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ESSAY

'*Not Too Good to be True*': A Proposal to Further Benefit from Emergence in Management Research

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Abstract

Emergence is inherent to organizational life and design. Throughout the 20th and 21st centuries, emergence has been appraised as a conceptual avenue that surpassed the limitations of traditional thinking and epistemology. In this essay, I suggest that, despite its relevance and popularity among management scholars, emergence has remained underused. I rely on Kuhn's view (1962) to better understand the reasons for this paradox and propose some practical avenues to improve our understanding and use of the concept. This essay has three objectives: (1) to demonstrate that emergence is relevant to better understanding organizations; (2) to explain why emergence remains underused in management and organization theory (MOT); and (3) to propose practical guidelines to further rely on the concept of emergence.

Keywords: *emergence; organization theory; epistemology*

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Emergence at the root of organizing

In 2022, public opinion discovered that some private companies – such as Clearview AI, Wallgreen, and even Meta – had been intensifying the collection and processing of facial images from social media and other websites. Behind the scenes, citizens and all types of organizations, ranging from communities to private companies and public administrations, were already teeming with experiments and actions in response to the rise of this new technological opportunity.

Technically, facial recognition consists of collecting facial images and inferring insights into various characteristics – including identity, personality, emotion, or even health status – from them. For instance, facial recognition allows real-time identification of individuals from streaming videos (including cameras in public places) and analysis of emotions and personalities based on AI. Applying AI to pictures of faces highlights a deep disruption, not only in terms of information practices but also privacy and surveillance (Kohn, 2022).

Needless to say, our societies promptly reacted to this new practice in various and unexpected ways. Some companies and industries jumped on this technological opportunity to experiment and produce innovative services, ranging from personality analysis (such as Faception) to deepfake applications (such as FakeApp or open source DeepFaceLab). The movie industry grasped the technology to experiment with 'second skin', which questioned traditional canons and gendered cliché. Internationally, appraised movie scenes that initially involved male actors were replaced with the face of female actors (and vice versa) (Holliday, 2021). Likewise, some museums seized the opportunity provided by deepfakes to renew visitors' experience by showing fake videos of painters who explained their work (see Lee Kietzman, Kietzman, The Conversation[1]). A family whose son had been shot dead at school in 2018 produced a fake video based on all the archives of their deceased son to make him argue for the need for weapon regulation in the United States. Alternatively, a community[2] emerged to promote the usage of deepfake technology to tackle Aphantasia, a neuronal pathology that prevents mental imagery (see Dominic Lees, The Conversation[3]). Most of these initiatives unexpectedly sprang from local interactions, trial and error.

1. https://theconversation.com/deepfakes-five-ways-in-which-they-are-brilliant-business-opportunities-131591
2. https://aphantasia.com/what-is-aphantasia/
3. https://theconversation.com/deepfakes-are-being-used-for-good-heres-how-193170

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In addition to quick and local experimentation, citizens and organizations also debated locally on facial recognition. These interactions resulted in various but unique and new outputs. Multiple class actions have been organized in the United States since[4] 2018 to stop the abusive use of facial scans by some private companies.[5]Think tanks around the world organized panels, events, conferences, and released publications to better delineate the potential impacts of facial recognition and make practical recommendations to European institutions (see, for instance, Renaissance Numérique's publications in France[6]). In the same vein, the University of Chicago proposed open-source techniques to invisibly corrupt a facial scan and impede its recognition by algorithms.[7] Communities organized exhibitions on the implications of facial recognition (such as The Glassroom project led by the Tactical Tech NGO) and the democratization of facial recognition techniques (see DeepFakeLab). Relying on such vivid dynamics, the European Parliament amended the legislation on September 21 after the release of the EU Artificial Intelligence (AI) Act earlier in April. In parallel, the implementation of facial recognition in some Australian schools fueled debates and negotiations among education authorities, schools, and companies on its effects on privacy. A collective consensus emerged on school legal requirements and regulated technology implementation (Selwyn et al., 2022).

The multiplicity of inventions, business models, and local initiatives in response to facial recognition can seem slightly chaotic at first glance. However, they illustrate how interactions shape and participate in our response to disruptions and complex situations that can deeply impact the future of our societies (Wickert et al., 2021). Through interactions, individuals and organizations collectively approach a novel situation as a threat and/or an opportunity (consider novel business models based on the collection and processing of facial scans). Their interactions lead to even more interactions at other levels (consider, for instance, the interactions induced by class actions and think tank reports to alert on facial recognition's impacts). What happens next remains hardly predictable. Depending on the individuals' personalities, the frequency, nature, and settings of their interactions, individuals and organizations together progressively produce a bigger, unique, and new outcome (considering the change in the regulation of facial recognition or new standards of surveillance).

In other words, individuals grapple with any means at hand to transform a tricky situation into something that affects everyone's future and generate new laws, new markets, new stakes, new policies, etc. What we can infer from these examples is that societies innovate and function through *emergence*. With all its novelty, unpredictability, and uniqueness, emergence lies at the core of large movements that involve organizations.

These examples also suggest that local experimentation, interactions, and collaboration represent the primary methods for societies to face complex and disruptive challenges. Such emergence requires support. For instance, public administration, private companies, or communities could identify the practical drivers and obstacles to emergence. They could work to create settings that favor fruitful emergence (Nijs, 2015). They could create settings that favor debates and reflexivity in emergence. Interest in emergence from practitioners and managers is vividly illustrated by the diversity of domain names, conferences, and events on the topic.

Emergence, this good old lad

From scientific roots to scholarly momentum

For more than a century (Goldstein, 1999), a large spectrum of disciplines has relied on the notion of emergence, ranging from chemistry and physics to ecology, mathematics, sociology and theology. Please note that the objective of this paper is to tackle the under use of emergence. Hence, I will not focus on its footprint in science or its fundamental properties, which are summarized in Table 1. In summary, Table 1 explains that emergence primarily manifests in the appearance of a new whole (novelty). The whole cannot be reduced to the linear combination of the micro parts that participated in its surge (nonreducibility). Neither the appearance nor the properties of the whole can be deduced or predicted from the micro (nondeducibility and nonpredictability).

Mihata (1997) accounts for the basic properties of emergence (including novelty, nonpredictability, and nonreducibility). He also provides a rich description of the challenges inherent to conceptualizing emergence. Goldstein provides a very complete description of the scientific roots and ontological approaches of the concept (1999). In addition, in the introduction of their book on the emergence of novelty in organizations, Garud et al. account for the increasing use of the concept of emergence in scientific communities (2015).

4. https://www.classaction.org/news/class-action-claims-walgreens-use-of-facial-recognition-cameras-oversteps-illinois-privacy-law; https://theconversation.com/class-action-against-facebook-over-facial-recognition-could-pave-the-way-for-further-lawsuits-95215; https://www.classaction.org/news/bunkl.com-collects-facial-scans-without-consent-class-action-claims

5. https://www.classaction.org/search?q=facial%20recognition

6. https://www.renaissancenumerique.org/en/publications/regulation-of-facial-recognition-technologies/

7. https://cs.uchicago.edu/news/fawkes-cloaking/ and https://www.nytimes.com/2020/08/03/technology/fawkes-tool-protects-photos-from-facial-recognition.html

Table 1. The fundamental properties of emergence

Fundamental properties of emergence	Definition (source)
Novelty	The appearance of something that did not exist before (Mihata, 1997).
Nonpredictability	One cannot anticipate the future given the existing conditions (Nagel, 1952), partly because the whole is new and emergence can be chaotic (Mihata, 1997).
Nondeductibility	One cannot logically deduce the laws and rules of the whole from the rules and laws that characterize the parts.
Nonreducibility	The whole cannot be reduced to the combination of its parts (Mihata, 1997).
Aspiration	The vision and enactment of opportunities to be capitalized on (Lichtenstein, 2014).
Instability	Continuous adaptation and change rather than the strengthening of stable and robust properties (Kearney & Lichtenstein, 2022).

The scholarly history of emergence reveals continuous debate on its properties and impacts. In philosophy, emergence appears at the root of novel and greater things (Mead, 1932).[8] Its centrality in life has questioned deterministic thinking (Klee, 1984). Emergence also questions traditional epistemology by highlighting the role of interactions in knowledge building (Polanyi, 1966).

Management and organization theory has drawn on these debates to highlight emergence as a core feature of organizing. According to this view, organizations keep adapting their functioning, needs, and boundaries (Garud et al., 2008). They iteratively address new problems and opportunities, thereby shaping solutions. In other words, one easily finds the essential features of emergence (see Table 1) when observing organizations.

In the nineties, the notion of emergence gained momentum and frequently appeared on the upfront of the scholarly stage. Scholars claimed the need for a new paradigm that would examine the unpredictable nature of organizations' environment and organizations' efforts for response and adaptation (Brown & Eisenhardt, 1997; Cunha et al., 2001). Emergence seemingly addressed this need (Lissack, 1999). Unsurprisingly, a special issue in *Organization Science* compiled multiple essays on improvisation in 1998. Emergence also became more popular through the creation of a transdisciplinary journal entitled *Emergence: Complexity and Organization* in 1999.

[8] 'When things get together, there then arises something that was not there before, and that character is something that cannot be stated in terms of the elements which go to make up the combination. It remains to be seen in what sense we can now characterize that which has so emerged.' (p. 641)

Increasing interest in the notion from management scholars has stemmed from the diversity of empirical phenomena that emergence covers (Lichtenstein, 2014). The emergence lens helps overcome the limitations of traditional views of organizations as static and clearly bounded entities. To that extent, it paves the way for promising conceptualization of organizations (Lissack, 1999). While emergence used to appear in scholarly work as an essential component of complexity theory (Corning, 2002), it makes room for concepts such as processes, transformation, and organizational dynamics (Nayak & Chia, 2011).

Insights into management and organization theory from emergence

As outlined here in, emergence addresses the *why* and *how* things come to exist (see Clayton, 2006, for an exhaustive account of the philosophical discussion on the essence of emergence). It drives scholars to an existentialist stance on organizations by exploring the flow of their framing and creation. Emergence helps explore topics and dynamics that, despite their importance, remain challenging to investigate.

First, it offers the opportunity to focus on the creation of things. This point was raised by Chiles (2004), who highlighted the fundamental weakness of traditional management theory that assumes that organizations exist with their structures and boundaries. In contrast, the emergence lens focuses on the shift from the absence to the existence of some organization. This opportunity has fostered the development of emergent design as a research stream (Lichtenstein, 2014).

Second, emergence opens a window on micro-phenomena that can abort but, through their temporary existence, shape organizations. It comprises iterative and invisible trials and errors, temporary arrangements and negotiation in organizations. Going further, emergence also covers the recreation of organizational entities and forms (Leifer, 1989). It assumes instability, which conveys the idea that even when a whole seems static, dynamics can still exist. Emergence hence favors further exploration of organizational survival (Gardner, 2013; Williams & Shepherd, 2021). It also outlines decentralized and systemic phenomena (Chiles, 2004)[9] that can fuel resilience and renewal without notice.

Given the relevance of emergence, it is not surprise that MOT has examined a large spectrum of emergent dynamics within and outside organizations, including emergent innovation (Van de Ven, 1993), values and institutional dynamics (Gehman et al., 2013), and strategic wayfinding (Bouty et al., 2019).

[9] 'How system-level order spontaneously arises from the action and repeated interaction of lower level system components without intervention by a central controller.' (p. 501)

Emergence is everywhere but nowhere

Emergence in organizations has become increasingly mentioned but, unfortunately, has remained underexplored. Despite regular publication of seminal papers or chapters, papers that thoroughly examine emergence remain scarce.

If authors do not handle the concept of emergence in a straightforward fashion, they grapple with the notion through various empirical phenomena. A nonexhaustive list comprises the concepts of 'surprise', 'ambidexterity', 'bricolage', 'improvisation', and 'spontaneity'. These notions, which I label here as 'emergence-related', were appraised because they offer new insights into the increasingly turbulent environment of organizations (Zaunbrecher, 2018).

Table 2 presents these notions that have been fully taken into account in management research to date. It also provides their definition and details of the fit of their features to two major properties of emergence, namely, nonpredictability and nondeducibility. As highlighted here, emergence-related concepts represent opportunities to explore invisible organizational phenomena. For instance, the concept of effectuation represents an avenue to clarify entrepreneurs' capacity to create markets (Sarasvathy et al., 2001) and was appraised as a paradigmatic shift in entrepreneurial thinking (Perry et al., 2012). Similarly, the concept of improvisation helps us understand the role of creativity in organizational survival to turbulence, crisis, and disasters (Ciborra, 2002). As another example, spontaneity reveals how individuals can deviate from their

Table 2. Emergence-related concepts

Concepts surrounding emergence		Emergent features		Criticism
Concept related to emergence	Definitions	Nonpredictability	Nondeducibility	
Self-organization	Spontaneous emergence of order in natural and physical systems (Kauffman, 1993)	Order is created from nothing	Continuous process that occurs in social contexts through interactions (Comfort, 1994)	Abuse of the terms, which has led to ambiguity and confusion (Gershenson & Fernández, 2012)
Improvisation	Decision as action unfolds (Moorman, Miner, 1998)	Novelty of response that can deviate from established patterns of action	Relies on interactions among improvisers, resources, and institutions	Suffers from the shortcoming that most published work is focused on how the jazz metaphor can be used to theorize about improvisation (Leybourne et al., 2014)
Organizational spontaneity	'*Voluntarily performed extra-role behaviours that contribute to organizational effectiveness*' (George, 1997, p.154, citing George & Brief 1992)	Not assigned in advance	Occurs in the context of group and organizational membership (George, 1997)	A '*you know what I mean concept*' (Zaunbrecher, 2018)
Bricolage	'*The invention of resources from the available materials to solve anticipated problems*' (Pina e Cunha, 2005, p. 6)	Bricolage is a sudden process (Ciborra, 2002)	Depends on the bricoleurs' interactions with organizational resources and repertoires (Weick, 1993)	Suffers from the lack of systematic exploration and development based on Levi-Strauss's original writings, which implies that reconstructing and solidifying our understanding of bricolage and the bricoleur will be beneficial for organizational analysis (Duymedjian & Rüling, 2010)
Organizational agility	Convergence of design and performance	Manifestation of human creativity	Stems from collaborative and distributed practices (Zheng et al., 2011)	Lack of attention toward the institutional, environmental, or cultural context of agility (Abrahamsson et al., 2009 cited by Zheng et al., 2011).
Fluidity	'*Reacting to any environmental event in a new (not patterned) way*' (Schreyögg, Sydow, 2010, p.1253).	Novelty and unpredictability of reaction to a turbulent environment	Lies in interactions in the context of a loose boundary	Radicalization of the notion of fluidity that ignores the role of routines (Schreyögg & Sydow, 2010)
Effectuation	*'Take a set of means as given and focus on selecting between possible effects'* (Sarasvathy, 2001, p. 245)	The overall objective is not envisioned at the beginning (Perry et al., 2012)	Ubiquitous in human action and dependent on one's ability to discover and use contingencies	Slow theoretical growth and difficulty to develop consistent and observable variables (Perry et al., 2012)

professional assignment to support an organization when most needed (George, 1997).

Table 2 provides information on two main matters. First, it reveals the diversity of emergence-related phenomena that management scholars have been focusing on over the years. In my view, we could consider that emergence is the essential phenomenon hiding behind improvisation, self-organization, effectuation, etc. That said, each of these notions represents a specific aspect of emergence. For instance, bricolage highlights the role of materiality, whereas improvisation outlines the tensions that may arise when multiple individuals decide and act simultaneously.

Additionally, the table unveils the various criticisms of emergence-related concepts. First, these concepts are often labeled 'slippery', which means that they are prone to subjective interpretation, such as in the case of spontaneity (Zaunbrecher, 2018). As another example, bricolage endorses various meanings depending on researchers' sensitivity to its essential features. Emergence-related concepts correspond to 'handy' terms (after Giroux, 2006), in that their multidimensionality helps depict complex situations encountered in organizations. However, these concepts can also become blurry if the ambiguities surrounding them remain unaddressed.

Despite recent calls to support the consistency of emergence as a paradigm to avoid its dilution in organization theory (Lichtenstein, 2016) some authors highlight a persistent lack of conceptual consistency (Best & Gooderham, 2015). As a result, emergence remains underused (Lichtenstein, 2016).

In this essay, I propose to overcome this situation. I rely on Kuhn to better understand the challenges posed by emergence to management scholars. Based on these insights, I propose some practical avenues for action.

Toward a normal science of emergence

In his seminal work, *The Structure of Scientific Revolutions*, Kuhn (1962) explains that science progresses through revolutions but not without anomalies, challenges, and imperfections. In summary, novel and revolutionizing ideas emerge and supplant older views by seemingly addressing one or several of their limitations. This is how new paradigms arise in the scientific landscape. However, once emerged, a paradigm boils down a promise for better understanding of the world rather than a scientifically mature and actionable theory. Following Kuhn's rationale, theoretical shortcomings are essential to the development of science and participate in what he calls 'normal science' and 'actualization' (1962, p. 24). Actualization is a long-term process that is essential to knowledge building and consists of iteratively and collectively overcoming the following:

i. the lack of articulation between theory and the empirical world;
ii. the numerous inconsistencies that impede theoretical relevance and reliability;
iii. the coexistence of simultaneous but disconnected advances that can fragment theory into disparate pieces of knowledge and communities.

These points reveal that the self-imposing nature of paradigms depends on the practices and choices made by the researchers to build actionable knowledge. As presented here in, I pose that emergence is a good illustration of a theory that, despite its promises, struggles with imposing itself in management. I propose to apply Kuhn's lens to examine scholars' approach to emergence actualization. Based on this reading, I will propose practical avenues to further develop emergence as a relevant lens for management theory.

Empirical and theoretical articulation

Discrepancies between theoretical findings and empirical reality tend to question the legitimacy of a paradigm.[10] Management theory was frequently criticized for not fluently relating to empirical reality because it often lacks explanation for the seemingly fuzziness of organizational life (Dooley, Van de Ven, cited by Ofori-Dankwa & Julian, 2001).

Emergence and emergence-related concepts seemingly do not make exception to this difficulty (Lichtenstein, 2016). For instance, improvisation theories and definitions fail to distinguish the features of good or bad improvisation (Giustiniano et al., 2016). To that extent, theory fails to help organizations manage emergence. As an example, research on organizational agility (an emergence-related concept) was reported to primarily investigate small groups, thereby overlooking its role in large organizations (Zheng et al., 2011). Some authors even highlight the risk of disconnection of emergence theory with empirical reality to the point where the former contradicts the latter, such as in the case of fluidity (Schreyögg & Sydow, 2010).

The situation of emergence regarding the articulation of theory to empirical reality is paradoxical. On the one hand, emergence was appraised because it highlights fuzzy, complex, and nonlinear phenomena in organizational life (see my earlier points of the relevance of emergence for MOT). On the other hand, ongoing criticism suggests that employing the concept of emergence to organizational settings remains easier said than done. There is no doubt that it reveals novelty, creativity, and impermanence that scholars previously did not take into account. However, studies seem to only provide a partial view of emergence as a phenomenon.

[10] I approach here the theory of a set of 'created explanation for phenomena of interest' Tsang, & Ellsaesser (2011)

A major difficulty lies in persistent reliance on metaphors to induce theoretical features of emergence. Among many other examples, Lichtenstein relies on the case of the forming of a V by the flying cohorts of Canadian geese (2014). Similarly, metaphors on improvisation (Hatch, 1998; Kanter, 2002; Leybourne et al., 2014) and fluidity (Schreyögg & Sydow, 2010) remain commonplace. Metaphors are part of the bricolage that supports knowledge creation (Boxenbaum & Rouleau, 2011). They help communicate about the somewhat chaotic essence of emergence and support conceptual creativity (Cornelissen & Kafouros, 2008). However, metaphors require conceptual agility to detect the differences between organizational life and its analogies. Scholars missing such agility take the risk of maintaining emergence-related concepts in their infancy. The strengthening of emergence as an analysis grid therefore represents a real challenge for management scholars.

Theoretical inconsistencies

A new paradigm can be subject to contradictions and inconsistencies due to its own complexity. Once more, this challenge applies to the case of emergence. Emergence offers multiple guidelines (including systemic and process-based views) to draw a highly structured view of organizational fuzziness (Abdallah et al., 2019). For years, however, scholars have acknowledged that addressing issues that are nonlinear, minimally predictable, and embedded in multiple levels, systems, or networks (Nijs, 2015) seems appealing but deeply challenging (Chiles, 2004). In particular, emergence implies a radically new organizational mindset (Cunha et al., 2001), if not a paradigm (Tsoukas, 2005; Tsoukas & Chia, 2002). In my view, part of the challenge lies in a double paradox (and not the only one) between intellectual ambition and implementation.

First, conceptualizing emergence requires the mastering of competing taxonomies (Elder-Vass 2005). These taxonomies are numerous and sophisticated. For instance, the systemic perspective on emergence relies on terms, such as 'levels', 'properties', and 'entities' (Elder-Vass 2005). As another example, a distinction is made between synchronic and diachronic emergence (Elder-Vass, 2005). In addition to these terms, scholars have to appropriate the inner properties of emergence (Lichtenstein, 2014; Mihata, 1997). This compels scholars to delineate the beginning and end of emergence, and sometimes its formal output. However, emergence remains chaotic. How to operationalize a concept without losing track of its inner essence? The conceptualization efforts induce the risk of overlooking the fuzzy (if not chaotic side) of emergence.

The second paradox concerns the combined need for both formalization and openness to complexity and impermanence. Tackling emergence requires engaging toward complex forms of knowing as described by Tsoukas (2005). The process requires openness to complex modes of enquiry and reasoning, the adoption of an ontology that comprises flow and transformation as essential features of social reality, and the premise that the future remains unpredictable and potentially disruptive (Tsoukas, 2005). Going further, Somerville calls for a postmodern epistemology (2008), which implies embracing what she labels '*the chaotic place of unknowing*'. Here, she suggests that scholars cannot predict when and where emergence occurs. Scholars barely make sense of the chaos before it eventually results in a bigger whole. Additionally, it compels scholars to remain open to the perception of tiny and subtle signals. Finally, given impermanence, the nature of an emergent phenomenon itself is likely to change over time, which challenges its documentation. From an epistemological perspective, emergence puts scholars of the limits of their capacity to build knowledge. Emergence not only represents a primary avenue to know about organizations but also deeply questions our capacity to know.

Given these challenges, the notion of emergence is easier to mention as a speaking word than a core notion to examine. In addition, pending questions remain unsolved. This is equivalent to trapping emergence in the limbs of organization theory: everywhere but nowhere truly.

Fragmentation

The expansion of a theory to new areas represents a major challenge for imagination. As a result, scientists can either overlook existing theory or can get stuck in one specific approach to reality, which can contribute to science fragmentation. Recently, Durand et al. (2017) alerted management scholars about the fragmentation of the discipline. They explain the dilemma between, on the one hand, the expansion of strategic management into multiple topics and approaches and, on the other hand, scholars' tendency toward multiple distinctive communities at the expense of knowledge accumulation.

Emergence vividly illustrates this point. First, as explained by Garud et al. (2015), the reality of emergence is so complex that it gave birth to at least three viewpoints of emergence, namely, spatial, relational, and temporal emergence. Consistent with this view, Lichtenstein explains that inner richness and complexity led some scholars to divide their interest into two different branches: (1) emergence as an outcome and (2) emergence as a process (2014). He (as Clayton, 2006) also distinguishes weak from strong approaches to emergence. Finally, as revealed in Table 2, scholars who tried to catch emergence eventually grappled with bits of emergence in various empirical settings. By doing so, they also abide by various ontologies and worldviews.

Based on the foregoing information, no one can deny that research on emergence in organizations has been fragmenting. The paradigm has eventually been divided into distinctive

communities that minimally interact with each other despite their common interest in emergence.

As a concluding remark of this section, Kuhn's thought helps examine how management scholars have been exploring emergence in organizations. For so many decades, emergence has been used as a lens to better understand and support organizations. However, the scholarly community has been struggling to (1) articulate its theory to empirical reality, (2) overcome its inconsistencies, and (3) integrate its advances to accumulate knowledge. As a result, emergence remains underused, and the scholarly community is still missing opportunities for more relevance.

What is next? How can we further benefit from emergence as a lens in management and organization theory?

In my view, despite obvious challenges, there is no fatalism regarding MOT's underuse of emergence. Hence, I suggest some practical avenues to try to further benefit from the concept. My underlying rationale is that over the decades, research on management has developed a strong tradition of reflexivity on what makes (or does not make) a good theory, as illustrated by regular special issues, forums, panels, and a large spectrum of seminal articles on this topic. These efforts mean that turning a reflective lens toward research practices has played a major role in the development of management legitimacy within the academic world (Corley & Gioia, 2011). Management scholars' willingness to improve the relevance of their field through introspection paves the way for proposals and experimentation with new research practices.

I propose three avenues to fully place emergence at the center of management theory. These proposals resonate with Kuhn's outlining of epistemology as a social and collaborative dynamic that fuels and eventually addresses imperfections (1962).

First avenue: Support actualization

As explained herein, once the 'wow' effect of a newly born paradigm fades, scholars need, for decades, to pursue its refinement through actualization (Kuhn, 1962).

In this vein, my practical suggestion consists of transforming theoretical imperfections and anomalies into objects of research. Following Kuhn's view, I pose that anomalies are insightful and represent crucial material for the development of robust theory over time. Stated otherwise, I suggest that scholars place at the center of their research either (1) lack of articulation or (2) theoretical inconsistencies and (3) fragmentation.

As explained earlier, management theory has benefited from a strong tradition of introspection and discussion on the relevance and quality of scholarly output. Regarding the topic of emergence, discussion has never stopped, particularly on its limitations and challenges (Goldstein, 1999). Therefore, efforts to focus on and illuminate emergence shortcomings do exist and were reported herein (Chiles, 2004; Corning, 2002; De Wolf & Holvoet, 2005; Sawyer, 2000).

Scholars could strengthen these efforts. They could thoroughly examine the bits of empirical reality that emergence theory fails to conceptualize. Otherwise, they could also focus on a specific inconsistency of emergence theory or document one of its conceptual voids. A specific study can aim at exploring one of the numerous paradoxes and challenges inherent to emergence theory: How can we examine whether emergence leads to novelty? To what extent can scholars operationalize (or not) emergence? Where does emergence stop? Which interactions contribute to emergence? Which interactions have nothing to do with emergence and simply are noise?

To address the latter questions, scholars can also rely on methodological creativity. For instance, they could report the methods that highlight the nature of interactions composing an emergent phenomenon in organizations. By doing so, they could evidence which methods help distinguish these interactions from noise. These efforts pave the way for a deeper debate on the epistemology of emergence itself. For instance, failure to distinguish interactions based on their contribution to emergence might fuel collective reflection on an interactionist view on emergence.

Second avenue: Renew scholarly approaches to the shortcomings of emergence theory

As Kuhn explains, theoretical imperfections represent a valuable basis for silent science. Though supporting actualization requires a change of mindset that fully accepts anomalies in theory. Rather than simply approaching these imperfections as threats to the legitimacy of our field, the community could detail and document them. Stated otherwise, the idea is to magnify shortcomings as a source of collaboration.

The need for more emergence in MOT calls for approaches that find something curious and interesting in inconsistencies. In management, there is a persisting tradition of characterizing what makes (or does not make) a theory strong (Ofori-Dankwa & Julian, 2001; Sutton & Staw, 1995). This paves the way to better understand the nature of shortcomings. However, this long-term effort requires avoiding a simplistic approach of theory shortcomings and imperfection.

This renewal of scholarly focus could drive three major practices. One avenue is to examine *how* scholars deal with shortcomings. Do they overlook them? Do they discuss them? Do they address them? In other words, the aim is to document scholars' practices induced by the shortcomings of emergence theory. Going further, one could document how management

scholars have been tackling the three challenges reported here, and how they have been processing actualization. Such work could serve as a basis to collectively reflect on how to methodologically support the strengthening of emergence as a theory.

One last avenue is to discuss how the theory of emergence in MOT, as imperfect as it can be, can provide relevant insights about and to organizations. For instance, scholars could interrogate the need to provide an exhaustive view on an emergent process as a condition to develop theories or provide guidelines to organizations.

Third avenue: Experiment, bridge, and integrate

Additionally, based on Kuhn's view, collaboration is an essential method to shape and strengthen a paradigm, thereby making it more useful to scholars, practitioners, and society. My point here is that epistemic dialogue and interlinking are essential to further reliance on emergence in MOT.

One way to support dialogue and integration is to bridge existing streams of research. To avoid any misunderstanding, I do not call here for further diversification of theories and worldviews. Rather, my point is to acknowledge existing diversity and integrate it. My rationale is that emergence has been hosting a rich spectrum of ideas that are worth interlinking.

Here is the good news: this practice already exists. An example of this practice can be found in the literature on improvisation. For instance, Vera and Crossan (2004) translate the theatre metaphor into management activities and vocabulary. By doing so, they produce two latent constructs, namely, spontaneity and creativity, which both help track improvisation and examine it from a quantitative perspective. They rely on the richness of a qualitative metaphor to tackle the lack of empirical articulation of theory on spontaneity and creativity. In other words, they articulate various forms of knowing (metaphorical vs. quantitative) and integrate them to form a hybrid framework. The need to create new levels of analysis to approach emergent phenomena is far from being a new idea and draws from systemic thinking (dates back from Anderson 1972 cited by Kearney, Lichtenstein, 2022).

My point in this essay is that such initiatives could be further experimented with and become foci of research. Through silent science, scholars have always engaged in interlinking to further refine their own practices (Höllerer et al., 2019). That said, this practice has suffered from low visibility and remains minimally acknowledged.

How can interlinking be practically favored? Easier said than done. One option is to systematically map existing views of emergence in organizations. Authors have been pursuing this effort for a long time, documenting the properties of emergence (Lichtenstein, 2014) and classifying its major approaches (Lichtenstein, 2014). The field keeps fragmenting, which calls for further effort to identify commonalities, rather than distinctions, between weak/strong process views to complexity theory, gestalt theory, phenomenology, and systemic thinking. This initiative will certainly generate controversies due to the diversity of worldviews. Scholars who need to build a distinctive community can also perceive this initiative as a threat. However, it will support the visibility of emergence theory as a response to its being everywhere but nowhere (as previously noted).

Conclusion

This essay explores management scholars' approach to emergence. It highlights how popular emergence has been to scholarly communities. Its conceptual depth and insights offer the opportunity for management scholars to examine the invisible, the impermanent, and the chaotic in organizations. However, because emergence bears challenges, its staging at the center of MOT remains compromised. Its empirical broadness is difficult to grapple with theoretically. Epistemologically, it simultaneously calls for formalization and embracing unknowing. Finally, its richness contributes to dividing scholars into distinctive worldviews, foci, and communities. To overcome emergence underuse in MOT, I propose some practical avenues to foster its strengthening. Specifically, revising our consideration of its imperfection, combined with the interlinking of its approaches, can support its actualization. No matter how flawed scholar manipulation of concepts can seem, emergence is not too good to be true. Rather, it represents a vibrant opportunity for scholarly dialogue and collaboration.

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