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Framing Innovation Success, Failure and Transformation: A Systematic Literature Review

Abstract

Framing is a powerful tool shaping innovation success, failure, and transformation. However, innovation framing is not recognized as a unified domain of research and the extant literature is theoretically fragmented across diverse fields. Inconsistencies in definition and operationalization of constructs stall theoretical advancement of innovation framing theory and practice. Importantly, an understanding of the underlying mechanisms enabling framing to mediate innovation outcomes has been missing. Using a systematic literature review (SLR), we integrate diverse theoretical perspectives. Stemming from this, we develop a unified conceptual framework of innovation framing. In so doing we make three vital contributions to the field. First, we develop a typology of construct categories of innovation framing, defining these framing concepts and identifying their theoretical basis. Next, we emphasize the importance of key mechanisms (sensemaking, interpretive flexibility, consensus) in explaining innovation outcomes. Our third contribution identifies innovation stage-specific differences in the role of framing processes, frame types and characteristics, and the temporal elements of these. Finally, we discuss the implications of our research for innovation practitioners, while concluding with a detailed agenda for future innovation framing research.

Practitioner Points

-Innovation practitioners can now recognize when and how to develop the frames of individuals such as individual team members or end-users (micro frames), the frames that will be used in portraying an innovation to diverse groups of innovation stakeholders (meso frames), as well as eventually in shaping fields and institutions (macro).

- Innovation practitioners can use the framing paths identified for each mechanism to move through each as innovations progress, establishing initial *sensemaking*, leverage the benefits and reduce the risks of *interpretive flexibility* to achieve strategic ambidexterity, and finally achieving and maintaining favorable *consensus.*

-The stage-specific, temporal nature of framing identified here enables innovation practitioners to follow framing guidance depending on which point of the innovation journey they are at: creation and definition, adoption and implementation, or development and management.

Keywords: *Framing, Innovation, Mechanisms, Systematic Literature Review (SLR)*

1. INTRODUCTION

Innovation is complex, disorderly, and an exercise in the management of uncertainty (Kline and Rosenberg, 2010). Moreover, innovation is a social phenomenon, and its success depends on how the innovation is perceived by the innovators themselves, their teams and organization, and various external social actors. The ways in which entrepreneurs, innovation teams, employees innovating within organisations, the media and policymakers frame the goals, boundaries, novelty, and value of an innovation is an important determinant of its acceptance and therefore its success amongst innovation audiences (Crossan and Apadyin, 2010).

A growing body of literature suggests that framing – the process of ascribing meaning to objects and experiences through communication (Kaplan, 2008; Benford and Snow, 2000) – can lead to the perception of an innovation as socially desirable or legitimate in the eyes of innovation audiences (Olsen et al., 2014), therefore leading to innovation success. Innovation framing is centrally important in the emergence of new fields and practices such as nanotechnology (Schütz and Wiedemann, 2008), renewable-energy technologies (Lyytimäk, 2018) and the platform economy (Garud et al., 2020). Framing helps audiences to notice and understand innovations, skillfully focusing audience attention on subjectively appealing features, and allaying uncertainty regarding risks. It has helped innovation audiences to accept and use new technologies as they emerge such as Blockchain (Lagendijk et al., 2019) and novel health technologies during the global Covid 19 pandemic (Martinelli and Veltri, 2022).

Despite the substantial body of literature applying framing concepts to innovation, authors do not always provide a definition of these concepts nor specify their theoretical basis. This has led to the transposition of concepts across micro, meso, and macro levels of analysis (Cornelissen and Werner, 2014); a lack of clarity regarding which audiences carry out, and are subject to, the use of each framing construct in the innovation process; poor understanding of how exactly framing constructs lead to favorable innovation outcomes; and a scarcity of

knowledge on how future researchers and practitioners should approach innovation framing. Given the value of innovation framing for achieving innovation success and the recent acceleration in the use of framing constructs to account for aspects of innovation in diverse literature streams, we propose a systematic literature review (SLR) as an appropriate approach to remedy the fragmentation of definitions and theoretical lenses. This article presents a systematic review of the literature on innovation framing and answers the following research questions:

- RQ1: How have the concepts of 'frames' and 'framing' been used in the innovation literature?
- RQ2: What theoretical mechanisms link innovation framing to innovation outcomes?
- RQ3: What contingent factors influence the relevance and importance of different innovation framing constructs (e.g., degree of disruptiveness, level of analysis, stage of innovation)?

By answering these research questions through our SLR, we develop a comprehensive model of innovation framing which systematizes current literature, establishing innovation framing as a distinct and recognizable area of research. Through this conceptual framework, we clarify constructs of innovation framing and produce new categorizations of innovation frame types, characteristics, and framing processes, considering also how these interact with each other. Next, we identify the value of mechanisms in explaining innovation outcomes. We also identify temporal considerations across innovation stages. Finally, we provide an agenda for future innovation framing research.

To answer RQ1, recognizing that construct clarification is a fundamental step in advancing theory with SLRs (Post et al., 2020), we adopt an integrative approach, developing a taxonomy of innovation framing constructs. Lack of integration is currently a barrier to understanding the

underlying framing mechanisms that mediate innovation outcomes (Cornelissen and Werner, 2014; Fiss and Zajac, 2006). In response, we identify and address these inconsistencies, moving beyond disciplinary silos to generate a more robust perspective on innovation framing that makes it more accessible for future research. We classify constructs in the framing literature as *frame types*, *frame characteristics*, and *framing processes*. We also conceptualize construct interrelationships, identifying framing paths that connect these constructs to outcomes.

To answer RQ2, we take a generative approach (Post et al., 2020) and shed light on the mechanisms linking framing and innovation outcomes. This mechanism approach helps us understand the underlying connections between framing and innovation outcomes which we broadly categorize as innovation success, failure, or transformation, thus illustrating the influence of framing dynamics. From our SLR we can identify how innovation framing is characterized by three central mechanisms explaining innovation outcomes: *sensemaking*, *interpretive flexibility* and the establishment and maintenance of *consensus.*

Finally, we answer RQ3 by classifying the literature according to contingent factors explored by previous scholars. We find a major factor influencing the effect of different frame types, characteristics, and processes on innovation is the stage of the innovation process. We demonstrate how framing constructs differ across three broad innovation stages: creation and definition, adoption and implementation, and development and management. We then develop a conceptual framework of innovation framing and discuss the mechanisms linking innovation framing constructs and innovation outcomes at each stage of the innovation process.

Our final model provides a unified theoretical framework of innovation framing, through presenting a coherent nomological network of relevant constructs. Our framework provides a fundamental step in pushing research on innovation framing forward by creating clarity in construct definitions and their interrelationships, synthesizing what we know and highlighting gaps in current knowledge. Furthermore, the identification of three causal mechanisms linking

innovation framing to innovation outcomes across innovation stages provides a theoretical underpinning to the generation of novel and testable research questions for future researchers to address.

2. METHODOLOGY

SLRs are a distinct methodology for collating and synthesizing a body of evidence on a specific field or topic in a transparent and replicable manner (Barczak, 2017). They are an effective means of identifying themes and gaps across an existing evidence base, leading to theory development (Tranfield et al., 2003). The process is based on a predefined selection algorithm which overcomes issues of subjectivity bias and random error in literature searching (Pittaway et al., 2004). This article follows the guidelines of Tranfield et al. (2003) and Denyer and Tranfield (2009) on producing an SLR; and Post et al., (2020) on synthesis and theoretical advancement through an integrative and generative approach. Using this combined approach, new knowledge is created through mapping, critically analyzing, synthesizing the field, and thus generating paths for future research.

2.1 Search Strategy

SLRs should comprehensively capture all relevant sources (Hiebl, 2021; Tranfield et al., 2003). A scoping search of the literature revealed how both ‘framing’ and ‘innovation’ feature across many disciplines and theoretical fields. With the goal of disciplinary and theoretical synthesis, titles, abstracts, and keywords were searched for all years available (1945-2021) across all document types, and the search was open to every category in the ISI Web of Knowledge’s Social Sciences Citation Index (SSCI) database. This database was selected as it is known to provide a comprehensive body of cross-disciplinary studies.

Keywords were chosen based on the research questions of this study. '*Framing*' and '*innovation*' are sometimes used interchangeably with counterparts such as '*logics*' or '*schemas*' for framing and '*creativity*' for innovation. As the core aim of the research is to unpack the varied theoretical constructs of framing in the context of innovation, alternatives were not included and the search string: [frame AND innovat*] was used, returning 10,103 studies.

Screening quality of sources across disciplines with different quality metrics is a challenge for SLRs. As is recommended for cross-disciplinary SLRs, studies were included regardless of document type (Tranfield et al., 2003) as well as date published or country published in, and the research database SSCI was relied on for quality screening (Hansen and Schaltegger, 2016). All types, levels, and stages of innovation were included to facilitate examination of framing across the innovation process (Gopalakrishnan and Damanpour, 1997). This inclusive approach necessitated careful exclusion criteria to identify relevant studies.

It was first necessary to ensure that studies examined framing constructs rather than alternative uses of the term frame. Studies that referred to physical frame structures, i.e., door or window frame, were excluded. This vastly reduced the number of relevant studies. Conducting a title search reduced the number of articles to 2,943. Second, studies that solely referred to 'frameworks' or to 'time frames' were excluded after the term 'frame' was searched within each study. Third, it was necessary that articles substantially focused on the application of framing constructs to innovation. For example, studies that stated the relevance of framing for innovation without examining how or why framing is relevant, or studies that stopped at the point of referring to 'frame of reference' or 'frame analysis' were excluded. For innovation, no parameters were placed on type, level, or degree of innovation to encompass the broad innovation literature. Finally, an English language version of each study was required. Following the application of these criteria by reading the title and abstract of each study, as

well as conducting a search within studies, it became apparent that most used the word 'frame' in a way that did not fit with our research questions, and the number of studies was vastly reduced to 69. During the qualitative analysis of these studies, four additional articles were identified as relevant from backward literature searching, and the final number of articles increased to 73.

2.2 Descriptive Analysis

The review identified five theoretical approaches to innovation framing rooted in diverse disciplines: psychology (41%) (*e.g.*, cognitive frames, Goffman, 1974; Kaplan 2008; Kaplan and Tripsas, 2009), behavioral science (25%) (*e.g.*, technological frames, Orlikowski and Gash, 1994; Davidson, 2006), sociology (9%) (*e.g.*, collective action frames, Benford and Snow, 2000; Snow and Benford, 1988), communications and linguistics (19%) (*e.g.*, message frames, Entman, 1993; Lakoff, 2004; Levin et al., 1998) and organization studies (6%) (*e.g.* institutional theory, Lounsbury et al., 2003; Scott, 1995). Figure 1 illustrates these. Qualitative research has consistently been the most frequently used approach in this field, particularly case studies and interviews. Framing was most used to examine organization- (24%) and industry- (14%) level innovation. Although sources such as books and conference papers were intentionally included, the most common source of publication on innovation framing was journal articles. Seven broad discipline areas were identified but most publications (20%) were from management, business and organization studies, most frequently in the journals - *Technology Analysis* and *Strategic Management*, *Journal of Product Management and Innovation*, and *Journal of Management Studies*.

INSERT FIGURE 1 ABOUT HERE
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3. CONCEPTUAL FRAMEWORK DEVELOPMENT

The aim of the synthesis phase is to identify key constructs, relationships between these constructs, and explore the meaning of the relationships for theory (Weick, 1995). Therefore, the first step in presenting our results is to offer semantic clarity on the definitions of our central constructs. Clarifying constructs is critical for developing measurements and for comparison and replication of research, making it a key avenue for theory development (Post et al., 2020, Suddaby, 2010). Frames are defined as '*schemata of interpretation that enable individuals to locate, perceive, identify, and label what happens in the world around them*' (Goffman, 1974, p. 21), while the framing process involves introducing new frames or shaping existing frames to ascribe new meaning to objects and experiences (Kaplan, 2008; Benford and Snow, 2000). Frame and framing constructs applied to innovation feature across varied disciplines with differences in definition and operationalization. Here, we use the term 'framing' to refer to all framing constructs used in the innovation framing literature.

Innovation is a well-established topic of research and regarded as a key source of economic and societal advancement and competitive advantage (Brem et al., 2016; Fagerberg et al, 2010; Lengnick-Hall, 1992; Tushman, 1997). Hence, numerous definitions of innovation exist and appear in many fields. Given the wide scope of this article and our aim to understand and clarify how framing constructs have been used across the innovation literature (RQ1), we adopt the comprehensive definition of Crossan and Apaydin (2010), who define innovation as "*the production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome*" (p. 1155). This definition enables the inclusion of literature examining both the role of framing on innovation as a process, and literature that examines innovation as an outcome. Importantly, by including and examining how framing has been

applied to both, we address a distinction that is not always made explicit in the innovation framing literature. Crossan and Apaydin (2010) suggest that, due to its loose application across literatures and in practice, the concept of innovation itself is often divorced from solid theoretical underpinnings. A generative review of innovation framing can offer an important piece of the theoretical puzzle by identifying mechanisms underlying innovation acceptance by audiences, and subsequent innovation success across each innovation stage.

Through inductive qualitative thematic analysis (Miles and Huberman, 1994) studies were organized according to framing construct categories, and how framing constructs shaped innovation outcomes across features such as innovation types, levels, and stages (Gopalakrishnan and Damanpour, 1997). Analysis revealed a pattern of framing dynamics as innovation moves through stages, while no distinctive dynamics were found according to type or level. Interesting features such as commonalities, contrasts, and possible mediating factors were noted within and across these themes.

3.1 A Typology of Innovation Framing

The first step in the synthesis was the identification of key innovation framing constructs. We organized these constructs according to the role each plays in innovation framing, and developed a typology of categories and sub-categories, including their definitions and theoretical perspectives from which they derived, to provide construct clarity (Post et al., 2020). During analysis, we identified both process-related constructs and frames that are used in these processes. A third category was developed to capture the elements of frames that deliver intended outcomes in the context of innovation. Innovation framing constructs were organized into three emergent categories: '*framing processes*', '*frame types*', and '*frame characteristics'*. We also specify the relationship between these construct categories: framing processes, using frame types, highlight frame characteristics. These frame characteristics are key to unlocking the innovation framing mechanisms which mediate innovation outcomes of innovation success,

failure, or transformation at each stage. Figure 2 demonstrates the relationships between these innovation framing construct categories.

INSERT FIGURE 2 ABOUT HERE

The first construct category identified was *framing processes.* This is where framers introduce new frames or shape existing frames to ascribe meaning to innovations. Framing processes were categorized based on whether they are used by framers or audiences to highlight the relationship of a frame to existing dominant frame/s (frame-to-frame) or whether they are used to highlight specific aspects of an innovation (frame-to-innovation). For example, *reframing* is a frame-to-frame process that can be used by innovators to frame innovations in an alternative way to existing framings by introducing new frames or redirecting audience attention to alternative frames (Vergragt and Brown, 2007). Table 1 lists the process-related constructs we identified in the literature.

The second construct category focuses on *frame types,* and these were coded according to which analytical level they apply to, resulting in three frame-type categories: frames used by individuals, either framers or audiences, to cognitively organize and interpret mental models of reality in their own minds (micro frames); frames used by framers in the communicating and shaping of meaning within and among groups (meso frames), and frames providing abstract scripts and rules for institutionalized behaviors (macro frames) (see Table 2). Categorization by analytical level fits with existing typologies in the framing literature (see Cornelissen and Werner, 2014; Gray et al., 2015) providing validity to our approach. Each can play a role in the successful framing of an innovation when incorporated into framing processes by framers. For example, individual innovation team members can process, interpret, and label information about innovations through *micro-level cognitive frames* (Hey et al., 2007), and then through linguistics that entail the strategic presentation of scientific information, i.e., *meso-level*

message frames, innovators can communicate the value of the innovation to wider audiences (Olsen et al., 2014). Innovators can also leverage *macro frames* such as *cultural-cognitive frames* (representing dominant institutional frames in a societal context), to create widespread resonance among innovation users in support of innovations (Ruef and Markard, 2010). Since framers can use innovation framing processes to target micro, meso and macro frame types, the innovation framing process can thus work across each level of analysis.

INSERT TABLE 1 ABOUT HERE

INSERT TABLE 2 ABOUT HERE

Finally, *frame characteristics* are descriptive features of frames that distinguish their role in shaping innovation perception and use. *Frame characteristics* are ultimately highlighted by framing processes, through incorporating frame types to emphasize either the relationship of a frame to other frames in a given context (frame-to-frame characteristics), or to highlight a specific aspect of an innovation (frame-to-innovation characteristics). An example is the frame-to-innovation characteristic of *immediacy*, which is the ability of a frame to cause an innovation to appear of immediate significance, subsequently leading to buy-in from audiences (Neil et al., 2017). Table 3 demonstrates the frame characteristics identified in the innovation framing literature.

In terms of the interrelationships between these construct categories, framers can select either a frame-to-frame or frame-to innovation framing path. Framing paths connect framing processes, frame types and frame characteristics towards innovation outcomes. Frame-to-frame processes are used to highlight frame-to-frame characteristics, frame-to-innovation processes are used to highlight frame-to-innovation characteristics, and both categories work across

micro, meso, and macro level frame types, targeting a range of innovation audiences. Those carrying out framing can select a framing process; target either a micro, meso or macro frame type, depending on whether their intended audience is an individual, a group, or if they are targeting a field or institutional level outcome in their framing. and through the selected framing process, highlight the desired frame characteristic of that frame type. Deciding which framing process to use and which frame characteristic to highlight will depend on the intended outcome of framing, e.g., communicating and shaping the meaning of an innovation among a team, gaining buy-in from a new group of users, or transforming the meaning of an innovation to align with changing customer demands or emerging technology. Our categorization of frame-to-frame and frame-to-innovation paths provides guidance regarding which processes can be used to unlock which characteristics. Framers might need to select both paths in framing, for example, managing the incongruency between different frames (frame-to-frame) while highlighting the transformational value of an innovation through framing (frame-to-innovation). In essence, framing processes work to highlight frame characteristics of frame types along these two paths.

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3.2 Innovation Stages

Our SLR revealed a pattern of framing dynamics as innovation moves through different stages. More specifically, the role of frame types, characteristics and framing processes differ across stages of the innovation process. Therefore, organizing the literature according to these stages was the second step in our process. Literature on the stages of innovations, from their conception to their integration into organizational routines, is vast and a detailed literature review on this subject goes beyond the scope of this article (e.g., Crossan and Apaydin, 2010; Gopalakrishnan and Damanpour, 1997; O'Reilly and Binnis, 2019; Rogers, 2003). For the purposes of conceptualizing the impact of framing on innovation and highlighting our key

finding that framing differs as innovation progresses from initial concept creation and definition to the management of existing innovations, we identified three stages of the innovation process, which subsume the varied conceptualizations found in the literature. The first stage, creation and definition, is where the innovation moves from fuzzy ideation into sharper focus. The second stage is innovation adoption and implementation, involving both decisions to adopt and implement as well as actual adoption and implementation processes (Crossan and Apaydin, 2010). Following adoption and implementation of an innovation is the development and management stage (Tushman and Moore, 1988), a stage often overlooked by those measuring successful diffusion and implementation as the desired outcome (Mariello, 2007). Framing contributes substantially to understanding how innovators navigate the challenge of developing and managing innovations to maintain relevancy amongst audiences over time.

3.3 Innovation Mechanisms

The third step in our SLR was coding to identify mechanisms that offer explanations for outcomes and that can be empirically tested, thus providing fruitful avenues for future research (Hedström and Wennberg, 2017). The mechanisms identified unify previously disparate theoretical and disciplinary domains and help to develop a deeper understanding of the innovation framing field to move theory forward.

Explanations for macro-outcomes such as widespread innovation success, failure, or transformation tend to occur over time and tend to involve macro-environmental, meso-group and micro-individual factors (Hedström and Wennberg, 1998; Kim et al., 2016). To shed light on the interrelationships between our constructs across micro, meso, macro factors we adopt Hedström and Wennberg's (2017) classification of causal mechanisms as *situational mechanisms, action-formation mechanisms,* and *transformational mechanisms.* S*ituational*

mechanisms explain how aspects of macro and meso environments shape the beliefs and opportunities of meso and micro-level actors. For innovation framing, we consider that macro context like country, region, market and meso contexts like networks, organizations, associations shape tools and conditions available to framers and influence how individuals and groups will interpret framing. Next, *action-formation mechanisms* refer to how those opportunities and beliefs derived from macro environments influence behavior at the meso or micro level. This involves either individuals shaping other individuals' behaviors, groups shaping other groups' behaviors, or groups shaping individuals' behaviors. Innovation framing processes can be carried out both by individuals, such as entrepreneurs or individuals within teams, or at meso level such as by organizations, and the target of those framing processes can also be either individuals or groups. Finally, *transformational mechanisms* refer to how the joint behavior of many actors, at either micro or meso level, brings about macro-level outcomes. We consider that over time, innovation framing can influence macro environments, such as policy or regulatory change regarding innovations. All three mechanism categories were subsequently examined in this research. Figure 3, adapted from Kim et al., (2016) illustrates how *situational*, *action-formation* and *transformational mechanisms* apply to the innovation framing context, facilitate framing at macro, meso and micro level to shape outcomes for each level.

INSERT FIGURE 3 ABOUT HERE

Innovation framing mechanisms were coded through analysis of how frame types, characteristics and framing processes shaped audience responses, and subsequent innovation success, failure, or transformation. To further make sense of the literature and understand the relationships among frame types, frame characteristics and framing processes, we analyzed them according to their function in the innovation process. We found that framing influences

innovation outcomes through fostering either *sensemaking*, *interpretive flexibility*, or the establishment and maintenance of *consensus*. While these mechanisms are present in the literature, they have not explicitly been identified as mechanisms and are not used in a consistent way to understand the interrelationships between framing constructs and innovation outcomes. Our stage- and level-dependent conceptualizations of innovation framing (Figures 3 and 4) provide a novel framework to understand innovation framing dynamics and outcomes. These mechanisms operate on a continuum where sensemaking plays a central role in facilitating successful early-stage innovation creation and development. For example, when micro cognitive frames of individual innovation team members enable them to break down information about innovation into specific, granular parts, we coded these frames as enabling *sensemaking*, which subsequently leads to successful innovation creation and definition in teams (Vaccaro et al., 2011). A degree of interpretive flexibility is also important in this stage and remains important for the next stage: adoption and implementation. An example is how individual organizational members can have ambidextrous cognitive frames that reflect both independent and reflective learning styles. These frames enable the successful implementation of both incremental and radical innovation simultaneously, and we coded these frames as facilitating *interpretive flexibility* (Lin and McDonagh, 2014). However, the achievement of consensus also becomes important in this stage and remains centrally important for innovation success in the next stage of development and management. For example, Gurses and Ozcan (2015) found that incorporating established, dominant frames such as those of regulators helps to gain widespread support for innovations. We code this as facilitating *consensus*.

We find that innovation framing mechanisms of *sensemaking*, *interpretive flexibility*, and *consensus* are key to unlocking innovation success across innovation stages. These constructs connect framing at macro, meso and micro levels, and each can operate as a situational mechanism when framing is top-down, as an action-formation mechanism when

groups and individuals frame other groups and individuals, and as a transformational mechanism over time (see Figure 3). Each mechanism is discussed below demonstrating the specific framing processes, frame types and frame characteristics used for each, and how each shapes innovation outcomes.

4. CONCEPTUAL FRAMEWORK OF INNOVATION FRAMING

4.1 Sensemaking

Sensemaking '*involves the ongoing retrospective development of plausible images that rationalize what people are doing*' (Weick et al., 2005, p. 409) and is regarded as a necessary step for innovators to move from problem to solution. Sensemaking creates an interpretation of reality that allows innovation audiences, whether innovation team members or the wider public, to act in and upon unstructured and highly uncertain situations. Sensemaking activities play a fundamental role in the first stage of innovation - creation and definition - where initial ideas for the innovation are formed and the innovation begins (Björk et al., 2010). Framers use framing processes incorporating micro and meso frames to highlight frame characteristics that facilitate sensemaking for various audiences during the early stages of innovation creation and definition. For example, to achieve the outcome of successful creation and definition, along a frame-to-innovation path, an innovator might use the *attribute framing* process and target the *micro cognitive* frames of individuals within an innovation team to highlighting the frame characteristic of *opportunity* so that the perception of risk is reduced for each member. Figures 4 and 5 demonstrates how framing paths work to facilitate sensemaking.

Two framing processes play an important role in facilitating sensemaking. The frame to-frame (the relationship of a frame to extant/dominant frames) process *frame-breaking* used within innovation teams, *i.e.*, disconnecting from current frames in favor of alternatives, relies on the use of heuristic tools such as analogies and cognitive tools such as mindfulness, to

facilitate the discovery and creation of new frames (Ness, 2015). Through *frame-breaking*, teams of innovators can replace established micro frames held by individuals within teams with new frames that help them make sense of the unstructured creation and definition process. Vera and Crossan (2005) have argued that innovation in teams works similarly to improvisation in the performing arts, where players build upon a common frame to create new music and plots. The frames act as scores or scripts that underlie the cycle of frame-breaking and the creation of new frames that is at the core of sensemaking. Innovators can also engage in the frame-to-innovation (where frames highlight specific aspects of an innovation) process *attribute framing* in the early stages of innovation to assign meaning to novel concepts, facilitating sensemaking (Aklin et al., 2018).

In sensemaking, both *micro* and *meso* frame types are used in framing processes to highlight frame characteristics and subsequently achieve innovation creation and definition success. *Micro* frame types, used by individuals to cognitively organize and interpret reality, can contribute to the structuring of the information available into a coherent, recognizable picture for individuals, while *meso* frame types enable innovators to communicate this sensemaking to other parties involved in the innovation process. When the *micro cognitive* frames of individual innovation team members enable them to process and structure specific, granular aspects of innovations, this aids sensemaking and subsequently successful innovation creation and definition (Charette et al., 2015; Vaccaro et al., 2011). These frames can also facilitate sensemaking for potential innovation users if they provide a reference of meaning, such as in the emergence of nanotechnology where micro frames enable potential users to position this innovation as recognizable (Schütz et al., 2008). *Micro* frames are essential in helping both teams of innovators and potential innovation users to process and embed initial understandings during innovation creation and definition.

Research also highlights the importance of *meso* frames specifically oriented towards diffusing information to develop understanding and acceptance of the innovation during the creation and definition stage. *Meso* frames such as *message* frames used by innovators can encourage the public to make sense of a newly created and defined innovation depending on how they are used, leading to the acceptance of the innovation as socially desirable. For example, Olsen et al., (2014) found that the quantity of message frames, or green claims used to communicate about new green products, is important. If there are fewer claims, this enhances the potential user's attitude towards new products, possibly due to less skepticism regarding claims.

Framing processes, using *micro* and *meso* frame types, highlight both *frame-to-frame* and *frame-to-innovation* characteristics in sensemaking. For frame-to-frame, relying on frames that are well *established* can fail to capture the novelty required in creation and definition due to the overly rigid and exclusive nature of such frames. When firms fail to break away from the use of established 'industry recipes' in industrial markets (Matthyssens et al., 2006) and when the frames of traditionally powerful and established actors dominate during innovation development in bioenergy production (Huttunen, 2014), it is difficult for other innovation team members to process and interpret innovations as novel opportunities, leading to innovation failure. For frame-to-innovation, frames that highlight innovation as an opportunity i.e., frames with an *opportunity orientation,* are likely to reduce the perception of risk associated with the innovation process, making members of innovation teams more likely to engage with sensemaking efforts to support and champion the innovation (Hansen and Steen, 2015; Howell and Sheab, 2001; Svihla, 2009). However, innovations will lack social acceptance or fail if frames held by potential innovation users emphasizing the *negative* aspects of innovations prevail. For example, during the development of novel off-grid solar power technology across communities in Northern India, frames held by villagers emphasized innovation cost and

subsequent lack of equal access, causing a disconnect and hindering fundamental sensemaking (Aklin et al., 2018). During early-stage innovation, facilitating innovation teams and potential innovation users to make sense of emerging innovations as opportunities is essential for successful innovation creation and definition. Figure 4 illustrates the conceptual framework showing how different framing constructs facilitate and hinder sensemaking and subsequently shape innovation outcomes of success, failure, and transformation.

4.2 Interpretive Flexibility

A longstanding tradition in science and technology studies focuses on the socially constructed nature of innovation artifacts, arguing that the process of innovation entails the creation of a 'seamless web' (Hughes, 1986) of concepts and ideas that are open to multiple pathways of development and interpretation (Pinch and Bijker, 1984). We refer to this openness as interpretive flexibility. Framing that enables innovations to be perceived in multiple ways allows multiple and different audiences a choice in how to interpret an innovation, and this framing plays an important role in first stage of the innovation process, creation, and definition (Anthony et al., 2016) as well as in the second stage, adoption, and implementation (Lehoux et al., 2012). In the creation and definition stage, interpretive flexibility works in concert with the sensemaking process through the interplay of shared interpretations and discordant views. For example, along a frame-to-frame path, innovators might need to use a *frame-breaking* process to move away from *established* frames that hinder sensemaking of novel concepts while also using the process of *managing multiplicity* to ensure a degree of *incongruency* remains among frames to facilitate strategic ambidexterity and ultimately creation and definition success. In the adoption and implementation stage, different actors and audiences need to agree on the role and intended goals of the innovation (*consensus*), while still maintaining the interpretive flexibility needed to adapt to unforeseen obstacles, exercise ambidexterity, and continuously

innovate. Therefore, the second innovation framing mechanism identified is *interpretive flexibility*. Figures 4 and 5 demonstrate how framing paths work to facilitate interpretive flexibility, while Figure 6 illustrates how these paths work as innovation moves through stages.

The framing processes of interpretive flexibility work along frame-to-frame paths during creation and definition, and work along a frame-to-innovation path during adoption and implementation, incorporating both *micro* and *meso* frame types to highlight certain frame characteristics. In the creation and definition stage, new frame combinations are achieved through *managing multiplicity*, referring to how both similarities and differences between individuals' frames are maintained. For example, organizations creating a cross-sector partnership for social innovation managed diverse partner organization frames, allowing for interpretive flexibility among parties where familiarity and novelty complimented one another during the transition, and the creation of a successful social innovation partnership resulted (Le Ber and Branzei, 2010). *Cross-field transposition* can lead to major innovation transformation during the creation and definition stage when firm executives, particularly CEOs, apply frames from other fields to the innovation domain (Furr et al., 2012). However, optimal interpretive flexibility can be hindered by *frame polarization*, a framing process carried out by audiences themselves, where distance between opposing groups increases too much due to a positive feedback loop that repeatedly reaffirms differences, causing an impasse in innovation (Biesbroek et al., 2014).

For adoption and implementation, *reframing*, carried out by innovators and organizational members through skillful use of narrative and discourse tactics, allows framers to change how innovations are perceived among other organizational members when adopting and implementing new technologies towards seeing them as an opportunity (Edmonson, 2003; Kannan-Narasimhan and Lawrence, 2018). Introducing flexibility of interpretation facilitates adoption and implementation success.

In both the creation and definition, and adoption and implementation stages, *micro* frame types are used in framing processes to introduce interpretive flexibility among organizational members. *Micro* frames of individual organizational members can help them to perceive both familiarity and novelty during creation and definition (Le Ber and Branzei, 2010) and enable the successful implementation of both incremental and radical innovation simultaneously through facilitating cognitive interpretive flexibility in the next phase of innovation (Lin and McDonagh, 2014). Fraser and Ansari (2021) find that members of incumbent organizations can hold non-binary frames about digital disruptions, providing them with a greater selection and means of using strategic responses to this disruption. This ambidexterity is strategically useful for organizations in enabling successful innovation adoption and implementation.

Meso frames tend to hinder interpretive flexibility and subsequent innovation acceptance across both stages. Policymakers, the media, and regulators use *meso issue, media* and *technological* frame types that are overly narrow and do not include all relevant information, therefore reducing the broad appeal generated by interpretive flexibility and subsequently reducing innovation resonance with the public (Doubleday, 2007; Esmail et al., 2010; Molla and Cuthbert, 2018). Interestingly, Smismans and Stokes (2017) found that regulators can exercise 'deliberate regulatory ignorance' using *meso* frames that highlight an innovation as incremental and less risky than radical innovation, subsequently overlooking certain risks. Interpretive flexibility therefore creates both opportunities and risks for innovation.

Framing processes incorporate *micro* and *meso* frames to highlight both *frame-to-frame characteristics* and *frame-to-innovation characteristics* and facilitate interpretive flexibility. The degree to which the *micro* frames held among innovation team members regarding an innovation diverge from each other can enable interpretive flexibility and subsequent innovation creation and definition success. Specifically, the *frame-to-frame* characteristic of *incongruency* between different frames can mean multiple paths of opportunity at the creation

and definition stage, and therefore multiple potentially successful innovation approaches (Hey et al., 2007), or can cause the direction of an innovation to entirely transform (Furr et al., 2012). In adoption and implementation, *frame-to-innovation* characteristics play a role. Innovators can tailor stories about innovations to different decision-makers within an organization to facilitate the perception of an innovation as an *opportunity* for each of them (Kannan-Narasimhan and Lawrence, 2018). However, the importance of interpretive flexibility decreases for adoption and implantation over time when framing processes that ultimately facilitate consensus become most valuable for innovation success.

4.3 Consensus

Beginning in the adoption and implementation stage and increasing in the development and management stage, we observe a shift in focus to a more stable common substrate of beliefs and references to guide action. Shared schemas and meaning become central to framing moving beyond acceptance of conflicting interpretations to the attainment of favorable consensus on the value of innovations (Cornelissen and Werner, 2014; Mishra and Agarwal, 2010). Framing that maintains consensus and continues to establish consensus as audience expectations evolve is required to reconcile the varied motivations of innovation audiences (Soliman and Tuunainen, 2021). Consequently, the third innovation framing mechanism we identify is the *consensus mechanism*.

The key difference between the adoption and implementation stage and the development and management stage in building consensus is that the former is characterized by shifting the focus from interpretive flexibility to the establishment of consensus, while the latter needs to embed and maintain this consensus. Hence, while the literature highlights the importance of *meso* frame types in diffusing consensus in the adoption and implementation stage, consensus

in the next stage is also obtained through incorporating *macro* frame types, where innovation perceptions become shared and embedded among audiences over time.

Both *frame-to-frame* and *frame-to-innovation* framing paths are instrumental in establishing and maintaining consensus across adoption and implementation and development and management. *The frame-to-frame* process of *managing multiplicity* is central to overcoming inconsistencies in interpretation and achieving consensus among groups of organizational members during the adoption and implementation of an innovation (Young et al., 2016). The process of *rhetorical framing* used by organizational members creates a narrative that develops a broad interpretation of an innovation, facilitating consensus on innovation legitimacy and acceptance through the diffusion of a commonly accepted story around the innovation (Barrett et al., 2013; Bernardi et al., 2017). *Rhetorical framing* can also cause a sense of shared meaning when opposing organizational member frames come together during innovation, blurring the perceived boundaries between them by creating a common backdrop through shared narratives (Ingerselv, 2016). Also, *negatively framing opposition*, which is intentionally ascribing negative meaning to opposing innovations (Moon et al., 2016), enables organizations to gain a better position for their own innovation by tactically leveraging the lack of resonance of certain frames with the public, using this to disrupt opposing innovations (Hein and Chaudhri, 2019; Herring, 2008).

Establishing and sustaining consensus in the development and management stage involves, *managing multiplicity*, *frame association and reframing*. Although managing multiple diverse frames plays a role in the previous stages, its use in the development and management stage involves more complex, advanced processes of recognizing and embracing both frame similarities and differences in pursuit of consensus. *Managing multiplicity* allows innovators and groups to reach a resolution of apparent paradoxes and arrive at a consensus, recognizing and embracing contradictory elements of strategic issues, and increasing the potential for

innovation success (Purdy et al., 2019; Smith and Tushman, 2005). Researchers have observed the importance of simultaneous frame agreement and disagreement, where communities and groups within organizations develop unified frames while maintaining frame diversity to advance the innovation (Fiol, 1994; Henfridsson et al., 2014; Juerges and Newig, 2015; Smith et al., 2014). The *frame-to-frame* process of *frame association* refers to establishing a connection between innovations and broader macro elements of society (culture, policy, science and technology, ideology) for reasons of stability or popularity. This helps innovators to establish and maintain consensus regarding innovation acceptance, leading to successful innovation development and management. It increases the social desirability of innovations that would otherwise be divisive for target audiences (Betten et al., 2018; Hardon, 2006; Leonardi, 2011). Finally, the *frame-to-innovation reframing* process can expand consensus to new audiences, such as new groups of users, leading to innovation progress when innovators direct attention away from frames lacking resonance (Vergragt and Brown, 2007), and through the identification of new opportunities when searching for radical innovation opportunities during innovation development and management (Nicholas et al., 2013). Also, *reframing* allows policymakers to selectively include parts of the narrative associated with past innovation journeys to reconstruct and attain consensus on the meaning of an innovation in the present, focusing on positive aspects of the current innovation (Kivimaa and Mickwitz, 2011; Lovell, 2008).

Multiple frame types are incorporated during framing processes to facilitate consensus. *Meso issue* frames introduced by innovators can facilitate favorable consensus among innovation users and therefore successful adoption and implementation if they convey specific, detailed information about the innovation (Vishwanath, 2009). However, as was found for interpretive flexibility, *meso issue* and *media* frames can also hinder consensus on innovation acceptance across latter stages when governments and media fail to communicate important

points about innovations to the public (Benighaus and Bleicher, 2019; Lyytimäk, 2018; Miller and Scrinis, 2010). De Vries (2017) in the context of low-carbon technology adoption found that innovators can hinder the development of favorable consensus among innovation users if *meso issue* frames are perceived as manipulative. If communications about an innovation do not include all relevant information and do not allow innovators to make informed decisions, this can be perceived as removing the autonomy of the decision-maker regarding innovation acceptance, thus innovation users will oppose innovations. *Macro collective action frames*, which are shared frames used to negotiate and construct a shared interpretation of reality within and across groups, can create widespread resonance among innovation users if they support innovations (Geels and Verhees (2011). Further, when innovations align with *macro cultural-cognitive* frames, representing dominant institutional frames in a societal context, this quells fears among groups of organizational members regarding risk, and helps to build favorable consensus for innovation (Alexander, 2012). *Macro* frames can therefore aid the successful development and management of innovations.

Research has also identified several frame characteristics that influence the establishment and maintenance of consensus, mediating innovation outcomes. In adoption and implementation, while the positive effects of the *frame-to-frame* characteristic incongruency are clear for interpretive flexibility, it can cause conflicts and increase perceived risk among organizational members, hindering consensus during adoption and implementation and development and management (Azad and Faraj, 2011; Bondarouk et al., 2009; Gilbert, 2006; Orlikowski and Gash, 1994; Young et al., 2016). *Frame-to-innovation* characteristics that convey a sense of *immediacy* contribute to building favorable consensus among innovation users by creating the perception of necessity for an innovation (Neil et al., 2017). As was found for sensemaking during creation and definition, and for interpretive flexibility during adoption and implementation, frames with a strong *opportunity orientation* can reduce the perceived risk

associated with an innovation among management teams (Fang and Zhang, 2021; Kennedy and Fiss, 2009) and other organizational members (Van Burg et al., 2014) during adoption and implementation of innovations, aiding innovation success. However, frames that cause innovations to be perceived as high in *transformational value* can lead to the innovation being considered high risk by the public, hindering consensus during adoption and implementation (Büchs et al., 2015). During development and management, relying on *established* frames can help the public see innovations as legitimate (Ruef and Markard, 2010), enable innovators to gain regulatory support, and build consensus (Gurses and Ozcan, 2015). Excessive reliance on *established* frames, however, has been shown to lead to innovation development and management failure if innovators fail to embrace novelty or audience expectations change (Bessant et al, 2014; Engelen et al., 2010).

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5. INSIGHTS AND IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

Framing offers a comprehensive insight into innovation as a process and innovation as an outcome. It allows for the conceptualization of internal, unconscious cognitive processes involved in innovation interpretation, as well as strategic and deliberate processes of shaping and communicating innovation meaning to diverse audiences. An integrative and generative review of the literature enabled the identification of previously unobserved connections, uncovering insights for theory and practice. As a result of our SLR we can make three important

contributions to the innovation framing literature. First, we develop a typology of innovation framing constructs. Next, we detail the value of mechanisms in explaining innovation outcomes. Finally, we consider how these mechanisms work across innovation stages. Overall, our framework (Figure 4) provides a unified theoretical framework of innovation framing, thus establishing it as a distinct and recognizable area of research. We discuss implications of this framework for theory and practice and specify future research directions to strengthen innovation framing knowledge.

5.1 Clarifying Constructs of Innovation Framing

Our first contribution is the development of a typology of construct categories that amalgamate dispersed concepts and draw boundaries around them, helping to clarify innovation framing constructs (Post et al., 2020). Despite the vast array of framing concepts that have been applied in the innovation literature, authors often do not provide a definition of these framing concepts nor specify their theoretical basis. Underlying assumptions of different theories in the fragmented innovation framing literature do not necessarily align, which can cause issues for construct operationalization (Fisher and Aguinis, 2017). Addressing the transposition of framing constructs across analytical level is a particular recommendation of the framing literature (Cornelissen and Werner, 2014). Our SLR addresses these issues and moves innovation framing forward as a distinct domain through defining constructs, specifying the analytical level at which they operate, and conceptualizing their interrelationships.

Our organization of innovation framing constructs by analytical levels of micro, meso and macro is consistent with extant framing literature applied in other contexts (e.g., Cornelissen and Werner, 2014; Gray et al, 2015), and, together with the clarification of fundamental construct definitions, enables the examination of bi-directional and reciprocal relationships between these levels in innovation framing. This helps us to understand the relationships between framing constructs that work at different levels. Specifying how innovation framing

constructs are related across these levels (see Figure 3) and how they work to shape innovation responses of individuals, groups, and eventually institutions and societies, addresses a gap in our current understanding regarding how innovators interact with other actors across levels during framing, leveraging rather than succumbing to meso and macro level factors as strategic agents (Battilana et al., 2009; Raffaelli, Glynn and Tushman, 2019). Consequently, our findings add to the literature on the value of interactional, recursive processes in framing that work alongside cognitive and structural conditions to enable new meanings to emerge at multiple levels of analysis (Gray et al., 2015).

Further, by categorizing innovation frame types by level, this article demonstrates the distinction between simply activating existing micro-level frames of individuals, and constructing, co-creating, and negotiating meaning through meso-level interactive processes (Cornelissen and Werner, 2014). This distinction highlights an overreliance on the activation and effects of existing frames in the existing innovation framing literature, and a comparative lack of research on the process of frame co-creation and negotiation (Reinecke and Ansari, 2020). The inclusion of a meso-level does not just account for how groups mediate micro and macro; "groups are where the action is" (Fine and Hallett, 2014, p.1774). Meso is a dynamic level in framing where interactions within and between groups facilitate co-creation and negotiation of meanings (Gray et al., 2015). Further examination of this analytical level would address several outstanding questions in the innovation framing literature, as discussed below.

Through clarifying innovation framing constructs, our SLR specifies the wide range of innovation stakeholders who both frame innovation and are subject to this framing, and subsequently which aspects of framing work in different audience contexts. This addresses calls for research on how framers contend with audience multiplicity in the complex context of innovation (Frazer and Ansari, 2021; Snihur et al., 2021). We illustrate the importance of skillfully tailoring framing for different internal audiences such as innovation team members,

and external audiences such as policymakers, regulators, and customers, as well as how and when different approaches can be effective. Achieving successful innovation outcomes requires innovators to develop different framing strategies for early adopters and wider markets, for teams and individuals, and for different cultural contexts, and to tailor innovation framing to these audiences both concurrently and sequentially.

This SLR also identifies conflicting findings regarding how some constructs shape innovation outcomes of failure, success, or transformation at each stage, and again this demonstrates the important of accounting for who is involved. For example, *meso issue frames* used by innovators can lead to widespread resonance for innovations, but when used by media and government, need to include specific detailed information about innovations and be transparent or they risk excluding or even disconcerting audiences (De Vries, 2017; Vishwanath, 2009). The frame characteristics of *frame incongruency* and *frame establishment* have quite different effects on innovation outcomes depending on how and when they were used. *Established frames* for example can facilitate recognition, familiarity, and overcome perceived risks of novelty when used to establish legitimacy with certain audiences (Alexander, 2012) but can create a perception of failure to embrace novelty and changing audience expectations in certain contexts such as for radical innovation (Bessant et al, 2014; Engelen et al., 2010). The inconsistencies identified in this review further demonstrate the audience-specific nature of innovation framing and the importance of considering this in future research.

We suggest that researchers build on the construct clarity provided in this review to address some remaining questions for innovation framing. First, examining how individual factors such as levels of audience expertise, incorrect use of framing by framers, or different individual motivating factors mediate innovation outcomes will be important given our findings on how innovation framing is stakeholder specific (Falchetti et al., 2022). We also suggest that future innovation framing research should empirically explore which combinations of framing

processes, types and characteristics work best together in enabling innovators to remain reflexive and accommodate for these multiple audiences concurrently while adapting to unknown future expectations. For example, do particular innovation framing processes effectively elicit frame characteristics that work across multiple meso level group frames? Does a particular framing path work best to facilitate each mechanism? This will also shed further light on construct interrelationships which are not apparent within individual studies synthesized in this review.

Next, we recommend that future innovation framing research follows a meso-level line of enquiry to avoid what could become the 'stale' analysis of frame activation in place of meaning making (Kaplan, 2008). Further work is required on how meaning is co-constructed by innovators and other stakeholders at the meso level to capture how and when different stakeholders play a role in innovation framing, and how new shared meanings emerge from this. A focus on the meso level also raises questions for future research on how the composition of groups at this level affect innovation framing such as which voices are heard over others during framing efforts. These questions might be addressed through qualitative ethnographic methods where frame creation and negotiation could be observed.

Our findings on how framing works across levels also raise questions for future research such as are those innovation framing processes that apply across all three levels most strategically valuable, or are those processes that target micro-level frames most influential as these frames become cognitively embedded (Dacin et al., 1999) and therefore most deeply held? We recommend more detailed empirical examinations of how this reciprocal relationship between levels works in different innovation contexts. One possible avenue is the examination of how innovators at micro level attempt to influence media frames at the meso level to gain support for their innovation. It would also be interesting to consider whether this eventually shapes macro level frames, as this is missing from existing research.

5.2 The Value of Mechanisms in Explaining Innovation Outcomes

Identifying mechanisms offers a plausible explanation for nuanced social processes like innovation framing and can advance theory through exposing the underlying meaning of construct relationships and outcomes (Post et al., 2020). While framing is generally known to be useful in explaining internal cognitive sensemaking and explaining how actors strategically evoke meaning to gain support for objects in studies of organizations and institutions, media, communication, and social movement fields (Cornelissen et al., 2014), categorizing framing constructs in the context of innovation has allowed us to see how they work together to facilitate mechanisms of innovation framing. Our second contribution is the provision of a consolidated approach exploring how framing mediates innovation outcomes through mechanisms. Through identifying the mechanisms of *sensemaking*, *interpretive flexibility* and *consensus*, we demonstrate how innovation framing works along a continuum and changes as innovations move from early ideas to more developed and established innovations. This extends current innovation framing literature wherein the explanatory power of framing mechanisms has been largely overlooked (Kaplan, 2008). The field of innovation has also lacked efforts towards consolidated approaches that identify dimensions working across innovation types and levels (Crossan and Apaydin, 2010). While Kaplan and Tripsas (2008) predict that framing mechanisms might differ depending on innovation level, we find mechanisms apply across innovation levels and types, and that innovation stage is the only mediating factor.

Our synthesis enabled the conceptualization of how in theory, micro-level framing practices can eventually lead to macro-level innovation outcomes (Gray, Purdy, Ansari, 2015; Purdy et al., 2017). Our findings therefore resonate with social movement theory and organizational studies literature on social mechanisms for bottom-up change, wherein actors attempt to gain legitimacy for new practices, routines, and organizations. (Montgomerey, Dacin

and Dacin, 2012) and where mechanisms allow meanings to become amplified and institutionalised (Dewulf and Bouwen, 2012). We find that mechanisms can work bi-directionally (Gray, Purdy and Ansari, 2015) and contribute to the social mechanism literature by demonstrating the distinction between mechanisms, identifying the frame content at micro, meso and macro levels, and showing how they work in the context of innovation.

The identification of a sensemaking mechanism is consistent with assertions of the centrality of sensemaking to framing (Cornelissen and Werner, 2014; Fiss and Hirsch, 2005). However our conceptualisation provides an account of how and when sensemaking becomes important, finding that its importance diminishes over time in the context of innovation, and that framers should not focus as much effort on this in later stages. We add to the innovation framing literature by demonstrating how some meanings gain resonance over others through the actions of framers, identifying specific innovation framing constructs that play a role in facilitating sensemaking.

Our identification of an interpretive flexibility mechanism deals with contradictory studies stating either the benefits (e.g., strategic ambidexterity (Fraser and Ansari, 2021)) or problems (e.g., broad and meaningless conceptualizations (Wickson and Carew, 2014)) of interpretive flexibility for innovation. We contribute to this literature by identifying a pattern of interpretive flexibility over time and specifying which constructs are most effective at managing interpretive flexibility to leverage benefits and reduce risks. We also address a question in the literature on how interpretive flexibility emerges (Fraser and Ansari, 2021), finding that it can come from either altering the content of innovation frames (frame-to-innovation), or through reflexivity in the use of innovation frames such as highlighting certain frames over others (frame-to-frame).

While research has examined the achievement of consensus after framing contests at macro field level towards field legitimation (Snihur et al, 2021), our findings show that consensus is

also pursued by individuals and groups of framers towards the legitimation of innovations. We identify the specific framing constructs that facilitate consensus at meso and macro level. Having to consider macro field and societal level dynamics to achieve shared and embedded favourable consensus means that framing for consensus is difficult to achieve, and even more difficult to sustain. These findings add to literature on how framers manage both maintenance and change (Gray, Purdy and Ansari, 2015).

From our SLR, possible avenues for future innovation framing mechanism research are numerous. We highlight what we believe to be the most pertinent here. First, while our focus was advancing innovation framing knowledge, the innovation framing mechanisms identified could further help demonstrate the value of framing for other fields, such as domains that examine the evolution of ideas, concepts, movements, etc., over stages of time and levels of development to test if they deliver comparable outcomes.

Further, most innovation framing research focuses on top-down situational mechanisms or action-formation mechanisms that account for interactions between meso and micro level. Research is needed regarding how framing can lead to successful macro outcomes such as routinized and widespread acceptance and use of innovations through transformational mechanisms over time. This will require consideration of contextual factors, as framing is subject to power relations within a field that either support, neglect or exclude certain actors and their frames (Meyer & Höllerer, 2010). We recommend an institutional perspective to examine how framing is influenced by dominant processes at work within a field.

We also suggest further research is needed to address audience responses to framing efforts, and how innovation practitioners can build these responses into subsequent framing. Our focus has been on the actions of framers as this dominates the innovation framing literature, but examination of subsequent response patterns would further enable framers to anticipate and react to audiences' expectations.

A final recommendation to enhance our knowledge of innovation framing mechanisms is to examine which framing processes, frame types and frame characteristics work best together as framing paths to facilitate the concurrent or sequential interplay between sensemaking and interpretive flexibility during creation and definition, and interpretive flexibility and consensus during adoption and implementation. Existing research tends to highlight one mechanism as ultimately responsible for an innovation outcome, yet our findings indicate that an interplay takes place during both stages. Further examination would shed light on how innovators and managers can progress successfully through stages of innovation.

5.3 Temporal Considerations Across Innovation Stages

Our final contribution explains how innovation framing works over time by identifying innovation stage-specific differences in the role of framing processes, frame types, and characteristics. It is widely recognized that innovation is not necessarily linear, and is often a complex, interactive, and iterative process involving feedback loops and multiple cycles (Kline and Rosenberg, 2010; Navis and Glynn, 2010; Van de Ven, 1999). Innovation journeys can involve false starts, dead ends and trial and error (Lambrecht et al., 2014). However, there is also acknowledgement that more sequential, linear examinations of innovation allow for identification of patterns within and across innovation situations and that innovation should be examined in stages (Gopalakrishnan and Damanpour, 1997; O'Reilly and Binnis, 2019; Van de Ven, 1999). Building on this research, we found that a deep understanding of innovation framing is not possible without considering the stages of the innovation process.

Our staged approach to innovation framing contributes to the literature by providing a distinct model of innovation framing that illustrates key construct relationships, demonstrates how mechanisms work overtime, and captures the unique challenges of each stage. Temporal considerations have largely been missing from this literature with authors calling for a means

of understanding how framing success factors change over time (Bryant and Dillard, 2019; Florence et al., 2022). Findings on the differences between stages are consistent with innovation studies that assert how each successive stage should be more devoted to removing ambiguities about the innovation (Gopalakrishnan and Damanpour, 1997), and our model conceptualizes how framing can be used to enact this. Our findings that framing in the creation and definition stage is particularly crucial for overcoming conflicting frames to define offerings and determining market and field position addresses questions on how to attain framing success in this crucial stage across geographical boundaries and contexts (Florence et al., 2022; Olsen et al., 2014).

Another temporal consideration addressed is the examination of how framing has been applied to innovation as a process and innovation as an outcome, confronting a distinction that is not always made explicit in the literature. Crossan and Apaydin (2010) determine that focusing on innovation as a process answers questions of 'how' while a focus on innovation as an outcome answers questions of 'what'. Our findings that framing is applied across the stages of the innovation process to shape innovation outcomes demonstrates that framing incorporates both 'how' and 'what'. Framing therefore provides comprehensive insight into innovation. In addition to the stage-specific processes dynamics identified in our SLR, we broadly organized outcomes as innovation success, failure, and transformation, capturing both intended and realized outcomes of innovation framing. This builds on existing framing reviews which acknowledge the potential positive outcomes of successful framing (e.g., the acceptance of new products, emergence of new organizations and industries) (Cornelissen and Werner, 2014) and venture and field legitimation (Snihur et al., 2021), but which until now have lacked consideration of factors that mediate innovation failure and innovation transformation.

Our conceptualization of a staged innovation framing model opens several potential avenues for future research. For example, research has not looked at the role of end-user and

other stakeholder frames in early innovation framing when prototype testing or focus group research is conducted. These frames undoubtedly play a role in shaping the direction of framing given what we know about the value of early external feedback (Micheli et al., 2019). Additionally, insights could be gained by examining the effects that different ideation techniques have on early-stage innovation framing. Different techniques used by external or internal actors with groups of innovators may shape the direction and outcome of framing.

While our article has identified the framing constructs relevant to each stage, we recommend a longitudinal approach to examine how innovators transition through stages over time, including how framers overcome the challenging process of facilitating consensus in the development and management stage as resonance diminishes. Nourishing and sustaining innovation framing patterns over time will require an ability to shift between mechanisms and the knowledge of when to do this. For example, our model demonstrates that innovators will need to recognise when a process like *attribute-framing* should be replaced with a process like *reframing* to shift focus and allow an innovation to be perceived in multiple ways. For long-term success, innovators might also need to understand when to use a process like *frame association* to overcome pitfalls of time such as loss of resonance. Sustaining innovation framing success might also involve attempts to predict what future audiences will expect. This resonates with the findings of Garud et al., (2014) who examined how entrepreneurs use projective stories to set audience expectations in attempts to predict unknowable futures. Improving our understanding of how innovation framing success continues into the future can help us to enhance innovators' and managers' capacities for change, and ability to respond to grand challenges in pursuit of sustained innovation success (Falcke, Zobel and Comello, 2023).

Further research could also be conducted on the role of framing after transformation. Furr et al., (2012) find that domain-outsider expertise is key while undertaking a transformation due to the cognitive flexibility it introduces. We suggest examining whether mechanisms of

interpretive flexibility or consensus become most important in managing and developing innovations after a transformation has occurred. Similarly, research could examine the role of framing in dealing with innovation failure at each stage, and how failure influences the development of new frames. Given the value of framing as a meaning-making and communication tool, we suggest this could be a worthwhile pursuit. A further recommendation relates to Crossan and Apaydin's (2010) finding that innovation research tends to focus on capabilities and determinants of innovation, treating innovation outcomes of success, failure or transformation as the end result without linking this to firm performance. Our review also found a lack of consideration for subsequent firm performance outcomes and therefore suggest this as an interesting next step for innovation framing research.

5.4 Implications for Practice

The implications of this article are far reaching across each stage of innovation. First, the construct clarity provided here facilitates the recognition and use of framing processes, frame types and frame characteristics in different innovation contexts towards successful innovation outcomes. An example is that innovation practitioners can now recognize the need to develop both the frames of individuals such as individual team members or end-users (micro frames) and the frames that will be used in portraying the innovation to groups of stakeholders (meso frames) and eventually for shaping fields and institutions (macro). Our finding that innovation framing is bidirectional across the levels identified has implications for those who seek to use bottom-up action to legitimize new fields and practices in their framing rather than simply being subject to field norms. We suggest innovation practitioners engage in collective action with others in establishing novel field practices or identities through framing, as collective bottom-up action has been shown to have the best outcomes (Snihur et al., 2021).

The categorization of framing processes and frame characteristics as either belonging to frame-to-frame or frame-to-innovation paths enables practitioners to understand how to use each framing process to unlock these frame characteristics, e.g., through altering the content of innovation frames (frame-to-innovation), or through reflexivity in the use of innovation frames such as highlighting certain frames over others (frame-to-frame). For example, if a practitioner seeks to highlight the frame-to-frame characteristic of *incongruency* between different frames held by individuals regarding an innovation to facilitate *interpretive flexibility*, our model suggests that *managing multiplicity* is the most suitable framing process. Figures 5 and 6 provide guidance for practitioners on how to follow framing paths according to either mechanism or stage. Definitions of framing processes provide further clarity on how and when to use them. For example, we show how innovators and managers of design teams can use the framing process *cross-field transposition* to bring in expertise from different fields and expand the range of inputs during innovation creation and definition, or the *frame association* process to overcome loss of interest in an innovation in later stages of innovation development and management.

Another practitioner implication derives from our clarification of who is involved in innovation framing as both framers and audiences. For example, an innovation team who are employed for a shared purpose will require quite a different framing approach to potential end-users in a new market category. Practitioners should carefully consider audience in selecting innovation framing approaches and should also use audience responses to inform subsequent framing steps, treating framing as an iterative and reflexive process. Distinguishing between innovator and audience-driven framing helps to make practitioners aware of the power of audiences in shaping innovation outcomes and could enable new considerations on how framing can be used. For instance, the negative effects of *frame polarization*, where opposing groups continuously reaffirm their differences causing an *impasse* in innovation, could be

overcome by using processes of *reframing*. Specifically, anticipating such an issue, innovators and managers could use narrative and discourse tactics, such as reshaping their communication about the innovation to reflect a new focus that appeases both sides (Kannan-Narasimhan and Lawrence, 2018). Further, our framework captures intended successful outcomes, but also how framing can lead to innovation failure, and how practitioners can overcome deviations from their intended path. For example, to overcome adoption and implementation failure due to over-emphasis of the *transformational value* of frames (see Figure 6), practitioners can use the *reframing* process to refocus audience attention.

Our identification of innovation framing mechanisms shows practitioners that facilitating mechanisms through framing paths ultimately facilitates desirable innovation outcomes at each stage, and knowing how to unlock these for different audiences is essential for innovation practitioners. Sustaining successful framing over time requires an ability to shift between mechanisms and related framing constructs and knowledge of when to do this. A mechanism approach shows how innovation practitioners can use the framing paths identified for each mechanism (see Figure 5) to move through each as innovations progress, establishing initial *sensemaking*, leverage the benefits and reduce the risks of *interpretive flexibility* to achieve strategic ambidexterity, and finally achieving and maintaining favorable *consensus*. However, while pursuing *consensus*, practitioners still need to be aware of how changes in other fields, such as in a related technology, could lead to a need for them to adapt and even transform, balancing *consensus* with continuous response to change.

The stage-specific nature of framing identified here provides an actionable format for innovation practitioners to select the relevant innovation framing paths (see Figure 6) for framing guidance depending on where they are in the innovation journey. It illustrates the unique challenges of each stage and how to move through stages of innovation successfully. For example, innovation practitioners should consider ideation techniques that facilitate both

sensemaking and *interpretive flexibility* together in creation and definition. Resources do not need to be spent on achieving unanimous agreement but can instead be used to communicate the importance of diversity within teams and organizations. In early innovation framing, practitioners also need to be transparent in their framing from the beginning so as not to be perceived as deceptive or manipulative, particularly for innovations with unknown ethical implications, or social and environmental sustainability externalities. Our framework also demonstrates how to balance *interpretive flexibility* efforts with *consensus* during adoption and implementation and then maintain *consensus* during development and management, reducing ambiguity while moving through latter stages. The final stage of innovation requires more complex practices where practitioners should deflect and redirect attention away from aspects of innovation that have lost resonance using framing paths identified here. For example, this stage requires innovation practitioners to consider macro level dynamics such as aligning with dominant stakeholders in the field through *frame-association* to ensure innovations fit with widespread societal norms and expectations.

5.5 Limitations

As with all studies there are limitations. Within our study, one limitation is the use of only one search database. Although the SSCI is recognized for capturing a comprehensive body of cross-disciplinary research, some relevant studies may have been omitted. Related to this, a second limitation is the use of the SLR process as this requires adherence to strict inclusion criteria. This does not allow for open and flexible search techniques which could yield further interesting findings for the field. A third limitation is that, since the primary aim of this SLR was to integrate and clarify current literature, we did not provide propositions linking the various constructs. We have recommended the identification of relationships between specific framing processes, frame types and characteristics, and the subsequent mechanisms that

facilitate outcomes, as an avenue for future research. Finally, we did not examine complications (Snihur et al., 2021) such as feedback loops during the innovation process, or the role of external influences in shaping innovation framing outcomes. We have suggested that future research consider such complications.

6. CONCLUSIONS

In this SLR, we have brought together the roots and future of innovation framing to provide a unified conceptual framework. Innovators and organizations will increasingly need to equip themselves with innovation framing techniques to gain buy-in from diverse innovation audiences whose choice of means to satisfy their innovation needs expands. As innovation expectations evolve, and as we continue this period of radical technological innovation towards a future that is becoming increasingly difficult to predict, framing will need to adapt. This task of balancing familiarity and novelty in framing efforts is comparable to the paradoxical task of achieving optimal distinctiveness – the balance point of being similar and different to others (Navis and Glynn, 2011). Given this trend, alongside the lack of recognition for innovation framing as a unified domain of research, we provide a timely and important systematic review of this literature. We hope our comprehensive framework inspires and guides future researchers and practitioners to further unlock the value of framing for successful innovation(s). We have brought framing to light as a dynamic tool for supporting innovators in their increasingly complex and uncertain innovation journeys. In so doing, we provide comprehensive guidance through our framework on how to continue to build successful innovation framing research and practice.

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Table 1. Innovation Framing Processes

Framing Process	Definition	Theoretical Perspectives
Frame-to-frame (processes that are used by framers to highlight the relationship of a frame to existing dominant frame/s)		
Frame association	*A set of processes wherein framers connect frames of individuals with established frames relating to culture, society, policy, and industry.	Psychology, Social Movement Theory, Behavioral Science
Managing multiplicity	*A set of processes wherein groups of individuals recognize and embrace both the similarities and differences between their multiple, diverse frames.	Psychology, Communication and Linguistics, Behavioral Science, Social Movement Theory
Frame Polarization	Where a group repeatedly reaffirms the issue frames they collectively hold, increasing the distance between them and the frames of an opposing group (Dewulf and Bouwen, 2012)	Psychology
Frame-breaking	Disconnecting from a frame/s in favor of an alternative or new frame/s to generate creativity and novelty.	Social Movement Theory
Cross-field transposition	Transporting frames from one social context to innovate in another social context (Boxenhaum and Battilana, 2005)	Psychology, Institutional Theory
Frame-to-innovation (processes that are used by framers to highlight specific aspects of an innovation)		
Attribute framing	Wherein some specific characteristic of an object or event serves as the focus of the framing (Levin et al., 1998)	Communication and Linguistic, Behavioral Science
Negatively framing opposition	*A process where framers strategically ascribe negative meaning to opposing innovations.	Communications and Linguistics, Social Movement Theory
Reframing	*The process of framing innovations in an alternative way to existing framings by introducing new frames or redirecting audience attention to alternative frames.	Psychology, Communication and Linguistics, Social Movement Theory, Behavioral Science,
Rhetorical framing	The process of creating a broad interpretation of an issue, i.e., the general story, value system and (political) ideas within which actions take place (Schön and Rein, 1994)	Psychology, Social Movement Theory, Behavioral Science,

Table 2. Innovation Frame Types

Frame Type	Definition	Theoretical Perspectives
Micro (frames used by individuals, e.g., innovators, consumers, etc. to organize and interpret reality in their own minds)		
Cognitive frames	"schemata of interpretation that enable individuals to locate, perceive, identify, and label what happens in the world around them" (Goffman, 1974, p. 21)	Psychology
Interpretive frames	"Schemata of interpretation that enable individuals 'to locate, perceive, identify, and label' occurrences within their life space and the world at large." (Snow et al., 1986, p.464)	Social Movement theory
Meso (frames used by framers, e.g., innovators, policymakers, media etc. in the deliberate communicating and shaping of meaning to groups and individuals)		
Message frames	Linguistics that entail the strategic presentation of scientific information to influence audience attitudes and behaviors about decision-making (Neil et al., 2017)	Communications and Linguistics
Technological frames	"Frames that concern the assumptions, expectations, and knowledge used to understand technology in organizations. This includes not only the nature and role of the technology itself, but the specific conditions, applications, and consequences of that technology in particular contexts" (Orlikowski and Gash, 1994, p. 17)	Behavioral Science
Media frames	Language used by the media where they take a complex situation and emphasize certain aspects over others, determining audience focus (Esmail et al., 2010)	Communication and Linguistics
Issue frames	Signify some issues as problems using specific types of constructs that fit the policy agent's worldview and interest while marginalizing alternative issues and agendas (Molla and Cuthbert, 2018)	Communication and Linguistics
Collective action frames	Sets of beliefs and meanings that motivate people to act while giving legitimacy to social movement activities (Benford and Snow, 2000)	Social Movement theory
Macro (frames providing abstract scripts and rules for institutionalized behaviors)		
Organizational field frames	The underlying principle of institutionalized practices in a certain practice domain (field) (Lounsbury et al., 2003)	Institutional theory
Cultural-cognitive frames	Representing cultural-cognitive institutions defined as understanding "the shared conceptions that constitute the nature of social reality and the frames through which meaning is made" (Scott, 2001, p. 57)	Institutional theory

Table 3. Innovation Frame Characteristics

Frame Characteristic	Definition	Theoretical Perspectives
Frame-to-frame (the relationship of a frame to extant/dominant frames)		
Incongruency	When multiple differing frames are held among individuals, or when a new frame offers an alternative perception of an innovation and even conflicts with existing frames in a given context.	Behavioral Science, Psychology, Communications and Linguistics, Institutional theory
Establishment	Frames that have persisted over time, that represent dominant norms and rules, and are subsequently recognized and generally accepted.	Communications and Linguistics, Institutional theory
Frame-to-innovation (frames highlight specific aspects of an innovation)		
Opportunity orientation	The ability of frames to highlight innovation as an opportunity.	Psychology, Behavioral Science, Institutional Theory, Communications and Linguistics
Negativity	The ability of a frame to highlight negative aspects of an innovation	Communications and Linguistics
Immediacy	The ability of a frame to cause something to appear of immediate significance (Neil et al., 2017)	Communications and Linguistics
Transformational value	The ability of a frame to cause significant innovation transformation.	Social Movement theory

*defined by the authors