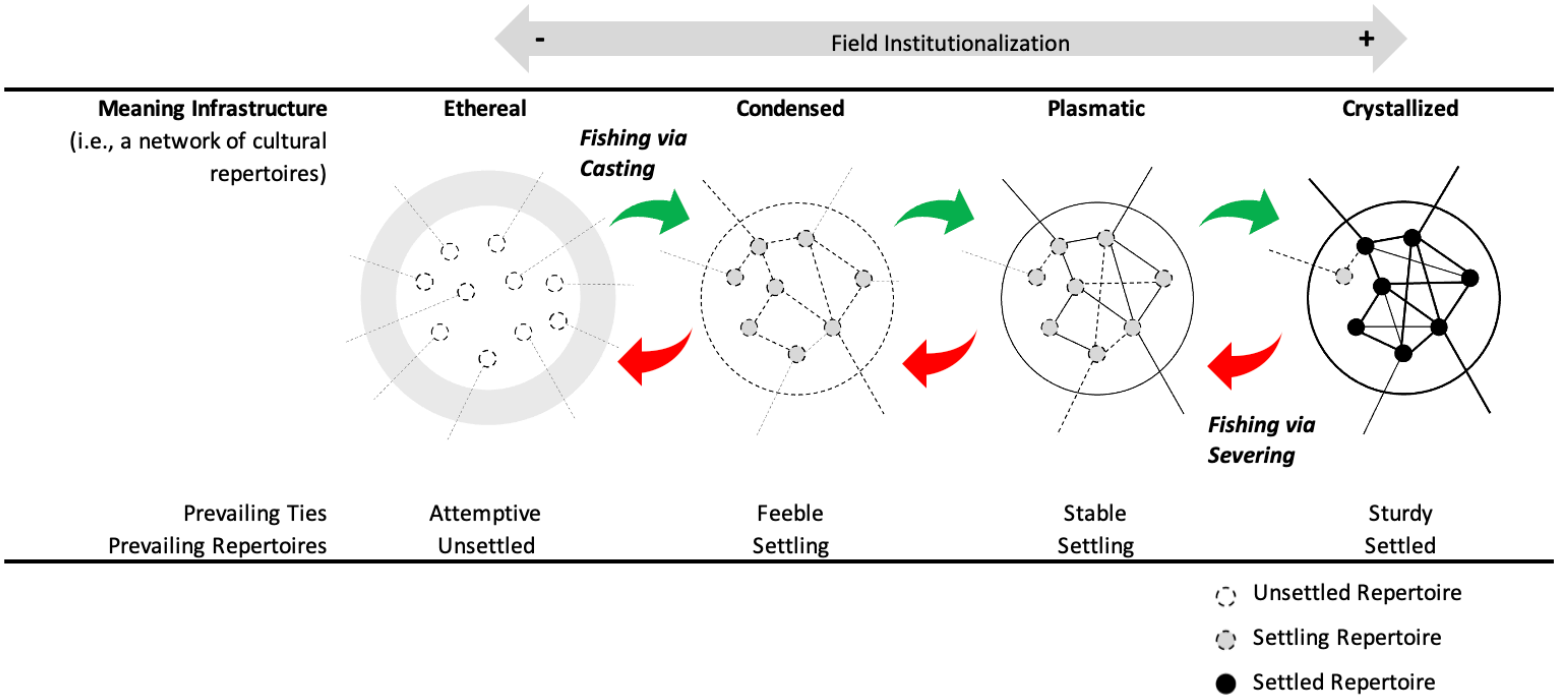
In the previous sections, I advanced a network perspective of cultural repertoires, suggesting that they are the interconnected elements that constitute a field's meaning infrastructure. The main advantage of such a relational approach is that it enables understanding entrepreneurial strategies of action as part of a macro-cultural context in which they are embedded. However, that is not the only reason to embrace this conceptualization of culture. As proposed by Swidler (1986), culture can exist in two conditions: settled or unsettled. "In settled periods, culture independently influences action but only by providing resources from which people can construct diverse lines of action. In unsettled cultural periods, explicit ideologies directly govern action" (p. 273). One problem with this notion of settled and unsettled times is that it refers to large societal dimensions, being poorly equipped to account for the fragmentation that is intrinsic to culture and that can make individual experiences quite different across distinct fields. For example, the increasing level of awareness around global warming and sustainability is likely to have a much stronger unsettling effect on the cultural level of the oil and gas industry than it is likely to have in that of the accounting field. Taking the

fragmentation and heterogeneity of culture into consideration is important because entrepreneurs devise courses of action not only based on a societal level status of culture but also, and perhaps more importantly, based on the status of cultural repertoires within and across fields.

With this, another important advantage of the network perspective that underlies the notion of a meaning infrastructure as proposed herein is that it enables the conceptualization of cultural repertoires as having different statuses, depending on the quality and quantity of the ties that connect them, which expand Swidler's (1986) account of (un)settled periods. With this, I propose that cultural repertoires can exist in at least three different conditions, which are intrinsically related to how they are likely to be accessed and deployed by entrepreneurs. First, unsettled repertoires are those that have only a few attemptive ties and are more likely to be used to explore entrepreneurial possibilities (i.e., exploratory fishing). In this stage, repertoires tend to be short-lived, as entrepreneurs might abandon them if they cannot successfully hook them up with a meaning infrastructure. Second, settling repertoires have a moderate number of feeble and/or stable ties and started being successfully hooked up with a meaning infrastructure but are still in the process of institutionalization or deinstitutionalization. They are likely to be used for exploring possibilities and exploiting opportunities (i.e., exploratory/exploitative fishing). Third, settled repertories are the ones that have been firmly institutionalized within a meaning infrastructure, having multiple and strong ties established with other repertoires and being taken for granted in the exploitation of specific opportunities (i.e., exploitative fishing). Figure 2 shows how the main elements discussed in this chapter (i.e.,

field institutionalization, meaning infrastructure, fishing via casting and severing, ties, and types of cultural repertoires) come together.

Figure 1. Different Stages of Fields' Meaning Infrastructure and Mechanisms of Entrepreneurial Exploration



3.8 Discussion

In this chapter, I provided a detailed account of how entrepreneurs can use culture to explore possibilities in fields with different levels of institutionalization, which is represented in Figure 2. The level of institutionalization of a field is directly related to four types of meaning infrastructure (i.e., ethereal, condensed, plasmatic, and crystallized), which is the field-level network of cultural repertoires that represent fields' underlying meaning system. At the lowest level of institutionalization, an ethereal meaning infrastructure (characterized by mostly attemptive ties and unsettled repertoires) occurs. In intermediate levels of institutionalization, the meaning infrastructure can be either condensed or plasmatic. In both cases, the cultural repertoires will be predominantly settling, but in the former, the dominant ties will be feeble, whereas in the latter case, the ties will be majorly stable. Finally, in highly institutionalized fields, a crystallized meaning infrastructure (characterized by the predominance of study ties and settled repertoires) happens.

Also, as discussed in the previous section and illustrated in Figure 2, fishing (via casting and severing) is the key mechanism through which entrepreneurs explore possibilities. It can either advance or deconstruct the institutionalization of a field. When fishing via casting, entrepreneurs (i.e., fishers) cast cultural repertoires (i.e., hooks with baits) aiming at a material exchange with a relevant audience (i.e., to reel in a fish). This activity happens at cultural and material levels, and success at the material level (e.g., reeling in a fish) occurs when a tie is developed at the cultural level. With this, fishing via casting is a mechanism of tie-formation. Its counterpart, fishing via severing, has the opposite effect: it helps to deinstitutionalize a field by severing ties among cultural repertoires within a meaning infrastructure. Therefore, taken

together, fishing via casting and severing serves to institutionalize or deinstitutionalize a field by building up or deconstructing its meaning infrastructure. And by the same token, the existing meaning infrastructure also enables and constrains fishing activity.

CHAPTER 4: MAPPING THE POND: THE EMERGING FIELD OF AI & ML IN CANADA

In the previous chapter, I proposed that meaning infrastructures (i.e., networks of cultural repertoires) exist in four stages in institutional fields, namely: ethereal, condensed, plasmatic, and crystallized. I argued that meaning infrastructures are fundamental for entrepreneurial activity for two main reasons. First, they provide the cultural repertoires that skilled entrepreneurs – fishers – cast as hooks and baits in their attempts to reel in a fish (i.e., to secure a material exchange, such as getting funded). Second, for fishing to be successful at the material level, entrepreneurs need to develop new ties between cast repertoires and an underlying meaning infrastructure – which, in its turn, helps to advance the institutionalization of the field. To cast some more light on the cultural repertories that should be available for entrepreneurs operating within an ethereal meaning infrastructure (i.e., which characterizes fields with a low level of institutionalization), in this chapter, I develop the following research question: *How can startup organizations access cultural repertoires in an emerging field?* To address this question, I use the rendering approach (Hannigan et al., 2019) and computational techniques to scrutinize textual data in the emerging field of artificial intelligence and machine learning (AI & ML) in Canada between 2011 and 2020. In doing that, I unveil four major cultural repertoires that are available for startups in an emerging field, namely: (1) envisioned possibilities, (2) finance and governance, (3) community engagement, and (4) existing markets.

4.1 Ethereal Meaning Infrastructure

In chapter 3, I theorized that an ethereal meaning infrastructure is typical of fields with a minimal level of institutionalization. It is to be found, for example, in inter-field interstitial spaces (i.e., a field in potentiality) and/or in the early moments of an emerging field. Within this

kind of meaning infrastructure, the ties among cultural repertoires are mostly attemptive (i.e., still to be developed). This means that exploring entrepreneurial possibilities in this circumstance happens as entrepreneurs try to mobilize and connect cultural repertoires from and with adjacent mature fields, which have a far better-developed meaning infrastructure. An ethereal meaning infrastructure should, therefore, have imprinted in it the first attempts of startup organizations at populating a novel space with meaning. Although exploitative fishing is far from the horizon at this stage, the results of early exploratory fishing are fundamental to establishing a common base of shared meanings (i.e., the meaning infrastructure), which needs to be further developed if the exploitation of opportunities is to occur at later moments.

While these aspects have been theorized in chapter 3, in practical terms, it is not clear what are the particular repertoires that are available for startup organizations attempting to fish within an ethereal meaning infrastructure. This is an important aspect to be examined because, as is known from extant research in cultural entrepreneurship,

> "the elements of … [entrepreneurial stories] are appropriate from the entrepreneur's available cultural repertoire[s], which consists of capital sourced from both his/her idiosyncratic resources and the institutional resources from the cultural milieu within which an enterprise is embedded" (Lounsbury & Glynn, 2019, p. 18,19).

In other words, specific cultural repertoires must be available for startup organizations to use as hooks and baits in their fishing efforts. To cast light on this, in the next sections, I address the following research question: *How can startup organizations access cultural repertoires in an emerging field?*

4.2 Methods

To address this research question, in this section, I (1) explain why the emerging field of AI & ML constitutes an adequate empirical context for examination, (2) detail how I collect big textual data related to this empirical context, and (3) expose how I discursively map (see Hannigan et al., 2022) the cultural repertoires available in the emerging field by using a rendering approach (Hannigan et al., 2019), which is operationalized via structural topic modeling (STM).

4.2.1 Empirical Context

The field of AI & ML has been the locus of a large volume of entrepreneurial activity. In 2022 alone, for example, more than $ 12.2 billion was raised in venture capital, a value composed of more than 4,500 individual financing events (Pitchbook, 2022). Also, maps produced by practitioners at different moments illustrate the evolving activity in this space (see Figures 2a and 2b). While all this activity makes AI & ML a promising setting for entrepreneurship studies, two other characteristics make it an excellent empirical setting to examine how startups discursively explore possibilities in a context of low institutionalization. First, it is a case of an emerging field, having its emergence associated with the rise of big data and analytics. Second, it is also a case of an interstitial field, as it possesses a multidisciplinary character, existing at the interstices of different academic fields and industries.

Figure 2a. Maps by practitioners – Turck & Zilis, 2012

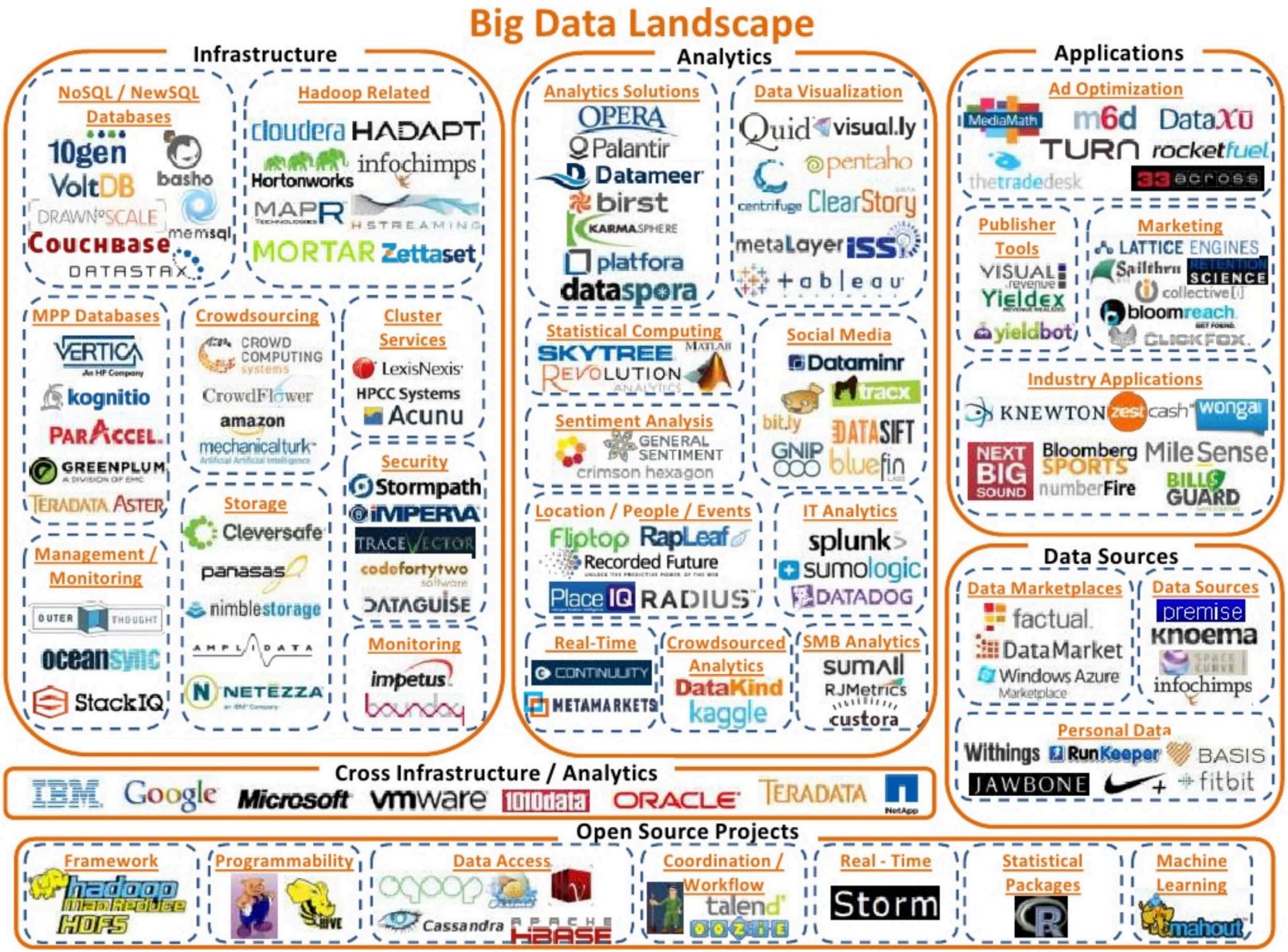
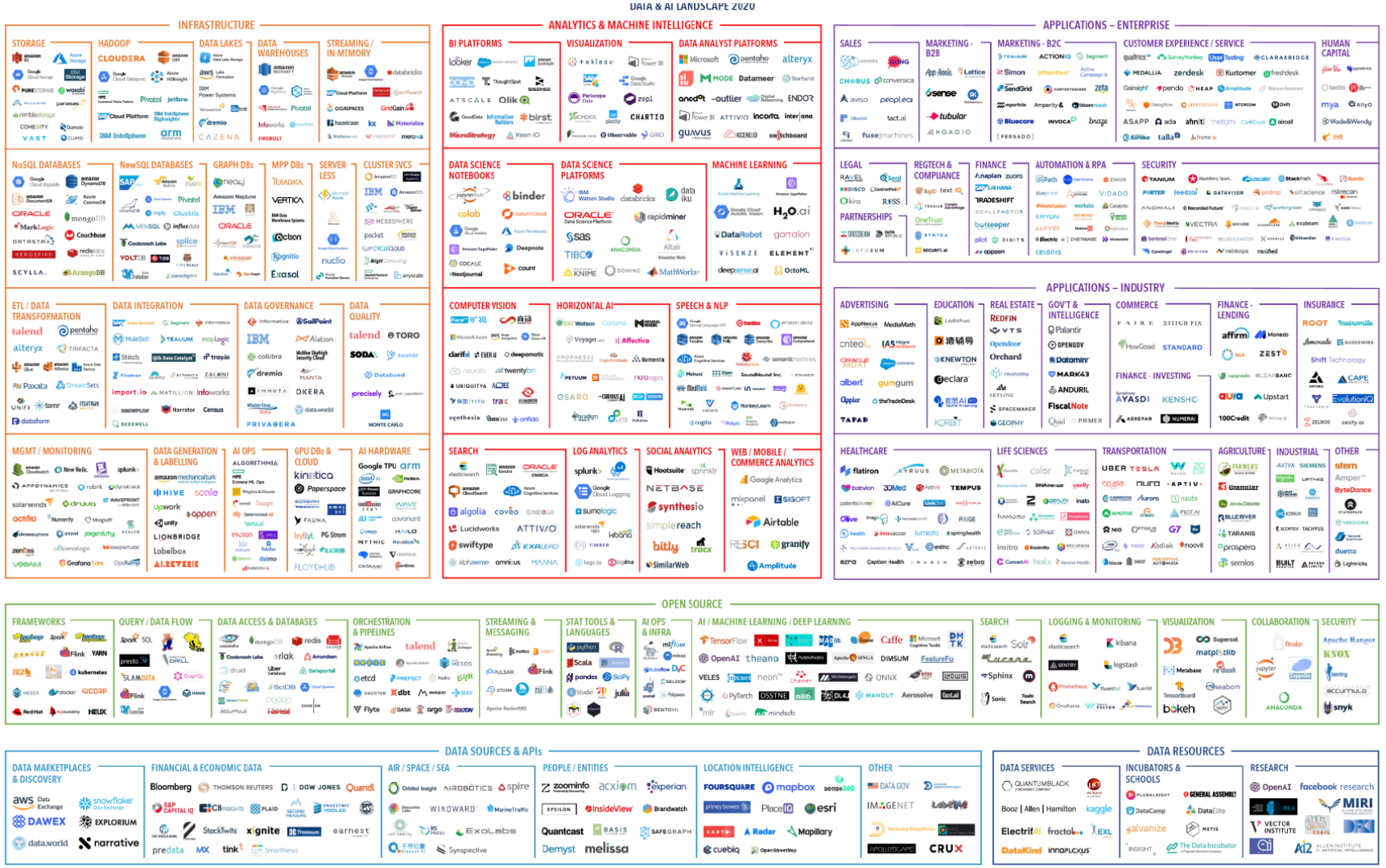


Figure 2b. Maps by practitioners – Turck & FirstMark, 2020



As highlighted by Maguire and colleagues (Maguire et al., 2004; see also Kirsch et al., 2014; Forbes & Kirsch, 2011), emerging fields are particularly relevant for studying entrepreneurial activity because uncertainty in the institutional order foments opportunistic strategies of action (DiMaggio, 1998; Fligstein, 1997) and the rewards for success are often far greater than in mature fields (Garud et al., 2002; Leblebici et al., 1991). Also, "isomorphic pressures [are] less relevant if there are no established patterns or leaders to mimic; the widely shared values associated with normative forces have yet to develop; and diffuse power makes it difficult for individual actors to coerce others" (Maguire et al., 2004, p. 659). The low level of institutionalization of emerging fields, therefore, enables entrepreneurial activity to be grounded on some shared mutual interests without substantial coordination existing among field actors.

The emergence of AI & ML was driven by a shared mutual interest that arose from the prominence of big data and data science in the last decade. As noticed by management scholars, AI & ML constitute an emerging, "nascent field [that] is evolving rapidly and at a speed that leaves scholars and practitioners alike attempting to make sense of the emergent opportunities that big data hold" (George et al., 2016, p. 1493). The concept of artificial intelligence (AI) has often been traced to an unpublished paper written by Alan Turing in 1948 (Copeland, 2004), and the term artificial intelligence came into use in 1956 when the computing scientists Marvin Minsky and John McCarty hosted a conference on the theme at Dartmouth College in New Hampshire (Alzubi et al., 2018). However, computing scientists never reached a consensus on the definition of artificial intelligence (Russell & Norvig, 2022), and even if AI was established as an academic discipline in the 1950s, "[it] remained an area of relative scientific

obscurity and limited practical interest for over half a century" (p. 5), until more recent improvements in computing power and the rise of big data enabled AI to enter business and public mainstreams.

Over the past decade, scholars have documented the extent to which organizations have found themselves inundated by big data, which is exhaustive – covering entire populations instead of samples – and updated with unprecedented velocity (Kitchin & McArdle, 2016). The yearly volume of data generated worldwide keeps growing exponentially, and it should not stop any time soon, reaching 163 zettabytes by 2025 – ten times that of 2016 (Reinsel et al., 2018). While organizations that have been able to navigate such data regimes in innovative ways achieved astonishing and dominant success (see Zuboff, 2019), there seems to be little doubt among practitioners that organizations who fail to do so will lose competitiveness and may even face extinction (Accenture, 2014). Even traditional industrial corporations, such as General Electric, have started to make a "big bet on data and analytics" (Winig, 2016). With that, the rise of big data affected all sorts of organizations and institutions worldwide (George et al., 2016), having two particularly noteworthy, interrelated effects.

First, it triggered a high organizational demand for professionals capable of making sense of extenuating data regimes. This lacuna was filled by data science's emergence and the corresponding role of data scientists, which have been dubbed as the "sexiest job of the 21st century" (Davenport & Patil, 2012). Simply put, data science is a process through which data scientists seek to render insights from data in order to enhance organizational decision-making processes and/or forecast stakeholders' (e.g., customers) behaviors and preferences, ultimately enabling the organization to obtain a competitive advantage that otherwise would not be

attainable. Nowadays, data scientists constitute a remarkably fast-growing community of practice (Brown & Duguid, 1991), something that is evidenced by one of their largest dedicated online communities (i.e., Kaggle, recently acquired by Google), which was founded in 2010 and currently counts with more than 2.5 million users spanning 194 countries (*Kaggle Review*, 2019). Also, in recent years, data scientists came to occupy the number one position in the list of top-rated jobs in the United States (*Glassdoor - Best Jobs in America*, 2019).

The second implication of big data is that it pushed the development of a sub-domain of AI known as ML (Sahay, 2021). Although the seeds of ML can also be found in Turing's 1948 paper (Copeland, 2004), the term machine learning was first used in 1959 by Arthur Samuel to describe the possibility of computers learning to perform tasks without the need to be explicitly programmed (Alzubi et al., 2018). More recently, Mohri (2018) defined machine learning as computational methods (i.e., algorithms) that use experience in the form of past information to improve performance or make predictions. As highlighted by the author, past information takes the form of electronic data, and the quality and volume of data are fundamental for the success of ML algorithms. The rise of big data was, therefore, key to the development of ML, which in turn constituted the fundamental toolkit for data science, making it possible "to intelligently analyze data and to develop the corresponding real-world applications" (Sarker, 2021, p. 160). With this, although the concept of AI & ML can be traced back decades ago, it was only with the more recent rise of big data and data science that the process of institutional emergence started truly started to become salient to actors embedded in the field.

In addition to being an emerging field, AI & ML also constitutes a case of a field that arises in the interstices of existing mature fields. AI & ML draws from different academic fields

and industries, and this interstitial characteristic makes it an empirical setting particularly relevant to understanding the exploration of entrepreneurial possibilities in a context of low institutionalization. This happens,

> "because [as] members of [intestitial fields]… come from multiple exchange fields and civil society, no one field is likely to dominate discussions on the issue, logics are multiple and fragmented, and boundaries are permeable. Over time and through negotiations, disparate groups form alliances, and shared identity and field infrastructures may emerge" (Zietsma et al., 2017, p. 25).

Such an interstitial character of AI & ML stems from it being "a multi-disciplinary field [that has] a wide range of research domains reinforcing its existence" (Alzubi et al., 2018, p. 2). As Russell et al. (2022) identified, such domains span several academic fields, such as philosophy, linguistics, economics, neuroscience, psychology, computing science, and statistics. Although much of the basic statistical knowledge (e.g., Bayesian methods, regression analyses) that underlies ML algorithms has been around for more than a century, it is important to highlight that the emerging possibilities that constitute it as an interstitial field are characterized by sharp increases in the global computational processing capacity (Cao, 2018).

As Carleo et al. (2019) pointed out, in addition to academic fields, AI & ML also permeated several industries in the last decade, such as automotive, healthcare, finance, manufacturing, and energy, making it to be "largely perceived as one of the main disruptive technologies of our ages, as much as computers have been in the 1980's and 1990's" (p. 3). In fact, the emergence of AI & ML as an interstitial field happened greatly due to the successful implementation of ML applications across virtually all sorts of industries as a source of competitive advantage (Muhamedyev, 2015; Provost & Fawcett, 2013). For example, by deploying ML algorithms to examine hundreds of thousands of data points daily generated in

the customer service department, AT&T has decided to proactively remote boot the remote internet modem of their customers under certain conditions, which reduced about 20% the customer care calls and support dispatches (*DataCamp*, 2019). In another case, the UOB bank from Singapore leveraged data science in its risk management department to reframe its risk model and drastically reduce the calculation time of the value at risk from initially 18 hours to only a few minutes (*Mentionlytics*, 2019). With this, AI & ML is clearly a case of an interstitial field that draws from several academic fields and industries.

4.2.2 Data Collection

To collect data to examine the emerging field of AI & ML, I define relevant regional and temporal boundaries (Zilber, 2020). This is particularly appropriate to understanding how entrepreneurial possibilities are explored in a lowly institutionalized because the

> "struggles over meanings and practices, which in new fields might still be loosely coupled instead of bundled in fully-fledged field-level logics (Fligstein & McAdam, 2012; Purdy, Ansari, & Gray, 2017), can take place in situated moments of interaction through which meaning and social structures are co-constituted over time" (Hannigan & Casasnovas, 2020, p. 2).

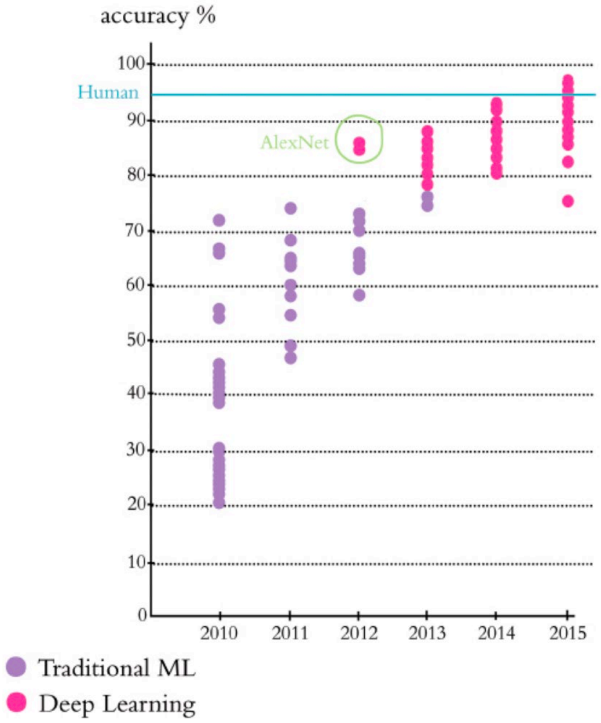
Also, paying attention to institutional moments in field trajectories is key to understanding how institutionalization unfolds as a process (Langley, 1999; Mair & Hehenberger, 2014; Drori et al., 2013). With this, I limit my data collection to Canada, a decision made for two main reasons. First, it is one of the countries worldwide, alongside the US and China, that has "an ambitious strategy and [is] making significant investments in AI" (Miailhe, 2018, p. VII; see also Brandusescu, 2021; McKelvey & MacDonald, 2019; Silcoff & O'Kane, 2023). Second, I had the chance to be embedded within Canadian AI & ML emerging field between 2018 and 2022.

During that period, I acquired substantive expertise in that empirical context (see Hannigan et al., 2021), which is fundamental for interpreting and making sense of the results of the analysis conducted herein.

In addition to bounding my data sample regionally, I also limit my data collection to the period of 10 years between the years 2011 and 2020. 2011 was selected because it marks an important inflection point in AI & ML. It was in that year that, for the first time, IBM's Watson defeated a Human Competitor in a game posed in natural language (i.e., Jeopardy), a remarkable achievement (Alzubi et al., 2018). Also, in the immediately following year, an astonishing breakthrough was accomplished in ML. Researchers from the University of Toronto "crushed the existing benchmarks [see Figure 3] with their submission [to an open competition on machine vision and image recognition (ILSVRC[1]), establishing what is] today referred to as AlexNet. This was a watershed moment. In an instant, deep learning architectures emerged from the fringes of machine learning to its fore" (Krohn et al., 2018, p. 17). The deep learning architecture of AlexNet set the foundations algorithms to surpass humans' accuracy in image recognition, which happened only three years after, in 2015.

[1] The ILSVRC competition happened yearly since 2010, and in 2015 counted with 50 teams with members from different universities and private organizations worldwide (ILSVRC, 2015).

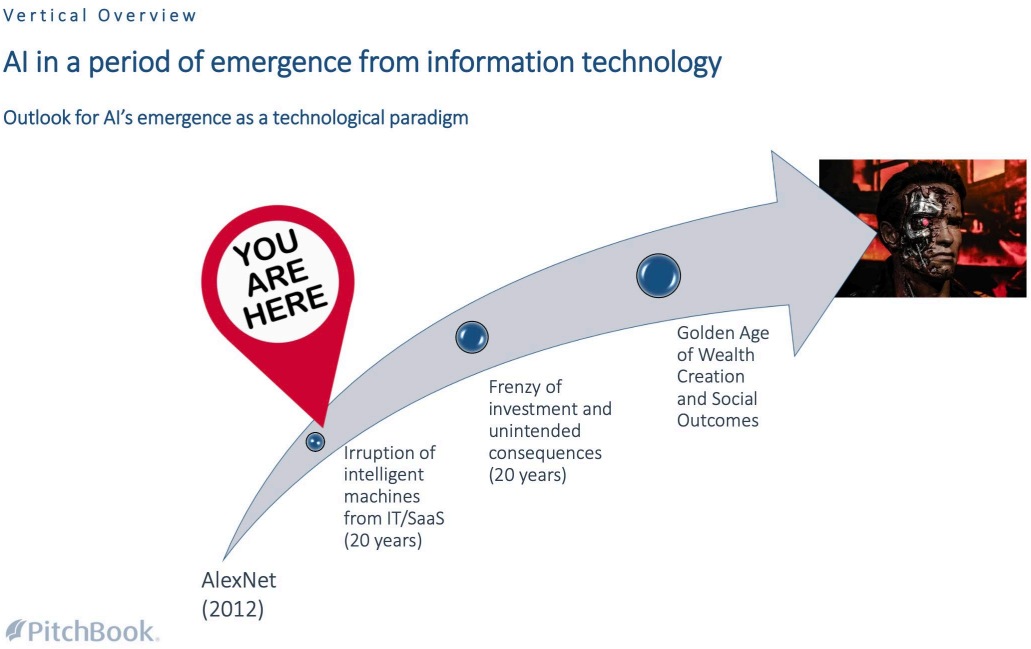
Figure 3. AlexNet Breakthrough in Machine Vision and Image Recognition (from Krohn et al., 2018)



As can be seen on Pitchbook's analysis of the emerging AI & ML field (Figure 4), AlexNet represented a foundational moment for practitioners as well. Pitchbook is a platform that specializes in furnishing data on private and public markets, such as venture capital deals, and encompasses a vast database of over 3.5 million organizations and 550 thousand investors and funds (Pitchbook, 2022). Pitchbook's reports are highly relevant to practitioners interested in identifying emerging industries. Such reports are based on an analysis of data from various sources, including company filings, industry reports, and interviews with key stakeholders. They provide valuable insights into the trends and dynamics shaping emerging industries, such as the latest technologies, market size, and growth potential. Investors, entrepreneurs, and the media,

in general, often recur to these reports for information on market trends (e.g., Financial Times, 2023; Wall Street Journal, 2023).

Figure 4. AlexNet as a Foundational Moment in AI & ML from a Practitioners Perspective (from Pitchbook, 2022)



4.2.3 Data Analysis

To discursively map (Hannigan et al., 2022) the available cultural repertoires related to AI & ML, I deploy a rendering approach, which, as defined by Hannigan et al. (2019), consists of "juxtapose[ing] data and theory (Charmaz, 2014) in order to generate new theoretical artifacts such as constructs and the links between them (Whetten, 1989)" (p. 3). To operationalize the data analysis, I used topic modeling, a computational technique that enables the examination of vast volumes of data contained in a corpus (i.e., a set of textual documents) to uncover latent discussion topics (Mohr & Bogdanov, 2013). More specifically, I used the Structural Topic

Modeling method (STM; see Roberts et al., 2013; Roberts et al., 2014, 2019), which has several advantages over the base form of topic modeling based on the LDA (Latent Dirichlet Allocation) algorithm. For example, as pointed out by Bernier et al. (2021; see also Schmiedel et al., 2018), STM (1) allows the examination of relationships between covariates of interest and topics, (2) employs spectral initialization instead of allowing solutions to vary through seeding, and (3) enables the correlation among topics. A fourth important reason why STM represents a more robust option than LDA relates to the implementation of the algorithms in open-source language and the support that is provided by the communities of practice engaged in both options. STM is available in R (through the software package STM). As recently noticed by interpretive data scientists (Aranda et al., 2021; IDeaS Workshop, 2022), the R-STM combination has come to provide important additional interpretive tools, such as the one available through the R package *stminsights*.

In using STM, I made two relevant theoretical-analytical moves. First, following the example of Bernier et al. (2021), I also chose not to use covariates because I did not have a relevant theoretical grounding for doing so. Yet, again following their example, I replicated my analysis with a covariate (i.e., the year of publication of texts), and the results were substantively identical to the model without covariates, which is the one reported herein. The second move was that I adopted a "rendering" approach, which consists of "a three-part process of generating provisional knowledge by iterating between selecting and trimming raw textual data, applying algorithms and fitting criteria to surface topics, and creating and building with theoretical artifacts, such as processes, causal links or measures" (Hannigan et al., 2019, p. 14). This approach involves iterating among three primary activities (rendering a corpus,

rendering topics, and rendering theoretical artifacts), which I follow in this section to explain the process of discursively mapping available cultural repertoires with STM.

Rendering Corpus

To select the corpus for the textual analysis, I used Factiva, a platform that aggregates content from more than 32,000 licensed and free sources (e.g., *Wall Street Journal*, *Bloomberg, Forbes*, *Washington Post*) from nearly every country worldwide (Factiva, 2021). I began the process by performing a search query based on the following terms of interest, all of which are closely related to AI & ML: *artificial intelligence*, *machine learning*, *big data*, *data science, data scientist(s), data analytics*, and *business intelligence*. I limited my search to articles published through the end of 2020 in North America[2] and in English. This search query yielded 1,661,099 documents, which I curated as a repository for closer examination. The first rendering move after this local curation was to trim the sample by date (i.e., between 2011 and 2020), which resulted in 1,388,306 documents.

After that, considering that AI & ML is a field that exists at the interstice of established industries, as previously articulated, I decided to focus on press releases, as those documents are published by incumbent players in different segments. To do that, I further trimmed down my sample by selecting only the documents categorized by Factiva with the subject code of "NPRESS," which is the code used for press releases. This resulted in 298,262 documents. In

[2] At this stage of the research, considering the objective was to map available cultural repertories and that there are substantive ties and flow of information between Canada and the US, I decided to keep documents from the US in the sample instead of immediately zooming in on Canada – a rendering move that is made in the subsequent stages of my analysis.

examining this resulting sample, I identified that it was composed of press releases curated by 209 different sources, which was characterized by an exponential distribution with a long tail. With this, I decided to focus only on the top three sources of press releases (*Businesswire*, *Dow Jones*, and *GlobeNewswire*), which further trimmed down my sample to 182,924 documents.

As a subsequent step, I followed good practices in topic modeling and trimmed down the sample based on a word count analysis. This move considers that topic modeling is, by design, suitable for analyzing homogenous sets of documents, having a poor performance in the case of corpora that bundles together documents with too disparate lengths (see Churchill & Singh, 2022). In the case of my sample, the distribution of word count by documents had a parabolic (Inverted U) shape. Informed by this curve, I performed a random qualitative inspection of documents at both ends of the distribution, based on which I decided to keep in the sample only documents containing a minimum of 250 words and a maximum of 1500 words. With that, I got to the final corpus composition in terms of documents (n = of 163,346). I took two additional steps to assess the selected documents. First, I performed a random qualitative inspection and confirmed that all verified documents were relevant to the subject of investigation. Second, I used Factiva's categorization codes to map out the top organizations that were covered by the press releases in the final corpus. All the top 20 companies identified (see Table 4) have been substantively involved in AI & ML initiatives, which also lends face validity to the set of documents selected as corpus.

Table 4. Top Organizations Covered in the Press Releases in the Corpus

1	Microsoft
2	Amazon / AWS
3	Google / Alphabet
4	IBM
5	Guidewire
6	Accenture
7	Oracle
8	Humana
9	Verint System
10	Verisk Analytics
11	General Electric
12	Premier
13	Equifax
14	Salesforce
15	Cisco
16	NICE
17	Intel
18	Gartner
19	Pitney Bowes
20	SAP

The final rendering corpus step before moving into rendering topics was the pre-processing of the documents, which is a fundamental good practice for consistent results in topic modeling (Schmiedel et al., 2018; Nelson, 2017). In a nutshell, text pre-processing consists of a series of steps (i.e., removing stopwords and non-textual characters, focusing on nouns rather than adverbs, stemming, and lemmatizing) that can be deployed to reduce noise and maximize the interpretability of topic modeling results. To perform the pre-processing, I used Python's NTLK software library pre-defined set of pre-words, in conjunction with customized code leveraging Python's Spacy software library, which enables tokenizing and manipulating textual elements. Originally, the 163,346 documents selected for the corpus had a total of 119,712,046 words, which were trimmed down to 65,745,557 words after the textual pre-processing.

Rendering Topics

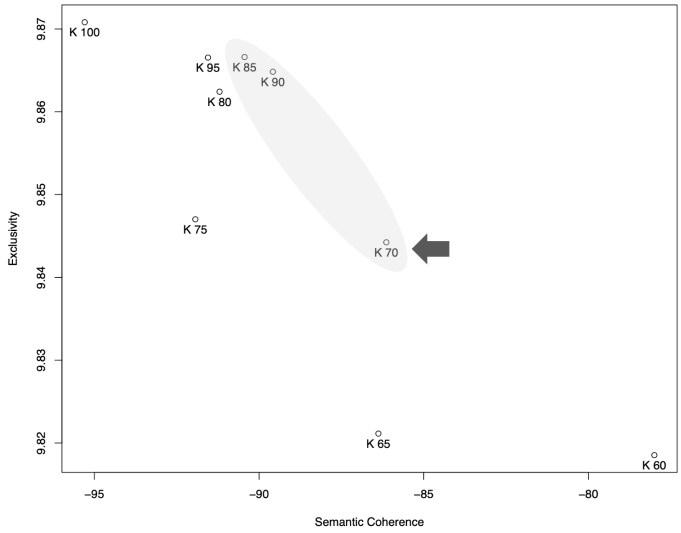
After rendering the corpus, I started the rendering topics portion of the topic modeling analysis, which consists of applying the STM algorithm and selecting an adequate number of topics. To run the STM analysis, I used the software package *stm* in R language. As Lindstedt (2019) pointed out,

> "for shorter, focused corpora (i.e., those ranging from a few hundred to a few thousand documents in size), an initial choice between five and 50 topics is best, whereas for larger, unfocused corpora (i.e., those ranging from tens of thousands to hundreds of thousands of documents in size or larger), previous research has found that between 60 and 100 topics are best (Roberts et al. 2018)" (p. 311).

With that, I ran a total of nine models with different numbers of topics (k) covering the range between 60 and 100 topics in increments of five. After that, I plotted a graph to compare the semantic coherence and exclusivity of all the models (see Figure 5). Semantic coherence correlates with the human judgment of topic quality (Mimno et al., 2011), representing how often the most probable words of a topic actually co-occur close to each other and serving as a measure of the internal coherence of topics. Exclusivity, by contrast, is a metric that captures how different topics are from each other. Taken together, the best topic modeling results in terms of interpretability are often found at "the semantic coherence-exclusivity 'frontier,' that is, where no model strictly dominates another in terms of semantic coherence and exclusivity (Roberts et al., 2014). With that, I identified the models with 70, 85, and 90 topics as the most promising ones. Still, the ultimate decision is to be based on human validation and interpretation (Grimmer & Stewart, 2013; Lindstedt, 2019). To that end, I conducted a close qualitative inspection of the sets of topic words and best representative documents that

characterized each of those three candidates (k=70, 85, 90) and selected the model with 70 topics as the most adequate.

Figure 5. Semantic coherence and exclusivity of STM models



Rendering Theoretical Artifacts

To render theoretical artifacts, I interactively accessed the outputs of the STM algorithm, such as the topic-word matrix (i.e., a list with the top clustered words per topic) and the topic-document matrix (i.e., a table connecting the 163,346 documents from the corpus, metadata from the documents, and the distribution of each document across all topics). Based on these outputs, I followed a grounded theory approach aligned with other works in management research (see Croidieu & Kim, 2018; Gioia et al., 2013; Hannigan et al., 2019) and axially coded the cluster of keywords of each topic uncovered by the algorithm. First, I interpreted the 70 clusters of words (i.e., topics) as 70 first-order concepts (Van Maanen, 1979). Table 5 shows some examples of this interpretive effort. Then, I closely examined the first-order codes looking

for overlaps and similarities, which resulted in identifying 29 second-order themes. Finally, I examined the relationship between first-order and second-order codes to further refine them into a set of simpler and complementary dimensions (See Tables 6a and 6b).

Table 5. Examples of First-Order Codes of Topics

Topic #	Words	1st Order Code
8	PROB: event conference industry session technology business world information attendee summit expert leader visit panel present speaker learn opportunity forum discuss FREX: attendee session summit forum keynote speaker expo panel booth webinar attend showcase workshop convention conference agenda symposium event discuss discussion	Attending to technological conferences, conventions, workshops, and related events.
16	PROB: threat security endpoint crowdstrike protection blackberry attack organization detection response alto palo advanced cybersecurity intelligence customer platform falcon symantec malware FREX: crowdstrike fireeye cylance imperva hexis symantec falcon blackberry endpoint keyw proofpoint mcafee threatconnect countertack avast agari riskiq alto palo malware	Testing novel endpoint protection services solutions
18	PROB: statement looking forward result information release may company future risk event actual contain uncertainty factor materially press anticipate expectation assumption FREX: looking statement forward assumption anticipate actual materially intend differ imply word uncertainty reliance obligation undue contain expectation expression except similar	Releasing forward-looking statements to the market
19	PROB: water food weather technology agriculture environmental sustainable solution global climate iteris sustainability crop transportation company avnet waste world farmer xylem FREX: iteris avnet xylem sensus crop water farmer agriculture ecs farming biohitech itron hitachi clearag climate deveron wastewater asgn agricultural grower	Providing water technological solutions to agriculture and farming
22	PROB: iot technology device sensor internet smart video product safety connected industrial camera thing system application platform solution enable connect intelligent FREX: ptc camera iot lighting blackline ceva qualcomm iiot thingworx sensor altair axis quanergy lidar visteon rfid vsblty harman symphony sensing	Licensing novel technologies on the internet of things
42	PROB: game sport entertainment gaming fan world new experience music player live team including sports ces event film brand also casino FREX: artist nextech esport klick esports festival nfl sport casino stats tournament games sports football music athlete iheartradio gaming fantasy league	Broadcasting e-sports and gaming
49	PROB: user platform new business process tool feature use time application integration product need workflow capability information allow easy access easily FREX: qlik opentext dashboard intuitive easily actuate birt workflow interface enhancement easy qliktech portal progress qlikview functionality automatically manual visual easier	Promoting business intelligence platforms and visual analytics
52	PROB: social medium blackbaud labs organization engagement brand community facebook online nonprofit news company communication twitter network conversation influencer public product FREX: blackbaud social fundraising influencer jive labs nonprofit ogilvy bazaarvoice donor netbase charitable pulse izea blkb advocacy cision keller charleston totalsocial	Promoting nonprofit and platforms for social good
59	PROB: vehicle ihs automotive car fleet driver dealer ford markit driving company new mobility auto transportation industry autonomous motor truck information FREX: ihs dealership ford cargurus markit omnitracs telematic car vehicle motor automaker autobytel carfax fleet toyota truecar suv telematics truck tire	Reporting results and perspectives in the automotive industry
65	PROB: energy utility power gas project oil construction building grid customer electric cost efficiency industry industrial asset facility production solar company FREX: renewable grid electricity energy opower gas bidgely solar oil honeywell utility crude emission construction coal emerson turbine electric gridpoint firstfuel	Announcing developments in the energy industry

Table 6a – Axial Coding by Aggregated Dimension (Part One of Two)

Topic #	1st Order Code	2nd Order Code	Aggregated
20	Launching approaches to marketing and ads campaigns leveraging real-time data	Targeted Ads	Envisioned Possibilities
67	Announcing results related to interactive mobile proximity advertising solutions		
32	Lauching novel smartphones and tablets products	Smartphones & Tablets	
22	Licensing novel technologies on the internet of things	IoT	
6	Pitching AI-based supply chain management and advanced retail planning platforms	Enterprise Software	
45	Pitching enterprise resouce planning solutions for manufacturing companies		
61	Promoting enterprise AI platforms		
69	Expanding the portfolio of ERP and CRM software		
24	Presenting AI-based solutions that can understand, analyze and respond to human engagement.	e-Commerce	
34	Providing transactional e-Commerce solutions		
46	Promoting cloud-based e-Commerce solutions for retailers		
16	Testing novel endpoint protection services solutions	Cybersecurity	
35	Providing autonomous financial crime prevention solutions		
41	Promoting data protection and cybersecutiry services		
56	Promoting cybersecurity services		
58	Expanding digital autentication and identity protection services		
9	Providing equipment and solutions to improve the performance of wireless networks	Connectivity Solutions	
48	Upgrading wi-fi and broadband telecom services.		
54	Launching novel network servers and solutions		
70	Promoting wi-fi and telecom services		
5	Expanding software frameworks for distributed storage and processing of big data	Cloud Computing & Storage	
26	Expanding services offered in cloud-based platforms		
51	Showcasing data storage solutions		
15	Announcing new manufacture developments in the semiconductors industry	Chips & Processors	
50	Developing novel silicon chips and processors		
28	Presenting data analytics solutions in risk management.	Data Science	
31	Advocating for analytics and digital solutions		
33	Announcing a new data marketplace for data scientists, business intelligence analysts and analytics professionals.		
49	Promoting business intelligence platforms and visual analytics		
57	Reporting results from analytics and business intelligence services		
68	Promoting automation and digital transformation		

Table 6b – Axial Coding by Aggregated Dimension (Part Two of Two)

Topic #	1st Order Code	2nd Order Code	Aggregated
7	Providing liquidity solutions, analytics and broker-neutral, multi-dealer platforms.	Trading	**Finance & Governance**
4	Reporting financial results to investors and stakeholders	Performance & Projections	
11	Receiving awards and recognition for excellence in products and solutions		
18	Releasing forward-looking statements to the market		
21	Announcing the company position is specific rankings		
30	Announcing new commercial agreements and dispute settlements		
2	Contracting mortgage and home equity loans integrated software platform	Loans & Financial Services	
13	Contracting software products for insurance services		
36	Providing accounting and advisory services		
47	Expanding the use of consumer credit scores in loans and credit operations		
55	Assigning credit ratings focused on insurance services		
62	Expanding and promoting investiment advisory services		
29	Discussing workforce management solutions	Internal Governance	
66	Announcing changes in board of directors and executive leadership of organizations		
63	Announcing IPOs	Funding	
3	Publishing national and segmented reports on employment rates and trends	Financial Indicators	
10	Reporting numbers and trends on different industries and segments worldwide		
12	Publishing news on equity indexes		
25	Publishing the results of market consumer studies and surveys		
40	Promoting educational programs and institutions	Giving back	**Community Engagement**
52	Promoting nonprofit and platforms for social good		
53	Supportinng and funding AI and tech-based startups	Getting support	
38	Announcing travelling atractions and destinations	Entertainment	
42	Broadcasting e-sports and gaming		
8	Attending to technological conferences, conventions, workshops, and related events.	Community building	
17	Digitizing radio and TV aiming customer-centric advertisement	TV & Radio	**Existing Markets**
1	Using analytics to index and forecast home prices	Real Estate	
23	Expanding the coverage of medical care services	Pharma & Healthcare	
27	Providing high quality value-based healthcase services		
39	Expanding pharmaceutical research with use of novel technologies		
43	Presenting results of pharmaceutical clinical trials		
64	Deploying novel healthcare digital technologies		
60	Reporting results in the mining industry based on analytics	Mining & Energy	
65	Announcing developments in the energy industry		
14	Announcing novel military contracts to acquire high-end technologies	Military	
44	Expanding business consulting services	Consulting Services	
37	Announcing supply chain agreements in the cannabis industry in Canada	Cannabis	
59	Reporting results and perspectives in the automotive industry	Automotive	
19	Providing water technological solutions to agriculture and farming	Agro Business	

4.3 Findings

Generating new theoretical artifacts is a fundamental part of the rendering theorizing process (Hannigan et al., 2019). The first of the artifacts crafted to render the response for my research question is a table with the number of each topic alongside the clusters of words

identified by the STM algorithm as belonging to each topic. At this stage, the fundamental interpretive work of the researcher (see Villamor Martin et al., 2023) is to iterate between such a table and other outputs of the STM algorithm (i.e., topic-document matrix, dynamic pages available via the R package stminsights) to make sense of the algorithmically identified clusters of words. As a result, the table is appended with a column containing the interpreted first-order codes. A sample of this interpretive exercise can be seen in Table 5. In this artifact, one can observe, for example, how I interpreted the cluster of words "looking, statement, forward, assumption, anticipate, actual, materially, intend, differ, imply, word, uncertainty, reliance, obligation, undue, contain, expectation, expression, except, and similar" (Topic 18) as "Releasing forward-looking statements to the market."

After this interpretive activity was conducted for all 70 topics identified by the STM algorithm, I created the second theoretical artifact key to answering the research question. This artifact was another table where I captured the number of topics alongside the first-order code assigned to each topic. Again, by iterating between such a table and other outputs of the STM algorithm, I started to examine the first-order codes looking for similarities, which resulted in appending the table with the interpretation of 29 second-order themes (e.g., "internal governance" encompassing the firs-order codes "discussing workforce management solution" and "announcing changes in the board of directors and executive leadership of organizations"). After that, I investigated the relationship between first-order and second-order codes, appending the table with a set of simpler and complementary aggregated dimensions. For example, the dimension "Envisioned Possibilities" comprises the second-order codes "Targeted Ads, Smartphones & Tablets, IoT (Internet of Things), Enterprise Software, e-Commerce,

Cybersecurity, Connectivity Solutions, Cloud Computing & Storage, Chips & Processors, and Data Science). The result of this exercise can be seen in Tables 6a and 6b. Four aggregated dimensions emerged from the theoretical artifacts that were rendered: *envisioned possibilities*, *finance & governance*, *community engagement,* and *existing markets*. I explain in detail each of these dimensions in the next sections.

4.3.1 Envisioned Possibilities

Envisioned possibilities refers to the entrepreneurial possibilities that drive the emergence of a novel field. It is the dimension that encompasses the largest number of topics (31 out of 70) and second-order codes (10 out of 29). Also, this dimension is heavily context-dependent, meaning that the topics that constitute it are closely related to AI & ML (the empirical context examined herein). To better understand what envisioned possibilities entails, in the next paragraphs, I "zoom in" on three of its most relevant second-order codes (i.e., data science, cybersecurity, and enterprise software). First, "data science" refers to the following topics (i.e., first-order codes): presenting data analytics solutions in risk management (Topic 28), advocating for analytics and digital solutions (Topic 31), announcing new data on marketplaces for data scientists, business intelligence analysts and analytics professionals (Topic 33), promoting business intelligence platforms and visual analytics (Topic 49), reporting results from analytics and business intelligence services (Topic 57), and promoting automation and digital transformation.

To provide a more granular account of the "data science" second-order code, I now show excerpts from the best representative documents for some of the topics that this code

encompasses. Topic 33 (announcing new data on marketplaces for data scientists, business intelligence analysts, and analytics professionals), for example, was highly prevalent in the document represented by this excerpt:

> Precisely, the global leader in data integrity, today announced the availability of its datasets on Snowflake Data Marketplace, where organizations can find, share, and list data to achieve crucial business insights. Snowflake users, such as data scientists, business intelligence analysts, and analytics professionals can leverage Precisely data within Snowflake Data Marketplace to enrich their own data with Precisely's unique location and consumer insights, for additional context to drive confident business decision-making.
>
> The datasets now available on Snowflake Data Marketplace include some of Precisely's most sought-after data products, including:
>
> -- Address Fabric, a pre-geocoded nationwide list of U.S. addresses with the most accurate geographic coordinates for each location.
>
> -- World Points of Interest - Premium, a multi-sourced point dataset providing accurate location and company information for businesses, leisure, and geographic features.
>
> -- ZIP Plus 4s, which correlates over 60 million USPS ZIP Plus 4s to U.S. census block data.
>
> (Document #381476)

Also, one can notice the relationship between the second-order code (data science), topic 49 (promoting business intelligence platforms and visual analytics), and the following sample from one of the documents that better illustrate this topic:

> Qlik (NASDAQ: QLIK) is a leader in visual analytics. Its portfolio of products meets customers' growing needs from reporting and self-service visual analysis to guided, embedded and custom analytics. Approximately 35,000 customers rely on Qlik solutions to gain meaning out of information from varied sources, exploring the hidden relationships within data that lead to insights that ignite good ideas. Headquartered in Radnor, Pennsylvania, Qlik has offices around the world with more than 1700 partners covering more than 100 countries.
>
> (Document #861371)

Second, the second-order code “cybersecurity” refers to the following topics: testing novel endpoint protection services solutions (Topic 16), providing autonomous financial crime prevention (Topic 35), promoting data protection and cybersecurity services (Topics 41),

promoting cybersecurity services (Topic 56), and expanding digital authentication and identity protection services (Topic 58). Again, to provide a more fine-grained account of "cybersecurity," I highlight snippets from the most relevant documents for some of these topics. Topic 16 (testing novel endpoint protection services solutions), for example, was dominant in the document represented by this snippet:

> CrowdStrike(R) Inc., the leader in cloud-delivered endpoint protection, today announced it has successfully completed an evaluation by MITRE's Leveraging External Transformational Solutions (LETS) program. The CrowdStrike Falcon(R) platform was validated for its ability to detect attack techniques employed by GOTHIC PANDA (also known as APT3), a sophisticated adversary with nexus to the Chinese government.
>
> Legacy malware-focused tests are incapable of providing a realistic assessment of security products' ability to detect advanced adversaries who often do not rely on malware but leverage exclusively legitimate living-off-the-land tools. On the other hand, the MITRE program is the first and only public adversary emulation leveraging the MITRE ATT&CK framework to validate security solutions' detection effectiveness against real-world tradecraft from sophisticated nation-state attackers.

(Document #596960)

In addition to this, it is also possible to observe the connection between the second-order code (cybersecurity), topic 58 (expanding digital authentication and identity protection services), and the following snippet from a document that strongly characterizes this topic:

> Through this partnership, Mitek's Mobile Verify(R) will be a key component of BioProof-ID's authentication process. Using patented science, Mobile Verify confirms users' identities by digitally validating the authenticity of government issued identity documents presented during the enrollment process. It adds a second layer of identity verification with sophisticated biometric face comparison algorithms that automatically compare the portrait extracted from the identity document with a selfie; proving that the person submitting the ID document is its rightful owner.

(Doc # 305707)

Third, the second-order code "enterprise software" refers to the following topics: pitching AI-based supply chain management and advanced retail planning platforms (Topic 6),

pitching enterprise resource planning solutions for manufacturing companies (Topic 45), promoting enterprise AI platforms (Topic 61), and expanding the portfolio of ERP and CRM software (Topic 69). Once more, to provide a more granular account of the “enterprise software” second-order code, I use fragments from the best representative documents for some of the topics covered by the code. Topic 61 (promoting enterprise AI platforms), for example, was highly prevalent in the document represented by this fragment:

> "Artificial intelligence is an imperative for industry, and we are able to apply state-of-the-art machine learning techniques with innovative platform features that make AI not only accessible but truly scalable in short order, setting the standard for enterprise AI," said Ryan Steelberg, president of Veritone. "With Veritone, clients and partners have access to future-proof cognitive engine technology and the ability to integrate their own applications, engines, and systems with aiWARE to employ artificial intelligence for competitive advantage." The recent introduction of the aiWARE real-time framework, coupled with the platform's ever-growing ecosystem of 185 cognitive engines and applications, enables users to unlock new insights and economic value from virtually any type of data

(Document #318595)

Also, it is noticeable the clear link between the second-order code (enterprise software), topic 6 (pitching AI-based supply chain management and advanced retail planning platforms), and the following fragment from one of the documents that better represents this topic:

> Atlanta-based American Software, Inc. (NASDAQ: AMSWA), delivers innovative AI-powered supply chain management and advanced retail planning platforms. Logility, Inc., a wholly-owned subsidiary of American Software, is accelerating digital supply chain optimization and advanced retail planning from product concept to customer availability and companies transform their supply chain operations to gain a competitive advantage. Recognized for its high-touch approach to customer service, rapid implementations and industry-leading return on investment (ROI), Logility customers include Big Lots, Husqvarna Group, Parker Hannifin, Sonoco Products, Red Wing Shoe Company and VF Corporation. Demand Management, Inc., a wholly-owned subsidiary of Logility, delivers affordable, easy-to-use Software-as-a-Service (SaaS) supply chain planning solutions designed to increase forecast accuracy, improve customer service and reduce inventory to maximize profits and lower costs.

(Doc # 1137970

By zooming in on the most relevant second-order codes and examining samples from the documents that better represent some of the topics encompassed by each code, it becomes evident that the aggregate dimension envisioned possibilities closely relates to the entrepreneurial possibilities that drive the emergence of a novel field. As this is a context-dependent dimension, the topics are intrinsically connected to AI & ML, the empirical context examined in this chapter.

4.3.2 Finance & Governance

Finance & governance refers to elements not central to the field emergence, such as financial indicators and funding. It is the dimension that encompasses the second-largest number of topics (19 out of 70), but it has the second-lowest number of second-order codes (6 out of 29). Also, this dimension is not nearly as context-dependent as the previous one (i.e., envisioned possibilities), meaning that the topics that constitute it might mention AI & ML, but are not really focusing on such elements. To better understand what finance and governance entails, I again zoom in on three of the most relevant second-order themes (i.e., loans & financial services, performance & projections, and financial indicators). First, "loans & financial services" refers to the following topics (i.e., first-order codes): contacting mortgage and home equity loans integrated software platform (Topic 2), contracting software products for insurance services (Topic 13), providing accounting and advisory services (Topic 36), expanding the use of consumer credit scores in loans and credit operations (Topic 47), assigning credit ratings focused on insurance services (Topic 55), expanding and promoting investment advisory services (Topic 62).

To provide a more granular account of the “loans & financial services” second-order code, I now show excerpts from the best representative documents for some of the topics that this code encompasses. Topic 2 (contacting mortgage and home equity loans integrated software platform), for example, was highly prevalent in the document represented by this excerpt:

> JACKSONVILLE, Fla., Jan. 31, 2017 /PRNewswire/ -- Black Knight Financial Services, Inc. (NYSE:BKFS), a leading provider of integrated technology, data and analytics to the mortgage and real estate industries, announced today that Cenlar FSB, the nation's leading residential mortgage subservicer, has signed a five-year renewal for LoanSphere MSP, Black Knight's industry-leading loan servicing system. MSP is a complete, scalable, end-to-end system used by financial institutions to manage all servicing processes, including loan setup and maintenance, escrow administration, investor reporting, regulatory requirements and more. Cenlar has been an MSP customer for 30 years.

(Document #887363)

Also, one can observe the relationship between the second-order code (loans & financial services), topic 13 (contracting software products for insurance services), and the following sample from one of the documents that better illustrate this topic:

> Guidewire Software, Inc. (NYSE:GWRE), a provider of software products to Property/Casualty (P/C) insurers, today announced that Endurance, a global specialty provider of P/C insurance and reinsurance, has selected Guidewire InsuranceSuite(TM) as its new platform for underwriting, policy administration, claims management, billing, and rating…
>
> "We are pleased to welcome Endurance Specialty to the Guidewire family as an InsuranceSuite customer," said Steve Sherry, group vice president, Americas Sales, Guidewire Software. "We are looking forward to working with them to help them meet their core system transformation goals."

Second, the second-order code “performance & projections” refers to the following topics: reporting financial results to investors and stakeholders (Topic 4), receiving awards and recognition for excellence in products and solutions (Topic 11), releasing forward-looking statements to the market (Topic 18), announcing the company's position in specific rankings

(Topic 21), and announcing new commercial agreements and dispute settlements (Topic 30). Again, to provide a more fine-grained account of “performance and projections,” I highlight snippets from the most relevant documents for some of these topics. Topic 11 (receiving awards and recognition for excellence in products and solutions), for example, was dominant in the document represented by this snippet:

> Verint(R) Systems Inc. (NASDAQ: VRNT) today announced that its Impact 360(R) Workforce Management(TM) software has been named a winner of the "Padrao Multichannel Quality Relationship Award" by Grupo Padrao. Receiving the honor in September 2013, Verint was recognized in the product of the year for workforce management category…
>
> "We're delighted to receive this prestigious recognition from Grupo Padrao," comments Diego Gomez, vice president, Latin America and Caribbean, Verint. "This win not only underscores Verint's commitment to creating innovative solutions for companies in customer service across the region, but also reinforces our leadership in the enterprise workforce optimization market."
>
> (Document #569616)

In addition to this, it is also possible to observe the connection between the second-order code (performance & projections), topic 21 (announcing the company's position in specific rankings), and the following snippet from a document that strongly characterizes this topic:

> Chicago, IL, Nov. 15, 2018 (GLOBE NEWSWIRE) -- OppLoans today announced it ranked number 86 on Deloitte's Technology Fast 500(TM), a ranking of the 500 fastest-growing technology, media, telecommunications, life sciences and energy tech companies in North America.
>
> OppLoans' chief technology officer, Andy Pruitt, credits in-house technology innovations and a highly trained and committed customer advocate team of Loan Advocates with the company's remarkable growth.
>
> (Doc # 585425)

Third, the second-order code “financial indicators” refers to the following topics: publishing national and segmented reports on employment rates and trends (Topic 3), reporting numbers and trends on different industries and segments worldwide (Topic 10), publishing news on equity indexes (Topic 12), and publishing the results of market consumer

studies and surveys (Topic 25). Once more, to provide a more granular account of the "financial indicators" second-order code, I use fragments from the best representative documents for some of the topics covered by the code. Topic 3 (publishing national and segmented reports on employment rates and trends), for example, was highly prevalent in the document represented by this fragment:

> ROSELAND, NJ--(Marketwired - Jan 15, 2014) - Private sector employment increased in all nine U.S. Census Bureau Divisions during the month of December 2013, according to the monthly ADP Regional Employment Report(SM), which is produced by ADP(R), a leading global provider of Human Capital Management (HCM) solutions, in collaboration with Moody's Analytics, Inc. Broadly distributed to the public each month, free of charge, the ADP Regional Employment Report measures monthly changes in regional nonfarm private employment on a seasonally adjusted basis.
>
> (Document #1155782)

Also, it is noticeable the clear link between the second-order code (financial indicators), topic 25 (publishing the results of market consumer studies and surveys), and the following fragment from one of the documents that better represents this topic:

> Coinciding with the beginning of summer and the vacation season, the latest GfK study examined satisfaction levels with amounts of leisure time around the world -- and United States consumers ranked as happiest with their time off.
>
> The study shows that 69% of US consumers consider themselves at least "fairly satisfied" with their leisure time, beating the global average by 11 percentage points. These results place the US on the top of the satisfaction scale, with Canada trailing at 67%, and Sweden in third at 57%.
>
> (Document #849834)

This exercise of zooming in on the most relevant second-order codes and examining samples from the documents that better represent some of the topics encompassed by each code, made it clear that aggregate dimension finance and governance relates to elements not central to the emergence of AI & ML. As previously articulated, this aggregate dimension is not as context-dependent as envisioned possibilities.

4.3.3 Community Engagement

Similarly to the previous aggregated dimension (i.e., finance & governance), community engagement also refers to elements not central to the field emergence, such as giving-back events and community-building initiatives. This dimension encompasses the lowest number of both topics (6 out of 70) and second-order codes (4 out of 29). Also, this dimension is not nearly as context-dependent as envisioned possibilities, which means that its topics are not really focusing on AI & ML. To better understand what community engagement entails, I once more zoom in on three of the most relevant second-order themes (i.e., giving back, entertainment, and community building). First, “giving back” refers to the following topics (i.e., first-order codes): promoting educational programs and institutions (Topic 40) and promoting nonprofits and platforms for social good (Topic 52).

To provide a more granular account of the “giving back” second-order code, I now show excerpts from the best representative documents for the topics that this code encompasses. Topic 40 (promoting educational programs and institutions) was highly prevalent in the document represented by this excerpt:

> To help students and families address summer learning loss this year, K12 Inc. (NYSE: LRN) is providing more than 150 summer courses to students across the country. K12 has more than 20 years of experience delivering online and in-person instruction. The company's summer programs will give new and returning students the opportunity to experience a ready-built online learning platform as they look forward to the school year ahead at K12-powered schools.
>
> "This summer in particular, parents are eager to find exciting, meaningful ways to keep their students engaged and keep them excited about learning," said Kevin P. Chavous, K12's President of Academics, Policy, and Schools. "Our personalized approach to summer programming helps ensure that students invest in their own academic growth and reach their full potential along the way."
>
> (Document #1500585)

Also, one can observe the relationship between the second-order code (giving back), topic 52 (promoting nonprofit and platforms for social good), and the following sample from one of the documents that better illustrate this topic:

> Blackbaud, Inc. (Nasdaq: BLKB) today released npEXPERTS: Online Marketing Insights for Nonprofits, a free eBook featuring ways nonprofits can connect with supporters, activate their donor bases and raise more money online. The eBook features contributions from 20 of the foremost online marketing experts from around the sector.
>
> "Some of the best and brightest in the nonprofit industry have collaborated to produce npEXPERTS with one goal in mind," said Frank Barry, who contributed the foreword for the book, "to help nonprofits improve their online marketing and fundraising and better serve their missions."
>
> (Document #1530108)

Second, the second-order code “entertainment” refers to the following topics: announcing traveling attractions and destinations (Topic 38) and broadcasting e-sports and gaming (Topic 42). Again, to provide a more fine-grained account of “entertainment,” I highlight snippets from the most relevant documents for some of these topics. Topic 38 (announcing traveling attractions and destinations), for example, was dominant in the document represented by this snippet:

> NEWTON, Mass., July 15, 2015 (GLOBE NEWSWIRE) -- TripAdvisor(R), the world's largest travel site*, today announced its Travelers' Choice(TM) awards for zoos and aquariums around the globe. In total, 289 winners were identified, including the top 25 in the world and dedicated lists for Asia, Canada, Europe, India, South America, South Pacific, the U.K. and the U.S. The awards are based on the millions of valuable reviews and opinions from TripAdvisor travelers across the globe. Award winners were determined using an algorithm that took into account the quantity and quality of reviews for zoos and aquariums worldwide, gathered over a 12-month period.
>
> (Document #951034)

In addition to this, it is also possible to observe the connection between the second-order code (entertainment), topic 42 (broadcasting e-sports and gaming), and the following snippet from a document that strongly characterizes this topic:

> MIAMI, April 13, 2020 /PRNewswire/ -- Torque Esports' (OTCQB: MLLLF) (TSXV: GAME) virtual esports racing series was shown live on TV for the first time in a new broadcast partnership with the Disney-owned, ESPN.
>
> Created to fill the motorsport entertainment void caused by the COVID-19 pandemic, Torque Esports was on "pole" as the first to create a live-streamed event to fill the racing void on March 15 when major events were canceled including the opening rounds of the Formula 1 and IndyCar championship. Torque aims to revolutionize esports racing and the racing gaming genre via its industry-leading gaming studio Eden Games which focuses on mobile racing games and its unique motorsport IP, including World's Fastest Gamer (created and managed by wholly-owned subsidiary IDEAS+CARS, Silverstone UK).
>
> (Doc #816121)

Third, the second-order code “community building” refers to a single topic: attending technological conferences, conventions, workshops, and related events (Topic 8). This topic was highly prevalent in the document represented by this fragment:

> Hundreds of enterprise technology experts will gather to learn the latest software and network among peers during SHARE(R) San Jose, March 5-10, at the San Jose McEnery Convention Center in San Jose, Calif. The event features a Developer Day on Tuesday, over 500 educational sessions and a trade expo.
>
> The diverse collection of educational programming set for SHARE San Jose includes technical sessions on DevOps, innovative workloads, analytics, DB2 12, z/VM 6.4, new DFSMS updates, big data, mobile, cloud and security. Attendees also have the opportunity to participate in two concurrent events: SHARE Academy on March 5 and EXECUforum 2017, March 6-7. The single-day SHARE Academy program offers two classes -- z/OS Bug Busterz or IMS Immersion -- and EXECUforum is a two-day forum for enterprise IT executives.
>
> (Document #108684)

Once again, by zooming in on the most relevant second-order codes and examining samples from the documents, it becomes evident that the aggregate dimension community engagement relates to elements not central to the field's emergence. Similarly to the previous dimension (i.e., finance & governance), this aggregate dimension is not as context-dependent as the dimension envisioned possibilities.

4.3.4 Existing Markets

Existing markets represent a markedly different alternative to envisioned possibilities. It relates to themes that closely align with entrepreneurial opportunities driving adjacent mature fields, which is evidenced by second-order codes characterizing industries such as pharma & healthcare, mining & energy, and automotive. It is the dimension that encompasses the second-lowest number of topics (14 out of 70), but it has the second-highest number of second-order codes (9 out of 29). Also, this dimension is, once again, not as context-dependent as envisioned possibilities. To better understand what existing markets entails, I once more zoom in on three of the most relevant second-order themes (i.e., pharma & healthcare, mining & energy, and automotive). First, "pharma & healthcare" refers to the following topics (i.e., first-order codes): expanding the coverage of medical care services (Topic 23), providing high-quality value-based healthcare services (Topic 27), expanding pharmaceutical research with the use of novel technologies (Topic 39), presenting results of pharmaceutical clinical trials (Topic 43), and deploying novel healthcare digital technologies (Topic 64).

To provide a more granular account of the "pharma & healthcare" second-order code, I now show excerpts from the best representative documents for some of the topics that this code encompasses. Topic 39 (expanding pharmaceutical research with the use of novel technologies), for example, was highly prevalent in the document represented by this excerpt:

> For immuno-oncology applications such as biomarker discovery and neoantigen identification, Personalis developed its leading immunogenomics platform, ACE ImmunoID, with ACE Technology at its core for enhanced sequencing and analytical performance. ACE ImmunoID uses augmented whole exome and transcriptome assays to provide comprehensive genomic profiling of the tumor, its microenvironment, and tumor-specific neoantigens to help biopharmaceutical companies develop personalized cancer immunotherapies…

> Personalis, Inc. (www.personalis.com) is a leading precision medicine company focused on advanced NGS-based services for immuno-oncology and cancer for clinical trials and translational research. Personalis also provides DNA and RNA sequencing and data analysis of human genomes.
>
> (Document #1114385)

Also, there is a clear relationship between the second-order code (pharma & healthcare), topic 64 (deploying novel healthcare digital technologies), and the following sample from one of the documents that better illustrate this topic:

> SAN FRANCISCO, April 29, 2020 (GLOBE NEWSWIRE) -- iRhythm Technologies, Inc. (NASDAQ: IRTC), a leading digital health care solutions company focused on the advancement of cardiac care, today announced its virtual platform to support patients and clinicians in the wake of COVID-19 by offering home enrollment for the company's Zio XT and Zio AT heart monitoring devices. Since patients with heart conditions are a particularly vulnerable population for COVID-19 and should avoid unnecessary visits to a doctor's office, they can receive and apply the device from the comfort of their homes. In addition, during this public health emergency, physicians treating COVID-19 patients can now use Zio AT mobile cardiac telemetry to monitor their heart rhythms in both inpatient and outpatient settings, freeing up hospital beds and additional resources.
>
> (Document #1299242)

Second, the second-order code “mining & energy” refers to the following topics: reporting results in the mining industry based on analytics (Topic 60) and announcing developments in the energy industry (Topic 65). Again, to provide a more fine-grained account of “mining & energy,” I highlight snippets from the most relevant documents for these topics. Topic 60 (reporting results in the mining industry based on analytics) was dominant in the document represented by this snippet:

> LONGUEUIL, QC, Nov. 20, 2018 /CNW Telbec/ - Azimut Exploration Inc. ("Azimut" or the "Company") (TSXV: AZM) is pleased to report the results of a preliminary assessment program on its recently acquired wholly-owned Elmer Property located in the James Bay region of Quebec…

> The best gold grades from this high-grade property include 77.8 g/t Au and 167.0 g/t Ag at the Gabbro Zone, 54.6 g/t Au at the Patwon Zone and 8.56 g/t Au at the Gold Zone (grab samples; see Figures 1 to 3).
>
> (Document #791766)

In addition to this, it is also possible to observe the connection between the second-order code (mining & energy), topic 65 (announcing developments in the energy industry), and the following snippet from a document that strongly characterizes this topic:

> RICHMOND, Va., Feb. 3, 2015 /PRNewswire/ -- Today, Dominion Voltage, Inc. (DVI), a grid optimization subsidiary of Dominion Resources, Inc. (NYSE: D) announced their participation in an innovative Volt/VAR optimization pilot program at Pacific Gas and Electric Company (PG&E).
>
> "Achieving the true potential of an existing AMI infrastructure investment by using it for multiple applications is one of the great promises of the smart grid," said Todd Headlee, DVI's Executive Director. "Using Silver Spring's smart grid network for Volt/VAR optimization and voltage stabilization is a perfect example of this, and will lead to a more efficient grid with an increased tolerance of rising levels of solar customers."
>
> (Document #759326)

Third, the second-order code “automotive” refers to a single topic: reporting results and perspectives in the automotive industry (Topic 59). This topic was highly prevalent in the document represented by this snippet:

> Ford F-Series sales of 67,412 pickups marked a 9 percent increase, boosting a 7 percent year-to-date increase with 324,307 pickups sold.
>
> "Customers are showing how much they value the fuel economy, towing capability and technology we offer in our trucks with F-Series sales producing another strong gain in May," said Mark LaNeve, Ford vice president, U.S. Marketing, Sales and Service. "With strong demand for pickups, vans and SUVs, Ford brand saw average prices grow almost $1,500 per vehicle in May -- about 50 percent higher than the industry."
>
> Ford Transit sales increased 16 percent with 13,640 vehicles sold, lifting overall Ford van results 7 percent for their best May performance since 1978.
>
> (Document #155086)

Closely examining the most relevant second-order codes and samples from the documents related to the existing markets dimension, it becomes clear that it relates to entrepreneurial opportunities from adjacent mature fields. In this sense, existing markets is markedly different from the dimension envisioned possibilities.

4.4 Discussion

The four aggregated dimensions (i.e., envisioned possibilities, finance & governance, community engagement, and existing markets) revealed through the rendering process represent four major cultural repertoires that are available for startup organizations in an emerging field – which answer the research question set forth in this chapter. These are the hooks and baits that fishers can cast when fishing in a new pond (i.e., an emerging field), the fundamental elements without which cultural entrepreneurial exploration would not be possible (see Lounsbury and Glynn, 2011, 2019; Wry et al., 2011; Lounsbury & Hannigan, 2022). These major cultural repertoires have important differences among themselves, which are particularly relevant in that these differences should both enable and constrain startup organizations in terms of the strategies of action (i.e., the fishing strategies) that can be devised (Swidler, 1986).

Envisioned possibilities represent repertoires that closely align with the entrepreneurial possibilities that animate the emergence of the novel field (themes related to AI & ML in the empirical case studied herein) where fishing takes place. Alternatively, finance and governance and community engagement are repertoires that focus on themes not central to the field's emergence (e.g., financial projections and giving-back events). Finally, existing industries

constitute a strikingly different alternative to envisioned possibilities, in which it stands for repertoires that closely align entrepreneurial opportunities that animate adjacent mature fields (e.g., themes related to industries such as healthcare and energy). Based on what has been discussed about the underlying meaning infrastructure of fields at different levels of institutionalization (Chapter 3), I conjecture that not all these hooks and baits will be equally effective for fishing, which is a subject that I will examine in the next chapter.

CHAPTER 5: FISHING STRATEGIES IN THE EMERGING FIELD OF AI & ML IN CANADA

In Chapter 3, I articulated that fishing is an activity that happens both at cultural and material levels. More specifically, I defined that successfully reeling in a fish at the material level (e.g., getting funded, securing a new customer) indicates that the entrepreneur has been able to successfully develop ties between the cast cultural repertoires and an extant meaning infrastructure at the field level (i.e., the pond where the entrepreneur is fishing). Also, I established that cultural repertoires (i.e., the hooks and baits) are a fundamental part of a fishing strategy (i.e., the broader strategy of action devised by entrepreneurs). In this chapter, I leverage these conceptualizations to empirically respond to the following research question: How can startup organizations effectively use fishing strategies in an emerging field? To respond to this question, I start by using the findings from chapter 4 (i.e., the four major cultural repertoires available for startup organizations in an emerging field, namely: envisioned possibilities, existing markets, finance & governance, and community engagement) to distinguish four possible fishing strategies in an emerging field (i.e., *visionary*, *steward*, *communitarian,* and *pragmatic*). Then, I hypothesize how those strategies might enable or constrain startup organizations' ability to reel in a fish (i.e., to secure funding) in an emerging field. After that, I identify 733 startup organizations in the emerging field of AI & ML in Canada between 2011 and 2020 (the same empirical context from chapter 4) and map out which startups discursively deployed each of the four fishing strategies. After that, I assess the relationship between the deployed fishing strategies and the ability of those startup organizations to obtain their first round of funding.

5.1 Fishing Strategies

As discussed in chapter 3, fishing strategies are the broader strategies of action devised by startup organizations. One of the key elements of fishing strategies is the hooks and baits (i.e., the cultural repertoires) that are cast. As identified in chapter 4, there are four major hooks and baits available for startups in an emerging field: envisioned possibilities, finance & governance, community engagement, and existing markets. This means that four major strategies can be used for fishing in an emerging field. First, in casting cultural repertoires related to envisioned possibilities, startup organizations deploy what I define as a *visionary* fishing strategy. In the case of AI & ML, for example, repertoires related to themes such as the internet of things, cybersecurity, and data science could be discursively cast by a startup deploying a visionary strategy. Second, startups that privilege finance and governance cultural repertoires (e.g., by focusing on themes such as funding, financial projections, and workforce composition) subscribe to what I name a *steward* fishing strategy. In adopting this strategy, startups discursively signal responsible management and oversight of resources as a priority. Third, startups that cast cultural repertoires related to community engagement employ what I define as a *communitarian* fishing strategy. Such a strategy is characterized by an emphasis on aspects that relate to the existing local community (e.g., giving-back and community-building events, entertainment activities, and workforce qualification programs).

Finally, casting cultural repertoires pertaining to existing markets characterize a fourth fishing strategy that I label *pragmatic*. I call it pragmatic because while the first three strategies focus on cultural repertoires within the meaning infrastructure of the emerging field (i.e., an ethereal meaning infrastructure, as discussed in chapter 3), this fourth strategy focuses on

cultural repertoires within the well-developed meaning infrastructure from adjacent mature fields (i.e., a crystallized meaning infrastructure, as discussed in chapter 3; e.g., healthcare, energy, automotive). With that, four major fishing strategies can be adopted by a startup organization in an emerging field: visionary, steward, communitarian, and pragmatic (See Table 7). Although such strategies can be inferred from chapters 3 and 4, an empirical analysis is necessary to ascertain their effectiveness, which leads to the research question that I address in the following sections: How can startup organizations effectively use fishing strategies in an emerging field?

Table 7. Fishing Strategies in an Emerging Field

Major Cultural Repertoires (from Chapter 4)	Fishing Strategy	Focal Meaning Infrastructure
Envisioned Possibilities	Visionary	Ethereal (Emerging Field)
Finance & Governance	Steward	Ethereal (Emerging Field)
Community Engagement	Communitarian	Ethereal (Emerging Field)
Existing Markets	Pragmatic	Crystallyzed (Adjacent Mature Fields)

5.2 Hypotheses

As discussed in chapter 3, entrepreneurs, referred to as the fishers, fish by casting available cultural repertoires (i.e., hooks and baits) in a particular institutional field, which can be seen as a pond. In doing that, their goal is to secure a material exchange with a relevant audience member (e.g., potential investors or customers) or, in other words, to reel in a fish. This process can occur through various fishing techniques, such as networking, rumors or gossips, and public discourse. The use of cultural repertoires and specific mobilization techniques, combined with other factors like regional and timing components, make up the

broader strategy of action employed by entrepreneurs, which are the fishing strategies. Therefore, fishing encompasses both cultural and material aspects, and succeeding in reeling in a fish indicates that the entrepreneur has successfully established a connection between cast cultural repertoires and an underlying existing meaning infrastructure. With this, in essence, fishing via casting is a mechanism of tie formation among cultural repertoires, which serves to develop the meaning infrastructure and to promote the institutionalization of a particular field.

An emerging field, particularly in its early moments (i.e., the "pre-history" of product commercialization, Kirsch et al., 2014, p. 220), is characterized by an ethereal meaning infrastructure, which means that ties among cultural repertoires are still to be developed (i.e., they are attemptive). Particularly, the meaning infrastructure on issues that are central to the emerging field should be precarious, as contingencies of meaning and discourse (i.e., cultural holes; Pachucki & Breiger, 2010) are extensive. Getting the first connections among cultural repertoires by targeting the core of an ethereal meaning infrastructure should be especially challenging, which in its turn makes reeling a fish in (i.e., succeeding at the material level) an unlikely event. With this, a fishing strategy that focuses on the core of an ethereal meaning of infrastructure should actually hinder startups' chances of getting funded, which leads to the following hypothesis:

H1: A visionary fishing strategy should have a negative effect on startup organizations' ability to get their first round of funding.

It might seem to some fishers that a more promising alternative to such a strategy would be focusing on cultural repertoires related to the periphery of the emerging field's meaning infrastructure. This is precisely what the steward and communitarian strategies attempt to do. Bourdieu's work (1977, 1984) could be mentioned to hypothesize that these strategies would represent a higher possibility of success, given that the periphery of institutional fields is a likely source of change. However, while this might be true in the case of fields with meaning infrastructures that have been further developed (e.g., plasmatic, crystallized), that should hardly be the case within an ethereal infrastructure. The ties among cultural repertoires within the periphery of an ethereal infrastructure are also still to be developed (i.e., attemptive). Targeting the periphery of such a meaning infrastructure is also challenging, and reeling a fish in should still be a rare occurrence. This leads to the following hypotheses:

H2: A steward fishing strategy should have a negative effect on startup organizations' ability to get their first round of funding.

H3: A communitarian fishing strategy should have a negative effect on startup organizations' ability to get their first round of funding.

While the three fishing strategies aforementioned (i.e., visionary, steward, and communitarian) focus on an ethereal meaning infrastructure – which is likely to be too underdeveloped both at its core and periphery for any of them to succeed – the fourth strategy

discussed in the previous section (i.e., pragmatic) focuses on the meaning infrastructure of adjacent mature fields, which should be particularly well developed. As highlighted in chapter 3, mature fields have a crystallized meaning infrastructure, mostly characterized by stable cultural repertoires interlinked via sturdy ties. With this, casting cultural repertoires (i.e., throwing a hook) aiming to establish ties with a crystallized infrastructure from adjacent fields should represent a better chance of success for startups fishing in an emerging field, which leads to the following hypothesis:

> H4: A pragmatic fishing strategy should have a positive effect on startup organizations' ability to get their first round of funding.

5.3 Methods

To test these hypotheses and respond to my research question, in this section, I (1) detail how I collected data related to the empirical context (i.e., the same investigated in the previous chapter), (2) describe the operationalization of four main independent variables, (3) explicate the implementation of the key independent variable and the estimation technique, and (4) explain the operationalization of several control variables.

5.3.1 Empirical Context and Data Collection

In this chapter, I used the same empirical context from Chapter 4, namely: the emerging field of AI & ML in Canada between 2011 and 2020 (see section 4.1). To identify Canadian startups in this context, I used Pitchbook, a platform that is specialized in providing information

on private and public markets, including venture capture deals, covering more than 3.5 million organizations and 550 thousand investors and funds (Pitchbook, 2022). Pitchbook's market analysts had already created a category of organizations playing in the AI & ML space. Based on that categorization, I screened for active companies with headquarters in Canada and that were founded between 2011 and 2020, which is the period of interest of this study. This resulted in a list of 733 startups, which I curated locally, together with information such as the founding year, social media handles, and funding obtained.

The central tenet of cultural entrepreneurship is that entrepreneurs tell stories to be distinctively positioned to access resources needed for their enterprises. In a similar fashion, incumbent organizations also tell stories to be distinctively positioned within existing fields. However, while incumbent organizations will mostly have at their disposal the necessary resources for channeling stories through mediums such as press releases, that is rarely the case for startups, particularly during the early moments of a new venture. As already noticed by organizational theorists and entrepreneurship scholars, social media, and Twitter particularly, have come to provide important channels for entrepreneurs and novel organizations to access relevant audiences, such as potential investors and customers (Fischer & Reuber, 2011; Hannigan et al., 2021; Shi et al., 2014; Zhao et al., 2011). With that, I turned to Twitter to capture the discourse produced by the AI & ML startups identified through Pitchbook. Out of the 733 startups, 520 had public Twitter accounts. To curate the tweets produced by the startups with Twitter accounts, I developed an algorithm in Python leveraging the API (application programming interface) that Twitter enables for researchers. With the algorithm, I

curated 226,936 tweets published by the startups between 2011 and 2020. These tweets were produced by 458 startups, as 62 out of the 520 with a public Twitter account never tweeted.

5.3.2 Independent Variables

The four independent variables in this study are the fishing strategies discursively deployed by each startup organization. To identify which fishing strategy was deployed by each startup as part of its discursive efforts via Twitter, I used content analysis (i.e., word counts based on dictionaries). To this end, I first created a dictionary of words for each of the four available cultural repertories (i.e., envisioned possibilities, finance and governance, community engagement, and existing markets) related to the four fishing strategies (i.e., visionary, steward, communitarian, and existing markets; see Table 7). This was done by attributing as the dictionary of each fishing strategy a combination of the top 20 FREX words[3] for each topic that was part of its respective cultural repertoire (the aggregated level identified via axial coding; see Rendering Artifacts in chapter 4). As each aggregated level comprised a different number of topics (see Tables 6a and 6b), this initial rendering move resulted in dictionaries with disparate lengths. To standardize the number of words across all dictionaries, my subsequent rendering move was to analyze the combined distribution weights for the top n words across all dictionaries. In doing that, I found n = 150 words to be an inflection point, which I selected as the length for all dictionaries after running a sensitivity analysis. With this, I trimmed all

[3] FREX words are the words that are both frequent and exclusive in each topic as identified by the STM algorithm, therefore serving to distinghish topics among themselves.

dictionaries to contain only their top 150 FREX words (Table 6 shows a sample of words per dictionary).

Table 8. Sample of Top FREX Words (from Topic Modeling; see Chapter 4) Used to Construct the Dictionaries for Content Analysis

Visionary	Steward	Communitarian	Pragmatic
data	advisors	event	agriculture
cybersecurity	appraisal	summit	car
analytics	banker	charitable	aviation
endpoint	cap	influencer	healthcare
predictive	credit	advocacy	construction
additive	employment	esport	military
chatbot	expectation	educational	motor
android	fund	social	genomics
authentication	index	academic	utility
aws	investor	sport	television
chip	job	conference	biotechnology
encryption	liquidity	football	energy
infrastructure	loan	showcase	gas
kubernetes	officer	university	cannabis
neural	payroll	gaming	turbine
processor	ratings	nonprofit	solar
robotics	obligation	travel	renewable
sensor	statement	tournament	pharmaceutical
tableau	trading	webinar	water
ios	workplace	college	health

Before running the content analysis based, I split the discourse produced by each startup over periods of six months, a rendering move that intended to ensure more granularity than would be possible in a year-level period – a step that is particularly relevant for the subsequent assessment of the relationship between discourse and resource acquisition. Finally, after running the content analysis, I obtained a matrix with 733 rows (one for each startup) and 80 columns containing the word counts related to the four cultural repertoires over 20

semester periods (between 2011 and 2020)[4]. For each startup and time period, I kept only the dominant cultural repertoire (i.e., the one with the highest word count). In only approximately one percent of the cases it happened a tie in the highest word counts. In those cases, I kept all the maximum word count values. Also, to rule out the possibility of reverse causation in the data analysis, I lagged all independent variables by one interval (i.e., one semester). The entire process of dictionaries creation and content analysis described herein was performed via customized algorithms that I developed in Python.

5.3.3 Dependent Variable and Estimation Technique

The dependent variable in this study is the likelihood of startups securing initial funding. Getting funding for the first time is coded as 1 in the interval (i.e., semester) in which such an event happens; otherwise, the dependent variable is coded as a zero from entry to the final period observed (i.e., the 20 semesters between 2011 and 2020). I used event history analysis to model this likelihood, which takes into account not only whether initial funding happened but also the time taken for that event to take place. The dependent variable is expressed as the first funding event likelihood at an interval t, given that such an event did not take place prior to interval t:

$$h(t) = \lim_{\Delta t \to 0} \frac{\mathrm{P}(t, t + \Delta t)}{\Delta t}$$

[4] Not all cells contained word counts from content analysis. As previously described, many organizations did not have a public Twitter account or never tweeted in the first place.

I use Cox proportional hazard regression to test the hypotheses, which is appropriate as a Cox regression permits time-varying covariates while not making assumptions about the underlying hazard distribution (Cleves et al., 2008).

5.3.4 Controls

While all startup organizations identified for this study primarily operate in AI & ML, they do have a certain level of specialization in other segments, which would be expected, particularly considering the interstitial character of the emerging field. As such specialization could influence their ability to get funding, I controlled for the secondary market classification of the startup organizations. This was operationalized via seven dummy variables, one for each of the seven segments identified via Pitchbook's categorization: information technology, healthcare, business-to-business, business-to-consumer, financial, materials, and energy. Another element that could influence the ability of startups to get funding is the volume of discourse produced by each one of them. To control for this, I created a control variable based on the count of tweets published by each startup. Also, considering that this study spans a period of 10 years, the tenure of the startups could have an effect on their ability to secure investments. This led to the creation of a control variable based on the semester in which startups were founded. Finally, another important element to control was the embeddedness of startups in regional entrepreneurial ecosystems. There are four major entrepreneurial ecosystems in Canada, located in the provinces of British Columbia, Ontario, Quebec, and Alberta (Hannigan et al., 2021). To control for this, I created five dummy variables, one for each of the four major entrepreneurial ecosystems and a fifth one to capture startups that were not

located in any of them. Table 9 presents descriptive statistics and correlations for all variables used in this study.

Table 9. Descriptive Statistics and Correlations

	Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	is IT	0.65	0.48																	
2	is Healthcare	0.14	0.35	-0.55																
3	is B2B	0.13	0.34	-0.53	-0.16															
4	is B2C	0.05	0.21	-0.31	-0.09	-0.09														
5	is Financial	0.01	0.12	-0.17	-0.05	-0.05	-0.03													
6	is Materials	0.01	0.10	-0.14	-0.04	-0.04	-0.02	-0.01												
7	is Energy	0.01	0.08	-0.11	-0.03	-0.03	-0.02	-0.01	-0.01											
8	Tweets Count (lag)	6.03	48.76	0.01	-0.03	0.03	-0.01	0.02	-0.01	-0.01										
9	Semester Founded	12.91	4.34	-0.03	0.09	-0.08	0.02	0.01	0.05	-0.02	-0.11									
10	Not in Major Ecosystem	0.06	0.23	-0.07	-0.02	0.16	-0.02	-0.03	-0.03	-0.02	0.00	0.04								
11	is British Columbia	0.15	0.36	0.05	-0.05	-0.04	0.04	0.02	-0.04	0.01	0.02	-0.04	-0.11							
12	is Ontario	0.50	0.50	0.03	-0.01	-0.03	0.02	0.01	-0.02	-0.05	0.01	0.02	-0.25	-0.43						
13	is Quebec	0.19	0.39	-0.04	0.07	-0.03	-0.04	-0.03	0.10	0.04	-0.01	-0.04	-0.12	-0.21	-0.49					
14	is Alberta	0.09	0.29	-0.01	0.00	0.01	0.00	0.01	-0.03	0.04	-0.01	0.03	-0.08	-0.14	-0.33	-0.16				
15	Visionary (lag)	0.08	0.60	0.02	-0.04	0.03	-0.01	0.00	-0.01	-0.01	0.28	-0.13	-0.02	0.01	0.00	-0.01	0.00			
16	Steward (lag)	0.08	0.59	0.02	-0.04	0.03	-0.02	0.01	-0.01	-0.01	0.24	-0.12	-0.02	0.01	0.03	-0.02	-0.02	0.00		
17	Communitarian (lag)	0.14	0.77	0.00	-0.03	0.03	0.00	-0.01	-0.01	-0.01	0.31	-0.13	-0.01	-0.01	0.00	0.01	0.01	0.01	-0.01	
18	Pragmatic (lag)	0.09	0.61	-0.04	0.02	0.05	-0.02	-0.01	-0.01	0.00	0.23	-0.10	-0.02	0.01	0.00	0.01	-0.01	0.00	-0.01	-0.01

5.4 Findings

The regression results are in Table 10. Model 1 comprises only the control variables. It shows that some specializations in secondary industries have statistically significant, positive effects on the ability of startup organizations to secure their first round of funding: Business-to-consumer (β=0.15, p<0.05), Materials (β=0.88, p<0.001), and Energy (β=0.48, p<0.01). Also, how much a startup tweets (i.e., the volume of discourse produced) does not seem to affect its ability to secure initial investment, a result that is also statistically significant (β=0.00, p<0.001). Another statistically significant result is the semester in which the startup organization was found. Tenure has a slightly negative effect on the ability to obtain investment for the first time (β=-0.02, p<0.001). Finally, the analysis of embeddedness in major entrepreneurial ecosystems also has statistically significant results. However, the results indicate that startup companies not embedded in any major AI & ML entrepreneurial ecosystem are better positioned to obtain first funding when compared to those in any of the major ecosystems. This is unexpected given the extant research highlighting the importance of entrepreneurial ecosystems for startup organizations (Autio et al., 2014; Brown & Mawson, 2019; Feldman et al., 2019; Spigel, 2020; Wurth et al., 2022). Still, the coefficients are aligned with ecosystems' level of development, which means that startups in more developed AI & ML ecosystems are more likely to get their first round of funding (British Columbia: β=-0.47, p<0.001; Ontario: β=-0.57, p<0.001) when compared to those in less developed AI & ML ecosystems (Quebec: β=-0.70, p<0.001; Alberta: β=-0.82, p<0.001).

Model 2 introduces the first key independent variable: the visionary fishing strategy. It supports hypothesis 1 (H1), as there is a negative, statistically significant result between this

fishing strategy and the ability of startups that deployed it to secure initial funding (β=-0.09, p<0.01). This also seems to corroborate what has been previously theorized about entrepreneurs that tout "too much, too soon" (Lo & Rhee, 2022, p. 157) visionary ideas. Model 3 introduces the steward fishing strategy, which is the second key independent variable in this study. As can be seen, there is support for hypothesis 2 (H2). There is a negative, statistically significant relationship between deploying a steward strategy and a startup's ability to get its first round of funding (β=-0.20, p<0.001). The third key independent variable of this study (i.e., the communitarian fishing strategy) is introduced in Model 4. Different from the previous ones, this result is not statistically significant, and therefore the is no support for hypothesis 3 (H3).

Taken together, the findings on H2 and H3 seem aligned with extensive work on optimal distinctiveness (see Zhao & Glynn, 2022; Zhao, 2022 for reviews), which is at the core of the cultural entrepreneurship approach (Lounsbury & Glynn, 2001, 2019). In not focusing on central themes either from the emerging or adjacent fields, the steward and communitarian strategies lack the elements for being optimally distinct from the crowd, which leads to difficulties in securing initial funding. Also, the support for H1 and H2, together with the lack of statistical significance for a positive effect on H3, indicate that, as theorized in chapter three, most of the attempts at establishing ties among cultural repertoires within an ethereal infrastructure would fail, which would have noticeable effects on the material level, manifest here through the challenges that startups using particular strategies (i.e., visionary, steward, communitarian) have in obtaining the first round of funding.

Finally, Model 5 introduces the last key independent variable of this study: the pragmatic fishing strategy. There is support for hypothesis 4 (H4), as there is a positive,

statistically significant effect between the pragmatic strategy and startups' ability to secure initial funding (β=0.06, p<0.05). This result not only endorses what has been articulated in chapter 3 but also is aligned with studies on the early moments of entrepreneurial activity and institutional change (see Hannigan & Casasnovas, 2020; Hannigan et al., 2020; Hannigan et al., 2021). Early moments are infused with uncertainty (Alvarez & Porac, 2020; Knight, 1921; Weick, 1995; Davis et al., 2009) and ambiguity (Santos & Eisenhardt, 2009; Loasby, 2007; Aldrich & Fiol, 1994), which can be handled by leaning into the better-developed meaning infrastructure from adjacent, mature fields, as the startups that deploy a pragmatic fishing strategy do.

For sensitivity analyses, two additional models were also estimated but not shown in the tables. In the first one, I treated all randomly censored cases as though they experienced events immediately after being censored. This model showed a significant effect for all independent variables, including the communitarian strategy with a negative coefficient. All other effects remained significant. In the second one, I treated all randomly censored cases as though the censoring occurred after the largest event time observed in the sample. This model again showed a significant effect for all independent variables (inclusive of the communitarian strategy with a negative coefficient). All other effects remained significant, and the coefficients for the independent variables were higher. Taken together, these models contribute to support the robustness of model 5.

Table 10. Cox Proportional Hazard Models with Hazard of Securing Initial Funding as Dependent Variable

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
IT	-		-		-		-		-	
	-		-		-		-		-	
Healthcare	0.00		0.00		0.00		0.00		-0.01	
	(0.04)		(0.04)		(0.04)		(0.04)		(0.04)	
B2B	-0.04		-0.03		-0.03		-0.03		-0.04	
	(0.04)		(0.04)		(0.04)		(0.04)		(0.04)	
B2C	0.15	*	0.15	*	0.14	*	0.14	*	0.14	*
	(0.06)		(0.06)		(0.06)		(0.06)		(0.06)	
Financial	0.16		0.16		0.17		0.17		0.17	
	(0.11)		(0.11)		(0.11)		(0.11)		(0.11)	
Materials	0.88	***	0.88	***	0.88	***	0.88	***	0.88	***
	(0.11)		(0.11)		(0.11)		(0.11)		(0.11)	
Energy	0.48	**	0.48	**	0.47	**	0.47	**	0.47	**
	(0.15)		(0.15)		(0.15)		(0.15)		(0.15)	
Tweets Count (lag)	0.00	**	0.00	*	0.00		0.00		0.00	
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Semester Founded	-0.02	***	-0.02	***	-0.02	***	-0.02	***	-0.02	***
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Not in Major Ecosystem	-		-		-		-		-	
	-		-		-		-		-	
British Columbia	-0.47	***	-0.47	***	-0.46	***	-0.46	***	-0.47	***
	(0.06)		(0.06)		(0.06)		(0.06)		(0.06)	
Ontario	-0.57	***	-0.57	***	-0.56	***	-0.56	***	-0.56	***
	(0.05)		(0.05)		(0.05)		(0.05)		(0.05)	
Quebec	-0.70	***	-0.70	***	-0.70	***	-0.70	***	-0.71	***
	(0.06)		(0.06)		(0.06)		(0.06)		(0.06)	
Alberta	-0.82	***	-0.82	***	-0.82	***	-0.82	***	-0.82	***
	(0.07)		(0.07)		(0.07)		(0.07)		(0.07)	
Visionary (lag)			-0.09	**	-0.11	**	-0.11	**	-0.10	**
			(0.03)		(0.03)		(0.03)		(0.03)	
Steward (lag)					-0.20	***	-0.19	***	-0.18	***
					(0.04)		(0.04)		(0.04)	
Communitarian (lag)							0.01		0.02	
							(0.02)		(0.02)	
Pragmatic (lag)									0.06	*
									(0.03)	
Wald Chi Squared	281.10	***	288.40	***	312.30	***	312.3	***		

Signif. codes: '***' < 0.001 '**' < 0.01 '*' < 0.05 '.' < 0.1

Standard errors are in parentheses.

5.5 Discussion

The empirical study conducted in this chapter supports what has been theorized in chapters 3 and 4. Although there are alternative strategies through which startup organizations can conduct exploratory fishing within an ethereal meaning infrastructure, successfully reeling in a fish (i.e., success at the material level) under that circumstance is a rare event. The pragmatic fishing strategy is the only one among the four identified strategies that increases the chance of a startup organization initially securing funding. Both visionary and steward fishing strategies are detrimental to exploratory fishing efforts when it comes to results at the material level, and the communitarian fishing strategy fails to have any effect at that level. This contribution is particularly significant as it relaxes the prevalent assumption in cultural entrepreneurship that entrepreneurs and their target audiences should have a common overlap of cultural repertoires, which is not always true – particularly in the case of fields with a low level of institutionalization.

To address this tension, some studies have delved into actors' efforts to enrich the cultural repertoires of both parties (i.e., entrepreneurs and relevant audiences; e.g., Überbacher et al., 2015; Massa et al., 2017; Soublière & Lockwood, 2022), so as to create a cultural overlap. Explaining how an overlap exists or can come about is fundamental in cultural entrepreneurship because cultural resonance (i.e., the extent to which a narrative and an audience are connected; Giorgi, 2017) is the primary mechanism that enables actors to rally support for their endeavors (Lockwood et al., 2019). However, fishing represents a different approach to explaining how this happens. As demonstrated in this chapter, fishing enables material exchanges via novel ties between cultural repertoires and an extant meaning

infrastructure. In departing from the assumption that relevant audiences and entrepreneurs must have a common overlap of cultural repertoires, the mechanism of fishing via ties-formation is, therefore, better equipped to explain entrepreneurial action in fields with heterogeneous sets of actors and conflicting logics (Hoffman, 1999; Wooten & Hoffman, 2008).

Also, a secondary but highly relevant implication of this study relates to regional entrepreneurial ecosystems. As pointed out by Spiegel (2017),

> "entrepreneurial ecosystems are combinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative start-ups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures" (p. 50).

With this, the findings from this study both support and contradict the emerging body of research that highlights the benefits of entrepreneurial ecosystems for startup organizations. Looking only at the organizations that are embedded within the major AI entrepreneurial ecosystems in Canada (i.e., British Columbia, Ontario, Quebec, and Alberta), there is a clear positive relation between the level of development of the ecosystem and startups' ability to secure initial funding. This is what would be expected based on extant research (see Autio et al., 2014; Brown & Mawson, 2019; Feldman et al., 2019; Spigel, 2020; Wurth et al., 2022). However, surprisingly, the results also indicate that startups not embedded in any of the major ecosystems are much better positioned to raise capital for the first time. While one might speculate that an explanation for this can be related to different underlying patterns in social network ties and access to novel information (Granovetter, 1973; Rajkumar et al., 2022), subsequent studies comparing entrepreneurial ecosystems are necessary to articulate a definitive answer as to why this happens.

CHAPTER 6: DISCUSSION AND CONTRIBUTIONS

In this chapter, I discuss how some of the major concepts advanced herein (i.e., fishing and meaning infrastructure) broaden cultural entrepreneurship and help to address the long-standing challenge in institutional theory of paying proper attention to underlying collective meanings (Mohr, 1998, 2005; Zilber, 2002, 2017). Also, I highlight that the combination of theory and methods used in this dissertation represents a novel theory-method package for entrepreneurship scholars and institutional theorists interested in interpretive approaches to big textual data. After that, I discuss the implications of this research to practitioners and policymakers. Then, I discuss some limitations of this dissertation and future directions. Finally, I bring this manuscript to a close with a short reflection on its implications.

6.1 Expanding Cultural Entrepreneurship

The major contribution of this dissertation is to expand cultural entrepreneurship by considering the overlooked relationship between entrepreneurial search and the level of institutionalization of the field in which it takes place. My approach to address that involved using the metaphor of fishing to explain how entrepreneurs explore possibilities in a field, either advancing or hindering its institutionalization. I proposed the concept of meaning infrastructure to represent the network of cultural repertoires that constitute a field's underlying meaning system. Then, I argued that entrepreneurs, like fishers, use casting to deploy cultural repertoires as hooks and baits to attract relevant audiences and engage in material exchanges, much like reeling in a fish. Such an activity operates at both cultural and material levels, with success at the material level depending on the establishment of ties between the cast cultural repertoires and the existing meaning infrastructure. Ultimately, as

articulated, fishing via casting functions as a mechanism for forming ties among cultural repertoires and developing the meaning infrastructure of an institutional field.

Furthermore, as discussed in this dissertation, fishing via severing is the counterpart to fish via casting, having the opposite effect of breaking ties among cultural repertoires within a meaning infrastructure, which in its turn contributes to the deinstitutionalization of a field. Fishing via severing can occur when competing entrepreneurs dispute meanings (targeting material exchanges) within the same or neighboring institutional fields, pulling cultural repertoires apart from existing meaning infrastructures to achieve different objectives, potentially resulting in severed ties. Fishing (via casting and severing) serves, therefore, to alter the level of institutionalization of fields by building up or dismantling its meaning infrastructure. At the same time, the available meaning infrastructure both enables and limits fishing activities. Considering that fields have varying levels of institutionalization, I proposed four types of meaning infrastructure: ethereal, condensed, plasmatic, and crystallized. Also, I argued that such meaning infrastructures are defined by different dominant ties (i.e., attemptive, feeble, stable, and sturdy, respectively) among cultural repertoires, which may have different statuses (i.e., unsettled, settling, or settled).

As previously exposed, the first implication of the typology of meaning infrastructures advances herein is that successful fishing entails different significances. Within an ethereal meaning infrastructure, success is defined as capturing the attention of relevant audiences. However, securing material exchanges is unlikely to occur frequently, and catching a fish is an exceptional achievement. In a condensed meaning infrastructure, successful fishing is equated with occasionally securing ad-hoc material exchanges. In a plasmatic meaning infrastructure,

success is perceived as a more consistent form of material exchange. Finally, in the crystallized type, successful fishing involves securing material exchanges as a regular occurrence and catching fish starts becoming taken for granted.

The second implication of the typology of meaning infrastructures advanced in this dissertation is that it closely relates to the scope of fishing activity. In fields where the meaning infrastructure is less developed (the ethereal and condensed types), exploratory fishing should be dominant. Conversely, in fields where the meaning infrastructure is more developed (the plasmatic and crystallized types), exploitative fishing should be the norm. Also, the prevalence of exploitative fishing in fields with better-developed meaning infrastructures is likely to be supported by governance elements, such as regulators and arbiters of taste. In contrast, the absence or low relevance of such governance structures at less developed stages should encourage exploratory fishing.

Taken together, the theorization of fishing (a mechanism of entrepreneurial search and actualization) and the typology of meaning infrastructures advanced herein constitute an important bridge connecting entrepreneurship scholars – interested in possibilities-exploration and opportunities-exploitation – and institutional theorists – who are particularly concerned with field-level processes of (de)institutionalization. This contribution is especially relevant in that it also addresses an unwarranted assumption in cultural entrepreneurship: that entrepreneurs and target audiences share an overlap of cultural repertoires (Soublière & Lockwood, 2022). Fields can be lowly institutionalized, possessing a multifaceted set of actors and conflicting logics (Hoffman, 1999; Wooten & Hoffman, 2008). Also, fields often arise in interstitial locations that comprise positions between or at the overlap of adjacent mature

fields (Furnari, 2014, 2016; Rao et al., 2000; Zietsma et al., 2017). In such cases, it is common not to have any specific adjacent field dominate the discussions on the emerging field – mostly due to fragmented logics and permeable boundaries. Under such circumstances, it was never clear how entrepreneurs could mobilize cultural repertoires to explore possibilities and/or exploit opportunities.

The attention given in this dissertation to entrepreneurial search (i.e., the exploration of possibilities) in lowly institutionalized fields (especially in chapters 4 and 5) is particularly relevant. Most studies in entrepreneurship have focused on entrepreneurial actualization (i.e., the exploitation of opportunities), paying little attention to where opportunities come from (Suddaby et al., 2015). As demonstrated in the empirical analyses conducted herein, the theoretical duo fishing-meaning infrastructure casts a new light on the early moments of institutional change, which are fertile terrain for entrepreneurial search. That is true because, in addition to uncertainty, at early moments of institutionalization, entrepreneurs also face substantive ambiguity, which leads to multiple potential interpretations (Santos & Eisenhardt, 2009). Still, uncertainty and ambiguity are conditions that not only constrain entrepreneurial exploration but also enable it (Loasby, 2007; Aldrich & Fiol, 1994). Although most possibilities are bound to fizzle out and eventually die in the face of ambiguity and uncertainty, the collective process that characterizes search is at the core of what entrepreneurs do and, as evidenced here, is fundamental to understanding the origins of opportunities.

While the conceptualization of fishing and meaning infrastructure are particularly promising for studies interested in the early moments of institutional change, they are not circumscribed to the analysis of fields with a low level of institutionalization. It has been

undisputed that lowly institutionalized fields can go through a process of structuration over time, which in practical terms, means that an emerging field can become highly institutionalized (i.e., evolve into a mature field). For example, building on this conceptualization, Hannigan and Casasnovas (2020) demonstrated how the impact investing in the UK has moved from a state of fragmentation to relative alignment as actors and meanings were recursively co-constituted through provisional settlements. Still, cultural entrepreneurship lacks an explanation connecting entrepreneurial activity and field institutionalization that can cast light beyond early institutional moments. I addressed this issue in this dissertation, as fishing operates across types of meaning infrastructures that characterize fields at different levels of institutionalization.

More specifically, the construct of meaning infrastructure as a field-level network of cultural repertoires addresses the lack of attention to underlying collective meanings. Hinings et al. (2017) lamented that the institutional infrastructure perspective lens to understand institutional fields had been mostly neglected, while institutional logics received widespread attention (e.g., Dunn & Jones, 2010; Lounsbury, 2007; Reay & Hinings, 2009; Thornton et al., 2005) as a central concern for institutional theorists (Thornton et al., 2012). Such an assertion, however, deserves some scrutiny. While it seems undisputable that institutional theorists have paid extensive attention to logics over the last decades, both governance and meanings (the two main elements of institutional infrastructure) were at the core of the neo-institutionalist project (Dimaggio, 1982; DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Zucker, 1977) since the outset.

However, what both cultural sociologists and institutional theorists have pointed out is that “DiMaggio and Powell’s [1983] embrace of the concept of structuration shift[ed] us away from meaning toward structure” (Mohr, 2013, p. 122). With that, “most empirical studies of institutionalization during the 1980s–1990s focused on structures and practices, relegating meaning to the background” (Zilber, 2017, p. 4; see also Glynn & Abzug, 2002; Zilber, 2002; Mohr, 1998, 2005; Suddaby, 2010). What institutional theorists have truly neglected was not the governance structures that most prominently characterize a field’s infrastructure but its less apparent underlying collective meanings – an issue that has plagued the entrepreneurship literature even more extensively (Lounsbury & Glynn, 2019).

Despite two waves of cultural approaches with the new structuralism in the 1990s (Lounsbury & Ventresca, 2003) and a "cultural renaissance" in the 2000s (Weber & Dacin, 2011), institutional theorists, along with cultural sociologists, are still to deliver on the promise of measuring and understanding meanings “scientifically” (Mohr et al., 2020). The concept of a meaning infrastructure, as advanced herein, can bolster our understanding of cultural meanings, which is vital both for institutional theorists and entrepreneurship scholars interested in cultural perspectives. As highlighted by new structuralists, the social structure includes not only the distribution of material resources but also of meanings, which can contribute to reshaping social structure in important ways (Clemens, 1997; Stryker, 1994; Bourdieu, 1977). Also, shifts of cultural meanings tend to precede the exchange of material resources (Porac et al., 1995; Lounsbury & Glynn, 2019), a theme that is particularly relevant for entrepreneurs and investors (Hannigan et al., 2021).

In addition to these aspects, a contemporary element reinforces the need for a better understanding of collective meanings. With the rise of machine learning and artificial intelligence applications in the last two decades, collective meaning-making processes are increasingly inscribed in algorithms (Glaser, 2017; Glaser et al., 2021), which have the potential to amplify and propagate misunderstandings at an unprecedented rate. Having a firm grasp on shared cultural meanings has never been so relevant to understand themes increasingly discussed by society at large, such as inequality and racism (Noble, 2018; O'Neil, 2016), fake news and elections (Sumpter & Ciampaglia, 2018), and privacy (Zuboff, 2019). With that, leveraging the notion of meaning infrastructure to grasp cultural meanings might have implications that go far beyond expanding cultural entrepreneurship, which was the major objective of this dissertation (see Powell & Oberg, 2017; Höllerer et al., 2020; Anthony et al., 2016). For example, Powell et al. (2017) have noticed that since the advent of the world wide web, fields "are more dynamic, boundaries are more porous, different organizations have come to populate them, and the power differentials among members have been altered" (p. 38). The relational interplay between fishing and meaning infrastructure is particularly well-suited for studies interested in contemporary field dynamics.

6.2 A Novel Theory-Method Package

Identifying emerging fields has always been challenging from an empirical standpoint since they are often only recognized once they have matured (MacMillan & Katz, 1992). Unsurprisingly, few entrepreneurship studies have focused on the field level of analysis (Chandler & Lyon, 2001; Davidsson & Wiklund, 2001; Dean et al., 2007). This challenge relates

not only to how to go about curating data to study field emergence but also, as noted by Lampel and Shapira (1995), speaks to how the availability of relevant data influences the types of questions that scholars formulate about such a phenomenon. This results in a "chicken-and-egg problem wherein the difficulties of conducting empirical research restrict the volume and variety of questions scholars ask about a phenomenon, and this restriction, in turn, lowers the degree of collective effort scholars exert towards studying the phenomenon empirically" (Forbes & Kirsch, 2011, p. 592). Tackling this challenge, as performed in the empirical chapters of this dissertation, required developing a novel theory-method package (Gehman et al., 2017)

Such a package was developed based on the facts that (1) shared meanings are reflected in discourse (Huff, 1990; Porac et al., 1995), (2) mapping discourse enables capturing an emergent and evolving culture (Kennedy, 2008; Mohr & Duquenne, 1997; Thompson et al., 2018), and (3) cultural traces actually precede material ones (Lounsbury & Glynn, 2019; Porac et al., 1995; Hannigan et al., 2021). Conceptually, without articulating what a field meaning infrastructure entails, such an endeavor would be arduous, given that both culture and meanings are elusive constructs that have acquired a multitude of definitions over the decades (see Giorgi et al., 2015). Methodologically, studies of meanings require relational techniques that overcome the traditional and unhelpful divide between quantitative and qualitative analyses (Kaplan, 2015; Lounsbury & Glynn, 2019).

This is precisely what happens when topic modeling is used from an interpretive perspective. As aptly described by Villamor Martin et al. (2023),

> "[there are] multiple steps in the research process where researchers make research design decisions that influence the outputs of a topic model. Some of these decisions include: choosing the documents included in the corpus (Di Carlo, Bianchi, and Palmonari 2019), deciding whether and how to clean the data (Hannigan and Casasnovas 2020), selecting the best topic model or

> word embedding algorithm (Wang et al. 2019; Lai et al. 2016; Churchill and Singh 2022), choosing the model parameters …, deciding the correct number of topics within a corpus (Arun et al. 2010), labeling the topics (Grimmer et al. 20202), validating the results (Krippendorff 1980), and, finally and arguably most importantly, interpreting the results" (p. 9).

However, one particularly promising aspect of the theory-methods package advanced herein is that it extends rendering (i.e., juxtaposing data and theory to generate theory; see Hannigan et al., 2019) by combining inductive theorizing (via topic modeling; Chapter 4) and deductive theorizing (Chapter 5), which was operationalized via content analysis (word counting) and event history analysis. This development bolsters the toolkits of scholars interested in interpretive approaches to big data and theorizing in the social sciences (e.g., Hannigan et al., 2019; Kennedy, 2008; Nelson, 2019; Villamor Martin et al., 2023). In interpretively deploying a combination of computational techniques, this dissertation also attends to the call from social scientists for innovative methodologies capable of systematically examining the constitution of shared meanings (Lounsbury and Ventresca, 2003; Mohr, 1998; Mohr et al., 2020).

6.3 Implications for Practitioners and Policymakers

The findings from this dissertation have implications for practitioners and policymakers. Entrepreneurs playing in a novel field can benefit especially from chapter five's findings, according to which a pragmatic fishing strategy seems to be the most effective approach for securing initial funding for a startup organization, whereas other strategies might be detrimental to that end (i.e., visionary, steward) or not have any effect (i.e., communitarian). Also, the theory-method package advanced herein enables startup organizations to actively map their discourse in relation to collective discourse produced in a field, which could serve as

the foundation for them to be more agentic in identifying (see methods section in chapter 4), and monitoring (see methods section in chapter 5) particular strategies. By leveraging technological resources such as application programming interfaces (APIs), which enable applications to rapidly exchange high volumes of data, it should be possible for startups to even construct a live model. Although algorithms cannot replace all the interpretive steps that constitute a substantial share of the rendering process, parameters can be created and calibrated to provide decision-makers with access to such strategizing devices in a dynamic fashion.

Also, as a recent study by Hannigan and colleagues (2021) demonstrated, policymakers are likely to have a difficult time making informed decisions about regulations and incentives to promote the growth of a novel industry or market segment. The chief reason for this is that more tangible, material metrics (e.g., patents, venture capital funding, jobs) do not yet exist or provide very weak signals in the early moments of a novel field. Furthermore, at a regional level, trying to copy exogenous solutions that worked elsewhere (e.g., trying to create a new Silicon Valley) often yields very poor results. Mapping cultural components is a better, more viable alternative to inform policymakers. To this end, the approach developed in this study further advances the tactical solution developed by Hannigan et al. (2021).

6.4 Limitations and Future Directions

Discourse plays a vital role in institutional fields (e.g., Oberg et al., 2017), and this dissertation was built on the assumption that discourse can serve as a window through which one can examine cultural dynamics (Kennedy, 2008; Mohr & Duquenne, 1997; Thompson et al.,

2018). However, this by any means suggests that examining discourse would or should be a replacement for understanding culture via practices. This dissertation simply acknowledges that "practices are inherently embodied [and that] linguistic elements are not" (Mohr et al., 2020) and focuses on the latter. However, as the co-constitution of practices and meanings is important for institutional processes (e.g., Hannigan & Casasnovas, 2020), the lack of attention to practices is the first limitation of this dissertation. This might be addressed in future studies by doubling down on a mixed-methods approach, having qualitative and ethnographic analyses conducted in combination with the interpretive computational techniques utilized herein.

The second limitation of this dissertation is that the empirical analyses (chapters 4 and 5) have only examined and extended what has been theorized about an ethereal meaning infrastructure (see chapter 3), and therefore, it does not provide a fine-grained account of fishing in fields with a higher degree of institutionalization (i.e., within condensed, plasmatic, and crystallized infrastructures). With this, a natural extension of this dissertation would be to conduct multiple empirical studies mapping cultural repertoires available in more mature fields and scrutinizing which fishing strategies might be effectively employed by startup organizations in those such circumstances. A third limitation of this thesis is that it only covers a single empirical context (i.e., the emerging field of AI & ML in Canada between 2011 and 2020) in the empirical analyses (chapters 4 and 5). Additional studies examining other emerging fields should serve to strengthen the generability of the findings around the specific cultural repertoires mapped in chapter 4 (i.e., envisioned possibilities, existing markets, finance & governance, and community engagement) and fishing strategies articulated in chapter 5 (i.e., visionary, steward, communitarian, and pragmatic).

Finally, a fourth limitation of this dissertation is that it does not explain why startup organizations outside of major ecosystems have a much higher chance of getting initial funding than those that are embedded in major ecosystems. It is possible to speculate that because meanings are socio-demographically situated, regional boundaries could have implications at the material level (such as affecting startups' abilities to secure investment). To date, the notion of fields has underexplored the implications of regional aspects, which is intrinsic to the notion of entrepreneurial ecosystems. Future studies might want to examine a potential co-constitutive relationship between emerging regional ecosystems (at a lower level) and their respective emerging institutional field (at a higher level). Also, another perspective from which regional boundaries might matter to the meaning infrastructure of institutional fields speaks to social network ties and access to novel information (Granovetter, 1973; Rajkumar et al., 2022). In this sense, in an ethereal meaning infrastructure, startups not fully embedded in regional ecosystems might be better positioned to obtain access to information that can lead to funding for their ventures. Still, further empirical studies are necessary to assess this possibility.

6.5 Conclusion

This dissertation has implications for both entrepreneurship scholars and institutional theorists, as it sheds light on how entrepreneurs can explore possibilities and gather support from relevant audiences in nascent and disintegrating fields. This also highlights the importance of cultural entrepreneurship as a domain of research that can and should always inform both theory and practice in entrepreneurship. Over the last two decades, cultural entrepreneurship has emerged as a fruitful research domain that explores how entrepreneurs manipulate cultural

repertoires to shape discourse and resonate with target audiences. However, two important aspects were underdeveloped. First, the relationship between entrepreneurial activity and the level of institutionalization of the field in which it occurs. This was particularly relevant as fields exist at a diverse range of institutionalization levels, both enabling and constraining entrepreneurs in different ways. Second, the assumption that both entrepreneurs and their target audiences share a good deal of overlap in their respective cultural repertoires was unwarranted, which is particularly evident in the case of fields that have a low degree of institutionalization.

Extending cultural entrepreneurship in these two directions, this dissertation articulated the key concepts of fishing (as entrepreneurial activity based on cultural repertoires) and meaning infrastructure (as a network of cultural repertoires constituting institutional fields' underlying meaning systems). Overall, this dissertation contributes to the relational direction in cultural entrepreneurship (particularly explicit in Lounbusry & Glynn, 2019) by highlighting the importance of context and cultural repertoires in entrepreneurial search and possibility development. Considering that cultural repertoires float around in isolation would be incompatible with a relational perspective. Cultural repertories are tied together in (or severed from) a meaning infrastructure through entrepreneurial search and possibility development. This theoretical development is particularly relevant because, as demonstrated, distinct types of meaning infrastructures exist at fields with different levels of institutionalization, enabling and constraining entrepreneurial activity in different ways and with different effects, which this dissertation has only started to scratch.

BIBLIOGRAPHY

Abbott, A. (2005). Linked Ecologies: States and Universities as Environments for Professions. *Sociological Theory*, *23*(3), 245–274. https://doi.org/10.1111/j.0735-2751.2005.00253.x

Accenture. (2014). *Big Success With Big Data—Executive Summary* (p. 12). https://www.accenture.com/t20150523T020852__w__/us-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Digital_1/Accenture-Big-Data-POV.PDF

Aldrich, H. E., & Fiol, M. (1994). *Fools Rush in? The Institutional Context of Industry Creation*. 27.

Aldrich, H. E., & Ruef, M. (2018). Unicorns, Gazelles, and Other Distractions on the Way to Understanding Real Entrepreneurship in the United States. *Academy of Management Perspectives*, *32*(4), 458–472. https://doi.org/10.5465/amp.2017.0123

Aldrich, H., & Ruef, M. (2006). *Organizations Evolving*. 345.

Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, *1*(1–2), 11–26. https://doi.org/10.1002/sej.4

Alvarez, S. A., & Barney, J. B. (2010). Entrepreneurship and Epistemology: *The Philosophical Underpinnings of the Study of Entrepreneurial Opportunities*. *The Academy of Management Annals*, *4*(1), 557–583. https://doi.org/10.1080/19416520.2010.495521

Alvarez, S. A., Barney, J. B., & Anderson, P. (2013). Forming and Exploiting Opportunities: The Implications of Discovery and Creation Processes for Entrepreneurial and Organizational Research. *Organization Science*, *24*(1), 301–317. https://doi.org/10.1287/orsc.1110.0727

Alvarez, S. A., & Porac, J. (2020). Imagination, Indeterminacy, and Managerial Choice at the Limit of Knowledge. *Academy of Management Review*, *45*(4), 735–744. https://doi.org/10.5465/amr.2020.0366

Alzubi, J., Nayyar, A., & Kumar, A. (2018). Machine Learning from Theory to Algorithms: An Overview. *Journal of Physics: Conference Series*, *1142*, 012012. https://doi.org/10.1088/1742-6596/1142/1/012012

Anand, N., & Jones, B. C. (2008). Tournament Rituals, Category Dynamics, and Field Configuration: The Case of the Booker Prize. *Journal of Management Studies*, *45*(6), 1036–1060. https://doi.org/10.1111/j.1467-6486.2008.00782.x

Anand, N., & Peterson, R. A. (2000). When Market Information Constitutes Fields: Sensemaking of Markets in the Commercial Music Industry. *Organization Science*, *11*(3), 270–284. https://doi.org/10.1287/orsc.11.3.270.12502

Anand, N., & Watson, M. R. (2004). *Tournament Rituals in the Evolution of Fields: The Case of the Grammy Awards*. 23.

Anthony, C., Nelson, A. J., & Tripsas, M. (2016). "Who Are You?…I Really Wanna Know": Product Meaning and Competitive Positioning in the Nascent Synthesizer Industry. *Strategy Science*, *1*(3), 163–183. https://doi.org/10.1287/stsc.2016.0015

Aranda, A. M., Sele, K., Etchanchu, H., Guyt, J. Y., & Vaara, E. (2021). From Big Data to Rich Theory: Integrating Critical Discourse Analysis with Structural Topic Modeling. *European Management Review*. https://doi.org/10.1111/emre.12452

Augustine, G., Soderstrom, S., Milner, D., & Weber, K. (2019). Constructing a Distant Future: Imaginaries in Geoengineering. *Academy of Management Journal*, *62*(6), 1930–1960. https://doi.org/10.5465/amj.2018.0059

Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, *43*(7), 1097–1108. https://doi.org/10.1016/j.respol.2014.01.015

Battilana, J., Leca, B., & Boxenbaum, E. (2009). 2 How Actors Change Institutions: Towards a Theory of Institutional Entrepreneurship. *The Academy of Management Annals*, *3*(1), 65–107. https://doi.org/10.1080/19416520903053598

Bell, R. G., Filatotchev, I., & Aguilera, R. V. (2014). Corporate Governance and Investors' Perceptions of Foreign IPO Value: An Institutional Perspective. *Academy of Management Journal*, *57*(1), 301–320. https://doi.org/10.5465/amj.2011.0146

Bernier, C., DiMaggio, P., & Heckscher, C. (2021). When content is king: Using topic models to analyze online innovation crowdsourcing. *Innovation*, 1–24. https://doi.org/10.1080/14479338.2021.2016417

Bjørnskov, C., & Foss, N. J. (2016). Institutions, Entrepreneurship, and Economic Growth: What Do We Know and What Do We Still Need to Know? *Academy of Management Perspectives*, *30*(3), 292–315. https://doi.org/10.5465/amp.2015.0135

Bourdieu, P. (1977). *Outline of a Theory of Practice* (R. Nice, Trans.; Vol. 16). Cambridge university press.

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste* (Reprint1984 ed.). Harvard University Press.

Bourdieu, P. (1985). The social space and the genesis of groups. *Theory and Society*, *14*, 723–744. https://doi.org/10.1007/bf00174048

Bourdieu, P., & Wacquant, L. (1992). *An Invitation to Reflexive Sociology*. University of Chicago Press. https://www.press.uchicago.edu/ucp/books/book/chicago/I/bo3649674.html

Bradley, S. W., & Klein, P. (2016). Institutions, Economic Freedom, and Entrepreneurship: The Contribution of Management Scholarship. *Academy of Management Perspectives*, *30*(3), 211–221. https://doi.org/10.5465/amp.2013.0137

Brandusescu, A. (2021). Artificial Intelligence Policy and Funding in Canada: Public Investments, Private Interests. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4089932

Brown, J. S., & Duguid, P. (1991). Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation. *Organization Science*, *2*(1), 40–57. https://doi.org/10.1287/orsc.2.1.40

Brown, R., & Mawson, S. (2019). Entrepreneurial ecosystems and public policy in action: A critique of the latest industrial policy blockbuster. *Cambridge Journal of Regions, Economy and Society*, *12*(3), 347–368. https://doi.org/10.1093/cjres/rsz011

Buenstorf, G. (2007). Creation and Pursuit of Entrepreneurial Opportunities: An Evolutionary Economics Perspective. *Small Business Economics*, *28*(4), 323–337. https://doi.org/10.1007/s11187-006-9039-5

Burress, M., & Cook, M. (2009). A Primer On Collective Entrepreneurship: A Preliminary Taxonomy. *University of Missouri Columbia, Department of Agricultural Economics, Working Papers*.

Callon, M. (2021). *Markets in the Making: Rethinking Competition, Goods, and Innovation* (M. Poon, Ed.; O. Custer, Trans.). Zone Books.

Cao, L. (2018). *Data Science Thinking: The Next Scientific, Technological and Economic Revolution* (1st ed. 2018 edition). Springer.

Carleo, G., Cirac, I., Cranmer, K., Daudet, L., Schuld, M., Tishby, N., Vogt-Maranto, L., & Zdeborová, L. (2019). Machine learning and the physical sciences. *Reviews of Modern Physics*, *91*(4), 045002. https://doi.org/10.1103/RevModPhys.91.045002

Casson, M., & Wadeson, N. (2007). The Discovery of Opportunities: Extending the Economic Theory of the Entrepreneur. *Small Business Economics*, *28*(4), 285–300. https://doi.org/10.1007/s11187-006-9037-7

Cavotta, V., & Dalpiaz, E. (2022). Good apples in spoiled barrels: A temporal model of firm formalization in a field characterized by widespread informality. *Journal of Business Venturing*, *37*(2), 106188. https://doi.org/10.1016/j.jbusvent.2021.106188

Chandler, G. N., & Lyon, D. W. (2001). Issues of Research Design and Construct Measurement in Entrepreneurship Research: The past Decade. *Entrepreneurship Theory and Practice*, *25*(4), 101–113. https://doi.org/10.1177/104225870102500407

Chapple, D., Pollock, N., & D'Adderio, L. (2022). From Pitching to Briefing: Extending entrepreneurial storytelling to new audiences. *Organization Studies*, *43*(5), 773–795. https://doi.org/10.1177/01708406211024564

Charmaz, K. (2014). *Constructing Grounded Theory*. SAGE.

Chell, E. (2008). *The entrepreneurial personality: A social construction* (2nd ed). Routledge.

Chell, E., & Karataş-Özkan, M. (2014). *Handbook of Research on Small Business and Entrepreneurship*. Edward Elgar Publishing. https://doi.org/10.4337/9781849809245

Child, J., Lu, Y., & Tsai, T. (2007). Institutional Entrepreneurship in Building an Environmental Protection System for the People's Republic of China. *Organization Studies*, *28*(7), 1013–1034. https://doi.org/10.1177/0170840607078112

Clemens, E. S. (1997). *The People's Lobby: Organizational Innovation and the Rise of Interest Group Politics in the United States, 1890-1925*. University of Chicago Press.

Cleves, M., Gould, W., Gutierrez, R., & Marchenko, Y. (2008). *An Introduction to Survival Analysis Using Stata, Second Edition*. Stata Press.

Companys, Y. E., & McMullen, J. S. (2007). Strategic Entrepreneurs at Work: The Nature, Discovery, and Exploitation of Entrepreneurial Opportunities. *Small Business Economics*, *28*(4), 301–322. https://doi.org/10.1007/s11187-006-9034-x

Constantinides, P., & Slavova, M. (2020). From a monopoly to an entrepreneurial field: The constitution of possibilities in South African energy. *Journal of Business Venturing*, *35*(6), 106061. https://doi.org/10.1016/j.jbusvent.2020.106061

Copeland, B. J. (2004). *The essential Turing: Seminal writings in computing, logic, philosophy, artificial intelligence, and artificial life, plus the secrets of Enigma*. Clarendon Press ; Oxford University Press.

Cornelissen, J. P. (2005). Beyond Compare: Metaphor In Organization Theory. *Academy of Management Review*, *30*(4), 751–764. https://doi.org/10.5465/amr.2005.18378876

Cornelissen, J. P. (2012). Sensemaking Under Pressure: The Influence of Professional Roles and Social Accountability on the Creation of Sense. *Organization Science*, *23*(1), 118–137. https://doi.org/10.1287/orsc.1100.0640

Cornelissen, J. P., & Clarke, J. S. (2010). *IMAGINING AND RATIONALIZING OPPORTUNITIES: INDUCTIVE REASONING AND THE CREATION AND JUSTIFICATION OF NEW VENTURES*. 20.

Cornelissen, J. P., & Durand, R. (2014). Moving Forward: Developing Theoretical Contributions in Management Studies. *Journal of Management Studies*, *51*(6), 995–1022. https://doi.org/10.1111/joms.12078

Creed, W. E. D., Scully, M. A., & Austin, J. R. (2002). *Clothes make the person? The tailoring of legitimating accounts and the soci...* 22.

Croidieu, G., & Kim, P. H. (2018). Labor of love: Amateurs and lay-expertise legitimation in the early U.S. radio field. *Administrative Science Quarterly*, *63*(1), 1–42.

Dalpiaz, E., Rindova, V., & Ravasi, D. (2016). Combining Logics to Transform Organizational Agency: Blending Industry and Art at Alessi. *Administrative Science Quarterly*, *61*(3), 347–392. https://doi.org/10.1177/0001839216636103

DataCamp. (2019). DataCamp Community. /community/podcast

Davenport, T. H., & Patil, D. J. (2012, October 1). Data Scientist: The Sexiest Job of the 21st Century. *Harvard Business Review*, *October 2012*. https://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century

Davidsson, P., & Wiklund, J. (2001). Levels of Analysis in Entrepreneurship Research: Current Research Practice and Suggestions for the Future. *ENTREPRENEURSHIP THEORY and PRACTICE*.

Davis, J. P., Eisenhardt, K. M., & Bingham, C. B. (2009). Optimal Structure, Market Dynamism, and the Strategy of Simple Rules. *Administrative Science Quarterly*, *54*(3), 413–452. https://doi.org/10.2189/asqu.2009.54.3.413

Dean, M. A., Shook, C. L., & Payne, G. T. (2007). The Past, Present, and Future of Entrepreneurship Research: Data Analytic Trends and Training. *Entrepreneurship Theory and Practice*, *31*(4), 601–618. https://doi.org/10.1111/j.1540-6520.2007.00190.x

Deephouse, D. L., & Heugens, P. P. M. A. R. (2009). Linking Social Issues to Organizational Impact: The Role of Infomediaries and the Infomediary Process. *Journal of Business Ethics*, *86*(4), 541–553. https://doi.org/10.1007/s10551-008-9864-3

Delmestri, G., & Greenwood, R. (2016). How Cinderella Became a Queen: Theorizing Radical Status Change. *Administrative Science Quarterly*, *61*(4), 507–550. https://doi.org/10.1177/0001839216644253

Detert, J. R., Schroeder, R. G., & Mauriel, J. J. (2000). A Framework for Linking Culture and Improvement Initiatives in Organizations. *Academy of Management Review*, *25*(4), 850–863. https://doi.org/10.5465/amr.2000.3707740

Dimaggio, P. (1982). Cultural entrepreneurship in nineteenth-century Boston: The creation of an organizational base for high culture in America. *Media, Culture & Society*, *4*(1), 33–50. https://doi.org/10.1177/016344378200400104

DiMaggio, P. (1986). *Nonprofit Enterprise in the Arts: Studies in Mission and Constraint*. Oxford University Press.

DiMaggio, P. (1997). *Culture and Cognition*. 26.

DiMaggio, P. (1998). The New Institutionalisms: Avenues of Collaboration. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft*, *154*(4), 696–705.

Dimaggio, P. J., & Powell, W. W. (1983). THE IRON CAGE REVISITED: INSTITUTIONAL ISOMORPHISM AND COLLECTIVE RATIONALITY IN ORGANIZATIONAL EIELDS. *AMERICAN SOCIOLOGICAL REVIEW*, 15.

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, *48*(2), 147. https://doi.org/10.2307/2095101

Dimov, D. (2007). Beyond the Single-Person, Single-Insight Attribution in Understanding Entrepreneurial Opportunities. *Entrepreneurship Theory and Practice*, *31*(5), 713–731. https://doi.org/10.1111/j.1540-6520.2007.00196.x

Drori, G. S., Delmestri, G., & Oberg, A. (2013). *Branding the university: Relational strategy of identity construction in a competitive field*.

Dunn, M. B., & Jones, C. (2010). Institutional Logics and Institutional Pluralism: The Contestation of Care and Science Logics in Medical Education, 1967–2005. *Administrative Science Quarterly*, *55*(1), 114–149. https://doi.org/10.2189/asqu.2010.55.1.114

Earl, P. E., & Littleboy, B. (2014). *G.L.S. Shackle*. Palgrave Macmillan UK. https://doi.org/10.1057/9781137281869

Emerson, R. (1962). *Power Dependence Relations*.

Emirbayer, M., & Johnson, V. (2008). Bourdieu and organizational analysis. *Theory and Society*, *37*(1), 1–44. https://doi.org/10.1007/s11186-007-9052-y

Emirbayer, M., & Mische, A. (1998). What Is Agency? *American Journal of Sociology*, *103*(4), 962–1023. https://doi.org/10.1086/231294

Evans, R., & Kay, T. (2008). How Environmentalists "Greened" Trade Policy: Strategic Action and the Architecture of Field Overlap. *American Sociological Review*, *73*(6), 970–991. https://doi.org/10.1177/000312240807300605

Factiva. (2021). *Factiva | Dow Jones*. Dow Jones Professional. https://professional.dowjones.com/factiva/

Feldman, M., Siegel, D. S., & Wright, M. (2019). New developments in innovation and entrepreneurial ecosystems. *Industrial and Corporate Change*, *28*(4), 817–826. https://doi.org/10.1093/icc/dtz031

Financial Times. (2023, March 7). Sceptical investors worry whether advances in AI will make money. *Financial Times*.

Fischer, E., & Reuber, A. R. (2011). Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? *Journal of Business Venturing*, *26*(1), 1–18. https://doi.org/10.1016/j.jbusvent.2010.09.002

Fligstein, N. (1996). Markets as Politics: A Political-Cultural Approach to Market Institutions. *American Sociological Review*, *61*(4), 656. https://doi.org/10.2307/2096398

Fligstein, N. (1997). Social Skill and Institutional Theory. *American Behavioral Scientist*, *40*(4), 397–405. https://doi.org/10.1177/0002764297040004003

Fligstein, N., & McAdam, D. (2012). *A Theory of Fields*. Oxford University Press.

Forbes, D. P., & Kirsch, D. A. (2011). The study of emerging industries: Recognizing and responding to some central problems. *Journal of Business Venturing*, *26*(5), 589–602. https://doi.org/10.1016/j.jbusvent.2010.01.004

Ford, J. L. (1994). *G.L.S. Shackle: The Dissenting Economist's Economist*. Edward Elgar Publishing Ltd.

Foss, N. J., & Klein, P. G. (2012). *Organizing Entrepreneurial Judgment: A New Approach to the Firm*. Cambridge University Press. https://doi.org/10.1017/CBO9781139021173

Foss, N. J., Klein, P. G., & Bjørnskov, C. (2019). The Context of Entrepreneurial Judgment: Organizations, Markets, and Institutions. *Journal of Management Studies*, *56*(6), 1197–1213. https://doi.org/10.1111/joms.12428

Friedland, & Alford. (1991). *Bringing Society Back In*.

Friedland, R., Mohr, J. W., Roose, H., & Gardinali, P. (2014). The institutional logics of love: Measuring intimate life. *Theory and Society*, *43*(3–4), 333–370. https://doi.org/10.1007/s11186-014-9223-6

Furnari, S. (2014). Interstitial Spaces: Microinteraction Settings and the Genesis of New Practices Between Institutional Fields. *Academy of Management Review*, *39*(4), 439–462. https://doi.org/10.5465/amr.2012.0045

Furnari, S. (2016). Institutional fields as linked arenas: Inter-field resource dependence, institutional work and institutional change. *Human Relations*, *69*(3), 551–580. https://doi.org/10.1177/0018726715605555

Garud, R., Jain, S., & Kumaraswamy, A. (2002). Institutional Entrepreneurship in the Sponsorship of Common Technological Standards: The Case of Sun Microsystems and Java. *Academy of Management Journal*, *45*(1), 196–214. https://doi.org/10.5465/3069292

Gavetti, G., Levinthal, D. A., & Rivkin, J. W. (2005). Strategy making in novel and complex worlds: The power of analogy. *Strategic Management Journal*, *26*(8), 691–712. https://doi.org/10.1002/smj.475

Geertz, C. (1973). *The Interpretation of Cultures* (3rd edition). Basic Books.

Gehman, J., & Soublière, J.-F. (2017). Cultural entrepreneurship: From making culture to cultural making. *Innovation*, *19*(1), 61–73. https://doi.org/10.1080/14479338.2016.1268521

Gentner, D., & Markman, A. B. (1997). Structure mapping in analogy and similarity. *American Psychologist*, *52*, 45–56. https://doi.org/10.1037/0003-066X.52.1.45

George, G., Osinga, E. C., Lavie, D., & Scott, B. A. (2016). Big Data and Data Science Methods for Management Research. *Academy of Management Journal*, *59*(5), 1493–1507. https://doi.org/10.5465/amj.2016.4005

Giddens, A. (1979). *Central problems in social theory: Action, structure, and contradiction in social analysis*. University of California Press.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, *16*(1), 15–31. https://doi.org/10.1177/1094428112452151

Giorgi, S. (2017). The Mind and Heart of Resonance: The Role of Cognition and Emotions in Frame Effectiveness. *Journal of Management Studies*, *54*(5), 711–738. https://doi.org/10.1111/joms.12278

Giorgi, S., Lockwood, C., & Glynn, M. A. (2015). The Many Faces of Culture: Making Sense of 30 Years of Research on Culture in Organization Studies. *The Academy of Management Annals*, *9*(1), 1–54. https://doi.org/10.1080/19416520.2015.1007645

Glaser, V. (2017). Design Performances: How Organizations Inscribe Artifacts to Change Routines. *Academy of Management Journal*, *60*(6), 2126–2154. https://doi.org/10.5465/amj.2014.0842

Glaser, V. L., Krikorian Atkinson, M., & Fiss, P. C. (2020). Goal-Based Categorization: Dynamic Classification in the Display Advertising Industry. *Organization Studies*, 017084061988336. https://doi.org/10.1177/0170840619883368

Glaser, V. L., & Lounsbury, M. (2021). Designing legitimacy: Expanding the scope of cultural entrepreneurship. *Journal of Business Venturing Design*, *1*(1), 100007. https://doi.org/10.1016/j.jbvd.2022.100007

Glaser, V. L., Pollock, N., & D'Adderio, L. (2021). *THE BIOGRAPHY OF AN ALGORITHM:* 60.

Glassdoor—Best Jobs in America. (2019). Glassdoor. https://www.glassdoor.com/List/Best-Jobs-in-America-LST_KQ0,20.htm

Glynn, M. A. (2008). Configuring the Field of Play: How Hosting the Olympic Games Impacts Civic Community. *Journal of Management Studies*, *45*(6), 1117–1146. https://doi.org/10.1111/j.1467-6486.2008.00785.x

Glynn, M. A., & Abzug, R. (2002). Institutionalizing Identity: Symbolic Isomorphism and Organizational Names. *The Academy of Management Journal*, *45*(1), 267–280. https://doi.org/10.2307/3069296

Glynn, M. A., & Lounsbury, M. (2022). Two Decades of the Theory of Cultural Entrepreneurship: Recollection, Elaboration, and Reflection. In C. Lockwood & J.-F. Soublière (Eds.), *Research in the Sociology of Organizations* (pp. 241–251). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20220000080014

Granovetter, M. (1973). *The Strength of Weak Ties*.

Granovetter, M. (1985). *Economic Action and Social Structure: The Problem of Embeddedness*.

Greenwood, R., & Hinings, C. R. (1996). Understanding Radical Organizational Change: Bringing together the Old and the New Institutionalism. *The Academy of Management Review*, *21*(4), 1022–1054. https://doi.org/10.2307/259163

Greenwood, R., Raynard, M., Kodeih, F., Micelotta, E. R., & Lounsbury, M. (2011). Institutional Complexity and Organizational Responses. *The Academy of Management Annals*, *5*(1), 317–371. https://doi.org/10.1080/19416520.2011.590299

Greenwood, R., & Suddaby, R. (2006). Institutional Entrepreneurship In Mature Fields: The Big Five Accounting Firms. *Academy of Management Journal*, *49*(1), 27–48. https://doi.org/10.5465/amj.2006.20785498

Greenwood, R., Suddaby, R., & Hinings, C. R. (2002). Theorizing Change: The Role of Professional Associations in the Transformation of Institutionalized Fields. *The Academy of Management Journal*, *45*(1), 58–80. https://doi.org/10.2307/3069285

Grégoire, D. A., Barr, P. S., & Shepherd, D. A. (2010). Cognitive processes of opportunity recognition: The role of structural alignment. *Organization Science*, *21*(2), 413–431.

Grimmer, J., & Stewart, B. M. (2013). Text as Data: The Promise and Pitfalls of Automatic Content Analysis Methods for Political Texts. *Political Analysis*, *21*(3), 267–297. https://doi.org/10.1093/pan/mps028

Hannigan, T., & Casasnovas, G. (2020). New structuralism and field emergence: The co-constitution of meanings and actors in the early moments of impact investing. *Manuscript in Preparation*, 49.

Hannigan, T., Jennings, D., Haans, R., Vakili, K., Tchalian, H., Glaser, V., Wang, M., & Kaplan, S. (2019). Topic Models in Management Research: Rendering New Theory from Textual Data. *Manuscript Submitted for Publication*, 104.

Hannigan, T. R., Briggs, A. R., Valadao, R., Seidel, M.-D. L., & Jennings, P. D. (2021). A new tool for policymakers: Mapping cultural possibilities in an emerging AI entrepreneurial ecosystem. *Research Policy*, 104315. https://doi.org/10.1016/j.respol.2021.104315

Hannigan, T. R., Pak, Y., & Jennings, P. D. (2022). Mapping the Multiverse: A Cultural Cartographic Approach to Realizing Entrepreneurial Possibilities. In C. Lockwood & J.-F. Soublière (Eds.), *Research in the Sociology of Organizations* (pp. 217–237). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20220000080013

Hardy, C., & Maguire, S. (2010). Discourse, Field-Configuring Events, and Change in Organizations and Institutional Fields: Narratives of DDT and the Stockholm Convention. *Academy of Management Journal*, *53*(6), 1365–1392. https://doi.org/10.5465/amj.2010.57318384

Hedberg, L. M., & Lounsbury, M. (2021). Not Just Small Potatoes: Cultural Entrepreneurship in the Moralizing of Markets. *Organization Science*, *32*(2), 433–454. https://doi.org/10.1287/orsc.2020.1395

Hensmans, M. (2003). Social Movement Organizations: A Metaphor for Strategic Actors in Institutional Fields. *Organization Studies*, *24*(3), 355–381. https://doi.org/10.1177/0170840603024003908

Hinings, C. R. (Bob), Logue, D., & Zietsma, C. (2017). Fields, Institutional Infrastructure and Governance. In R. Greenwood, C. Oliver, T. Lawrence, & R. Meyer, *The SAGE Handbook of Organizational Institutionalism* (pp. 163–189). SAGE Publications Ltd. https://doi.org/10.4135/9781446280669.n7

Hoffman, A. J. (1999). Institutional Evolution and Change: Environmentalism and the U.S. Chemical Industry. *The Academy of Management Journal*, *42*(4), 351–371. https://doi.org/10.2307/257008

Hoffman, A. J., & Ocasio, W. (2001). Not All Events Are Attended Equally: Toward a Middle-Range Theory of Industry Attention to External Events. *Organization Science*, *12*(4), 414–434. https://doi.org/10.1287/orsc.12.4.414.10639

Holcombe, R. G. (2003). *The Origins of Entrepreneurial Opportunities*.

Höllerer, M. A., Jancsary, D., Barberio, V., & Meyer, R. E. (2020). The Interlinking Theorization of Management Concepts: Cohesion and Semantic Equivalence in Management Knowledge. *Organization Studies*, *41*(9), 1284–1310. https://doi.org/10.1177/0170840619856033

Huff, A. (1990). *Mapping strategic thought*. John Wiley & Sons.

IDeaS Workshop. (2022). *II IDeaS Workshop*.

ILSVRC. (2015). *ILSVRC2015 Results*. https://image-net.org/challenges/LSVRC/2015/results

Jennings, P. D., Hannigan, T. R., & Jennings, J. E. (2022). Introduction – "Reversing Entrepreneurship's Arrow": The Metaphor's Model and Research Implications. In R. N. Eberhart, M. Lounsbury, & H.

E. Aldrich (Eds.), *Entrepreneurialism and Society: Consequences and Meanings* (Vol. 82, pp. 1–17). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20220000082001

Kaggle Review. (2019). http://webcache.googleusercontent.com/search?q=cache:v7X3ogOZV9UJ:blog.kaggle.com/2019/01/18/reviewing-2018-and-previewing-2019/+&cd=16&hl=en&ct=clnk&gl=ca&client=firefox-b-d

Kaplan, S. (2015). *Mixing quantitative and qualitative research*. 19.

Katz, J., & Gartner, W. B. (1988). Properties of Emerging Organizations. *Academy of Management Review*, *13*(3), 429–441. https://doi.org/10.5465/amr.1988.4306967

Kennedy, M. T. (2008). *Getting Counted: Markets, Media, and Reality*. 26.

Ketokivi, M., Mantere, S., & Cornelissen, J. (2017). Reasoning by Analogy and the Progress of Theory. *Academy of Management Review*, *42*(4), 637–658. https://doi.org/10.5465/amr.2015.0322

Khaire, M., & Wadhwani, R. D. (2010). Changing Landscapes: The Construction of Meaning and Value in a New Market Category—Modern Indian Art. *Academy of Management Journal*, *53*(6), 1281–1304. https://doi.org/10.5465/amj.2010.57317861

King, B. G. (2008). A Political Mediation Model of Corporate Response to Social Movement Activism. *Administrative Science Quarterly*, *53*(3), 395–421. https://doi.org/10.2189/asqu.53.3.395

Kirsch, D., Moeen, M., & Wadhwani, R. D. (2014). Historicism and Industry Emergence: Industry Knowledge from Pre-emergence to Stylized Fact. In M. Bucheli & R. D. Wadhwani (Eds.), *Organizations in Time* (pp. 217–240). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199646890.003.0009

Kirzner, I. M. (1973). *Competition and entrepreneurship* (Nachdr.). Univ. of Chicago Pr.

Kirzner, I. M. (1979). *Perception, opportunity, and profit: Studies in the theory of entrepreneurship*. University of Chicago Press.

Kirzner, I. M. (1997). *The Driving Force of the Market: Essays in Austrian Economics* (0 ed.). Routledge. https://doi.org/10.4324/9780203465974

Kitchin, R., & McArdle, G. (2016). What makes Big Data, Big Data? Exploring the ontological characteristics of 26 datasets. *Big Data & Society*, *3*(1), 205395171663113. https://doi.org/10.1177/2053951716631130

Knight, F. H. (1921). *Risk, uncertainty and profit.* Hart, Schaffner & Marx; Houghton Mifflin Co.

Kraatz, M. S., & Block, E. S. (2008). Organizational Implications of Institutional Pluralism. In *The SAGE Handbook of Organizational Institutionalism* (pp. 243–275). SAGE Publications Ltd. https://doi.org/10.4135/9781849200387.n10

Krohn, J., Grant, B., & Aglaé, B. (2018). *Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence*. Addison Wesley.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd Ed). University of Chicago Press.

Lakatos, I. (1978). *The methodology of scientific research programmes*. Cambridge University Press.

Lampel, J., & Shapira, Z. (1995). *Progress and its Discontents: Data Scarcity and the Limits of Falsification in Strategic Management*. https://papers.ssrn.com/abstract=1862666

Langley, A. (1999). Strategies for Theorizing from Process Data. *Academy of Management Review*, 21.

Lawrence, T. B., Hardy, C., & Phillips, N. (2002). *Institutional Effects of Interorganizational Collaboration: The Emergence of Proto-Institutions*. 11.

Lawrence, T. B., Suddaby, R., & Leca, B. (2009). *Institutional Work: Actors and Agency in Institutional Studies of Organizations*. Cambridge University Press.

Leblebici, H., Salancik, G. R., Copay, A., & King, T. (1991). Institutional Change and the Transformation of Interorganizational Fields: An Organizational History of the U.S. Radio Broadcasting Industry. *Administrative Science Quarterly*, *36*(3), 333–363. https://doi.org/10.2307/2393200

Lefsrud, L. M., Graves, H., & Phillips, N. (2017). Dirty oil or ethical oil? Visual rhetoric in legitimation struggles. In *Multimodality, meaning, and institutions* (Vol. 54, pp. 101–142). Emerald Publishing Limited.

Lefsrud, L. M., & Meyer, R. E. (2012). Science or Science Fiction? Professionals' Discursive Construction of Climate Change. *Organization Studies*, *33*(11), 1477–1506. https://doi.org/10.1177/0170840612463317

Lefsrud, L., & Suddaby, R. (2012). After the gold rush: The role of professionals in the emergence and configuration of organizational fields. In *Handbook of research on entrepreneurship in professional services* (pp. 318–339). Edward Elgar Publishing.

Leibel, E., Hallett, T., & Bechky, B. A. (2018). Meaning at the Source: The Dynamics of Field Formation in Institutional Research. *Academy of Management Annals*, *12*(1), 154–177. https://doi.org/10.5465/annals.2016.0035

Levie, J., Don, G., & Leleux, B. (2011). The New Venture Mortality Myth. In K. Hindle & K. Klyver, *Handbook of Research on New Venture Creation* (p. 12612). Edward Elgar Publishing. https://doi.org/10.4337/9780857933065.00019

Levinthal, D. A., & March, J. G. (1993). The myopia of learning. *Strategic Management Journal*, *14*(S2), 95–112. https://doi.org/10.1002/smj.4250141009

Lewin, K. (1951). Field Theory of Social Science: Selected Theoretical Papers. *The ANNALS of the American Academy of Political and Social Science*, *276*(1), 146–147. https://doi.org/10.1177/000271625127600135

Lindstedt, N. C. (2019). Structural Topic Modeling For Social Scientists: A Brief Case Study with Social Movement Studies Literature, 2005–2017. *Social Currents*, *6*(4), 307–318. https://doi.org/10.1177/2329496519846505

Lizardo, O. (2014). Omnivorousness as the bridging of cultural holes: A measurement strategy. *Theory and Society*, *43*(3–4), 395–419. https://doi.org/10.1007/s11186-014-9220-9

Lo, J. Y., & Rhee, E. Y. (2022). Too Much, Too Soon: A Framework for Understanding Unintended Consequences of Cultural Entrepreneurship on Market Emergence. In C. Lockwood & J.-F. Soublière (Eds.), *Research in the Sociology of Organizations* (pp. 157–178). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20220000080010

Loasby, B. J. (2007a). A Cognitive Perspective on Entrepreneurship and the Firm. *Journal of Management Studies*, *44*(7), 1078–1106. https://doi.org/10.1111/j.1467-6486.2007.00729.x

Loasby, B. J. (2007b). Entrepreneurship, evolution and the human mind. In U. Cantner & F. Malerba (Eds.), *Innovation, Industrial Dynamics and Structural Transformation* (pp. 29–47). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-49465-2_3

Lockwood, C., Giorgi, S., & Glynn, M. A. (2019). "How to Do Things With Words": Mechanisms Bridging Language and Action in Management Research. *Journal of Management*, *45*(1), 7–34. https://doi.org/10.1177/0149206318777599

Lockwood, C., & Soublière, J.-F. (2022). Two Advances in Cultural Entrepreneurship Research. In C. Lockwood & J.-F. Soublière (Eds.), *Research in the Sociology of Organizations* (pp. 3–14). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20220000080001

Logue, D., & Grimes, M. (2022). Living Up to the Hype: How New Ventures Manage the Resource and Liability of Future-Oriented Visions within the Nascent Market of Impact Investing. *Academy of Management Journal*, *65*(3), 1055–1082. https://doi.org/10.5465/amj.2020.1583

Louis, M. R., & Sutton, R. I. (1991). Switching Cognitive Gears: From Habits of Mind to Active Thinking. *Human Relations*, *44*(1), 55–76. https://doi.org/10.1177/001872679104400104

Lounsbury, M. (2002). Institutional Transformation and Status Mobility: The Professionalization of the Field of Finance. *The Academy of Management Journal*, *45*(1), 255–266. https://doi.org/10.2307/3069295

Lounsbury, M. (2007). A Tale of Two Cities: Competing Logics and Practice Variation in the Professionalizing of Mutual Funds. *Academy of Management Journal*, *50*(2), 289–307. https://doi.org/10.5465/amj.2007.24634436

Lounsbury, M. D. (1999). *From trusteeship to fund family: Organizational form transformation and the integration of mutual funds into the United States field of finance, 1924–1991*. Northwestern University.

Lounsbury, M., Gehman, J., & Ann Glynn, M. (2019). Beyond *Homo Entrepreneurus*: Judgment and the Theory of Cultural Entrepreneurship. *Journal of Management Studies*, joms.12429. https://doi.org/10.1111/joms.12429

Lounsbury, M., & Glynn, M. A. (2001). Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic Management Journal*, *22*(6–7), 545–564. https://doi.org/10.1002/smj.188

Lounsbury, M., & Glynn, M. A. (2019). *Cultural Entrepreneurship: A New Agenda for the Study of Entrepreneurial Processes and Possibilities* (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781108539487

Lounsbury, M., & Hannigan, T. (2022). *Field of Dreams: Exploration of Entrepreneurial Possibilities*. 5.

Lounsbury, M., & Rao, H. (2004). Sources of Durability and Change in Market Classifications: A Study of the Reconstitution of Product Categories in the American Mutual Fund Industry, 1944-1985. *Social Forces*, *82*(3), 969–999. https://doi.org/10.1353/sof.2004.0046

Lounsbury, M., & Ventresca, M. (2003). The New Structuralism in Organizational Theory. *Organization*, *10*(3), 457–480. https://doi.org/10.1177/13505084030103007

Lounsbury, M., Ventresca, M., & Hirsch, P. M. (2003). Social movements, field frames and industry emergence: A cultural-political perspective on US recycling. *Socio-Economic Review*, *1*(1), 71–104. https://doi.org/10.1093/soceco/1.1.71

MacMillan, I. C., & Katz, J. (1992). *Idiosyncratic Milieus of Entrepreneurial Research: The Need for Comprehensive Theories*. https://papers.ssrn.com/abstract=1505855

Maguire, S., & Hardy, C. (2009). Discourse and Deinstitutionalization: The Decline of DDT. *Academy of Management Journal*, *52*(1), 148–178. https://doi.org/10.5465/amj.2009.36461993

Maguire, S., Hardy, C., & Lawrence, T. B. (2004). INSTITUTIONAL ENTREPRENEURSHIP IN EMERGING FIELDS: HIV/AIDS TREATMENT ADVOCACY IN CANADA. *Academy of Management Journal*, 24.

Mair, J., & Hehenberger, L. (2014). Front-Stage and Backstage Convening: The Transition from Opposition to Mutualistic Coexistence in Organizational Philanthropy. *Academy of Management Journal*, *57*(4), 1174–1200. https://doi.org/10.5465/amj.2012.0305

Mantere, S., & Ketokivi, M. (2013). Reasoning in Organization Science. *Academy of Management Review*, *38*(1), 70–89. https://doi.org/10.5465/amr.2011.0188

March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, *2*(1), 71–87. https://doi.org/10.1287/orsc.2.1.71

March, J. G., & Heath, C. (1994). *A primer on decision making: How decisions happen*. Free Press ; Maxwell Macmillan Canada ; Maxwell Macmillan International.

March, J. G., & Simon, H. A. (1958). *Organizations* (2 edition). Wiley-Blackwell.

Marquis, C., & Raynard, M. (2015). Institutional Strategies in Emerging Markets. *Academy of Management Annals*, *9*(1), 291–335. https://doi.org/10.5465/19416520.2015.1014661

Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). Do the Stories They tell get them the Money They Need? The Role of Entrepreneurial Narratives in Resource Acquisition. *Academy of Management Journal*, *50*(5), 1107–1132. https://doi.org/10.5465/amj.2007.27169488

Martin, J. L. (2003). What Is Field Theory? *American Journal of Sociology*, *109*(1), 1–49. https://doi.org/10.1086/375201

Massa, F. G., Helms, W. S., Voronov, M., & Wang, L. (2017). Emotions uncorked: Inspiring evangelism for the emerging practice of cool-climate winemaking in Ontario. *Academy of Management Journal*, *60*(2), 461–499.

McKelvey, F., & MacDonald, M. (2019). Artificial Intelligence Policy Innovations at the Canadian Federal Government. *Canadian Journal of Communication*, *44*(2), PP-43-PP-50. https://doi.org/10.22230/cjc.2019v44n2a3509

Mentionlytics. (2019). https://www.mentionlytics.com/blog/5-real-world-examples-of-how-brands-are-using-big-data-analytics/

Meyer, J. W., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, *83*(2), 340–363. https://doi.org/10.1086/226550

Meyer, R. E., & Höllerer, M. A. (2010a). Meaning Structures in a Contested Issue Field: A Topographic Map of Shareholder Value in Austria. *Academy of Management Journal*, *53*(6), 1241–1262. https://doi.org/10.5465/amj.2010.57317829

Meyer, R. E., & Höllerer, M. A. (2010b). Meaning Structures in a Contested Issue Field: A Topographic Map of Shareholder Value in Austria. *Academy of Management Journal*, *53*(6), 1241–1262. https://doi.org/10.5465/amj.2010.57317829

Miailhe, N. (2018). *Sorties de guerres*. IFRI.

Mimno, D., Wallach, H., Talley, E., Leenders, M., & McCallum, A. (2011). Optimizing Semantic Coherence in Topic Models. *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing*, 262–272.

Mische, A. (2009). Projects and Possibilities: Researching Futures in Action. *Sociological Forum*, *24*(3), 694–704. https://doi.org/10.1111/j.1573-7861.2009.01127.x

Mische, A. (2014). Measuring futures in action: Projective grammars in the Rio + 20 debates. *Theory and Society*, *43*(3), 437–464. https://doi.org/10.1007/s11186-014-9226-3

Mohr, J. (2020). *Measuring culture*. Columbia University Press.

Mohr, J. W. (1998). Measuring Meaning Structures. *Annual Review of Sociology*, *24*, 345–370.

Mohr, J. W. (2005). Implicit terrains: Meaning, measurement, and spatial metaphors in organizational theory. *Constructing Industries and Markets. New York: Elsevier*.

Mohr, J. W. (2013). Bourdieu's Relational Method in Theory and in Practice: From Fields and Capitals to Networks and Institutions (and Back Again). In F. Dépelteau & C. Powell (Eds.), *Applying Relational Sociology* (pp. 101–135). Palgrave Macmillan US. https://doi.org/10.1057/9781137407009_5

Mohr, J. W., Bail, C. A., Frye, M., Lena, J. C., Lizardo, O., McDonnell, T. E., Mische, A., Tavory, I., & Wherry, F. F. (2020). *Measuring Culture*. Columbia University Press.

Mohr, J. W., & Bogdanov, P. (2013). Introduction—Topic models: What they are and why they matter. *Poetics*, *41*(6), 545–569. https://doi.org/10.1016/j.poetic.2013.10.001

Mohr, W., & Duquenne, V. (1997). The Duality of Culture and Practice: Poverty Relief in New York City, 1888-1917. *Theory and Society*, *26*(2/3,), 305–356.

Morgan, G. (2016). Commentary: Beyond Morgan's eight metaphors. *Human Relations*, *69*(4), 1029–1042. https://doi.org/10.1177/0018726715624497

Muhamedyev, R. I. (2015). *Machine learning methods: An overview*.

Navis, C., & Glynn, M. A. (2010). How New Market Categories Emerge: Temporal Dynamics of Legitimacy, Identity, and Entrepreneurship in Satellite Radio, 1990–2005. *Administrative Science Quarterly*, *55*(3), 439–471. https://doi.org/10.2189/asqu.2010.55.3.439

Nelson, L. K. (2017). Computational Grounded Theory: A Methodological Framework. *Sociological Methods & Research*, 004912411772970. https://doi.org/10.1177/0049124117729703

Nelson, L. K. (2019). To Measure Meaning in Big Data, Don't Give Me a Map, Give Me Transparency and Reproducibility. *Sociological Methodology*, *49*(1), 139–143. https://doi.org/10.1177/0081175019863783

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. The Belknap Press of Harvard Univ. Press.

Nigam, A., & Ocasio, W. (2010). Event Attention, Environmental Sensemaking, and Change in Institutional Logics: An Inductive Analysis of the Effects of Public Attention to Clinton's Health Care Reform Initiative. *Organization Science*, *21*(4), 823–841. https://doi.org/10.1287/orsc.1090.0490

Noble, S. U. (2018). Algorithms of Oppression: How Search Engines Reinforce Racism. In *Algorithms of Oppression*. New York University Press. https://doi.org/10.18574/nyu/9781479833641.001.0001

Oakes, L. S., Townley, B., & Cooper, D. J. (1998). Business Planning as Pedagogy: Language and Control in a Changing Institutional Field. *Administrative Science Quarterly*, *43*(2), 257. https://doi.org/10.2307/2393853

Oberg, A., Korff, V. P., & Powell, W. W. (2017). Culture and Connectivity Intertwined: Visualizing Organizational Fields as Relational Structures *and* Meaning Systems. In P. Groenewegen, J. E. Ferguson, C. Moser, J. W. Mohr, & S. P. Borgatti (Eds.), *Research in the Sociology of Organizations* (Vol. 53, pp. 17–47). Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20170000053001

Oliver, C. (1992). The Antecedents of Deinstitutionalization. *Organization Studies*, *13*(4), 563–588. https://doi.org/10.1177/017084069201300403

O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy* (First edition). Crown.

Ortony, A. (Ed.). (1993). *Metaphor and thought* (2nd ed). Cambridge University Press.

Pachucki, M. A., & Breiger, R. L. (2010). Cultural Holes: Beyond Relationality in Social Networks and Culture. *Annual Review of Sociology*, *36*(1), 205–224. https://doi.org/10.1146/annurev.soc.012809.102615

Park, S. H., & Zhang, Y. (2020). Cultural Entrepreneurship in Corporate Governance Practice Diffusion: Framing of "Independent Directors" by U.S.-Listed Chinese Companies. *Organization Science*, *31*(6), 1359–1384. https://doi.org/10.1287/orsc.2019.1355

Peirce, C. S. (1958). *Collected Papers of Charles Sanders Peirce*. Harvard University Press.

Pfeffer, J., & Salancik, G. (1978). *The External Control of Organizations: A Resource Dependence Perspective—Ch 3*.

Phillips, N., & Hardy, C. (2002). *Discourse Analysis: Investigating Processes of Social Construction*. SAGE Publications.

Phillips, N., Lawrence, T., & Hardy, C. (2004). *Discourse and Institutions*. 19.

Pinch, T., & Clark, C. (1986). The Hard Sell: `Patter Merchanting' and the Strategic (Re)Production and Local Management of Economic Reasoning in the Sales Routines of Markt Pitchers. *Sociology*, *20*(2), 169–191. https://doi.org/10.1177/0038038586020002002

Pitchbook. (2022). *Q3_2022_Artificial_Intelligence_Machine_Learning_Report_1296.pdf*.

Plummer, L. A., Haynie, J. M., & Godesiabois, J. (2007). An Essay on the Origins of Entrepreneurial Opportunity. *Small Business Economics*, *28*(4), 363–379. https://doi.org/10.1007/s11187-006-9036-8

Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. (1995). Rivalry and the Industry Model of Scottish Knitwear Producers. *Administrative Science Quarterly*, *40*(2), 203. https://doi.org/10.2307/2393636

Powell, W. W., & Oberg, A. (2017). Networks and Institutions. *The SAGE Handbook of Organizational Institutionalism*, 31.

Provost, F., & Fawcett, T. (2013). Data Science and its Relationship to Big Data and Data-Driven Decision Making. *Big Data*, *1*(1), 51–59. https://doi.org/10.1089/big.2013.1508

Purdy, J. M., & Gray, B. (2009). Conflicting Logics, Mechanisms of Diffusion, and Multilevel Dynamics in Emerging Institutional Fields. *Academy of Management Journal*, *52*(2), 355–380. https://doi.org/10.5465/amj.2009.37308255

Quirke, L. (2013). Rogue Resistance: Sidestepping Isomorphic Pressures in a Patchy Institutional Field. *Organization Studies*, *34*(11), 1675–1699. https://doi.org/10.1177/0170840613483815

Raaijmakers, A. G. M., Vermeulen, P. A. M., Meeus, M. T. H., & Zietsma, C. (2015). I Need Time! Exploring Pathways to Compliance under Institutional Complexity. *Academy of Management Journal*, *58*(1), 85–110. https://doi.org/10.5465/amj.2011.0276

Rajkumar, K., Saint-Jacques, G., Bojinov, I., Brynjolfsson, E., & Aral, S. (2022). A causal test of the strength of weak ties. *Science*, *377*(6612), 1304–1310. https://doi.org/10.1126/science.abl4476

Ramoglou, S., & Tsang, E. W. K. (2016). A Realist Perspective of Entrepreneurship: Opportunities As Propensities. *Academy of Management Review*, *41*(3), 410–434. https://doi.org/10.5465/amr.2014.0281

Rao, H. (1994). The Social Construction of Reputation: Certification Contests, Legitimation, and the Survival of Organizations in the American Automobile Industry: 1895–1912. *Strategic Management Journal*, *15*(S1), 29–44. https://doi.org/10.1002/smj.4250150904

Rao, H., Monin, P., & Durand, R. (2003). Institutional Change in Toque Ville: Nouvelle Cuisine as an Identity Movement in French Gastronomy. *American Journal of Sociology*, *108*(4), 795–843. https://doi.org/10.1086/367917

Rao, H., Morrill, C., & Zald, M. N. (2000). Power Plays: How Social Movements and Collective Action Create New Organizational Forms. *Research in Organizational Behavior*, *22*, 237–281. https://doi.org/10.1016/S0191-3085(00)22007-8

Reay, T., & Hinings, C. R. (2009). Managing the Rivalry of Competing Institutional Logics. *Organization Studies*, *30*(6), 629–652. https://doi.org/10.1177/0170840609104803

Reay, T., & Hinings, C. R. (Bob). (2005). The Recomposition of an Organizational Field: Health Care in Alberta. *Organization Studies*, *26*(3), 351–384. https://doi.org/10.1177/0170840605050872

Reinsel, D., Gantz, J., & Rydning, J. (2018). *The Digitization of the World from Edge to Core*. 28.

Rindova, V., Dalpiaz, E., & Ravasi, D. (2011). A Cultural Quest: A Study of Organizational Use of New Cultural Resources in Strategy Formation. *Organization Science*, *22*(2), 413–431. https://doi.org/10.1287/orsc.1100.0537

Roberts, M. E., Stewart, B. M., & Tingley, D. (2019). stm: An R Package for Structural Topic Models. *Journal of Statistical Software*, 40.

Roberts, M. E., Stewart, B. M., Tingley, D., Lucas, C., Leder-Luis, J., Gadarian, S. K., Albertson, B., & Rand, D. G. (2014). Structural Topic Models for Open-Ended Survey Responses. *American Journal of Political Science*, *58*(4), 1064–1082. https://doi.org/10.1111/ajps.12103

Roberts, M., Stewart, B., Tingley, D., & Airoldi, E. (2013). *The Structural Topic Model and Applied Social Science*. 66.

Ruebottom, T., & Toubiana, M. (2021). Constraints and Opportunities of Stigma: Entrepreneurial Emancipation in the Sex Industry. *Academy of Management Journal*, *64*(4), 1049–1077. https://doi.org/10.5465/amj.2018.1166

Russell, S. J., & Norvig, P. (2022). *Artificial intelligence: A modern approach* (Fourth edition, global edition). Pearson.

Sætre, A. S., & Van de Ven, A. (2021). Generating Theory by Abduction. *Academy of Management Review*, *46*(4), 684–701. https://doi.org/10.5465/amr.2019.0233

Sahay, A. (2021). *Essentials of data science and analytics: Statistical tools, machine learning, and R-statistical software overview* (First edition). Business Expert Press.

Santos, F. M., & Eisenhardt, K. M. (2009). Constructing Markets and Shaping Boundaries: Entrepreneurial Power in Nascent Fields. *Academy of Management Journal*, *52*(4), 643–671. https://doi.org/10.5465/amj.2009.43669892

Sarasvathy, S. D. (2001). *Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency*. 22.

Sarker, I. H. (2021). Machine Learning: Algorithms, Real-World Applications and Research Directions. *SN Computer Science*, *2*(3), 160. https://doi.org/10.1007/s42979-021-00592-x

Schmiedel, T., Müller, O., & vom Brocke, J. (2018). Topic Modeling as a Strategy of Inquiry in Organizational Research: A Tutorial With an Application Example on Organizational Culture. *Organizational Research Methods*, 109442811877385. https://doi.org/10.1177/1094428118773858

Schneiberg, M. (2007). What's on the path? Path dependence, organizational diversity and the problem of institutional change in the US economy, 1900–1950. *Socio-Economic Review*, *5*(1), 47–80. https://doi.org/10.1093/ser/mwl006

Schumpeter, J. A. (1911). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. Transaction Books.

Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (Fourth edition). SAGE.

Seidel, V. P., Hannigan, T. R., & Phillips, N. (2020). Rumor Communities, Social Media, and Forthcoming Innovations: The Shaping of Technological Frames in Product Market Evolution. *Academy of Management Review*, *45*(2), 304–324. https://doi.org/10.5465/amr.2015.0425

Sewell, W. H. (1992). A Theory of Structure: Duality, Agency, and Transformation. *American Journal of Sociology*, *98*(1), 1–29. https://doi.org/10.1086/229967

Shane. (2003). *A General Theory of Entrepreneurship: The Individual-opportunity Nexus*. Edward Elgar Publishing.

Shane, S. (2000). Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, *11*(4), 448–469. https://doi.org/10.1287/orsc.11.4.448.14602

Shane, S., & Venkataraman, S. (2000). *THE PROMISE OF ENTREPRENEURSHIP AS A. FIELD OF RESEARCH*. 11.

Shepherd, D. A., & Sutcliffe, K. M. (2011). Inductive Top-Down Theorizing: A Source of New Theories of Organization. *Academy of Management Review*, *36*(2), 361–380. https://doi.org/10.5465/amr.2009.0157

Shi, Z., Rui, H., & Whinston, A. B. (2014). Content Sharing in a Social Broadcasting Environment: Evidence From Twitter. *MIS Quarterly*, *38*(1), 123–142.

Silcoff, S., & O'Kane, J. (2023, January 23). Canada has leading AI experts. But does Ottawa have the right plan to support an AI industry? *The Globe and Mail*. https://www.theglobeandmail.com/business/article-canada-support-ai-industry/

Silver, A. D. (1985). *Entrepreneurial megabucks: The 100 greatest entrepreneurs of the last 25 years*. Wiley.

Sine, W. D., & Lee, B. H. (2009). Tilting at Windmills? The Environmental Movement and the Emergence of the U.S. Wind Energy Sector. *Administrative Science Quarterly*, *54*(1), 123–155. https://doi.org/10.2189/asqu.2009.54.1.123

Smets, M., Morris, T., & Greenwood, R. (2012). From Practice to Field: A Multilevel Model of Practice-Driven Institutional Change. *Academy of Management Journal*, *55*(4), 877–904. https://doi.org/10.5465/amj.2010.0013

Soublière, J., & Lockwood, C. (2022). Achieving Cultural Resonance: Four Strategies Toward Rallying Support for Entrepreneurial Endeavors. *Strategic Management Journal*, smj.3373. https://doi.org/10.1002/smj.3373

Spigel, B. (2017). The Relational Organization of Entrepreneurial Ecosystems. *Entrepreneurship Theory and Practice*, *41*(1), 49–72. https://doi.org/10.1111/etap.12167

Spigel, B. (2020). *Entrepreneurial Ecosystems: Theory, Practice and Futures*. Edward Elgar Publishing.

Spillman, L. (2016). Culture's Coherence: How the Trees Compose the Woods. *The American Sociologist*, *47*(4), 416–429. https://doi.org/10.1007/s12108-016-9311-3

Stryker, R. (1994). Rules, Resources, and Legitimacy Processes: Some Implications for Social Conflict, Order, and Change. *American Journal of Sociology*, *99*(4), 847–910. https://doi.org/10.1086/230366

Suddaby, R. (2010). Challenges for Institutional Theory. *Journal of Management Inquiry*, *19*(1), 14–20. https://doi.org/10.1177/1056492609347564

Suddaby, R., Bruton, G. D., & Si, S. X. (2015). Entrepreneurship through a qualitative lens: Insights on the construction and/or discovery of entrepreneurial opportunity. *Journal of Business Venturing*, *30*(1), 1–10. https://doi.org/10.1016/j.jbusvent.2014.09.003

Sumpter, M., & Ciampaglia, G. L. (2018). *Preserving the Integrity and Credibility of the Online Information Ecosystem*.

Swartz, D. (1996). Bridging the Study of Culture and Religion: Pierre Bourdieu's Political Economy of Symbolic Power. *Sociology of Religion*, *57*(1), 71. https://doi.org/10.2307/3712005

Swidler, A. (1986). Culture in Action: Symbols and Strategies. *American Sociological Review*, *51*(2), 273. https://doi.org/10.2307/2095521

Taeuscher, K., Bouncken, R., & Pesch, R. (2021). Gaining Legitimacy by Being Different: Optimal Distinctiveness in Crowdfunding Platforms. *Academy of Management Journal*, *64*(1), 149–179. https://doi.org/10.5465/amj.2018.0620

Taeuscher, K., Zhao, E. Y., & Lounsbury, M. (2022). Categories and Narratives as Sources of Distinctiveness: Cultural Entrepreneurship within and across Categories. *Strategic Management Journal*, *n/a*(n/a). https://doi.org/10.1002/smj.3391

Thompson, T. A., Purdy, J. M., & Ventresca, M. J. (2018). How entrepreneurial ecosystems take form: Evidence from social impact initiatives in Seattle. *Strategic Entrepreneurship Journal*, *12*(1), 96–116. https://doi.org/10.1002/sej.1285

Thornton, P. H., Jones, C., & Kury, K. (2005). Institutional Logics and Institutional Change in Organizations: Transformation in Accounting, Architecture, and Publishing. In *Research in the Sociology of Organizations* (Vol. 23, pp. 125–170). Emerald (MCB UP). https://doi.org/10.1016/S0733-558X(05)23004-5

Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). *The Institutional Logics Perspective*.

Tsoukas, H. (1991). The Missing Link: A Transformational View of Metaphors in Organizational Science. *Academy of Management Review*, *16*(3), 566–585. https://doi.org/10.5465/amr.1991.4279478

Turck, M., & FirstMark. (2020). *2020 Data and AI Landscape*. https://mattturck.com/wp-content/uploads/2020/09/2020-Data-and-AI-Landscape-Matt-Turck-at-FirstMark-v1.pdf

Turck, M., & Zilis, S. (2012, June 29). *2012 Big Data Landascape*. https://image.slidesharecdn.com/bigdatachartturckzilis-120629095525-phpapp01/95/a-chart-of-the-big-data-ecosystem-1-1024.jpg?cb=1340963904

Überbacher, F., Jacobs, C. D., & Cornelissen, J. P. (2015). How Entrepreneurs Become Skilled Cultural Operators. *Organization Studies*, *36*(7), 925–951. https://doi.org/10.1177/0170840615575190

Van Maanen, J. (1979). The Fact of Fiction in Organizational Ethnography. *Administrative Science Quarterly*, *24*(4), 539–550. JSTOR. https://doi.org/10.2307/2392360

Värlander, S., Sölvell, I., & Klyver, K. (2020). Entrepreneurship as a vocational choice in contested entrepreneurship communities: The role of entrepreneurs' justification strategies. *Journal of Business Venturing*, *35*(3), 106006. https://doi.org/10.1016/j.jbusvent.2020.106006

Venkataraman, S. (1997). The Distinctive Domain of Entrepreneurship Research. *Advances in Entrepreneurship, Firm Emergence and Growth*, *3*.

Villamor Martin, M., Kirsch, D. A., & Prieto-Nañez, F. (2023). The promise of machine-learning- driven text analysis techniques for historical research: Topic modeling and word embedding. *Management & Organizational History*, 1–16. https://doi.org/10.1080/17449359.2023.2181184

Wall Street Journal. (2023). *Sequoia Turns to Outside National-Security Experts to Vet New China Tech Investments*. WSJ. https://www.wsj.com/articles/sequoia-pares-back-china-tech-investments-as-u-s-national-security-concerns-grow-c17348b5

Washington, M. (2004). Field Approaches to Institutional Change: The Evolution of the National Collegiate Athletic Association 1906–1995. *Organization Studies*, *25*(3), 393–414. https://doi.org/10.1177/0170840604040042

Weber, K., & Dacin, M. T. (2011). The Cultural Construction of Organizational Life: Introduction to the Special Issue. *Organization Science*, *22*(2), 287–298. https://doi.org/10.1287/orsc.1100.0632

Weber, K., Heinze, K. L., & DeSoucey, M. (2008a). Forage for Thought: Mobilizing Codes in the Movement for Grass-fed Meat and Dairy Products. *Administrative Science Quarterly*, *53*(3), 529–567. https://doi.org/10.2189/asqu.53.3.529

Weber, K., Heinze, K. L., & DeSoucey, M. (2008b). Forage for Thought: Mobilizing Codes in the Movement for Grass-fed Meat and Dairy Products. *Administrative Science Quarterly*, *53*(3), 529–567. https://doi.org/10.2189/asqu.53.3.529

Weick, K. E. (1989). *Theory Construction as Disciplined Imagination*. 17.

Weick, K. E. (1995). *Sensemaking in Organizations*. SAGE.

Whetten, D. A. (1989). *What Constitutes a Theoretical Contribution?* 7.

Williamson, O. E. (1981). The Economics of Organization: The Transaction Cost Approach. *American Journal of Sociology*, *87*(3), 548–577. https://doi.org/10.1086/227496

Winig, L. (2016). GE's Big Bet on Data and Analytics. *MIT Sloan Management Review*. https://sloanreview.mit.edu/case-study/ge-big-bet-on-data-and-analytics/

Wooten, M., & Hoffman, A. J. (2008). Organizational Fields: Past, Present and Future. *The SAGE Handbook of Organizational Institutionalism*, 20.

Wry, T., Cobb, J. A., & Aldrich, H. E. (2013). More than a Metaphor: Assessing the Historical Legacy of Resource Dependence and its Contemporary Promise as a Theory of Environmental Complexity. *The Academy of Management Annals*, *7*(1), 441–488. https://doi.org/10.1080/19416520.2013.781862

Wry, T., Lounsbury, M., & Glynn, M. A. (2011). Legitimating Nascent Collective Identities: Coordinating Cultural Entrepreneurship. *Organization Science*, *22*(2), 449–463. https://doi.org/10.1287/orsc.1100.0613

Wurth, B., Stam, E., & Spigel, B. (2022). Toward an Entrepreneurial Ecosystem Research Program. *Entrepreneurship Theory and Practice*, *46*(3), 729–778. https://doi.org/10.1177/1042258721998948

Yoshikawa, T., Tsui-Auch, L. S., & McGuire, J. (2007). Corporate Governance Reform as Institutional Innovation: The Case of Japan. *Organization Science*, *18*(6), 973–988. https://doi.org/10.1287/orsc.1070.0290

Zald, M. N., & Lounsbury, M. (2010). The Wizards of Oz: Towards an Institutional Approach to Elites, Expertise and Command Posts. *Organization Studies*, *31*(7), 963–996. https://doi.org/10.1177/0170840610373201

Zhao, E. Y. (2022). *Optimal Distinctiveness: A New Agenda for the Study of Competitive Positioning of Organizations and Markets* (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781108990561

Zhao, E. Y., & Glynn, M. A. (2022). Optimal Distinctiveness: On Being the Same and Different. *Organization Theory*, *3*(1), 263178772210793. https://doi.org/10.1177/26317877221079340

Zhao, E. Y., Ishihara, M., & Lounsbury, M. (2013). Overcoming the Illegitimacy Discount: Cultural Entrepreneurship in the US Feature Film Industry. *Organization Studies*, *34*(12), 1747–1776. https://doi.org/10.1177/0170840613485844

Zhao, W. X., Jiang, J., Weng, J., He, J., Lim, E.-P., Yan, H., & Li, X. (2011). Comparing Twitter and Traditional Media Using Topic Models. In P. Clough, C. Foley, C. Gurrin, G. J. F. Jones, W. Kraaij, H. Lee, & V. Mudoch (Eds.), *Advances in Information Retrieval* (pp. 338–349). Springer. https://doi.org/10.1007/978-3-642-20161-5_34

Zietsma, C., Groenewegen, P., Logue, D. M., & Hinings, R. (2017). Field or Fields? Building the Scaffolding for Cumulation of Research on Institutional Fields. *Academy of Management Annals*, *11*(1), 391–450. https://doi.org/10.5465/annals.2014.0052

Zietsma, C., & Lawrence, T. B. (2010). Institutional Work in the Transformation of an Organizational Field: The Interplay of Boundary Work and Practice Work. *Administrative Science Quarterly*, *55*(2), 189–221. https://doi.org/10.2189/asqu.2010.55.2.189

Zietsma, C., & McKnight, B. (2009). Building the iron cage: Institutional creation work in the context of competing proto-institutions. In T. B. Lawrence, R. Suddaby, & B. Leca (Eds.), *Institutional Work* (pp. 143–177). Cambridge University Press. https://doi.org/10.1017/CBO9780511596605.006

Zilber, T. B. (2002). Institutionalization as an Interplay Between Actions, Meanings, and Actors: The Case of a Rape Crisis Center in Israel. *Academy of Management Journal*, *45*(1), 234–254. https://doi.org/10.5465/3069294

Zilber, T. B. (2007). Stories and the Discursive Dynamics of Institutional Entrepreneurship: The Case of Israeli High-tech after the Bubble. *Organization Studies*, *28*(7), 1035–1054. https://doi.org/10.1177/0170840607078113

Zilber, T. B. (2017). The Evolving Role of Meaning in Theorizing Institutions. In R. Greenwood, C. Oliver, T. Lawrence, & R. Meyer, *The SAGE Handbook of Organizational Institutionalism* (pp. 418–445). SAGE Publications Ltd. https://doi.org/10.4135/9781446280669.n17

Zilber, T. B. (2020). The Methodology/Theory Interface: Ethnography and the Microfoundations of Institutions. *Organization Theory*, *1*(2), 263178772091943. https://doi.org/10.1177/2631787720919439

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power* (First edition). PublicAffairs.

Zucker, L. G. (1977). The Role of Institutionalization in Cultural Persistence. *American Sociological Review*, *42*(5), 726. https://doi.org/10.2307/2094862