Macro-iterativity: A qualitative multi-arc design for studying complex issues and big questions

ABSTRACT

The impact and relevance of our discipline's research is determined by its ability to engage the big questions of the grand challenges we face today. Our central argument is that we need better methods that articulate large scope phenomena, not least because these phenomena benefit from going beyond individual study design. We introduce the concept of macro-iterativity which involves multiple iterations that move between, and link across, a set of research cycles. We offer a multi-arc research design which comprises the discovery arc and extension arc and three extension logics through which scholars can combine these arcs of inquiry in a coherent way. Based on this research design, we develop a roadmap that guides scholars through the four steps of how to engage in multi-arc research along with the main techniques and outputs. We argue that a multi-arc design supports the move toward more generative theorizing that is required for researching problems dealing with the complex issues and big questions of our time.

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Macro-iterativity: A qualitative multi-arc design for studying complex issues and big questions

Management scholars acknowledge the need to tackle complex issues and big questions of our time, reflected most notably in grand challenges such as inequality, public health and climate change crises (Bansal, Smith, & Vaara, 2018; Courture, Jarzabkowski, & Lê, 2023; Ferraro, Etzion, & Gehman, 2015; George, Howard-Grenville, & Joshi, 2016). These complex issues pose large scope phenomena that co-evolve across different geographical and institutional boundaries, yet manifest locally to involve multiple actors and interconnected organizations (Waddock, Meszoely, Waddell, & Denton, 2015). Increasing attention has been devoted to methodologically unpacking these big questions (Howard-Grenville & Spengler, 2022; Jarzabkowski, Bednarek, Chalkias, & Cacciatori, 2019) and to moving beyond undeliberate template use in qualitative research (Köhler, Smith, & Bhakoo, 2022; Lê & Schmid, 2022) with the aim of advancing theoretical progression and producing more impactful scholarship (Eisenhardt, Graebner, & Sonenshein, 2016; Hoon & Baluch, 2020).

Our central argument in this paper is that we need better methods that articulate large scope phenomena, not least because these phenomena benefit from going beyond individual study design. Large scope phenomena require methods that allow for processes and abilities of being generative in research to offer more expansive and transformative consequences regarding the development of ideas (Carlsen & Dutton, 2011). Within the move toward more generative theorizing (Gergen, 1978; Hibbert, Sillince, Diefenbach, & Cunliffe, 2014), we argue that current designs make this difficult. First, the variety in the contextual and theoretical attributes of these phenomena is masked, rather than designing research that uncovers their wider systemic nature (Jarzabkowski et al., 2019). Furthermore, current approaches would benefit from introducing contrasting vantage points (Cornelissen, Hoellerer, & Seidl, 2021), thereby opening up the set of corresponding theoretical resources from which to explore big questions. Finally, even designs combining a mix of different

methods focus on the premise of integration (Pratt, Sonenshein, & Feldman, 2022; Tunarosa & Glynn, 2017), prioritizing the consolidation of insights at the expense of seeking out discord.

To address these obstacles, we argue that large scope phenomena would benefit from designs that enable an alternative approach to iterativity which has thus far focused on the micro level only. Essential for theory building (Gioia, Corley, & Hamilton, 2013; Grodal, Anteby, & Holm, 2020), iterativity is a feature of making analytic progress in the research cycle of theory, data and findings (Locke, Feldman, & Golden-Biddle, 2022). We introduce the concept of macro-iterativity which involves multiple iterations that move between, and link across two (or more) discrete yet related research cycles. By research cycle we mean a discrete research endeavour of continuously moving back and forth between theory, data and findings until theoretical saturation is reached. Broadening the extent of iteration and conceptualizing iterativity at a more abstract level to iterate the research cycle itself enables a more comprehensive exploration of the range and facets of large scope phenomena.

We define macro-iterativity as a generative process of active engagement with initial theoretical insights that arise from analytic work in the first research cycle and, in turn, inform the analytic actions of a further research cycle. Macro-iterativity encourages researchers to address large scope phenomena by working from a broader set of theoretical resources and across contexts and temporal conditions (Hoon, Brinkmann, & Baluch, 2023). This macro-iterative approach entails working in discovery and extension, thereby supporting generative theorizing (Hibbert et al., 2014). While discovery offers theoretical insights that improve understanding of the particular occurrences of a phenomenon, extension complements these insights into a holistic understanding of the large scope phenomenon.

In this paper, we introduce a multi-arc research design which comprises two (or more) discrete yet related research cycles of theory, data, and findings. The discovery arc is the step where scholars discover the theoretical or contextual attributes of a phenomenon of interest

from analytic work in the first research cycle. This discovery arc, in turn, informs the extension arc which is organized by the next needed analytic input required to progress theorizing from a further research cycle. We indicate three extension logics for combining these arcs of inquiry in a coherent way. Through combining a set of discrete yet related cycles, this design is rendered a better approach for engaging in generative theorizing about large scope phenomena.

We develop a roadmap that provides guidance for how researchers can employ a multi-arc research design, along with the challenges, techniques and outputs. This roadmap offers the four steps of: 1) thinking in multiple arcs from upfront; 2) deciding which attributes of the phenomenon to prioritize in the discovery arc; 3) determining which of the three extension logics fit the purpose of the extension arc, 4) integrating insights in multi-arc designs. Finally, we discuss the strengths of a multi-arc design as a generative process and address the set of challenges that scholars face when pursuing this approach.

With this design we advance efforts of innovating methods in the field of management and moving beyond undeliberate template use in designing qualitative research (Bansal et al., 2018; Harley & Cornelissen, 2022; Köhler et al., 2022; Lê & Schmid, 2022). Distinguishing iteration at the macro-level allows us to show the moves through which multi-arc scholars can engage large scope phenomena by iterating the research cycle itself. Furthermore, we shed light on how this design can draw from bricolage as an organizing metaphor that supports the multi-arc design as a generative process. Our muti-arc design encourages us as researchers to enrich our analyses and equips us with the methodological tools needed for exploring complex issues and big questions of the scope and scale reflected in grand challenges (Howard-Grenville & Spengler, 2022; Jarzabkowski et al., 2019).

Towards generative theorizing about large scope phenomena

As the need for exploring socially relevant enduring problems has never been greater, scholars have focused increased attention on innovating research methods (Jarzabkowski et al., 2019; Lê & Schmid, 2022; Pratt, Kaplan, & Whittington, 2020). Hence, current design approaches employ nontraditional data sources and new data analyses such as multilevel process research or mixing multiple qualitative methods (Lê & Schmid, 2022). Inductive scholarship is "especially helpful for making progress on grand challenges" (Eisenhardt et al., 2016, p. 1113), yet accessing large scope phenomena as comprehensively as possible requires a design of research methods that supports generative theorizing (Gergen, 1978; Hibbert et al., 2014). Theorizing can occur through the process of dialectical interrogation as imaginatively engaging in a back-and-forth inquiry between the phenomenal world and existing theory (Hoon & Baluch, 2020). Processes and abilities of being generative in research have the "potential to produce more enduring expansive and transformative consequences with regards to 1) the development of ideas, 2) the development of researchers, their practices and relationships […]" (Carlsen & Dutton, 2011, p. 15). In Gergen's understanding, theorizing has a generative capacity "to challenge the guiding assumptions of the culture, to raise fundamental questions regarding con- temporary social life, to foster reconsideration of that which is "taken for granted," and thereby to furnish new alternatives for social action" (Gergen, 1978, p. 1346). Researching problems dealing with the big questions of our time calls for theorizing that is generative to "provoke debate, transform social reality, and ultimately serve to reorder social conduct" (Gergen, 1978, p. 1346). However, current designs for studying large scope phenomena make this move toward more generative theorizing challenging in several respects. First, the variety in the contextual and theoretical attributes of these phenomena is masked, rather than designing research that uncovers their wider systemic and interdependent nature (Jarzabkowski et al., 2019). Generative theorizing benefits from going beyond individual study design to articulate phenomena across their different

stakeholder domains and in multiple settings without parsing along their dimensions. A design of methods would complement current meaningful work by embracing the variety in the attributes of these phenomena that can play out globally and are shaped by local contexts and understandings (Howard-Grenville & Spengler, 2022; Jarzabkowski et al., 2019). Second, these current approaches would benefit from introducing contrasting vantage points through which large scope phenomena can be more comprehensively accessed. As researchers "mine the theoretical resources that they already have at their disposal" (Cornelissen et al., 2021, p. 8), theorizing tends to be reduced to a tightly defined set of topics. However, it is difficult to capture large scope phenomena through single stand-alone theories (Eisenhardt et al., 2016). Instead, a design of research methods that supports generative theorizing can complement extant methodological approaches by expanding the set of corresponding theoretical resources to include new theoretical perspectives or vantage points.

Finally, even the designs that mix different methods tend to focus on the premise of integration (Tunarosa & Glynn, 2017), thereby prioritizing the consolidation of insights about the phenomenon. As useful as the different modes of integration are, they have largely foregrounded convergence at the expense of seeking out discord. Hence, large scope phenomena call for the design of research methods that increases the potential for more generative theorizing that is supported by diversity in thought and practice and a contestation of consensus (Gergen, 1997; Hibbert et al., 2014).

To address these obstacles when researching large scope phenomenon, a different approach to iterativity is required. We argue for the need to broaden the extent of iterativity in order to explore these phenomena from different vantage points, various situational opportunities and across temporal and spatial conditions. Although oriented toward theoretical progression and thus essential in knowledge creation (Langley & Klag, 2019), iterativity has focused thus far at the micro level only. In this understanding, iterativity forms the basis of the analytical 'moves' that inductive researchers undertake in the research process

(Grodal et al., 2020; Guba & Lincoln, 1994; Pratt et al., 2022). Locke et al. (2022, p. 2) maintain that iteration "takes place through the active work of pursuing the questions and noticings that arise in and from this analytic work with yet more analytic actions". This traditionally involves entering a research cycle which we understand as a discrete research endeavour of continuously moving back and forth between theory, data and findings until theoretical saturation is reached. In these iterative efforts, method generates and shapes theory and vice versa through a "back-and-forth character in which concepts, conjectures, and data are in continuous interplay" (Van Maanen, Sørensen, & Mitchell, 2007, p. 1146). To iterate across data and theory, scholars draw upon micro-techniques such as data analysis and coding (Guba & Lincoln, 1994). Denoting the "repeated application of analytic actions" (Locke et al., 2022, p. 277), iterativity is an uncertain, unfolding and dynamic process.

Yet a different approach is required to more comprehensively explore the range and facets of large scope phenomena. We offer the concept of macro-iterativity which entails iterating the research cycle itself, thereby differing from iterativity at the micro level of actions. Macro-iterativity involves the multiple iterations that move between, and link across, a set of research cycles. We define macro-iterativity as a generative process of active engagement with initial theoretical insights that arise from analytic work in the first research cycle and, in turn, inform the analytic actions of a further research cycle.

We advance the argument that macro-iterativity allows researchers to meet the aforementioned challenges in the current approaches of addressing large scope phenomena each time scholars extend and iterate the first research cycle with a further one. More specifically, we posit that by working across contexts and temporal conditions and from a broader set of theoretical resources, macro-iterativity supports more generative theorizing (Gergen, 1978; Hibbert et al., 2014). This argument builds on work denoting iterativity as a trigger for theorizing "in which the researcher moves *iteratively* between the gaps observed in the phenomenal world and those observed in the extant literature" (Shephard & Suddaby,

2017, p. 65). According to Locke et al. (2022, p. 277) iterativity as theorizing involves the emergent concepts or adjusted or new questions that aggregate over time, and "advances the mundane everyday work entailed in developing explanations [...]." Constituting a pattern of iterating across multiple cycles of research, macro-iterativity further unleashes the generative potential of theorizing to produce more enduring expansive and transformative consequences for the development of ideas (Carlsen & Dutton, 2011; Gergen, 1978; Hibbert et al., 2014).

Macro-iterative approach

A macro-iterative approach entails using a set of two (or more) distinct cycles of theory, data, and findings. It allows for extending into a diverse set of theories and alternative perspectives, multiple methodological approaches or multiple levels of analysis and settings. Moving iteratively through continuous and repeated cycles of data and theory, the multi-arc researcher theorizes through dialectical interrogation as the imaginative back-and-forth inquiry between the phenomenal world and existing theory (Hoon & Baluch, 2020). This approach entails working in discovery and working in extension, whereby the initial theoretical insights in the first cycle inform a further cycle of research (see Table 1).

Insert table 1 about here

Working in discovery

The goal of discovery is to offer theoretical insights that improve our understanding of the particular occurrences of a large scope phenomenon. Entailing a strong social component (George et al., 2016; Jarzabkowski et al., 2019), large scope phenomena involve intractable, enduring problems and concerns such as inequality, large-scale migration and public health (Ferraro et al., 2015). As these phenomena are not yet adequately reflected in our theorizing,

working in discovery allows us to identify their detailed features and functions that can be dynamically persistent, surfacing across time and space, shifting and (re)surfacing within and between organizational actors (Jarzabkowski et al., 2019). Respecting the emergence and fluidity in the nature of phenomena, working in discovery relies upon a discovery epistemology (Locke, 2011; Locke, Feldmann & Golden-Biddle, 2015) for uncovering insights that illuminate the new and generate the unexpected (Davis, 1971). Discovery is concerned with origination and genesis (Locke et al., 2015), whereby the theorizing process is informed by breakdowns and anomalies and ongoing speculation and conjecture as well as by the living continuing experience of doubt (Alvesson & Skoldberg, 2017; Locke, Golden-Biddle, & Feldman, 2008; Van de Ven, 2007; Weick 2014).

Seeking a comprehensive articulation of the deeper meaning or a new meaning that changes the nature of the phenomenon in question, discovery pursues variety in the phenomenon's contextual attributes or theoretical attributes. Working in discovery, valuable insights stem from "the discovery of new arguments, facts, patterns or relationships that, in a convincing way, help us to better understand some phenomenon that is of consequence to a social or scientific constituency" (Miller, 2007, p. 182). Akin to discovery about larger social issues being reflective of and cued by the particular (Locke, 2011; Mills, 2000), its generative capacity is pushed along through the exploration, identification, and uncovering of new or unacknowledged elements, behaviors and processes important to understanding a large scope phenomenon's embedded nature. By working in discovery, the researcher seeks to generate the puzzles, anomalies and surprising findings which can spur on generative theorizing.

Working in extension

Working in extension aims at a holistic understanding of the large scope phenomenon. Extension comprises refining the initially identified theoretical insights generated in discovery and identifying different outcomes or boundary conditions. Similar to abductive reasoning

which starts with puzzles and surprising facts and devotes the research process to their explanation (Van Maanen et al., 2007), working in extension allows to rebuild the existing relevant theory to accommodate the anomalies identified in the chosen setting, as seen in the extended case method (Burawoy, 1998; Burawoy et al., 1991; Wadham & Warren, 2014).

In abduction an anomaly is the starting point for generating hunches that require further deductive fleshing out and inductive tests (Saetre & Van de Ven, 2021). Working backward through abductive reasoning thereby enables more robust theoretical foundations, imparting meaning unto puzzles, surprises and anomalies (Shepherd & Suddaby, 2017). Burawoy et al.'s (1991) extended case method has shown us that extension does not seek to generalize but seeks to provide understanding of how a particular empirical situation is shaped by wider structures. In this sense, it attempts to explain findings with reference to the wider context, i.e. it aspires to genetic explanations of particular outcomes. The extended case method yields an understanding of the bigger picture, i.e. what it tells us about society as a whole rather than a population of similar cases (Wadham & Warren, 2014).

Extension can furthermore redirect a line of inquiry into a theoretically promising direction by re-signifying the prior theorizing from discovery to offer new or alternative theoretical insights. By broadening the set of corresponding theoretical resources brought to the research, working in extension stimulates creative forms of reframing that suggest alternative ways of studying phenomena (Geertz, 2000). Re-signifying thereby is an interpretive activity of recontextualizing previous ways of theorizing about a large scope phenomenon into deeper meanings that are historically and socially situated (Alvesson & Sandberg, 2011; Cornelissen et al., 2021).

Theory building from combining discovery and extension

Working in discovery entails "illuminating several layers of meaning" (Sandberg & Alvesson, 2021, pp. 499-500), uncovering a phenomenon's meanings in terms of its character, nature

and key aspects. Furthermore, working in extension creates a more expansive, holistic understanding resulting from refining the initially identified theoretical insights generated in discovery and offering new or alternative theoretical insights from reframing. Bringing discovery and extension together in a macro-iterative approach thus enables generative theorizing, working from a broader set of theoretical resources and across contexts and temporal conditions. Combining discovery with extension supports researchers to empirically validate the initial tenets of theory from the first cycle and understand the 'how' and 'why' behind the proposed relationships, along with their boundary conditions (Busse, Kach & Wagner, 2017; Shepherd & Suddaby, 2017; Shepherd & Sutcliffe, 2015). Accordingly, a macro-iterative approach can progress theorizing across the research cycles to craft a story about how and why acts, events, structure, and meanings occur regarding large scope phenomena. In order to demonstrate how to engage into a macro-iterative approach in which the researcher moves between and links across a set of research cycles, we offer a multi-arc research design.

A multi-arc research design

Based upon the macro-iterative approach, a multi-arc research design combines a prior research cycle (discovery arc) with a new research cycle (extension arc). Whereas the discovery arc involves the usual techniques of iterativity across theory, data and findings within the initial research cycle (Langley & Klag, 2019), the extension arc moves between and links across research cycles. Both arcs of inquiry each comprise a distinct cycle of theory, data, and findings. Researchers can be guided by the principle of theoretical saturation when making choices about when it is time to end a research cycle and begin a different yet related one. Following Strauss and Corbin (1998), we acknowledge saturation as a 'matter of degree' where the 'new' does not necessarily add anything to the initial theory that is generated. A research cycle is completed when there are diminishing returns from further data collection,

analysis and theorizing. In the following, we offer a multi-arc design as the overall strategy that integrates the two (or more) discrete yet related research cycles in a coherent way.

Discovery arc

The first research cycle is designed to develop the theoretical insights and explanations from analytic work that informs a further research cycle. In this first cycle of theory, data and findings, researchers can draw from a range of methodological approaches such as grounded theory, ethnographic studies, and longitudinal designs which benefit from the constant process of repeated analytic actions and revisiting the field often over extended and distinct time periods (LeBaron, Jarzabkowski, Pratt, & Fetzer, 2018; Suddaby, 2006; Yin, 2018). The discovery arc benefits from open-ended data that is sufficiently detailed and rich to approach a phenomenon's multi-layered and complex nature. Hence, the discovery arc is the step where scholars discover the theoretical attributes or contextual attributes of a phenomenon of interest from analytic work in the first research cycle. This allows for generating the questions and noticings that are necessary for informing the next research cycle.

Extension arc

A further research cycle is designed to extend the initially identified theoretical insights generated in a first research cycle. By iterating the research cycle itself, in this arc of inquiry scholars compare and contrast insights from the next research cycle through employing, for example, case studies, ethnographic studies, and longitudinal designs. The rich accounts generated via these methodologies are needed for developing the initial tenets of theory further (Weick, 2007). Akin to zooming in and out through switching theoretical lenses (Nicolini, 2009), extension explores alternative frames that shift between and across different vantage points. Given the multi-layered and complex nature of the broad scope phenomenon, scholars work across different actors, sectors, geographies and time periods to articulate the

various conditions (Bamberger, 2008; Johns, 2006). The extension arc is organized by the next needed analytic input required to progress theorizing from a further research cycle; hence, combining a discovery and extension arc in a coherent way is key for generative theorizing.

Combining the arcs of inquiry

We offer three possible extension logics that show how researchers can systematically combine the multiple arcs of inquiry. These logics build on some of the useful insights offered in the multiple-case study approach in which a literal or theoretical replication logic is used to predict similar or contrasting results but for predictable reasons (Yin, 2018). All three logics allow for extending a first arc of inquiry to a further research cycle. However, these three logics differ with regard to how researchers can use them for extension. Multi-arc scholars can link across research cycles by using the same theory in a similar setting (literal extension logic) or in a contrasting setting (theoretical extension logic), or they can use an alternative theory in a similar or contrasting setting (complementary extension logic) (see table 2).

Insert table 2 about here

Literal extension logic. In this logic, a further research cycle is conducted via a literal extension that moves into a similar context to gradually extend the initially identified theoretical insights generated in a first research cycle and refine theoretical explanations. The extension arc is used to combine a new research cycle that is informed by the first research cycle, examining these insights in similar ''situational opportunities and constraints'' (Johns, 2006, p. 386) or at another point in time or spatial conditions. The first cycle is thereby extended through the method of agreement argument (Busse et al., 2017). Akin to the logic guiding multi-case designs in which sites should be selected to predict similar results,

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extending the first cycle aids in identifying empirical (ir)regularities, validating and deepening inductive constructs and qualitatively testing initial propositions in a further cycle (Eisenhardt & Graebner, 2007; Ketokivi & Choi, 2014; Yin, 2018).

This logic is similar to moving from "cross-case comparison, back to redefinition of the research question, and out to the field to gather evidence on an additional case" (Eisenhardt, 1989, p. 546), but in literal extension the scholar moves with the same theory to a similar setting or domain to examine a new research question and extend the initial theory generated in a first research cycle. This logic is thus beneficial for scholars seeking to study questions such as: How does the phenomenon relate to further process and outcome variables and what are the different paths along which the phenomenon can evolve? How might another point in time in the same local, regional or national context offer deeper meaning about the large scope phenomenon?

Theoretical extension logic. This logic entails conducting a further cycle with the aim of extending the first cycle to identify different outcomes or boundary conditions and extend relationships (Eisenhardt & Graebner, 2007; Yin, 2018). Starting from the initial tenets of theory from the first research cycle, the scholar moves into a contrasting setting, context or domain spanning across theoretical boundary conditions (Schad, Lewis, & Smith, 2019). Context has been understood as an "amorphous concept capturing theory-relevant, surrounding phenomena or temporal conditions" (Bamberger, 2008, p. 839). Acknowledging context as a multidimensional concept that captures various conditions, combining research cycles in a theoretical extension logic occurs through theoretically selected sites that adhere to the method of difference argument (Busse et al., 2017). This logic is thereby beneficial and appropriate when scholars seek to explore questions such as: What are the specific manifestations of the phenomenon across multiple different local sites? Under what conditions do the initial theoretical insights hold, for example, across different stakeholders,

organizational partnerships, or private, public and third sectors? What are the contrasting outcomes that arise from the various temporal and spatial conditions of the phenomenon?

Complementary extension logic. A complementary extension logic entails drawing on contrasting theory in a further research cycle in two different ways. First, this can involve drawing on a new theoretical perspective or vantage point in the same or similar setting, context or domain. Second, this logic entails applying an alternative theory in a contrasting setting, context or domain. Extension is used to offer a complementary, yet contrasting account to the first research cycle, informed by the puzzles and surprising facts arising from the first research cycle. Combining research cycles through drawing on alternate frames (Nicolini, 2009) follows the method of difference argument with its focus on a new theoretical perspective or vantage point (Busse et al., 2017). In order to grasp the opportunities for abduction from the puzzles and anomalies discovered in the first cycle, rather than adapting these initial insights to existing theories, the complementary extension logic is about holding theories loosely and trying to adapt these to the new insights. This logic is thereby useful for scholars seeking to reframe and adopt an alternative way of studying the phenomenon that is not yet adequately reflected in prior theorizing (Cornelissen et al., 2021). Drawing on this alternate frame, scholars can ask how does the phenomenon manifest itself in the same context and how does this contrasting account lead us to alternative conceptualizations? Through reframing to offer this alternate theoretical reading in a similar setting, the complementary extension logic requires the scholar to leverage the full spectrum of available data in which the phenomenon is embedded. In contrast to using a similar setting, this logic can also mean entering a different setting, context or domain to extend the original findings by adopting alternative lenses. By reframing the phenomenon under study, exploring a distinct vantage point allows for scrutiny of a phenomenon by asking, for example, how

does recontextualizing by crossing into different institutional and industrial boundaries afford insights into underlying elements, behaviors and processes?

Overall, these extension logics provide opportunities for, without stipulating an ideal set number of, multiple research cycles that complement, yet differ from each other. We argue that it is through combining a set of discrete yet related cycles that renders this design a better approach for engaging in generative theorizing about large scope phenomena. In the following we provide applied guidance for how scholars can engage in multi-arc research.

A Roadmap for Crafting a Multi-Arc Research Design

In this roadmap, four steps are depicted of how researchers can practice a multi-arc research design, along with the challenges, techniques and outputs (see Table 3).

Insert Table 3 about here

The four steps serve as a design guide for organizational scholars when planning and conducting a multi-arc design. More specifically, we guide researchers through these steps by drawing on illustrative examples for the techniques used in the discovery and extension arc (step 2 and 3) and integrating insights (step 4). To be clear, these examples do not employ a multi-arc research design. However, given their use of two or more distinct accounts or studies we draw on them as instructive examples for directing the reader's attention to particular analytic actions when working in discovery and extension.

Step 1: Thinking in multiple arcs from upfront

Guiding challenge. Accessing large scope phenomena is challenging as they are contextually and socially embedded, operate in multiple settings and are often unable to be addressed adequately through stand-alone theories (Eisenhardt et al., 2016). As such, scholars need

engage the bigger questions and zoom out to the environment in which the phenomenon is embedded. In practice, this means resisting the temptation to narrow the focus of their research project, keeping it large and loose to be addressed in a set of research cycles. Acknowledging the uncertainty and emergence of researching large scope phenomena, this is not only a serendipitous process. Instead, scholars need to ensure that the phenomenon is conceptualized in its multiple facets from the outset and that these are translated into the potential arcs to be explored.

Technique of concept mapping. Concept mapping is a useful technique for approaching a phenomenon's broad scope characteristics. As "a schematic device for representing a set of concept meanings" (Novak & Gowin, 1984, p. 15), a concept map helps to sketch the connections and relevant themes within a broad topic and to convey an understanding or relationship among different concepts within a map. As visual or graphic representations, concept maps can include linking words, directional arrows, or simple connectors such as lines or overlapping circles that denote different kinds of connections.

First, concept mapping forces multi-arc scholars to visualize the possible settings and units of analysis that can capture the phenomenon (e.g. local, national, international; different stakeholder actors; intra- and inter-organizational levels). As an example, a concept map's circles can be employed to identify the large geographies, diverse sites, multiple organizations and institutions or large numbers of actors and resources that complex issues such as climate change, poverty, inequality, healthcare or technological innovation can entail and evolve across (Ferraro et al., 2015; Jarzabkowski et al., 2019). Second, researchers can use arrows among the different concepts within a map to sketch the tangled relationships among variables and multiple evolutionary paths of a large scope phenomenon (Eisenhardt et al., 2016). This technique can enable researchers to identify a phenomenon's multiple dimensions by asking what are the diverse settings it traverses, how does it evolve across space and time,

and how does it move within and between organizational actors. Through the technique of concept mapping, researchers can start to sketch a first rough design of potential arcs in which the phenomenon is addressed from how it may surface across time and space, crossing multiple sites and stakeholders or even entering unsettling and extreme contexts.

Technique of translating the concept map into a master research question and sub-questions. A multi-arc design goes against the conventional wisdom of posing traditionally acceptable research questions that are well-defined, manageable and neat that sometimes border on being trivial (Alvesson & Sandberg, 2013). Engaging a bigger question of the scope and scale reflected in complex issues requires an open and broad master question, which the researcher then follows up with three or four sub-questions that are intimately tied to it. The circles and arrows of the concept map can offer orientation in this technique by translating the concepts and relationships into research questions that are theoretically informed and offer methodological decisions. By breaking down the master question into sub-questions that may each correspond with a research cycle, researchers can begin to flag specific dimensions or facets of the phenomenon.

We acknowledge that while some sub-questions may be clear at the outset, others will only evolve over the different research cycles when multi-arc researchers are confronted with the multiple settings, organizations and institutions as well as diverse actors under study. In this way, sub-questions guiding the series of research cycles require revisiting in light of the important revelations provided through new information from further research cycles.

Output. Thinking in multiple arcs from upfront culminates in a research plan that generates a broad structure of the two or more research cycles, providing orientation to the multiple iterations in a multi-arc research design. Rather than a tightly prescribed fixed, rigid template, this plan depicts a set of arcs with the work streams around each of the sub-questions and

corresponding ideas around how these will be theoretically framed and methodologically addressed. It may therefore constitute a format of the set of sub-questions, aims and objectives, potential initial theoretical framings and a sense of the corpus of data needed to answer the research questions.

In order to gather the open-ended data that is sufficiently detailed and rich to approach the multi-faceted nature of the phenomenon, scholars can plan the usage of the innovative and creative palette of methods of data generation including talk and text, visual, aesthetic, material, aural, bodily and kinaesthetic methods (Hindmarsh & Llewellyn, 2018; Mason, 2018; Ray & Smith, 2012). As a guiding concept paper, this research plan also helps multi-arc researchers to estimate the scale of resources needed to achieve the research aims and the timescale in which this is intended. Crafting this research plan requires a creative state in which the collaborators engage in a reflexive generative debate of how to best address each of the work streams (Hibbert et al., 2014). Several rounds of reworking are employed to refine the research plan until the different work streams can be considered as feasible.

Step 2: Decide which attributes of the phenomenon to prioritize in the discovery arc

Guiding challenge. In the discovery arc, researchers need to make methodological choices that open the fieldwork possibilities in ways that explore the multiple and interdependent facets of the large scope phenomenon using, for example, grounded theory (Suddaby, 2006), ethnographic (LeBaron et al., 2018) and case study research strategies (Yin, 2018). However, one challenge in a multi-arc design is to determine what attributes of the phenomenon to devote attention to, requiring scholars to make a critical decision about what key aspects to start with in the discovery arc. We offer the techniques of prioritizing contextual attributes and of prioritizing theoretical attributes as a means to address this challenge.

Technique of prioritizing contextual attributes. Scholars can make the decision to focus their first research cycle on examining a phenomenon's meanings in terms of its character, nature and key aspects in its embedded context. Here, the researcher draws upon the technique of prioritizing a phenomenon's contextual attributes in terms of a focus on its particulars in a local context before abstracting out to a more general way of considering the phenomenon as a theoretical subject (Suddaby, 2010; 2014). Prioritizing contextual facets means to start the discovery arc from one of the phenomenon's contextual conditions, e.g. the temporal or spatial conditions surrounding these phenomena.

Researchers can use this technique to isolate the phenomenon under study in a local context from the wider system in which it is embedded. To capture the global phenomenon of inter-organizational paradoxes (Jarzabowkski et al., 2019), the authors prioritize context-specific aspects such as the multinational and inter-governmental organizations that play a central role in the local contexts in bringing key stakeholders together. Jarzabkowski et al.'s (2019) example of the insurance protection gap is instructive here for isolating the contextual facets of contradictions linked to specific local settings, specific stakeholders and between local and global contexts.

In a further example, Sonenshein, DeCelles and Dutton's (2014, p. 9) study addresses the phenomenon of climate change and social issues support, a phenomenon that is located in multiple settings and characterized by its "multi-contextual nature in which social issue supporters operate, both inside and outside of organizations". The authors prioritized the contextual attributes of social issues support in conducting a first research cycle to examine how issue supporters interpreted and framed social issues, experiencing issue support in a variety of settings.

Technique of prioritizing theoretical attributes. In the discovery arc, researchers can decide to start their first research cycle from the theoretical facets of a phenomenon. This technique

of prioritizing theoretical attributes entails making an informed decision about conducting a first research cycle by directing attention to the phenomenon's conceptual attributes or the core elements of a phenomenon. To identify which of the conceptual facets to focus their discovery arc on, scholars can start from their potential initial theoretical framings and mobilize the related set of concepts or constructs.

As an illustrative example, De Rond, Holeman and Howard-Grenville (2019) capture the phenomenon of embodied sensemaking in their enactive ethnography of rowing the Amazon. In seeking to understand how the body is complicit in sensemaking, the authors prioritize the different theoretical facets of embodied sensemaking as both "of the body" and "from the body". Starting with an of the body account aided in capturing how the rowers probed their changing environment, took action within it, and communicated among themselves using their bodies. Aiming for a data set that is sufficiently detailed and rich to approach the theoretical facets of embodied sensemaking required observing this phenomenon in the field, breaking it down in its essential components, and sequentially scrutinizing it piece by piece using a range of visual, audio and textual data.

Output. By this stage in the multi-arc research design, the researcher has completed the first research cycle. Initial theoretical insights about the large scope phenomenon are developed by moving iteratively between theory, data and findings. The discovery arc culminates in generating the questions and noticings necessary for informing the next research cycle. These ideas stem from the analytic actions of the discovery arc which inform the further analytic actions in the extension arc. Therefore, this output of step 2 directs researchers' attention to how to link these insights to the next research cycle.

Step 3: Decide which of the three extension logics fit the purpose of the extension arc

Guiding challenge. The main challenge in this stage is determining how to move from one research cycle to the next. Here the multi-arc scholar needs to ensure that the discovery and

extension arcs are combined in a coherent way. In order to do so, the researcher needs to make a deliberate and transparent choice about their extension moves. Moving between the research cycles with the initial theoretical insights thereby requires a noticing as scholars seek to link a set of research cycles (Hibbert et al., 2014; Cunliffe, 2011). To address this challenge, we now illustrate how multi-arc scholars can use the three logics of literal, complementary, and theoretical extension.

Extension techniques. If researchers seek to combine research cycles using a *literal extension logic*, the appropriate technique entails moving into a similar setting or context. Here the multi-arc scholar uses a different sample, spatial condition or point in time to gradually extend the initially identified theoretical insights generated in a first research cycle and refine theoretical explanations. An example for a literal extension technique is seen in Sonenshein et al.'s (2014) study in which they conduct a further research cycle to empirically validate the induced constructs in a similar setting. As such, their study aptly illustrates how through extension they refine their initial tenets of theory around how individuals develop ongoing self-evaluations in response to issue support challenges by examining "why these self-evaluations matter through their ability to predict issue-related actions" (Sonenshein et al., 2014, p. 9). Moving to a similar setting with a new research design that employs deductive as well as inductive techniques, the authors use quantitative data and concealed observation of survey participants' composting behavior after completing a survey. Thereafter, observational methods were used further to examine the interactions between two research assistants posing as environmental activists and participants after they left the building. With this literal extension logic, the authors were able to "empirically and theoretically deepen our core premise that social issue supporters experience a mixed self by inductively examining the different ways this mixed self is manifested and how these differences relate to issue-supportive behaviors" (Sonenshein et al., 2014, p. 26).

Furthermore, for scholars focused on linking research cycles in a *theoretical extension logic*, this technique involves moving with the same theory into a contrasting context or domain to assess whether the initial theoretical insights hold. By altering the setting, researchers can explore the different outcomes or boundary conditions of the initial tenets of theory. An instructive example of the theoretical extension technique is Bowles, Thomason and Bear's (2019) work on what and how women negotiate for career advancement and the attainment of leadership positions. Across their six studies, the researchers moved with the same theory into contrasting settings. Not only did they examine samples of negotiation accounts by senior executive, mid-level, and early career professionals but they shifted their analysis across public, private, and nonprofit sectors and six world regions. They used a novel population of private sector executives to deductively test their initial set of constructs from their first research cycle concerning female managers' career negotiations in the public sector. After developing a better understanding of the functions of negotiation accounts in a further research cycle, they compared and contrasted them for executives and nonexecutives. Finally, the authors tested the boundaries of their constructs by studying failed and successful career negotiation accounts in a different setting using senior executive and early-career samples of informants. Sharpening their conceptualization in these contrasting settings allows for "a more comprehensive perspective on what men and women negotiate for career advancement, including their role development and work–family conflicts, as well as compensation" (Bowles et al., 2019, p. 1645).

Finally, if a *complementary extension logic* is driving the combination of research cycles, scholars can draw on a new theoretical perspective or vantage point in the same or similar setting to offer a complementary, yet contrasting account. As acknowledged above, this extension technique can also be employed in a contrasting setting, context or domain. As an example of a complementary extension technique, De Rond et al.'s (2019) study adopts an alternative vantage point in the same setting to explore the different ways the body is

implicated in sensemaking. Making an active choice about their extension moves, the scholars asked, "[w]hat if we were to generate two complementary, yet different, analytical accounts of the role of the body by leveraging all available data?" (De Rond et al., 2019, p. 1962). As the authors themselves state, "… in the first, we'd demonstrate what an "of the body" analytical approach might allow us to see; in the second, we'd provide a "from the body" analytical take on the same set of critical events to highlight the contrast between the two approaches" (DeWitt, 2020). Using video data, real-time audio journal, fieldnotes and auto-ethnographic recollections, this second account leverages a distinct carnal sociological ontology that foregrounds the features of sensemaking that "did not (easily) show up in the available data" in the first account (De Rond et al., 2019, p. 2018). With this extension technique, a complementary account is generated that allows the authors to extend the phenomenon's understanding into the role of physical transformation, intimacy, fear, and anxiety in the embodied experience of sensemaking.

Output. Having chosen an extension logic in step 3, the multi-arc researcher has combined two discrete yet related research cycles. By moving between and linking across these research cycles, researchers can generate new or alternative theoretical insights that provide a holistic and deeper understanding of the phenomenon in its different facets, e.g. by offering an account that outlines a new way of seeing, identifies new boundary conditions, or specifies relationships between induced constructs and outcomes. As each arc offers the analytic actions for informing the next research cycle, should multi-arc researchers seek to conduct a further research cycle, they again need to make transparent their deliberate choices regarding the underpinning extension logic.

Step 4: Integrating insights in multi-arc designs

Guiding Challenge. The difficulty of doing multi-arc research lies not only in conducting a set of research cycles but also in making sense of them to inform generative theorizing that is

meaningful. We understand integration as being at the heart of multi-arc design; however, it is both its greatest advantage and arguably its greatest challenge. The complexity of this task arises from the need to theorize the explanations for a large scope phenomenon by making sense of the insights from discrete research cycles including their different domains, different levels of analysis, and different actors' points of view. Comparing and contrasting these insights is an important but quite challenging feat that can offer a strong contribution to knowledge if, for example, the developed theory or post hoc propositions tie constructs together from both research cycles in a cohesive way. Acknowledging the importance of interpretation whereby the researcher makes imaginative conceptual leaps (Alvesson, & Sandberg, 2018; Klag & Langley, 2013), we offer the scaffolding technique when integrating insights to mitigate this key challenge.

Scaffolding technique. This technique of scaffolding allows researchers to show how the set of research cycles enables them to answer the bigger question. Scholars using a multi-arc design must acknowledge that the generative capacity of this design does not lie in its separate findings, but in how their research cycles address parts of the larger puzzle. This is similar to what Tunarosa and Glynn (2017, p. 238) draw attention to whereby "the relational linkages across elements need to constitute the scaffolding on which scholars can build more coherent and fuller accounts". Scaffolding brings the insights across the research cycles together as parts of a larger puzzle to offer a holistic understanding of the large scope phenomenon**.**

In particular, we propose that generative theorizing from a multi-arc design should provide more than just a framework or heuristic to organize the constructs that have been researched in each of the single research cycles. Scaffolding supports multi-arc scholars to make use of the broader resources at their disposal that are yielded by working across individuals, groups, organizations, phases and events and from different vantage points. In

practical terms, in addition to having discussion sections after each research cycle's findings, multi-arc scholars will engage in a separate discussion that makes the relational linkages across the research cycles explicit. Accordingly, research projects organized in a multi-arc endeavor can advance theory from the rich findings that each of the cycles yield by crafting the connections among the elements of a large scope phenomenon.

As an example, Sonenshein et al. (2014, p. 30) legitimize that they answer "two different parts of the larger puzzle of how self-evaluations inform social issue support in multiple contexts inside and outside work settings". Integrating the insights from their research cycles, the authors tie the two core constructs of the theory together (self-assets and self-doubts) and relate these to real issue-supportive behaviors. In crafting these connections among the elements of social issue support, they are able to develop a theory of situated self-work. A further illustrative example of making the relational linkages across the accounts into a coherent theoretical story is the study by De Rond et al. (2019). Reaching beyond the individual components of a single cycle, the authors theorize explanations of "how a carnal sociological account *from* the body builds on and departs from both narrative or discursive approaches to sensemaking and *of* the body approaches to sensemaking in its core claims and assumptions, methodological approach, and key findings" (De Rond et al., 2019, p. 1978). The scaffolding technique helps to offer a more holistic understanding of the phenomenon of embodied sensemaking under study. In the authors' words, by "contrasting what we see from the video analysis portrayed in Findings I with what we see using an enactive ethnography in Findings II, we further unpack the promise of carnal sociology as the basis for a from the body research approach to organizational sensemaking" (De Rond et al., 2019, p. 2018).

Output. Using a scaffolding technique, initial theoretical insights generated in a set of research cycles are brought together in that they are understood as building along a chain of evidence to achieve a higher level of abstraction. Generative theorizing is advanced by

abstracting from the broader set of theoretical resources in the multi-arc design to explain a large scope phenomenon in its multiple settings, temporal conditions and alternative conceptualizations.

Discussion

As an alternative approach to iterativity at the micro level, the concept of macro-iterativity constitutes a generative process of active engagement with initial theoretical insights that arise from analytic work in the first research cycle and, in turn, inform the analytic actions of a further research cycle. Our distinction of iteration at the macro level allows us to show the moves through which multi-arc scholars can engage large scope phenomena. Integrating two (or more) discrete yet related research cycles in a coherent way, we demonstrate how the first research cycle of discovery can be linked to a further research cycle through literal, complementary and theoretical extension. With this design we advance efforts of innovating methods in the field of management while refraining from the undeliberate use of templates in qualitative research (Harley & Cornelissen, 2022; Köhler et al., 2022; Lê & Schmid, 2022).

A multi-arc design overlaps with and moves beyond current methodological practice. Granted, our design builds upon what grounded theorists, ethnographers and case study researchers already do. As with all qualitative research, a multi-arc design benefits from the rich data and theorizing efforts from these interpretivist approaches. In each individual arc of inquiry, the multi-arc design scholar moves iteratively through continuous and repeated cycles of theory, data and initial theory. In doing so, the researcher theorizes through a process of dialectical interrogation as engaging in the imaginative back-and-forth inquiry between the phenomenal world and existing theory (Hoon & Baluch, 2020). The focus of these generative moves in iteration is on obtaining rich accounts through, for example, interviews, conversations, archival records, observation and personal experience (Weick, 2007).

However, by macro-iterating the research cycle itself, the multi-arc design strengthens generative theorizing from the broader set of resources of each research cycle. Our core argument is that combining a set of discrete yet related cycles renders this design a better approach for engaging in generative theorizing about large scope phenomena.

In this section we extend these ideas by discussing the multi-arc design as a generative process and how multi-arc scholars can draw from bricolage as an organizing metaphor for overcoming the tensions of working across multiple arcs. Furthermore, we provide guidance for multi-arc scholars when addressing the challenges associated with this research design.

Multi-arc design as a generative process

The multi-arc design bears the inherent tension of holding both consensus and discord across the multiple arcs. Rather than only searching for consolidation of insights across discovery and extension, a strength of a multi-arc design as a generative process lies in the heterogeneity and seeking out of discord. Generative research practices live from diversity of thought and practice and a contestation of consensus (Gergen, 1997; Hibbert et al., 2014). By working across contexts, temporal conditions and alternative conceptualizations (Hoon et al., 2023), this design supports more generative theorizing (Hibbert et al., 2014). Contesting consensus across the multiple arcs enables theorizing that has the capacity to challenge guiding assumptions and foster reconsideration of that which is take-for-granted, provoke debate and offer new alternatives for social action (Gergen, 1978).

However, moving beyond the isolated silos of a single research cycle requires combining the arcs in a way that avoids piecemeal lines of inquiry with apparently novel but disconnected findings (Harris, Johnson, & Souder, 2013). As such, the purpose of extension is not solely that of verifying the insights of the first research cycle. Instead, the multi-arc scholar seeks to increase the generative potential through the new or alternative theoretical insights that extension generates. Preventing the mere repetition of the first research cycle

allows the researcher to be open to changes, e.g. by studying the particular occurrences of the phenomenon at different times or through different events and contexts.

This generative process can be supported by the notion of bricolage as a flexible and open-ended multiperspective, multimethod and multidisciplinary approach (Boxenbaum & Rouleau, 2011; Cilesiz & Greckhamer, 2021; Denzin & Lincoln, 2000; Hammersley, 2004). Cilesiz and Greckhamer (2021, p. 23) emphasize bricolage as a means "to capitalize on the diversity of qualitative methods to create an innovative research design." Bricolage aims at broadening the researchers' repertoire of tools, resources, and skills and their choices to combine methods based on their assessment of methods' fit with the research context and potential to create new insights (Cilesiz & Greckhamer, 2021).

We view methodological bricolage as an organizing metaphor as useful for multi-arc scholars in their thinking about how they do their methods and articulate the methodological choices in their research cycles (Pratt et al., 2022). Having bricolage in mind, multi-arc researchers open up toward organizing their study around the available resources in the bricoleur's toolbox, such as grounded theory, ethnography, narrative analysis, coding, interviewing techniques. Hence, thinking in multiple arcs bears similarities to the layering of different analytical approaches to explore the data more fully in a bricolage study (Cilesiz & Greckhamer). As methodological bricolage entails a mindful and deliberate engagement with and proactive assembly of analytical moves (Pratt et al., 2022), this thinking helps multi-arc scholars in combining the discovery moves and extension moves to best suit the distinct purposes of their research cycles. In conveying the intentionality of their methodological choices, researchers are reminded to be transparent about how these moves are particular to the research question and the underlying aims of the discovery and extension arcs.

Challenges of a multi-arc design

Shifting to a slow approach. The term multi-arc already suggests that this is a major research endeavor which clearly departs from a narrowly defined research project with a tidy research

question, single theoretical lens and method. In essence, a multi-arc design calls for the 'long march' (Van Maanen et al., 2007). We are aware that researchers need to invest in the time-consuming demands associated with conducting a multi-arc design. Although we acknowledge that researchers will have publishable theoretical insights after conducting the first research cycle, we suggest that publication of a study should wait until after completing the further research cycle(s). As a cumulative approach to knowledge, a multi-arc design respects the organic aspect of large scope phenomena and their contextual embeddedness. This slow-and-steady premise of combining multiple arcs of inquiry helps to prevent from reducing large scale phenomena down into single isolated research cycles, thereby stemming against the tendency of research that is "somewhat simplistic, ahistorical, decontextualized, reductionist, aphilosophical, and nonreflexive" (Prasad & Prasad, 2002, p. 5).

This is not an insurmountable challenge but one that can be mitigated through amassing a diversity of skill amongst the researchers. Given that macro-iterativity is a complex undertaking, we acknowledge it is beneficial to assemble a wide range of researcher expertise across multiple cycles of research. Tackling complex issues and big questions entails coordinating work across multiple sites, actors, geographies and time periods. A multi-arc design thereby is characterized by a collaborative approach to research rather than the work of the lone researcher. As such, a multi-arc design demands a shift towards an alternative approach to research that draws on the principles of the slow science philosophy. Not only does working in discovery and extension take longer to conduct, but this also leads to longer timeframes before work can be submitted to journals, slowing down the production of scholarship.

Taken together, the need to more comprehensively engage the range and scale of problems to which our work and knowledge is relevant requires that the Academy acknowledge the field is at a crossroads. This relates to wider debates in the field which call for demonstrating the impact of management research on significant societal concerns,

suggesting that we more seriously entertain the proposition of slow science. The drive for scholars to address these bigger questions might therefore increase in importance relative to standard performance metrics in academia (e.g. quantity of publications) and continue to encourage the proliferation of alternative formats for publishing data and findings from a multi-arc design. Rather than being disheartened, we are energized by the prospect that these multiple arcs of inquiry constitute alternative rhythms that "run counter to the systematic beats of the academic metronome" (Ulmer, 2017, p.202).

Navigating the unique assumptions associated with different qualitative methodologies. By definition, a multi-arc design represents a set of research cycles, each constituting a distinct set of theory, methods and findings. Accordingly, multiperspective, multimethod research is inherent in this type of design. Knowing how to combine research cycles also requires a sensitivity to the underlying ontological differences and the unique assumptions associated with different qualitative methodologies (Langley & Abdallah, 2011; Pratt et al., 2022; Sandberg & Alvesson, 2021). Just as Cilesiz and Greckhamer (2021, p. 24) note for bricolage, a multi-arc design demands "resourcefulness on the part of researchers such that they understand the assumptions of and have experience with a wide "stock" of methods." This entails combined experience and comfort not only with a wide range of qualitative methodologies but also with the distinct ontologies and epistemologies that result in different assumptions about the nature of theory and the relationship between theory and method (Sandberg & Alvesson, 2021). While researching in a multi-arc fashion calls for being aware of how some methodologies can be approached from different ontological perspectives, multi-arc research requires attentiveness to their adherence to a more realist, interpretivist or critical postmodern ontology (Pratt et al., 2022). As this does not dictate any one positioning and large scope phenomena may even be approached in ways that are not ontologically consistent, it is the responsibility of the researchers to explain their particular ontological traditions and

the integrity with their epistemological assumptions. For multi-arc designs, editors, reviewers and readers will need to be able to assess the trustworthiness of each research cycle in terms of whether the researchers have been honest in how the research has been carried out and reasonable in the conclusions they make (Pratt et al., 2020). Rigor as emanating from the deliberate reasoning process (Harley & Cornelissen, 2022) entails critical reflection on the multi-arc scholars' choices in moving from data to theoretical claims. The basis on which one might judge whether a reasoning process is rigorous hinges on the coherence of the argumentation and the process whereby researchers develop what they regard as the best explanation for their findings (Harley & Cornelissen, 2022). The more multi-arc researchers can explicitly articulate the choices they make and as part of their own reasoning, the more rigorous their research is.

Not limiting yourself to thinking sequentially, think in parallel*.* The design and roadmap offered in this study suggest a rather sequential logic of how to conduct the research cycles. Granted, a multi-arc design entails a generative process whereby the insights arising from analytic work in the first research cycle inform the analytic actions of a further research cycle. Given this progression it is understandably tempting to work consecutively across the multiple arcs. This is similar to a sequential programmatic approach to inductive inquiry, whereby "taking a series of studies allows that each individual study is able to lay claim to a novel context and related set of insights" (Langley & Abdallah, 2011, p. 214).

In addition to a sequential fashion, however, we advocate that multiple arcs can also be conducted in a concurrent way. Applying alternative theoretical frames may occur in parallel research cycles, so that the researcher can explore the facets and dimensions of the phenomenon from different vantage points. Multi-arc scholars can also work concurrently in two different settings to simultaneously draw and apply the insights from one context into the other context. At the same time, we acknowledge that orchestrating a multi-arc design in

parallel is more challenging given the absence of the initial theoretical reading or insights from one setting informing the researcher's understanding of an alternate theoretical reading or context. Especially when conducting the parallel arcs, researchers need to pay heed to the guiding principle of saturation in terms of an adequacy of sampling and analysis for theory development when making decisions about ending the concurrent resesearch cycles in different settings. Adopting reflexivity within the research team can be helpful for mitigating the challenges of working in parallel arcs. When simultaneously exploring these alternative framings or different settings, engaging in relationally reflexive practices to construct different conversations with data can be beneficial (Hibbert et al., 2014).

Conclusion

The impact and relevance of our discipline's research is determined by its ability to engage the complex issues of societal grand challenges. Our central argument in this paper is that we need better methods that articulate large scope phenomena, not least because these phenomena benefit from going beyond individual study design. For tackling the big questions of the scope and scale reflected in these phenomena, we offer the concept of macro-iterativity. We develop a multi-arc research design for combining a set of discrete, yet related research cycles through three different extension logics. This design links to efforts of innovating methods in the field of management and moving beyond a templated approach to designing qualitative research (Bansal et al., 2018; Harley & Cornelissen, 2022; Lê & Schmid, 2022; Köhler et al., 2022). Our design encourages us as researchers to enrich our analyses and increase the value of our contributions to scholarship and practice by facilitating better research on the complex issues and big questions of our time.

Table 1

Key Elements of a Macro-iterative Approach

Element	Description
Macro-iterative approach	A pattern of iterating across multiple cycles of research, extending into a diverse set of theories and alternative perspectives, multiple methodological approaches or multiple levels of analysis and settings.
Macro-iterativity	Iterating the research cycle itself by multiple iterations that move between, and link across, a set of research cycles
	A generative process of active engagement with initial theoretical insights that arise from analytic work in the first research cycle and, in turn, inform the analytic actions of a further research cycle.
Discovery	A first research cycle to discover the theoretical attributes or contextual attributes of a phenomenon of interest
	Offers theoretical insights that improve understanding of the particular occurrences of a phenomenon by determining its deeper meaning
Extension	A further research cycle to extend the initially identified theoretical insights generated in a first research cycle and refine theoretical explanations, identify different outcomes or boundary conditions
	Offers a more holistic understanding of the large scope phenomenon by offering new or alternative theoretical insights and explanations of apparent anomalies or puzzles
Theory building from discovery and extension	Combining discovery and extension enables generative theorizing from working across contexts and temporal conditions and a broader set of theoretical resources

Table 2

Extension logics of how to combine a discovery arc with an extension arc

	Same theory	**Alternative theory**
Similar setting, context, domain	**Literal extension logic:** *Method of agreement* **(**extend the initial theory generated in a first research cycle by exploring the situational opportunities and constraints and temporal and spatial conditions) A further research cycle is conducted that moves with the same theory into a similar setting, context or domain but with a different sample, spatial condition or point in time	**Complementary extension logic:** *Method of difference* (extend the initial theory generated in a first research cycle by identifying a more comprehensive perspective through alternative theories**)** Generate a complementary, yet contrasting analytical account to the first research cycle by conducting a further research cycle that draws on a new theoretical perspective or vantage point in the same or similar setting, context or domain
Contrasting setting, context, domain	**Theoretical extension logic:** *Method of difference* (extend the initial theory generated in a first research cycle by identifying a more comprehensive perspective through changes in the population**)** A further research cycle is conducted that moves with the same theory to assess whether the original theoretical insights hold up in a contrasting setting, context or domain	Generate a complementary, yet contrasting analytical account to the first research cycle by conducting a further research cycle that draws on an alternative theory in a contrasting setting, context or domain

Table 3

Roadmap for Conducting a Multi-arc Design

Steps in conducting a multi-arc design	Challenges	Techniques	Outputs
STEP 1: *Thinking in multiple arcs from upfront*	Addressing the contextual and social embeddedness, the multiple levels of analysis, and multiple settings of large scope phenomena from the outset.	*Concept mapping*: - visualize the possible settings and units of analysis that can capture the phenomenon (e.g. local, national, international; different stakeholder actors; intra- and inter-organizational levels) - identify a phenomenon's multiple dimensions by asking what are the diverse settings it traverses, how does it evolve across space and time, and how does it move within and between organizational actors *Translating the concept map into a master research question and sub-questions:* - break the master research question into a set of sub-questions that may each correspond with a research cycle to flag specific facets of the phenomenon	A research plan generating a broad structure of the two or more research cycles that provides orientation to the multiple iterations and depicts a set of arcs with the work streams around each sub-questions and corresponding ideas around how these will be theoretically framed and methodologically addressed.
STEP 2: *Deciding which attributes of the phenomenon to prioritize in the discovery arc*	Determining what attributes of the phenomenon to devote attention to in the discovery arc. Researchers need to make a critical decision about what key aspects to start with in the discovery arc.	*Prioritizing contextual attributes:* - start the discovery arc from one of the phenomenon's contextual conditions, e.g. the temporal or spatial conditions surrounding these phenomena *Prioritizing theoretical attributes:*	A first research cycle wherein initial theoretical insights about the large scope phenomenon are developed by moving back and forth between theory, data and findings. The discovery arc culminates in generating the questions

		- start the discovery arc from one of the phenomenon's conceptual attributes or core elements	and noticings necessary for informing the next research cycle.
STEP 3: *Determining which of the three extension logics fit the purpose of the extension arc*	Determining how to move from one research cycle to the next to combine the discovery and extension arcs in a coherent way. Researchers need to make an active choice about their extension moves.	*Literal extension:* - move with the same theory into a similar setting, context or domain but with a different sample, spatial condition or point in time *Theoretical extension*: - move with the same theory to assess whether the original theoretical insights hold up in a contrasting setting, context or domain *Complementary extension:* - draw on a new theoretical perspective or vantage point in the same or similar setting, context or domain or in a contrasting setting, context or domain	Two discrete yet related research cycles that are combined. New or alternative theoretical insights are generated that provide a holistic and deeper understanding of the phenomenon in its different facets, e.g. by offering an account that outlines a new way of seeing, identifies new boundary conditions, or specifies relationships between induced constructs and outcomes.
STEP 4: *Integrating insights in multi-arc designs*	Theorize the explanations for large scope phenomena by making sense of the insights from discrete research cycles including their different domains, different levels of analysis, and different actors' points of view	*Scaffolding*: - show how the set of research cycles allows the researcher to answer the bigger question by bringing the insights across the research cycles together as parts of a larger puzzle - explicitly make relational linkages across the research cycles	Initial theoretical insights generated in a set of research cycles are brought together in that they are understood as building along a chain of evidence to achieve a higher level of abstraction.

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