

# UNDERSTANDING HOW PEOPLE REACT TO CHANGE: A DOMAIN OF UNCERTAINTY APPROACH

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**Change is ubiquitous in people’s daily work and life experiences. While a sizable body of research has examined individuals’ reactions to change, different literatures have remained largely siloed. In this review, we integrate research on people’s reaction to change in seven research clusters (marketing, macro-organizational change, micro-organizational change, creativity, technological innovation adoption, voice, individual adaptation), through a domain of uncertainty (DOU) framework. We identify that the uncertainties associated with change fit into four domains, reflected in the questions people ask about change: conceptual uncertainty (What is the change?), functional value uncertainty (What is the value of the change?), process uncertainty (How will the change come about?), and impact uncertainty (What is the broader impact of the change?). The DOU framework integrates the existing research through the common lens of uncertainty, thus allowing specific communities of practice studying individuals’ reactions to change to better engage in a dialogue with other nonoverlapping communities. By identifying two central levers—people’s goals and the change features of novelty and ambiguity—that impact the relevance of the uncertainty domains and the ways people reduce uncertainties within those domains, the DOU framework further helps scholars better determine the factors that are important to an individual’s reaction to change.**

Change, or deviation from the status quo, is a major facet of organizational life. From small deviations to large-scale transformation, change can reside within an organization (e.g., changes in policies, procedures, or strategies), outside an organization (e.g., changes in economic, technological, regulatory conditions of the external environment), or be an output of an organization (e.g., changes in products). As modern organizations strive to stay competitive in a rapidly changing environment, change is ubiquitous in people’s daily work and life experiences. How change is received rests largely on the individuals who make up our teams and our organizations, and being able to predict, and to influence, individuals’ reaction to change is therefore critical for enhancing organizational effectiveness.

Given the pivotal role of individuals’ reactions to change, a sizable body of research spanning various disciplines has explored this phenomenon. Existing research tends not to define change as a general concept, but instead to provide specific definitions for the type of change specifically being studied. For example, strategic change is defined as “a redefinition of organizational mission and purpose or a substantial shift in overall priorities and goals to reflect new emphases or direction” (Gioia, Thomas, Clark & Chittipeddi, 1994: 364). Radical change is defined as “a discontinuous change in the basic philosophy of one person—at the individual level—or of the shared identity of members of the organization—at the organizational level” (Huy, 1999: 325). Novelty is defined as departure from practice (Amabile, 1988). Innovation is defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003: 12). At a broad level, underlying various forms of change is some sort of deviation from the status quo, the experience of something

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new or different. The conceptualization of change as deviation from the status quo is reflected in the fact that people's reaction to change is often contrasted with their commitment to the status quo (Geletkanycz, 1997; Hambrick, Geletkanycz & Fredrickson, 1993). Change inherently involves movement from the status quo to a new state. In some contexts, the new state is arrived at immediately (e.g., one purchases a new phone); other times, it is reached via a longer process of change (e.g., a new technology is put into place at work and slowly adopted), and that longer process may be considered as an integral part of the change experience.

Individuals' reaction to change has been a critical component of organizational change research that seeks to provide insights on enacting effective change within organizations (e.g., Gioia et al., 1994; Huy, 1999). However, with change conceptualized as deviation from the status quo, individuals' reaction to change also encompasses a broader range of literatures that are normally not integrated into mainstream reviews of individuals' reactions to change in organizations. For example, novel ideas are also a form of change: things are novel only when they are different from the status quo. In other words, change can involve a shift in requirements of an organizational task, in process or procedure, or in organizational structure or norms; it can also be a new idea or product under consideration, or a new technology being implemented. Thus, for a more comprehensive understanding of reaction to change, we consider not only research on organizational change but also research on creativity, innovation, and consumer behavior—literatures that have remained separate from traditional discussions of individuals' reactions to change to date.

Existing reviews provide useful in-depth analysis within the literature; for example, Oreg and Berson (2019), Oreg, Vakola, and Armenakis (2011), and Stouten, Rousseau, and De Cremer (2018) focus on organizational change, and Zhou, Wang, Bavato, Tasselli, and Wu (2019) on creativity evaluation. However, by limiting their scope to specific communities of practice, existing reviews fail to provide a broader structure for generalizing the factors that will influence individuals' reactions to change from one community of practice to another, and understanding when these factors will be most impactful. Indeed, without broad comparisons and integration across literatures, it is difficult for the various communities of practice studying individuals' reactions to change to build from and impact other communities of practice. For example, the organizational

change literature identified ambiguity in the meaning of change as a challenge for individuals to embrace change (Corley & Gioia, 2004; Labianca, Gray & Brass, 2000; Spee & Jarzabkowski, 2017). As powerful as this finding is, there is no framework to help other scholars in other literatures recognize this challenge in their own research context. For instance, creative ideas may be especially difficult to communicate unambiguously—a point that is relevant but not yet considered by the marketing and creativity literatures. A broader, more holistic perspective would serve researchers within specific communities of practice by enabling them to draw more readily on findings emerging from other siloed areas.

In the current review, we therefore integrate research on individuals' reactions to change across the management, psychology, and marketing disciplines. By examining reactions at the individual level, we can gain a better understanding of the different ways change is perceived and the distinct challenges or opportunities it presents to different individuals. Understanding when some people reject but others accept the same change can illuminate the origins of diverse reactions in teams and organizational settings, and potentially how to overcome pockets of resistance to change. Understanding individuals' reactions to change has the additional benefit of helping explain why people might embrace or reject changes moving down (employees reacting to change mandated by their CEOs) but also up (managers reacting to change voiced by employees) the hierarchy, and so influence organizational effectiveness.

Our review makes two primary contributions. First, adopting a domain of uncertainty (DOU) framework, we identify the common questions individuals ask when reacting to change. In doing so, we show how different communities of practice address similar phenomena, and so can integrate with, build from, and impact each other. Second, we use the questions individuals ask about change, oriented toward different DOUs, to integrate the many factors prior research has identified as levers that influence individuals' reactions to change. We also identify change contexts that shape the relevance of these factors. In doing so, the DOU framework provides guidance for researchers about when some factors will matter more than others.

In what follows, we first describe the review methodology and seven clusters of research identified using bibliometric analysis. We then review the seven clusters, grouping them by research foci, and integrate all seven clusters using the DOU framework. Finally, we discuss the broader implications

of the framework and the ways in which it can both motivate and shape future research.

METHODOLOGY

Search

We began our review by examining chapters, theoretical articles, and prior reviews that have addressed the topic of reaction to change. During this first phase of review, we created a list of search terms capturing concepts related to change (i.e., new\* OR creativ\* OR change\* OR novel\* OR status quo OR inertia OR innovati\*) and reactions (i.e., assess\* OR perceive OR perception OR recogni\* OR evaluat\* OR judg\* OR forecast\* OR select\*OR adopt\* OR implement\* OR respon\* OR react\* OR adapt\* OR reject\* OR accept\*). We identified the terms by locating varied phenomena concerned with change in the manner described above, and examining existing reviews within the literature (e.g., in organizational change, Oreg et al., 2011; in creativity, Zhou et al., 2019). We restricted the search to include 20 top journals in organizational behavior and psychology, as in Chon and Sitkin (2021), and any additional journals listed in the UK Association of Business Schools Academic Journal Guide as a 4\* (i.e., top-tier) outlet in management, marketing, or psychology. In addition, to add depth to our search, as well as to expand beyond solely top-tier outlets, we added to this list four more specialized journals that each focus on a specific context in which change occurs. Finally, to further diversify beyond top-tier journals, and to include perspectives from a less U.S.-centric community of researchers, we also included three international journals—one each in management, psychology, and marketing. Table 1 provides a complete list of journal titles identified.

This search generated an original list of 12,177 articles. We screened these according to the following scope criteria. First, the article had to focus on reaction targeted at change, defined as deviation from the status quo. Reactions toward other targets, such as one’s job or organization (e.g., job satisfaction, organizational commitment), were considered not reactions to change but consequences of change (Oreg et al., 2011); evaluation of whether a person is creative was also beyond the scope of our review because a person is not a deviation from the status quo. Second, the article had to offer insights on what explains individuals’ reactions to change; for example, articles focusing on how individuals initiate changes in either themselves or others were excluded. Third, the article had to focus on reactions to change at the individual level; for example, articles focusing on how firms react to market change were excluded. Fourth, the changes studied had to be relevant to organizations; for example, articles focusing on infants’ reactions to novel stimuli were excluded. Fifth, the changes studied had to be offered or imposed by others rather than generated by the person reacting to the change; for example, articles examining how people evaluate their own creative ideas were excluded. Finally, the article had to be empirical (e.g., an original empirical article, meta-analysis, or review based on empirical research); purely theoretical articles focused on developing hypotheses were excluded. After this process, we arrived at the main set of 259 articles.

Bibliometric Analysis

To provide an overview of the varied communities of practice that study reaction to change, we conducted bibliometric analysis on the 259 articles using VOSviewer (van Eck & Waltman, 2009), a software tool for constructing and visualizing bibliometric

TABLE 1  
List of Journals

| Discipline | Journal Titles  |
|------------|---|
| Management | <i>Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly, International Journal of Management Reviews, Journal of Change Management, Journal of Leadership Studies, Journal of Management, Journal of Management Studies, Journal of Organizational Behavior, Leadership Quarterly, Management Science, Organization Science, Organizational Behavior and Human Decision Processes, Organizational Dynamics, Strategic Management Journal</i> |
| Psychology | <i>Creativity Research Journal, International Journal of Psychology, Journal of Applied Psychology, Journal of Behavioral Decision Making, Journal of Experimental Psychology General, Journal of Experimental Social Psychology, Journal of Personality and Social Psychology, Personality and Social Psychology Bulletin, Personnel Psychology, Psychological Bulletin, Psychological Review, Psychological Science, Review of General Psychology</i>                               |
| Marketing  | <i>International Journal of Research in Marketing, Journal of Consumer Psychology, Journal of Consumer Research, Journal of Marketing, Journal of Marketing Research, Journal of Product Innovation Management</i>  |

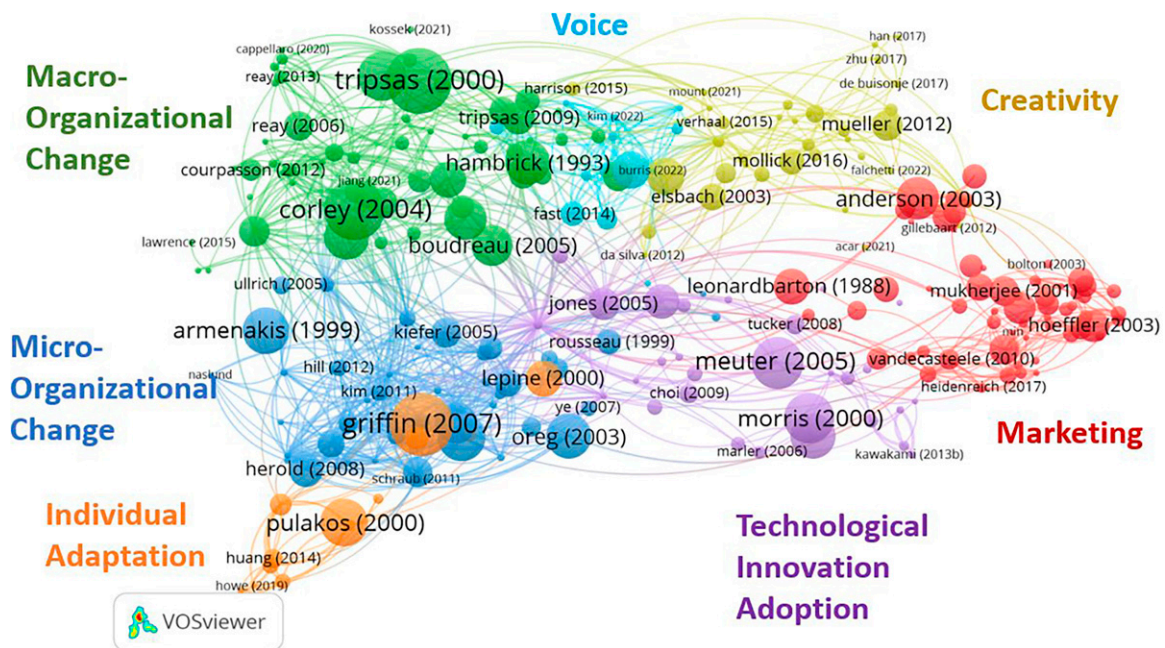
networks. We conducted the analysis based on the bibliographic coupling link, which represents the number of references two articles share. As references indicate the literature an article speaks to, the more references two articles share, the more likely they are speaking to the same audience.

When conducting the cluster analysis, the software has a default clustering resolution of 1. When the resolution is set to this default, seven clusters emerged. We examined the articles in the seven clusters closely and identified seven communities of practice represented by the clusters: marketing, technological innovation adoption, creativity, voice, macro-organizational change, micro-organizational change, and individual adaptation. Following a recommendation from Waltman, van Eck, and Noyons (2010), we utilized different values for the resolution parameter to check the robustness of the clustering analysis (Waltman et al., 2010). The higher the resolution, the larger the number of clusters produced by the clustering analysis. When the resolution was set to be 0.9, five clusters emerged, where the voice and creativity literatures were considered to be one cluster, and micro-organizational change and individual

adaptation one cluster. We do not consider the five-cluster solution as an appropriate representation of the research landscape, as the voice and creativity scholars tend to speak to their own audience, as do the individual adaptation and micro-organizational change scholars. When the resolution was increased to 1.2, eight clusters emerged. However, there was one cluster that only had six papers in it, and it was unclear what community of practice the six papers represented. Therefore, we decided to proceed with the default clustering resolution of one and the seven-cluster solution it reached.

Figure 1 maps the bibliographic coupling network, and seven clusters identified using the clustering technique (Waltman et al., 2010). Articles that belong to the same cluster are denoted by the same color. The name of each cluster is presented near the cluster using the same color as the articles in that cluster. A smaller distance between two articles reflects a stronger bibliographic coupling link, meaning there is a greater overlap in the references of the two articles. Relative size of the node corresponds to the relative citation an article has accrued, with larger nodes denoting higher citations.

**FIGURE 1**  
**Cluster Analysis of Articles in Our Review**



*Note:* Articles that belong to the same cluster are denoted by the same color. The name of each cluster is presented near the cluster using the same color as the articles in that cluster. A smaller distance between two articles reflects a stronger bibliographic coupling link, meaning there is a greater overlap in the references of the two articles. The relative size of the node corresponds to the relative citation an article has accrued, with larger nodes denoting higher citations.

## REVIEW OF SEVEN CLUSTERS STUDYING REACTIONS TO CHANGE

The cluster analysis yielded seven distinct research clusters studying individual reactions to change. Research on this phenomenon is expansive, taking place over decades, crossing international boundaries, and spanning multiple disciplines. Table 2 and Table 3 provide information about the community of practice represented by a given research cluster (e.g., marketing, creativity), including the kind of change the cluster focuses on, central questions asked, primary methodologies utilized, theoretical roots, key findings, and representative papers. The cluster analysis suggests that distinct communities of practice tend to cite studies from within their respective cluster, as opposed to citing studies in other clusters. This provides some empirical evidence of the siloed nature of research examining individuals' reactions to change, which presents significant challenges toward building a cumulative knowledge base across clusters.

Different clusters have emphasized varied flavors of individuals' reactions to change. For example, the micro-organizational change cluster has considered readiness for change, commitment to change, resistance to change, and support for change, among many other constructs (Oreg et al., 2011). The creativity cluster has considered creativity recognition, evaluation, adoption, and implementation (Zhou et al., 2019). The marketing cluster has considered product evaluation, adoption intention, and adoption behavior (Feurer, Hoeffler, Zhao & Herzenstein, 2021). Although different specific constructs related to reactions to change are identified and discussed in these disparate clusters, at a broad level the aforementioned clusters converge in trying to understand the valence of people's reaction to change—that is, whether they respond to change in a positive or negative way.

To aid the integration of research across clusters, we organized the clusters by focusing on the major research question posed by each. In so doing, we identified three broad yet distinct questions that research on individual reactions to change has centered upon: (1) How do individuals, in roles as consumers, users, and evaluators, evaluate whether to embrace or reject change in the form of new products, ideas, and technologies? (2) How do decision-makers in organizations evaluate whether to embrace or reject change? and (3) How do change recipients in organizations (i.e., those involved in the implementation of change after the decision to change has been made by

others) respond to change? The marketing, creativity, and technology adoption clusters tend to focus on the first of these questions; the voice and one subset of the macro-organizational change cluster tend to focus on the second question; finally, a second subset of the macro-organizational change cluster, as well as the micro-organizational change and individual adaptation clusters, tend to focus on the third question. For each question below, we briefly describe the clusters addressing the question, and then integrate the research across clusters by drawing out common themes that emerge across clusters, as well as highlighting key differences.

### How People Evaluate New Things: Insights from the Creativity, Marketing, and Technological Innovation Adoption Clusters

Although comprising different communities of practice, the marketing, technological innovation adoption, and creativity clusters at their core seek to address the question of how people evaluate change in the form of new things that depart from the status quo—that is, new products, new ideas, or technological innovations. Each of these three clusters tends to focus on assessments of a change at a single point of time, typically prior to any adoption decision having been made.

**Marketing.** The marketing research cluster primarily considers how consumers react to new products. Marketing researchers tend to approach the question of new product adoption by broadly assuming that new products are characterized by uncertain benefits (Castaño, Sujan, Kacker & Sujan, 2008; Hoeffler, 2003; Lin, MacInnis & Eisingerich, 2020; Ma, Gill & Jiang, 2015); therefore, consumers evaluate whether a new product is likely to offer a functional improvement over what currently exists, answering the question, “What is the value of this product for me?” Further, after an adoption decision, consumers need to purchase and use the products (Castaño et al., 2008; Hoffmann & Broekhuizen, 2010; Mukherjee & Hoyer, 2001; Wood & Moreau, 2006); therefore, they also evaluate whether the process of adopting and using the product is easy or difficult, answering the question, “What does it take to adopt and use the product?” A subset of the marketing cluster specifically considers how consumers react to “really new products” (also referred to as radical new products or discontinuous innovations; e.g., Herzenstein, Posavac & Brakus, 2007; Ma et al., 2015; Mugge & Dahl, 2013; Zhao, Hoeffler & Dahl, 2012). Compared to incrementally new products (i.e., products that are new but

**TABLE 2**  
**Summary of Clusters**

| Group  | Cluster                                     | Who                              | Change                     | Central Questions  | DOUs Focused on                       | Methodology   | Theoretical Roots              | Major Theories Drawn   |
|--|---|----------------------------------|----------------------------|--|---------------------------------------|---|--------------------------------|--|
| Evaluation of change by people                           | Marketing                                   | Consumers                        | New products               | What is the value of the product for me? What does it take to adopt and use the product? What is the product?        | Functional value, process, conceptual | Lab experiment, survey                                | Marketing, psychology          | Schema incongruity theory (Mandler, 1981); theory of planned behavior (Ajzen, 1991); status quo bias (Samuelson & Zeckhauser, 1988)  |
|  | Technological innovation                    | Consumers, employees             | Technological innovations  | What is the value of this technological innovation? How difficult will it be to use or learn to use it?              | Functional value, process             | Survey, field experiment                              | Marketing, information systems | Technology acceptance model (Davis, Bagozzi & Warshaw, 1989); diffusion of innovations (Rogers, 2003); theory of planned behavior (Ajzen, 1991)  |
|  | Creativity                                  | Evaluators in a variety of roles | New ideas                  | What is the value of this new idea?  | Functional value                      | Field experiment, qualitative, survey, lab experiment | Management, psychology         | Associative evaluation (Gawronski & Bodenhausen, 2006); implicit theories of creativity (Runco & Johnson, 2002); prototype matching (Runco & Bahleda, 1986); social context theory of creative idea recognition (Mueller, Melwani, Loewenstein & Deal, 2018); appraisal theory of idea evaluation (Mumford, Loneragan & Scott, 2002) |
| Evaluation of change by decision-makers in organizations | Voice                                       | Managers                         | Subordinates' voiced ideas | What is the implication of this for me? What is the value of this idea for my unit and the organization?             | Impact, functional value              | Survey, supplemented by laboratory-based experiments  | Management, psychology         | Self-discrepancy (Higgins, 1987); regulatory focus (Higgins, 1998); self-regulation (Baumeister, Vohs & Tice, 2007); gender role theory (Eagly, 1987); social role theory (Biddle, 1986)   |
|  | Macro-organizational change (first stream)  | Top managers, professionals      | Change in the environment  | What is the value or purpose of this change? What is the broader impact of the change on the organization and on me? | Functional value, impact              | Qualitative, survey                                   | Management, sociology          | Dynamic capability (Teece, 2007); organizational identity (Albert, Ashforth & Dutton, 2000); upper echelons theory (Hambrick & Mason, 1984)  |
| Evaluation of change by change recipients                | Macro-organizational change (second stream) | Organizational members           | Organizational change      | How should the change be enacted? What is the impact of change on me? What is the change?                            | Process, impact, conceptual           | Qualitative, survey                                   | Management, sociology          | Sensemaking (Weick, Sutcliffe & Obstfeld, 2005); identity (Wrzesniewski & Dutton, 2001); institutional logics (Thornton & Ocasio, 2008); status (Berger, Cohen & Zelditch, 1972); network (Burt, 2000)   |

TABLE 2  
(Continued)

| Group | Cluster                     | Who       | Change   | Central Questions   | DOUs Focused on | Methodology  | Theoretical Roots      | Major Theories Drawn  |
|-------|-----------------------------|-----------|--|---|-----------------|--|------------------------|---|
|       | Micro-organizational change | Employees | Organizational change                            | How is the change implemented?<br>What impact will the change have on me? | Process, impact | Survey, supplemented by laboratory-based experiments | Management, psychology | Fairness heuristic theory (Lind, 2001); appraisal theory (Lazarus, 1991); theory of planned behavior (Ajzen, 1991); uncertainty management theory (Lind & van den Bos, 2002); transformational leadership (Bass & Riggio, 2005) |
|       | Individual adaptation       | Employees | Change in individuals' work tasks or environment | How do I adapt to the change?   | Process         | Lab simulations, survey                              | Psychology             | Goal orientation (Vandewalle, 1997); goal theory (Locke & Latham, 1990); conservation of resources theory (Hobfoll, Halbesleben, Neveu & Westman, 2018); theory of adaptability (Pulakos, Arad, Donovan & Plamondon, 2000)      |

directly relate to existing items), really new products are not only perceived to involve greater uncertainties and risks (Herzenstein et al., 2007), but also involve a unique challenge: Consumers may not immediately understand the product and therefore ask the question, “What is the product?” (Feiereisen, Wong & Broderick, 2013; Moreau, Lehmann & Markman, 2001).

**Technological innovation adoption.** The technological innovation adoption cluster considers how employees react to technological innovations within an organizational context (Aiman-Smith & Green, 2002; Bala & Venkatesh, 2015; Chiu, 2018; Chung, Choi & Du, 2017; Lapointe & Rivard, 2007; Morris & Venkatesh, 2000; Tucker, 2008; Venkatesh, Morris & Ackerman, 2000), as well as how consumers react to technological innovations introduced in the market (Billeter, Kalra & Loewenstein, 2011; Gounaris & Koritos, 2012; Kawakami, Kishiya & Parry, 2013; Parry, Kawakami & Kishiya, 2012; Peng & Mu, 2011; Rice & Aydin, 1991; Song et al., 2009; Zhang, Chintagunta & Kalwani, 2021). Although the focus of the technological innovation cluster is narrower than that of the marketing cluster, like the marketing cluster it recognizes uncertainties about the value of an innovation (Choi, Sung, Lee & Cho, 2011; Gerlach, Stock & Buxmann, 2014; Jiao & Zhao, 2014; Meuter, Bitner, Ostrom & Brown, 2005). It also recognizes uncertainties around the usability of an innovation—whether one will be able to learn to use the new technology (Bala & Venkatesh, 2015; Billeter et al., 2011; Chung et al., 2017; Evanschitzky et al., 2015; Marler et al., 2006). Thus, this cluster suggests that employees and consumers considering adoption of technology ask two central questions: “What is the value of this technological innovation?” and “How difficult will it be to use or learn to use this technological innovation?”

**Creativity.** The creativity research cluster primarily considers how people react to changes in the form of new ideas, sometimes referred to as creative (novel and useful) ideas (Amabile, 1983). The individuals being studied can take a variety of roles, such as expert judges, crowdfunders, investors, managers, decision-makers, or employees (Berg, 2016; Clarke, Cornelissen & Healey, 2019; Mollick & Nanda, 2016; Mueller et al., 2018; Mueller, Melwani & Goncalo, 2012; Zhou et al., 2017; Zhu, Ritter, Müller & Dijksterhuis, 2017). The ideas being studied can take a variety of forms—for example, as products, services, procedures, proposals, projects, and ventures (Acar, Dahl, Fuchs & Schreier, 2021; Beretta, 2019; Boudreau et al., 2016; Falchetti, Cattani & Ferriani, 2022; Lu et al., 2019; Miceli, Scopelliti & Raimondo, 2020; Mollick &

**TABLE 3**  
**Key Findings and Representative Papers in Each Cluster**

| Cluster                           | Key Findings  | Representative Papers  |
|-----------------------------------|---|--|
| Marketing                         | People prefer the status quo over alternatives  | Eidelman et al., 2009; Heidenreich & Kraemer, 2016; Ritov & Baron, 1995  |
|                                   | Moderate incongruence with a prior schema leads to enhanced liking of a product   | Meyers-Levy, Louie & Curren, 1994; Peracchio & Tybout, 1996  |
|                                   | Features increasing anticipated benefit of the product and lowering perceived switching or learning cost positively impact evaluation of products                   | Arts, Frambach & Bijmolt, 2011; Fisher & Price, 1992; Mukherjee & Hoyer, 2001  |
| Technological innovation adoption | A unique challenge for really new products is lack of understanding; mental simulation and analogical thinking can be used to address this challenge                | Dahl & Hoeffler, 2004; Hoeffler, 2003  |
|                                   | People's anxiety over using new technologies presents a unique challenge for adopting technological innovations   | Evanschitzky, Iyer, Pillai, Kenning & Schütte, 2015; Marler, Liang & Dulebohn, 2006  |
|                                   | Larger user networks increase adoption as it reduces uncertainties  | Song, Parry & Kawakami, 2009; Tucker, 2008   |
| Creativity                        | People react negatively to new ideas because of the uncertainty involved in novelty   | Boudreau, Guinan, Lakhani & Riedl, 2016; Mueller et al., 2012  |
|                                   | People use peripheral cues (e.g., mood, ideators' status) because of there is much unknown about the idea   | Dushnitsky & Sarkar, 2022; Elsbach & Kramer, 2003  |
|                                   | Mindsets or strategies to reduce the uncertainty can increase positive evaluation of ideas  | Berg, 2016; Lu, Bartol, Venkataramani, Zheng & Liu, 2019; Zhou, Wang, Song & Wu, 2017  |
| Voice                             | Managers react negatively to ideas when they feel threatened by subordinates' voice   | Burris, 2012; Fast, Burris & Bartel, 2014  |
| Macro-organizational change       | Persistence of old cognitive frames lead to cognitive inertia and a failure to see the value of change  | Nelson & Irwin, 2014; Tripsas & Gavetti, 2000  |
|                                   | Top managers are more likely to embrace discontinuous change when the change offers the potential for status enhancement  | Gerstner, König, Enders & Hambrick, 2013; Kammerlander & Ganter, 2015  |
|                                   | Middle managers and employees react negatively to change when it is more complicated to implement, when it challenges status and identity, and when it is ambiguous | Battilana & Casciaro, 2012; Boudreau & Robey, 2005; Corley & Gioia, 2004; Huy, 2002; Huy, Corley & Kraatz, 2014; Labianca et al., 2000 |
|                                   | Change agents can employ emotion regulation, sensegiving, and social influencing strategies to shape change recipients' reaction to change                          | Battilana & Casciaro, 2013; Gioia & Chittipeddi, 1991; Huy, 2011; Kellogg, 2012; Sonenshein, 2010                                      |
| Micro-organizational change       | There exist individual differences in resistance to change. Risk tolerance and positive self-concept traits are associated with positive reaction to change         | Judge, Thoresen, Pucik & Welbourne, 1999; Oreg, 2003   |
|                                   | Transformational leadership predicts employees' positive reaction to change   | Bommer, Rich & Rubin, 2005; Herold, Fedor, Caldwell & Liu, 2008  |
|                                   | Positive expectation of managers and organizations predicts positive reaction to change   | Oreg & Sverdlik, 2011; Rodell & Colquitt, 2009   |
| Individual adaptation             | People who are higher in openness and conscientiousness, and have higher cognitive and emotional intelligence, react more positively to change                      | Huang, Ryan, Zabel & Palmer, 2014; Lang & Bliese, 2009; Lepine, Colquitt & Erez, 2000;   |
|                                   | Self-regulation strategies to regulate emotions and cognition help people adapt   | Niessen & Jimmieson, 2016; Niessen & Lang, 2021  |

Nanda, 2016; Mount, Baer & Lupoli, 2021; Valsesia, Nunes & Ordanini, 2016). A prevailing focus in this cluster has been evaluation of an idea's value: Because novelty inherently involves uncertainty, the more novel an idea is, the more uncertainty there is around the value or the usefulness of the idea (Berg, 2016;

Boudreau et al., 2016; Mueller et al., 2012). Evaluators thus ask the question, "What is the value of the new idea?"

**Insights from across the clusters.** Although the specific foci of the marketing, technological innovation, and creativity clusters are distinct, each of these



clusters recognizes that newness is associated with uncertainty, and that individuals evaluating something new consider both its value and the process required to realize that value in some fashion.

One important observation that emerges across clusters is that when evaluating change, people have a general tendency to prefer the status quo over alternatives (Eidelman, Crandall & Pattershall, 2009; Eidelman, Pattershall & Crandall, 2010; Heidenreich, Freisinger & Landau, 2022; Heidenreich & Kraemer, 2016; Olshavsky & Spreng, 1996; Ritov & Baron, 1995; Tetlock & Boettger, 1994). Perspectives on attachment to the status quo over alternatives are varied, emphasizing different mechanisms and factors that lead people to prefer the status quo. These factors include individual differences in general satisfaction with the status quo (Heidenreich & Handrich, 2015; Heidenreich & Kraemer, 2016), potential regret (Ritov & Baron, 1995), feelings of accountability (Tetlock & Boettger, 1994), prevention focus and perceived risk (Chernev, 2004; Gillebaart, Förster & Rotteveel, 2012; Herzenstein et al., 2007), and length of time for which the status quo has prevailed (Eidelman et al., 2009, 2010).

A second point of commonality, alluded to above, is that all three clusters underscore uncertainties around the change's potential value, and suggest that people try to reach an assessment of value in some fashion. However, the three clusters focus on different cues that individuals rely on when making assessments of value. The creativity cluster delves into the various criteria evaluators employ, influenced by their specific roles and goals. To determine the future value of an idea, evaluators typically assess the idea based on the criteria or future outcomes they care about, such as how well the idea will work and how many people will be interested (Acar et al., 2021; Berg, 2016; Mollick & Nanda, 2016). However, because of the uncertainty inherent to novel ideas, evaluators oftentimes do not have sufficient information to directly assess an idea's future value, and thus are drawn to cues beyond the value of the specific idea itself. For example, an ideator's positive reputation and high status (Kruft, Tilsner, Schindler & Kock, 2019), evaluators' positive mood on a sunny day (Dushnitsky & Sarkar, 2022), and matched creative person and positive prototype (Elsbach & Kramer, 2003) all had a positive impact on the evaluation of creative ideas. The position in which an idea is presented (whether it is presented first in a sequence) and the framing of the idea-generation process (whether it is an outcome of insight

vs. effort) also influence evaluation (Bian, Greenberg, Li & Wang, 2022; Miceli et al., 2020).

The marketing and technological innovation adoption clusters differ from the creativity cluster by additionally considering the process of adopting and using the product or innovation. Features of the product are associated with people's evaluation of the functional value and the process to use the product. Ease of use (Burke, 2013; Xu, Venkatesh, Tam & Hong, 2010), low product complexity (Arts et al., 2011; Hoffmann & Broekhuizen, 2010; Mukherjee & Hoyer, 2001; Veryzer, 1998; Wood & Moreau, 2006), and broad adoption of the product in the community (Fisher & Price, 1992; Hoffmann & Broekhuizen, 2010; Peng & Mu, 2011; Song et al., 2009; Tucker, 2008; Xu et al., 2010) positively impact people's evaluation of new products, through increasing the anticipated benefit of the product and lowering the perceived switching or learning cost (Arts et al., 2011; Choi et al., 2011; Evanschitzky et al., 2015; Jiao & Zhao, 2014; Kawakami & Parry, 2013; Li, Zhang & Wang, 2015; Ma et al., 2015; Marler et al., 2006; Mukherjee & Hoyer, 2001; Müller-Stewens, Schlager, Häubl & Herrmann, 2017; Vandecasteele & Geuens, 2010; Xu et al., 2010; Zhao et al., 2012).

Across all clusters, the role of novelty is recognized as crucial. Moderate novelty is generally seen as desirable and well-received, but excessive novelty often triggers negative reactions due to the greater uncertainty associated with more novelty (Criscuolo, Dahlander, Grohsjean & Salter, 2017). Many papers draw on schema incongruity theory (Mandler, 1981) to show that moderate incongruence with a prior schema (based upon, e.g., the category made accessible or the brand associated with a product) results in enhanced liking of a product because it leads consumers to greater elaboration in an attempt to understand the incongruency; extreme incongruency leads to less liking because people cannot resolve the incongruency (Ma et al., 2015; Meyers-Levy et al., 1994; Noseworthy, Di Muro & Murray, 2014; Peracchio & Tybout, 1996).

The clusters differ, however, in their consideration of novelty by highlighting different challenges that novelty presents, as well as different ways to overcome the challenges. The marketing cluster tackles the issue of high novelty interfering with consumers' conceptual understanding of the product and proposes enacting behaviors to enhance this understanding. That is, the more novel a product, the more uncertainty exists about what the product is and how to understand it (Hoeffler, 2003). Because understanding the product is an important part of evaluation of

new products, research in this stream tends to draw heavily from cognitive psychology to consider enacting mental simulation (Dahl & Hoeffler, 2004; Feiereisen, Wong & Broderick, 2008; Feiereisen et al., 2013; Heidenreich & Kraemer, 2016; Hoeffler, 2003; Talke & Snelders, 2013) and analogical thinking to aid transference of knowledge from a familiar product category to a new one (Feiereisen et al., 2008, 2013; Heidenreich et al., 2022; Hoeffler, 2003). Additional behaviors have also been identified to help consumers better appreciate products' potential value. Such behaviors include bundling radical innovations with familiar products (Reinders, Frambach & Schoormans, 2010), communicating and comparing benefits of new products (Heidenreich, Spieth & Petschnig, 2017; Konya-Baumbach, Schuhmacher, Kuester & Kuharev, 2019; Moreau et al., 2001; Talke & Snelders, 2013), offering really new innovations as a detachable accessory of a product (Ma et al., 2015), and enhancing consumer cognitive flexibility (Jhang, Grant & Campbell, 2012).

While the marketing cluster describes challenges of *understanding* new products, the technological innovation adoption cluster focuses more on peoples' anxiety over *using* new technologies (Evanschitzky et al., 2015). Individuals can have concerns about their efficacy and skills to use and control innovative technologies (Choi & Chang, 2009; Meuter et al., 2005; Morris & Venkatesh, 2000; Tucker, 2008; Venkatesh et al., 2000). Older people and women have been shown to be more influenced by their perception of control over the new technology relative to younger people and men (Morris & Venkatesh, 2000; Venkatesh et al., 2000). As such, providing training on the use of innovative technologies has been shown to positively impact reaction to change (Marler, Fisher & Ke, 2009; Marler et al., 2006). This cluster has also studied network effects of innovation adoption, demonstrating that larger user networks increase adoptions as the uncertainties around learning are eased and more support is expected (Peng & Mu, 2011; Tucker, 2008; Song et al., 2009). Word of mouth is one primary way through which potential adopters' perceptions of user networks are shaped (Kawakami et al., 2013; Kawakami & Parry, 2013; Parry et al., 2012). Managers and organizations can also provide support to employees who are facing innovative technologies (Bala & Venkatesh, 2015; Choi et al., 2011; Marler et al., 2009).

The creativity cluster largely focuses on the challenges of *accurately* assessing the value of new products or ideas, especially when they are highly novel. Because highly novel ideas evoke a high degree of

uncertainty around the value of the change and people are generally aversive to uncertainty, evaluators often undervalue novel ideas (Boudreau et al., 2016; Mount et al., 2021; Mueller et al., 2012), particularly when evaluators are in a decision-maker role (Mueller et al., 2018) or manager role (Berg, 2016), are experiencing fear (Lee, Chang & Choi, 2017), have a prevention mindset (Zhou et al., 2017), or have low tolerance for uncertainty (Mueller et al., 2012). Fortunately, several promising approaches have been identified by researchers to mitigate the bias against novelty. One approach involves modifying the mindsets or orientations of evaluators, making them more receptive to novelty and recognizing its value. For instance, encouraging a promotion focus (Zhou et al., 2017), fostering uncertainty tolerance (Mueller et al., 2012), promoting high-level construal (Mueller, Waksalak & Krishnan, 2014), enabling an intuitive processing mode (Zhu et al., 2017), getting into an idea generator role (Berg, 2016), or inducing a positive mood and self-affirmation (de Buissonjé, Ritter, de Bruin, ter Horst & Meeldijk, 2017) can all trigger more positive associations with novelty. Individuals presenting the ideas can additionally employ various techniques to make the ideas more tangible and, thus, reduce associated uncertainty. These include the use of visual aids, physical objects, or gestures to more effectively communicate the idea (Clarke et al., 2019; Lu et al., 2019). Achieving a match between the way an idea is framed and the evaluator's mental representation of the idea can also facilitate smoother processing and, consequently, a more positive evaluation of the idea (Falchetti et al., 2022). Moreover, crowdfunding has emerged as a democratic alternative to traditional fundraising, demonstrating a greater willingness among the public to fund novel projects that experts might overlook (Mollick & Nanda, 2016).

Finally, across the clusters, individual differences related to people's attitudes toward uncertainty and novelty have been considered. In addition to the prevention focus and promotion focus discussed above (Gillebaart et al., 2012; Herzstein et al., 2007; Zhou et al., 2017), other individual differences, such as dispositional resistance to change (Heidenreich & Handrich, 2015; Heidenreich & Kraemer, 2016) and desire for control (Faraji-Rad, Melumad & Johar, 2017), are related to negative reaction to change, whereas need for change (Wood & Swait, 2002) and need for distinction (Ma, Yang & Mourali, 2014) are related to positive reaction.

Taken together, integrating the three clusters suggests several key insights. First, individuals tend to

prefer the status quo; new things thus inherently face resistance to being accepted. Second, when products are very new, individuals can experience uncertainty about what the product actually is, and struggle to understand it. Third, individuals face uncertainty about whether a new thing will be valuable; they use varied cues to assess its likely value, which impacts their evaluation. Fourth, when individuals consider using a product, they also attempt to resolve uncertainty around how hard or easy it is to adopt and use the product. Fifth, some novelty is desirable but extreme novelty often triggers negative reactions due to its associated greater uncertainty. Lastly, individual differences in comfort with uncertainty and novelty can help to predict variance in individuals' reaction to new things.

### **How Decision-Makers in Organizations Evaluate Change: Insights from the Voice and Macro-Organizational Change Clusters**

Although comprising different communities of practice, the voice and macro-organizational change clusters both, at their core, seek to understand how decision-makers in organizations evaluate change. The decision-makers are responsible for making decisions about whether to change but are typically not themselves responsible for implementing the actual change. Some research in these clusters focuses on assessments of a change at a single point of time (e.g., Burris, Martins & Kimmons, 2022; Milliken, 1990), typically prior to the decision of whether to embrace or reject change has been made; other research in the macro-organizational change cluster examines how the evaluation evolves over a long period of time (e.g., Nelson & Irwin, 2014; Tripsas & Gavetti, 2000).

**Voice.** The voice literature defines voice behavior as a change-oriented discretionary extra-role behavior where employees communicate upward to managers about suggestions and concerns relevant to work-related issues (Detert & Burris, 2007; Morrison, 2014). While the broader voice literature is generally concerned with antecedents to whether employees engage in this extra-role behavior (Ashford, Rothbard, Piderit & Dutton, 1998; Burris, Detert & Chiaburu, 2008; LePine & Van Dyne, 1998; Withey & Cooper, 1989), the voice cluster in our review includes a subset of the broader voice literature that focuses on how managers react to their subordinates' voiced ideas (Burris, 2012; Burris et al., 2022; Burris, Rockmann & Kimmons, 2017; Fast et al., 2014; Guarana, Li & Hernandez, 2017; Howell, Harrison, Burris & Detert, 2015; Huang, Xu, Huang & Liu, 2018; Kim, Rosen &

Lee, 2009; Li, Barnes, Yam, Guarana & Wang, 2019; McClean, Kim & Martinez, 2022; Whiting, Maynes, Podsakoff & Podsakoff, 2012). This subset of the voice literature focuses on the evaluations made by managers, often in mid-level managerial positions (Lam, Lee & Sui, 2019; Li et al., 2019; Reitzig & Maciejovsky, 2015), who have decision-making authority to determine whether their subordinates' ideas should be adopted by the organization. This literature notes that managers assess the value of suggestions made by the subordinates (Burris et al., 2022); however, the dominant theme in this cluster involves the uncertainty managers face regarding whether subordinates' voiced behavior represents a challenge to the manager's status (Burris, 2012; Fast et al., 2014). Hence, managers ask, "What is the value of this idea for my unit and the organization?" and "What is the implication of this for my status in the organization?"

**Macro-organizational change.** The macro-organizational change research cluster examines how organizational members or professionals react to change in the external environment or change at the organizational level. The change this cluster studies tends to be large and radical (Geletkanycz, 1997; Gilbert, 2006; Kammerlander, König & Richards, 2018; Kowalick & Appels, 2022; Tripsas & Gavetti, 2000). There are two general research streams within this cluster. The first research stream is relevant to the issue of how decision-makers in organizations evaluate change. This research stream considers how top managers, as decision-makers in organizations, and professionals (e.g., scientists, librarians) react to change in the environment in which an organization is embedded (Gerstner et al., 2013; Grégoire, Barr & Shepherd, 2010; Hambrick et al., 1993; Howard-Grenville, Nelson, Earle, Haack & Young, 2017; Kannan-Narasimhan & Lawrence, 2018; Lifshitz-Assaf, 2018; Nelson & Irwin, 2014). Such change usually takes the form of shifting market trends, competitive landscape, regulatory policy, disruptive technology, and strategic priorities (Geletkanycz & Black, 2001; Kammerlander & Ganter, 2015; Kammerlander et al., 2018; Kowalick & Appels, 2022; McClelland, Liang & Barker, 2010; Milliken, 1990; Tripsas & Gavetti, 2000). Because decision-makers are responsible for deciding whether to change, the value and impact of a change are especially relevant to them (Geletkanycz, 1997; Hambrick et al., 1993; Howard-Grenville et al., 2017; Milliken, 1990; Nelson & Irwin, 2014; Tripsas & Gavetti, 2000). The central questions decision-makers ask are "What is the value or purpose of change?" and "What is the broader impact of change on the organization and on me?"

**Insights from across the clusters.** Although the specific foci of the voice and macro-organizational change clusters are distinct, both clusters recognize that decision-makers consider two key uncertainties: the potential value of the change, and its broader impact.

Both clusters consider the potential impact of change on the decision-makers' status, but with different perspectives. The voice cluster focuses on mid-level managers' concerns about how the expression of change ideas by subordinates might affect their own efficacy and status, as when subordinates express change-oriented suggestions this can be interpreted as a potential criticism of the manager (Burris, 2012; Burris et al., 2022). A key finding is that managers tend to react negatively to ideas when they feel threatened by the suggested change (Burris, 2012). This negative inclination is particularly pronounced when managers have low self-efficacy (Fast et al., 2014), are in a state of ego depletion (Li et al., 2019), or perceive a lack of control (Reitzig & Maciejovsky, 2015). The attributes of subordinates proposing the ideas and the manner in which the ideas are presented also serve as important cues for managers to determine such implications: Managers feel more threatened when the suggesting employee is of the same gender (Guarana et al., 2017), or when the employee displays a generally cynical attitude (Kim et al., 2009).

While the voice cluster focuses on the potential threat that change could pose to a mid-level manager's status, the macro-organizational change cluster observes that top managers often consider the opportunities that change can create to enhance their own and their organizations' status. Top-level managers are more inclined to adopt change if they anticipate that it will positively affect their standing and that of their organization (Kammerlander & Ganter, 2015). For instance, CEOs with narcissistic traits have been shown to be more prone to adopting discontinuous technologies. This propensity stems not only from their heightened sense of personal capability and reduced perception of uncertainty linked with new technologies, but also from their desire for the broad recognition and admiration accompanying the adoption of such technologies (Gerstner et al., 2013).

In relation to the potential value of change, the voice cluster focuses on the content of the voice and managers' motivation, whereas the macro-organizational change focuses on the managers' characteristics and cognitive frames. The voice cluster identifies that managers perceive greater value in ideas when these are

presented in a manner that aligns with their motivation. A positive reaction is more likely when there is a match between the nature of the idea (promotive vs. prohibitive voice; Liang, Farh & Farh, 2012) and the manager's regulatory focus (Burris et al., 2022). The perceived value of the idea also increases if it is directed toward enhancing the unit rather than the profession (Burris et al., 2017), or if it exemplifies admirable traits stereotypically attributed to the opposite gender (e.g., men demonstrating warmth or women demonstrating agency; McClean et al., 2022). Consequently, the recommendations for embracing change in the voice cluster revolve around mitigating the threats and enhancing the opportunities that suggested changes present for managers' goals.

The macro-organizational change cluster does not consider the characteristics of the person proposing the change or the way in which the change is conveyed. Instead, it focuses on commitment to the status quo as a barrier to embracing change by managers (Geletkanycz, 1997; Hambrick et al., 1993). Certain factors, including extended industry tenure, age, and hubristic personality, tend to increase top managers' confidence and commitment to the status quo (Hambrick et al., 1993; Kowalick & Appels, 2022; McClelland et al., 2010). Conversely, a varied functional role experience tends to diminish top managers' functional fixedness, reducing their commitment to the status quo (Geletkanycz & Black, 2001).

The macro-organizational change cluster additionally introduces a distinct cognitive perspective on assessing the value of change, delving into various manifestations of cognitive inertia and identifying the characteristics of managers that increase their susceptibility to cognitive inertia. Top managers' cognitive frames—their perception of what holds value for their organization and the identity of the organization itself—often persist, resulting in cognitive inertia. This inertia can cause them to overlook the potential benefits of change in favor of maintaining the status quo (Kammerlander et al., 2018; Tripsas, 2009; Tripsas & Gavetti, 2000). A prime example of this is Polaroid. Despite possessing advanced technical proficiency in digital imaging early on, Polaroid could not adapt to the shifting competitive terrain. This failure was mainly due to the top management's rigid belief in the razor-blade business model, which consequently delayed the commercialization of digital imaging (Tripsas & Gavetti, 2000). Occupational identities, another form of cognitive frames, also significantly influence how professionals react to innovations (Howard-Grenville et al., 2017; Lifshitz-Assaf, 2018; Nelson & Irwin, 2014). For instance, librarians'

cognitive frames around the purpose of a search led them to initially reject internet searching (Nelson & Irwin, 2014). Adapting cognitive frames or reconfiguring innovations to align with existing cognitive frames can facilitate the acceptance of innovations (Howard-Grenville et al., 2017; Lifshitz-Assaf, 2018; Nelson & Irwin, 2014). Consequently, the emphasis is placed on the efforts enacted by decision-makers to refine their beliefs and other cognitive frames to reduce cognitive inertia.

As a whole, the two clusters suggest several key insights. First, when deciding whether to embrace or reject change, managers consider the impact of change and the value of change for the organization. Second, whereas mid-level managers often feel threatened when change is suggested by their subordinates, top-level managers may perceive large discontinuous changes as an opportunity to boost their status. Third, managers' commitment to the status quo and sticky cognitive frames can prevent them from seeing the value of change. Finally, managers are more likely to perceive value in change when it is presented in a manner that aligns with their goals.

#### **How Change Recipients Evaluate Change: Insights from the Macro-Organizational Change, Micro-Organizational Change, and Individual Adaptation Clusters**

Although comprising different communities of practice, the macro-organizational change, micro-organizational change, and individual adaptation clusters all at their core seek to understand how change recipients evaluate change. This group of clusters focuses on how employees deal with changes they are expected to implement. The nature of the change each cluster focuses on varies: The macro-organizational change cluster focuses on large-scale organizational change (Boudreau & Robey, 2005; Corley & Gioia, 2004; Huy, 2002; Lüscher & Lewis, 2008; Rice & Aydin, 1991); the individual adaptation cluster focuses on changes in work tasks or environment (Huang et al., 2014; Jundt, Shoss & Huang, 2015; Lang & Bliese, 2009; Lepine et al., 2000; Niessen & Jimmieson, 2016); the micro-organizational change cluster examines changes that vary in scope, from sweeping organizational restructuring to the implementation of new practice in a single unit (Herold et al., 2008; Kim, Hornung & Rousseau, 2011; Nemanich & Keller, 2007; Rodell & Colquitt, 2009; Rousseau & Tijoriwala, 1999; Wanberg & Banas, 2000). Research typically examines the assessment of a change at varied points in the change process.

Often, studies examine evaluation of change at a single point within this broader process (Herold et al., 2008; Judge et al., 1999). However, in some instances they follow individuals longitudinally throughout the change process (for one such example, see Bommer et al., 2005).

**Macro-organizational change.** The second stream of research in the macro-organizational change cluster considers how organizational members (e.g., mid-level managers, employees) react to large-scale change in organizations (Boudreau & Robey, 2005; Corley & Gioia, 2004; Huy, 2002; Lüscher & Lewis, 2008; Rice & Aydin, 1991). Change in this research stream usually takes the form of strategic change, structural change, cultural change, or organization-wide implementation of a new technology or procedure (Battilana & Casciaro, 2012; Canato, Ravasi & Phillips, 2013; Cappellaro, Tracey & Greenwood, 2020; Courpasson, Dany & Clegg, 2012; Greenwood, Agarwal, Agarwal & Gopal, 2019; Huy, 2011; Peyrefitte, Sevier & Willis, 2022; Sonenshein, 2010).

Because mid-level managers and employees are usually directly involved in the actual implementation of change, their primary concerns center around the change process (Aiman-Smith & Green, 2002; Boudreau & Robey, 2005; Gioia & Chittipeddi, 1991; Huy, 2002; Huy, Corley & Kraatz, 2014; Jones, Jimmieson & Griffiths, 2005; Kanitz, Huy, Backmann & Hoegl, 2022; Lüscher & Lewis, 2008; Valentine, 2018) and the broader implications of the change (Battilana & Casciaro, 2012, 2013; Canato et al., 2013; Cappellaro et al., 2020; Compagni, Mele & Ravasi, 2015; Huy, 2011; Kellogg, 2012, 2019; Lapointe & Rivard, 2007; Malhotra, Zietsma, Morris & Smets, 2021; Reay, Golden-Biddle & Germann, 2006; Sonenshein, 2010; Stiles et al., 2015). The central questions they ask are "How will this change be enacted?" and "What is the broader impact the change will have on me?" In addition, sometimes there can be ambiguities around what the change exactly is (Corley & Gioia, 2004; Gioia et al., 1994; Gioia & Chittipeddi, 1991; Labianca et al., 2000; Spee & Jarzabkowski, 2017). When this happens, organizational members have questions around "What is the change?" (Corley & Gioia, 2004; Labianca et al., 2000; Spee & Jarzabkowski, 2017). This cluster also considers (albeit less often) the value of change over the status quo for the organization (Blackman, Buick, O'Donnell & Ilahee, 2022; Kanitz et al., 2022; Pachidi, Berends, Faraj & Huysman, 2021; Reay et al., 2006; Stiles et al., 2015), and organizational members' questions around "What is the value of the change?"

**Micro-organizational change.** The micro-organizational change cluster examines how employees react to change being implemented in organizations (Bommer et al., 2005; Hill, Seo, Kang & Taylor, 2012; Oreg, 2003; Rafferty & Griffin, 2006; Rafferty & Restubog, 2010). Common changes studied include new procedures or practices and structural changes (e.g., merger, relocation) being implemented within the organization (Herold et al., 2008; Kim et al., 2011; Nemanich & Keller, 2007; Rodell & Colquitt, 2009; Rousseau & Tijoriwala, 1999; Wanberg & Banas, 2000). This cluster has a more micro focus, utilizing more quantitative methods and placing greater emphasis on individual differences (Gonzalez, Portocarrero & Ekema, 2023; Oreg, 2003), and leadership and organizational factors (Herold et al., 2008; van Dam, Verboon & Tekleab, 2021).

Similar to the second stream in the macro-organizational change cluster, employees' concerns center around how difficult it will be to implement the change (Herold et al., 2008; Jimmieson, White & Zajdlewicz, 2009; Kim et al., 2011; Kirrane, Lennon, O'Connor & Fu, 2017; Rafferty & Griffin, 2006; Rafferty & Restubog, 2010; Reiche & Neeley, 2019; Roczniowska & Higgins, 2019; van Dam et al., 2021; Woiceshyn, Huq, Blades & Pendharkar, 2020; Ye, Marinova & Singh, 2007; Zhao, Seibert, Taylor, Lee & Lam, 2016) and what impact the change will have on the change recipients beyond whether the change is valuable (Bakari, Hunjra & Niazi, 2017; Belschak, Jacobs, Giessner, Horton & Bayerl, 2020; Faupel & Süß, 2019; Fedor, Caldwell & Herold, 2006; Fugate, Kinicki & Scheck, 2002; Fugate & Soenen, 2018; Gigliotti, Vardaman, Marshall & Gonzalez, 2019; Grimolizzi-Jensen, 2018; Henricks, Young & Kehoe, 2020; Hill et al., 2012; Jansen, Shipp & Michael, 2016; Jiao & Zhao, 2014; Koivisto, Lippinen & Platow, 2013; Seo, Taylor, Hill, Zhang, Tesluk & Lorinkova, 2012; Ullrich, Wieseke & Dick, 2005). The central questions they ask are "How is this change implemented?" and "What impact will the change have on me?" The change's value for the organization, and employees' questions around "What is the value of the change?" (Naslund & Norrman, 2022; Rousseau & Tijoriwala, 1999; Sonenshein & Dholakia, 2012; Tyler & De Cremer, 2005) are also considered, albeit less frequently than the other DOUs.

**Individual adaptation.** The individual adaptation cluster consists of research on how individuals adapt to a change in their work tasks or environments (Huang et al., 2014; Jundt et al., 2015; Lang & Bliese, 2009; Lepine et al., 2000; Niessen & Jimmieson, 2016). Slightly different from other clusters, where

the change has not yet happened or is in the process of occurring, here the change is often a given (e.g., a change in task), and the concern is around how one deals with the change through the process of adaptation (Howe, 2019; Jundt et al., 2015; Lepine et al., 2000; 2; Schraub, Stegmaier & Sonntag, 2011; Stewart & Nandkeolyar, 2006). The central question individuals ask is "How do I adapt to the change?"

**Insights from across the clusters.** The macro-organizational change, micro-organizational change, and individual adaptation clusters all recognize that those reacting to change grapple with uncertainties surrounding the change process and its impact. However, these clusters have different emphases. Whereas the macro-organizational change pays more attention to the change context, as well as the specific behaviors and processes enacted by change agents, the micro-organizational change and individual adaptation clusters focus more on individual characteristics, as well as leadership and organizational factors.

The macro-organizational change cluster places substantial emphasis on characteristics of change that lead to negative evaluations of the process and impact of change. For example, the process of change implementation is evaluated more negatively when the change is a large departure from the status quo (Huy, 2002; Huy et al., 2014; Stiles et al., 2015), is intertwined with other parts of the organization (Kanitz et al., 2022; Valentine, 2018), or involves new, complex technologies (Aiman-Smith & Green, 2002; Boudreau & Robey, 2005; Huy et al., 2014; Jones et al., 2005). Individuals are concerned about the negative value and impact of change when the change challenges organizational members' status (Huy, 2011; Kellogg, 2012), or is incongruent with organizational identities, institutional logic, or cultural norms in the organization (Blackman et al., 2022; Canato et al., 2013; Cappellaro et al., 2020; Labianca et al., 2000; Malhotra et al., 2021; Reay et al., 2006). Additionally, this cluster considers the conceptual ambiguity surrounding some changes, thereby providing unique insights into challenges often overlooked in other clusters. Ambiguities around the meaning of change are more likely to be present when the change is at the strategic or cultural level or framed in an abstract way (Corley & Gioia, 2004; Labianca et al., 2000; Spee & Jarzabkowski, 2017). When these happen, organizational members tend to react negatively to change, failing to enact the change or resisting the change outright (Corley & Gioia, 2004; Labianca et al., 2000). Owing to its qualitative method and emphasis on building process theories, researchers in the macro-organizational change cluster

highlight specific practices, such as framing techniques and influence strategies, that change agents can leverage to shape recipients' appraisals of the change process and its impact. Such strategies include emotion regulation strategies such as status reappraisal and status affirmation (Huy, 2011, 2002; Kellogg, 2012); sensegiving and framing strategies such as communicating small wins, using progressive narratives, and using symbols and metaphors (Blackman et al., 2022; Canato et al., 2013; Gilbert, 2006; Gioia & Chittipeddi, 1991; Lüscher & Lewis, 2008; Malhotra et al., 2021; Reay et al., 2006; Sonenshein, 2010; Stiles et al., 2015); and social influencing strategies such as persuasion and affective cooptation (Battilana & Casciaro, 2012, 2013). These strategies aim to shape organizational members' understanding of the change, as well as their evaluation of the change's process, impact, and value.

The micro-organizational change cluster focuses less on the characteristics of change itself (Rafferty & Griffin, 2006) and more on the individual differences of employees reacting to change (Gonzalez et al., 2023; Judge et al., 1999; Oreg, 2003; Wanberg & Banas, 2000), and the leadership and organizational factors that shape employees' reactions (Herold et al., 2008; Rousseau & Tijoriwala, 1999). One influential individual difference variable is Oreg's (2003) resistance to change scale, which captures individuals' dispositional inclination to resist change and includes four factors—routine-seeking, emotional reaction to imposed change, cognitive rigidity, and short-term focus. In addition, Judge et al. (1999) propose that there are two broad individual difference categories that predict how people cope with change: risk tolerance and positive self-concept—two categories that are generally associated with people's tolerance of uncertainty and negative or positive expectations of change. The micro-organizational change cluster also stresses leadership styles conducive to change, as well as the relationships between change recipients and change agents or the organization. Transformational leadership has received the most attention and been consistently shown to predict employees' positive reaction to change (Bommer et al., 2005; Faupel & Süß, 2019; Henricks et al., 2020, 2020; Herold et al., 2008; Hill et al., 2012; Nemanich & Keller, 2007; Oreg & Berson, 2011; Zhao et al., 2016). Other factors include positive relationships with managers and organization—for example, higher trust in managers and organizations (Rousseau & Tijoriwala, 1999; van Dam et al., 2021), greater commitment to the organization (Oreg & Sverdlik, 2011; Seggewiss, Straatmann, Hatstrup & Mueller, 2019), and greater anticipated

justice of change and overall justice perceptions (Koivisto et al., 2013; Rodell & Colquitt, 2009; See, 2009; Soenen, Melkonian & Ambrose, 2017). These aforementioned factors work to shape employees' perceived control in the process of change, their self-efficacy for coping with the challenge of change, and their assessments of the anticipated positive impact of change (Fedor et al., 2006; Kim et al., 2011; Reiche & Neeley, 2019; Sonenshein & Dholakia, 2012; Teerikangas, 2012). Accordingly, the micro-organizational change cluster identified leadership and organizational practices that influence how people reduce uncertainty associated with change and improve positive evaluations of change. These practices center around providing support (Fugate et al., 2002; Fugate & Soenen, 2018; Gigliotti et al., 2019; Kirrane et al., 2017), improving communication of benefit and purpose about change (Naslund & Norrman, 2022; Rafferty & Restubog, 2010), and ensuring justice in the change process via increasing employees' voice and participation in change decision-making (Jiao & Zhao, 2014; Ye et al., 2007).

The individual adaptation cluster, which typically deals with changes in tasks or task rules, predominantly considers the process of adaptation, without much focus on the value or impact of the change. Like the micro-organizational change cluster, the individual adaptation cluster also pays less attention to the features of change itself (Schraub et al., 2011). Instead, it emphasizes individual differences that predict how well a person adjusts their behavior to adapt to task changes (Griffin, Neal & Parker, 2007; Huang et al., 2014; Pulakos et al., 2000), particularly cognitive and emotional capabilities. The central finding is that people who are more open, are higher in conscientiousness, and have higher cognitive and emotional intelligence generally deal with change in more adaptive ways (e.g., more positive emotions, less performance loss) because they have greater resources to deal with the process of change (Ahearne, Lam, Mathieu & Bolander, 2010; Griffin et al., 2007; Huang et al., 2014; Lang & Bliese, 2009; Lepine et al., 2000; Stewart & Nandkeolyar, 2006). The individual adaptation cluster highlights mindsets and orientations that can be induced situationally to enhance individual adaptability to change. The cluster identifies specific self-regulation approaches, such as emotion regulation (Niessen & Jimmieson, 2016), adopting a learning orientation (Howe, 2019), and forgetting old rules (Niessen & Lang, 2021). Leader behaviors such as providing a vision (Griffin, Parker & Mason, 2010) and high-quality change communication (Petrou, Demerouti & Schaufeli, 2018) are also considered to help individuals adapt to changes.

As a whole, the three clusters suggest several key insights. First, change recipients primarily focus on the process of implementing a change, and the impact of change for themselves beyond whether changes have functional value to the organization. Second, changes that are complex, status- and identity-challenging, or ambiguous tend to spur negative reactions. Third, transformational leadership, fair processes, and positive managerial and organizational expectations are positive factors influencing recipients' reactions to change. Finally, individuals with greater risk tolerance, positive self-concept, and emotion and cognitive capabilities tend to react more positively and adapt better to change.

In summary, existing research examines how different individuals react to change. Generally, individuals resist change due to preference for the status quo and uncertainty associated with change. Consumers and users primarily focus on change's value and the process of adoption to realize that value; organizational decision-makers primarily focus on change's organizational value and the impact it may have on their personal goals; change recipients primarily focus on the process of implementing the change and its personal impact.

### A DOU INTEGRATIVE FRAMEWORK

The research reviewed above identifies how individuals across varied contexts—people evaluating new things, organizational decision-makers evaluating change, and change recipients evaluating change decisions made by others—are confronted with change and come to support or reject it. This literature is replete with specific and contextualized findings, which can make it seem fragmented; however, taken as a whole, four key themes emerge.

First, the literature suggests that individuals who confront a potential change try to reduce any uncertainties associated with that change. Uncertainty—a “departure from absolute determinism” (Griffin & Grote, 2020)—reduces individuals' capability to predict and manage their environment effectively (Berlyne, 1960; Inglis, 2000), and therefore is typically conceptualized as a negative state that individuals are motivated to diminish (Weary & Edwards, 1996; Whitson & Galinsky, 2008). Compared to the known and familiar status quo, people have less familiarity and knowledge about a change that deviates from it, making the change and its implications less predictable. Although people grapple with the uncertainty presented by change across change contexts, such uncertainty can take different forms: it

may be about what the change is exactly (conceptual uncertainty), what functional value it provides (functional value uncertainty), what the process of getting to the changed state will include (process uncertainty), and what broader impact the change will have beyond its functional value (impact uncertainty). These four different forms of uncertainty are manifest in the questions that people ask about change, as identified in each of the research clusters reviewed earlier (see Table 4 for a list of questions by cluster, and the relationship of each to the four uncertainty domains described above). The DOU people focus on is primarily a function of their goals in the situation. Individuals trying to understand a change focus on conceptual uncertainty, those trying to accurately evaluate the value of a change focus on functional uncertainty, those trying to effectively enact or use a change focus on process uncertainty, and those trying to achieve alternative goals that will be impacted by change focus on impact uncertainty. Different research clusters have tended to focus on efforts to reduce these different DOUs because the contexts they study involve people with different goals. For example, the micro-organizational research on change considers impact uncertainty to a large extent, because it involves organizational members who have other goals that may be impacted by the organizational change; in contrast, the marketing research has considered impact uncertainty to a lesser degree because it generally focuses on consumers whose primary goal is evaluating the functional value of a new product.

A second major theme that emerges from the literature is that individuals attempting to reduce uncertainty in a relevant domain(s) may do so *directly* or *indirectly*. Reducing uncertainty in a domain directly is generally accomplished by accessing information about that domain. For example, if someone is trying to ascertain a new software's functional value, they may test out the software to see whether it offers improvement over their current software or read product reviews describing the benefits and costs of the product compared to its alternatives. Likewise, directly answering questions about the process of change may involve accessing information about the complexity of the change or the resources available for implementing the change—factors that are directly relevant to the question of whether the process will likely be smooth or problematic. In contrast, reducing uncertainty *indirectly* entails relying on indirect cues for how to answer the uncertainty question that is being asked. When reducing uncertainty indirectly, a person makes inferences



**TABLE 4**  
**Uncertainty Domain, Cluster, and Relevant Research Focus**

| Uncertainty Domain | Cluster Question Reflecting this Uncertainty  | Cluster Focused on the Question  | Relevant Research Focus   |
|--------------------|---|--|---|
| Conceptual         | What is the product?<br>What is the change?   | Marketing<br>Macro-organizational change   | Evaluation of change by people<br>Evaluation of change by change recipients                           |
| Functional value   | What is the value of the product?<br>What is the value of this technological innovation?<br>What is the value of this new idea?<br>What is the value of this idea for my unit and the organization?<br>What is the value or purpose of this change? | Marketing<br>Technological innovation adoption<br>Creativity<br>Voice<br>Macro-organizational change | Evaluation of change by people<br>Evaluation of change by decision-makers in organizations            |
| Process            | What does it take to adopt and use the product?<br>How difficult will it be to use or learn to use it?<br>How should the change be enacted? How is the change implemented?<br>How do I adapt to the change?   | Marketing<br>Technological innovation<br>Macro-organizational change<br>Individual adaptation        | Evaluation of change by people<br>Evaluation of change by change recipients                           |
| Impact             | What is the implication of this for me?<br><br>What is the broader impact of the change on the organization and on me?<br>What impact will the change have on me?   | Voice<br>Macro-organizational change<br>Micro-organizational change                                  | Evaluation of change by decision-makers in organizations<br>Evaluation of change by change recipients |

based on information not specific to the relevant uncertainty domain or the change itself, but related to other aspects of the change, the change agents, or their own affective feelings at the time of the reaction. For example, a person's current mood may influence their judgments related to an item's functional value; or, employees may rely on their trust in their manager or perception of organizational justice to indirectly answer their questions regarding the process of the change. Prior literatures we reviewed refer to indirect resolution as relying on heuristics, indirect cues, incidental factors, or peripheral information (Howell et al., 2015; Rice & Aydin, 1991; See, 2009; Soenen et al., 2017; Suarez & Montes, 2019).

A third major theme is that the difficulty or ease of reducing uncertainty in a given domain influences the likelihood that people take a more direct or indirect route to answering their questions (Dushnitsky & Sarkar, 2022; Fugate & Soenen, 2018; Hill et al., 2012; Hoeffler, 2003; Rodell & Colquitt, 2009). Difficulty in reducing uncertainty is associated with less readily accessible or less reliable direct information about the domain in question. When uncertainty is difficult to reduce, individuals are likely to apply a more indirect process, relying on more secondary cues that are not directly related to the relevant

uncertainty domain (or even to the change itself), and using these to make inferences about the uncertainty domain in question. Two critical factors that in turn increase the difficulty of reducing uncertainty are the novelty and ambiguity of a change. When a change is highly novel, there is less definitive information about it; novelty may thus prompt change evaluators to adopt a more indirect approach to assessing the change. When a change is highly ambiguous, information about the change is less clear; once again, this will lead evaluators to adopt a more indirect approach and rely on indirect cues to make inferences about the change vis-à-vis its DOU.

Finally, a fourth theme that emerges across research clusters is the importance of individuals' dispositional tendencies related to how they react to uncertainty. That is, while uncertainty is generally recognized as aversive, people can vary considerably in how they react to it. Researchers tend to differentiate between two categories of dispositional tendencies: (1) how comfortable individuals are with uncertainty itself (e.g., Carleton, Norton & Asmundson, 2007; McCrae & Costa, 1987; Webster & Kruglanski, 1994), and (2) individuals' dispositional tendency to expect the outcome of uncertainty to be positive or negative (e.g., Bandura, 1982; Watson, Clark & Tellegen, 1988).

Generally, individuals who are less comfortable with uncertainty and expect more negative outcomes of uncertainty are more likely to resist change, even when other indicators suggest that the change would be beneficial; conversely, those who are more comfortable with uncertainty and expect more positive outcomes consider uncertainty to be more acceptable and are therefore more likely to support change (Geletkanycz, 1997; Gonzalez et al., 2023; Griffin et al., 2007; Heidenreich & Handrich, 2015; Hoffmann & Broekhuizen, 2010; Judge et al., 1999; Lepine et al., 2000; Oreg, 2003; Wood & Swait, 2002; Zhou et al., 2017).

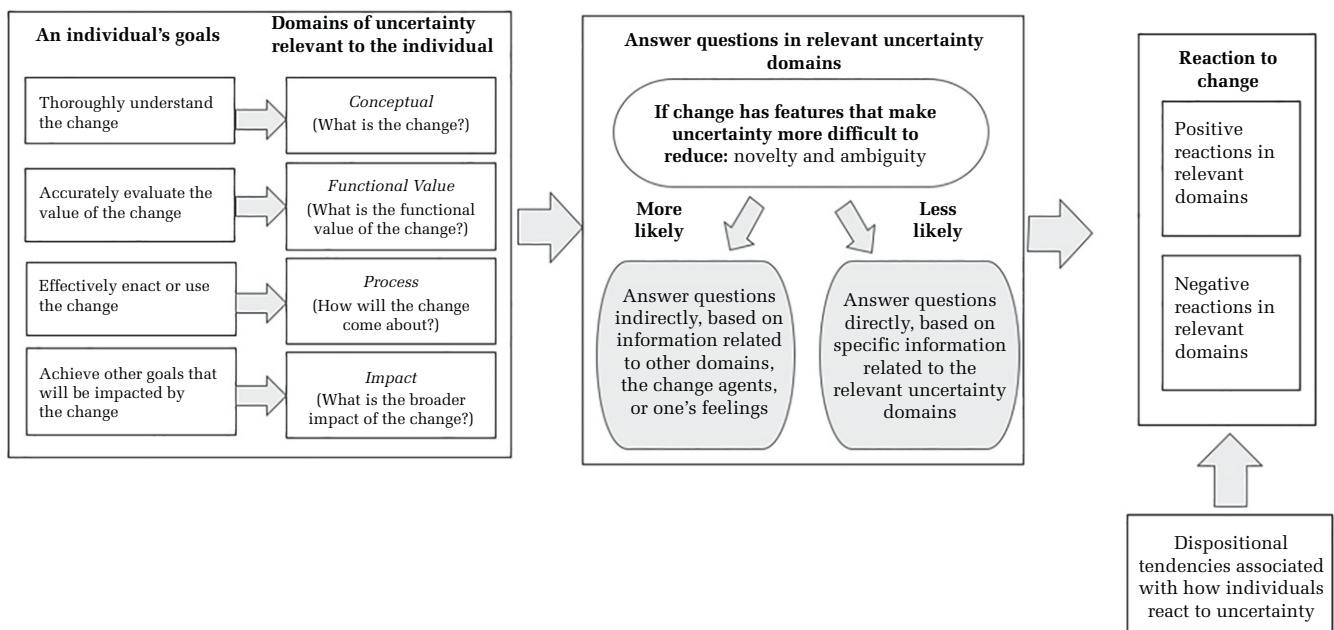
Integrating these four key themes emerging from the prior literature, Figure 2 presents an overall model of individual reactions to change. First, individuals' goals shape the DOU relevant to the individual: conceptual, functional, process, or impact. Once people focus on a given domain(s) of uncertainty, they seek to answer the questions relevant to the domain. In the course of answering these questions, two features of a change—novelty and ambiguity—can make uncertainty more difficult to reduce. If a change is more novel or ambiguous, it is more likely that people will attempt to answer questions relevant to the uncertainty domains indirectly; whereas if a change is less novel or ambiguous, it is more likely that people will attempt to answer questions relevant to the uncertainty domains directly. The

output of this evaluation informs their negative and positive evaluations of the change. The evaluation of change is further impacted by an individual's dispositional tendencies associated with how they react to uncertainty.

One important aspect of the framework we present in Figure 2 is the central role of uncertainty in driving evaluations of change, and the three very different ways in which uncertainty manifests in the change evaluation process. First, the framework recognizes that not all forms of uncertainty are the same; if we want to understand people's evaluations about change and how they reach those evaluations, we need to understand the DOUs that they are focused upon. Second, the extent to which the uncertainty is difficult or easy to reduce will influence whether people take a relatively direct or indirect approach to uncertainty reduction. Thus, if we want to understand the broad categories of factors that are likely to play a role in a specific change context, it is useful to consider whether the change is novel or ambiguous, as these features make the associated uncertainty more difficult to reduce. Finally, the framework appreciates that an individual's dispositional attitudes toward uncertainty play a key role above and beyond other factors described above.

Having presented an overview of the DOU framework in Figure 2, we now turn to describe each of its components in more detail. We begin by more

**FIGURE 2**  
**DOU Framework for Understanding Individuals' Reaction to Change**



thoroughly describing the four DOUs and the goals that make each domain more relevant. We then describe the change features that make it more difficult to reduce uncertainty through a direct approach. We follow this with a detailed examination of how individuals can directly or indirectly answer questions in the four uncertainty domains. Finally, we describe the effects of dispositional tendencies of reaction to uncertainty. After describing different components of the model, we then use the model (i.e., DOUs and direct and indirect approaches to addressing these) to integrate the literature on various strategies enacted by change agents to foster positive reactions to change.

### The Four DOUs

**Linking an individual's goals to the DOUs relevant to them.** When people consider a change, they have goals which highlight varied uncertainties—issues about which they have a knowledge gap. The knowledge gap can come from a lack of information or a lack of clarity in how to interpret the information (Weick et al., 2005). This means that when individuals consider a change, not all DOUs are always relevant. Rather, different DOUs are made more relevant by different individual goals (see Figure 2, “An individual's goals”). Answering the question of “What is the change?” is highly relevant when a person has the goal to thoroughly understand the change; for example, experts in the same field of a technological innovation are motivated to understand the inner workings of the new technology. Answering the question of “What is the value of the change?” is highly relevant when a person has the goal to accurately assess the value of a change; examples are when decision-makers assess whether a change should remain in the organization, and when consumers assess whether a product will likely solve their problem. Answering the question of “How will the change come about?” is highly relevant when a person has the goal to effectively enact or use the change; examples are when middle managers are responsible for implementing a change, and when employees are tasked to enact a change. Answering the question of “What is the broader impact of change?” is highly relevant when a person has goals that are different from the goals of change impacted by change; examples are when managers consider how changes will indirectly influence their status, and when employees consider how changes will indirectly influence their job security.

Central to Figure 2 is that people's reactions to change can be organized by the DOUs relevant to the

individual. As noted above, such uncertainties coalesce around four key questions: (1) What is the change? (2) What is the functional value of the change? (3) How will the change come about? and (d) What is the broader impact of the change beyond its functional value? These four questions represent four distinguishable *DOUs*: conceptual uncertainty, functional value uncertainty, process uncertainty, and impact uncertainty, respectively.

**Conceptual uncertainty.** Individuals experience conceptual uncertainty when they grapple with understanding the nature of a change. The central question individuals ask is “What is the change?” Heightened conceptual uncertainty often leads to negative reactions, as the lack of understanding creates barriers to making any meaningful evaluations of the change. Such negative responses are typically manifested as, “I don't understand what this change is about.” Marketing and macro-organizational research clusters discuss this DOU and note that it tends to arise when people encounter highly novel or ambiguous changes.

**Functional value uncertainty.** Individuals experience functional value uncertainty when they have questions about the functional purpose or value of a change. The central question individuals ask is “What is the value of the change?” Change is often proposed to serve a function or achieve a goal. The functional value of a change is the extent to which the change achieves this goal. For example, new products are produced to serve a purpose for consumers; organizational change is initiated to advance organizational goals. People often compare the value of the change to the functional value offered by the existing status quo. People are likely to react negatively to change if they are uncertain about its value, manifested as “I don't know whether this adds value beyond the status quo.” This DOU is the primary focus of the marketing, technological innovation adoption, creativity, voice, and macro-organizational change clusters.

**Process uncertainty.** Individuals experience process uncertainty when they have questions about the process of realizing the change. People often need to go through a process to realize a change's value, whether it is the implementation of organizational changes, the purchase and learning of new products, or the development and implementation of new ideas. The central question individuals ask is “How will the change come about?” A lack of clarity about the process of change can elicit negative reactions, often expressed as “I don't know how it will be done.” This DOU is a primary focus of the marketing,

technological innovation adoption, macro- and micro-organizational change, as well as individual adaptation clusters.

**Impact uncertainty.** Individuals experience impact uncertainty when they ask questions about the broader implications of the change. Although change often serves a function (e.g., change to boost productivity), it can have a broader impact that extends beyond its functional value (e.g., impact on job security). The central question individuals ask is “What is the broader impact of the change?” A lack of clarity about the broader impact of change can elicit negative reactions, often expressed as “I don’t know its broader impact.” This DOU is the primary focus of the voice, as well as macro and micro-organizational change, clusters.

### How Individuals Answer Questions About the Relevant Uncertainty Domains

**Change features that make uncertainty more difficult to reduce.** An individual’s goals shape the questions they seek to answer about a change (i.e., the DOU on which they focus). Beyond the type of uncertainty, the degree to which uncertainty associated with a change is easy or difficult to reduce is also critical for understanding people’s change reactions. As illustrated in the middle box of Figure 2, the degree to which uncertainty is difficult to reduce can play a key role in shaping how questions about the relevant DOU are answered. Two key features of change are notably associated with the difficulty of reducing uncertainty.

The first of these change features is the extent to which a change is novel, or a departure from the status quo. Change that is more novel presents a larger departure from the status quo. Uncertainty associated with highly novel changes is likely more difficult to reduce. Highly novel changes are unlikely to fit an individual’s existing schemas or current knowledge (Mueller et al., 2012; Tan, 2022) and expertise (Moreau et al., 2001). Change that is highly novel is sometimes referred to as radical or discontinuous change—change that is unlike anything that has come before (Belschak et al., 2020; Huy, 2002). For example, “really new products” (also known as discontinuous or radical innovations) involve dramatic leaps in terms of consumer familiarity, creating new product categories or profoundly modifying existing categories (Hoeffler, 2003). This significant leap makes it harder to apply existing schemas and so more difficult to fill the knowledge gap.

A second change feature linked to uncertainty reduction is the extent to which a change is ambiguous. Uncertainty associated with highly ambiguous changes is likely more difficult to reduce. High ambiguity means that people do not know how to interpret the change (Weick et al., 2005). This ambiguity in interpretation makes it difficult for individuals to answer questions about change relevant to a given DOU. For example, strategic change involves “a cognitive reorientation of the organization” (Gioia et al., 1994: 363). This fundamental change in cognitive orientation can be highly ambiguous if people do not know what the new strategy exactly entails (Gioia et al., 1994). Similarly, change in organizational identity due to organizational restructuring can trigger people to ask, “Who are we?” (Corley & Gioia, 2004; Tripsas, 2009). In these cases, the relatively abstract labels of new strategies or identities are present (e.g., “innovative company”), but the meanings of such labels are ambiguous. Change is thus more likely to be ambiguous when it is abstract such as when it relates to strategy, culture, or identity.

Ambiguity can also involve not knowing how to make sense of conflicting interpretations. For example, when two initiatives are at odds with each other, they sow seeds of uncertainty (Kanitz et al., 2022). Similarly, conflicts between an organization’s internal and external identities can generate identity-based uncertainties (Tripsas, 2009). Moreover, when managerial actions diverge from employee expectations regarding the change, it engenders confusion about how to interpret the precise nature and implications of the change (Labianca et al., 2000). Such inconsistencies or conflicts obfuscate the understanding of what change entails, thereby complicating efforts to harness information for resolving these uncertainties.

Importantly, change can be both highly novel and ambiguous when it is in the early stage. For example, changes often undergo a journey of development (Perry-Smith & Mannucci, 2017). During the early stages, when changes are relatively unformed, information about the change is often scant or ambiguous, which heightens the sense of unpredictability for everyone involved (Kim et al., 2011). Early-stage ideas involve a great amount of novelty and ambiguity because the ideas themselves may be abstract and evolving (Berg, 2019), and there are few tangible metrics that can be used as the basis for evaluation (Dushnitsky & Sarkar, 2022; Huang & Pearce, 2015). Furthermore, research shows that because early-stage ideas tend to have high levels of ambiguity they are difficult to communicate and understand (Yang, Loewenstein & Mueller, 2023).

***Change features shape the likelihood people will answer their questions directly or indirectly.***

The box “Answer questions in relevant uncertainty domains” in Figure 2 identifies that whether people answer the questions they have in a relevant uncertainty domain in direct or indirect ways will depend upon whether the change in question has features (i.e., novelty or ambiguity) making the uncertainty more difficult to reduce. People have a fundamental drive to reduce uncertainty. Research has demonstrated that uncertainty provokes physiological stress when outcomes are unknown (de Berker et al., 2016), and that people may be willing to pay to reduce uncertainty even when it has no bearing on their choices (Eliaz & Schotter, 2010). To reduce uncertainty in a relevant domain, people answer their questions using information they perceive to be relevant. Sometimes people have access to information that is directly relevant to the question they attempt to answer (e.g., information about the benefits of a product answers the question about functional value directly). However, when change is highly novel (e.g., a product is so new that nobody has ever used it before) or ambiguous (e.g., when there are conflicting opinions about a product’s benefit), reducing the uncertainty becomes more difficult, as people likely perceive that information directly relevant to the question they are attempting to answer is not readily available, interpretable, or reliable (Weick et al., 2005). In these situations, people are more likely to make inferences based on information related to other DOUs, change agents, as well as their own affective feelings (Dushnitsky & Sarkar, 2022; Fugate and Soenen, 2018; Hoeffler, 2003; Rodell & Colquitt, 2009). Such information has been described as heuristics, indirect cues, incidental factors, or peripheral information in the research we reviewed (Howell et al., 2015; Rice & Aydin, 1991; See, 2009; Soenen et al., 2017; Suarez & Montes, 2019).

The kinds of information people use to answer questions depend upon the relevant DOUs. As such, below we describe how people answer questions directly and indirectly in each DOU.

***Conceptual uncertainty.*** When people attempt to answer questions related to conceptual uncertainty, they look to information that is directly relevant to helping them understand what the change is. This includes the category to which a change belongs (Goode, Dahl & Moreau, 2013; Reinders et al., 2010) and information that bridges the change with things they understand (Feiereisen et al., 2008, 2013; Gioia et al., 1994; Heidenreich et al., 2022). Individuals’ expertise can influence the extent to which they

have access to and can interpret information relevant to understanding the change (Moreau et al., 2001). Because experts have clear, defined schemas in their domain of expertise, they are better able to understand a continuous innovation through transferring their existing knowledge. For discontinuous change, experts are better at understanding whether their expertise is related to the domain of the change; experts in the status quo, however, often find it more difficult to understand the change, because they can recognize more fundamental differences between the change and the status quo, which makes it more difficult to transfer their knowledge in the status quo to the discontinuous change. To date, research has not identified how people answer the question about conceptual uncertainty indirectly.

***Functional value uncertainty.*** The kinds of questions people attempt to answer about functional value can take different forms for different individuals. Consumers may answer questions related to whether a product is useful and provides relative advantage compared to current products they are using (Arts et al., 2011; Davis et al., 1989; Evanschitzky et al., 2015; Gerlach et al., 2014; Gounaris & Koritos, 2012; Marler et al., 2006; Parry et al., 2012; Rogers, 2003; Xu et al., 2010). Organizational members may answer questions around whether a change yields discernible benefits for key performance metrics for the unit or organization (Burris et al., 2017; Geletkanycz, 1997; Hambrick et al., 1993; Kammerlander et al., 2018; Tripsas, 2009; Tripsas & Gavetti, 2000). Idea evaluators may answer questions around whether an idea meets their criteria (Acar et al., 2021; Berg, 2016; Boudreau et al., 2016; George, 2007; Mollick & Nanda, 2016). What is considered as valuable can also be shaped by individual-level factors, such as cultural experience, role, and identity. For example, individuals from collectivist cultures and those who occupy decision-makers’ roles answer questions around whether the change is proven to work (Loewenstein & Mueller, 2016; Mueller et al., 2018). Individuals with strongly held organizational and occupational identities answer questions around whether the change is consistent with their existing beliefs about their organization and occupation (Nelson & Irwin, 2014; Tripsas, 2009; Tripsas & Gavetti, 2000).

When people attempt to answer questions related to functional value, they look to information that helps them directly identify whether the change serves a function or achieves a goal they care about. Directly relevant information can come from people’s own experience or their observation of others’ experience

of the change's functional value (Compagni et al., 2015; Evanschitzky et al., 2015; Kawakami et al., 2013; Kawakami & Parry, 2013; Parry et al., 2012). For example, consumers answer questions about an innovation through their own trial use or other people's experience with it (Evanschitzky et al., 2015). Directly relevant information can include specific pieces of information about the change that contributes to its functional value (Berg, 2016; Mueller et al., 2018). For example, managers assess the value of an idea through examining whether the idea is directed toward enhancing the unit versus the profession (Burris et al., 2017). Individuals' expertise can influence the extent to which they have access to and can interpret information relevant to the change's value. Experts can discern more errors and limitations of new ideas because of their greater ability to process information (Boudreau et al., 2016). As with conceptual uncertainty, experts in the status quo often perceive less value of discontinuous change, because of their difficulty of transferring their knowledge in the status quo to discontinuous change (Moreau et al., 2001).

Individuals can also answer questions about functional value indirectly by relying on information that is more general and so does not bear direct relevance to the functional value of the change in question. One set of such cues used to determine the change's value is the reputation of the person who created the change: a person's reputation does not directly answer the question of whether the change will solve the problem they have, but it may indirectly suggest that it is more likely to do so. For instance, evaluators are more likely to view an idea as valuable if they have a positive perception of the creator (Huang & Pearce, 2015; Krufft et al., 2019). Employees are more likely to perceive a change to be valuable if the leadership that initiates the change is competent and trustworthy (Tyler & De Cremer, 2005). Another set of cues involves the affective feelings of individuals. A consumer may experience negative affect when considering a product that is incongruent with the dominant schema for that product category; this negative affect may lead them to view the product as having lower functional value irrespective of whether the product actually does solve the problem they have (Ma et al., 2015; Meyers-Levy et al., 1994; Noseworthy et al., 2014; Peracchio & Tybout, 1996). Changes that have features that are congruent with a person's goal orientation or mindset are generally evaluated more favorably because of the greater fluency in processing. For example, managers view ideas as having greater value if the ideas are

presented in a manner congruent with their own cognitive and motivational orientations (Burris et al., 2022; Falchetti et al., 2022). In one study, creative ideas were more likely to be rated positively by participants in a high-level construal mindset relative to a low-level construal mindset, presumably because creative ideas are more abstract and so better fit with a high rather than low-level construal mindset (Mueller et al., 2014). Even external factors such as weather can play a role: Investors are more likely to evaluate a venture positively when in a positive mood induced by sunny conditions (Dushnitsky & Sarkar, 2022).

**Process uncertainty.** The kinds of questions people attempt to answer about the process of change can take different forms for different individuals. Consumers may answer questions about how difficult it will be for them to realize the product's value (Arts et al., 2011; Ma et al., 2015; Mukherjee & Hoyer, 2001; Xu et al., 2010). Organizational members may answer questions about how difficult it will be for them to implement the change successfully in the organization (Aiman-Smith & Green, 2002; Boudreau & Robey, 2005; Huy, 2002; Kanitz et al., 2022), or to adapt to the change (Jundt et al., 2015; Lang & Bliese, 2009; Lepine et al., 2000).

When people attempt to answer questions related to the process of a change, they look to information that helps them directly identify whether the change will be easy or difficult to realize. Directly relevant information can come from people's own experience or their observation of others' experience of the change's process (Balogun, Bartunek & Do, 2015; Compagni et al., 2015; Kanitz et al., 2022; Lüscher & Lewis, 2008). Directly relevant information can include specific pieces of information about the change that contributes to the ease of its process. For consumers, such information may include the cost of switching to the new product or learning to use the new product (Billeter et al., 2011; Castaño et al., 2008; Mugge & Dahl, 2013; Mukherjee & Hoyer, 2001). For organizational members who are implementing or adapting to change, such information may include the quality of planning for the change (Rafferty & Griffin, 2006), managerial and peer attitudes toward the change (Bala and Venkatesh, 2015; Boudreau & Robey, 2005; Fugate and Soenen, 2018; Kirrane et al., 2017), and the degree of organizational support for the change (Gigliotti et al., 2019; Kim et al., 2011; Leonard-Barton & Deschamps, 1988; Marler et al., 2009).

Individuals may also answer questions about process uncertainty indirectly by relying on information that is more general and so does not bear direct

relevance to the process of change in question, such as their perception about those who advocate for the change. For instance, instead of relying on the specific procedural fairness judgment that is directly relevant to the process of a specific change, individuals may rely on their overall perception of the supervisor's fairness to answer questions about what they can expect in the process of this specific change (Rodell & Colquitt, 2009). Individuals may also consider perceptions of decision-makers who decided to adopt the change: for example, middle managers who doubted the competence or trustworthiness of senior management view the change process more negatively (Huy et al., 2014). Individuals may also consider broader adoption rates. For example, consumers look to the number of people adopting an innovation to assess the process of realizing the innovation's value: a larger user network implies that the adoption is not as difficult (Kawakami et al., 2013; Kawakami & Parry, 2013; Parry et al., 2012).

**Impact uncertainty.** When people attempt to answer questions related to the impact of change, they look to information that helps them directly identify whether the change will have positive or negative downstream consequences. Directly relevant information can come from people's own experience or their observation of others' experience of the change's impact (Huy, 2002; Lüscher & Lewis, 2008). It includes specific pieces of information about the change that contributes to its impact—for example, whether a change poses threats to one's status and ego (Anthony, 2018; Burris, 2012; Cappellaro et al., 2020; Kammerlander & Ganter, 2015; Kellogg, 2012; Malhotra et al., 2021) or one's personal, social, and organizational identities (Canato et al., 2013; Huy, 2011; Lifshitz-Assaf, 2018; Tripsas, 2009); and whether change will harm one's productivity, future job prospects, and other vested interests (Bakari et al., 2017; Fedor et al., 2006; Fugate & Soenen, 2018; Jansen et al., 2016; Reitzig & Maciejovsky, 2015; Teerikangas, 2012).

Individuals may also answer the question indirectly by relying on information that is more general and so does not bear direct relevance to the impact of the change in question. An important set of cues is perceptions of those who advocate for change. For instance, managers may consider how loyal they perceive subordinates to be (Burris, 2012), how much they trust subordinates (Lam et al., 2019), how information is communicated by subordinates (Kim et al., 2009; Lam et al., 2019; McClean et al., 2022), and even subordinates' gender (Guarana et al., 2017) when considering whether a proposed change poses

a threat to them. Similarly, employees assess their level of trust and the quality of their relationship (Fugate & Soenen, 2018; Gigliotti et al., 2019; van Dam et al., 2021) with change agents to form opinions about the potential impact of the change. Another important set of indirectly relevant information involves fairness perceptions. People often use perceptions of procedural justice at both the organizational and supervisory levels to assess a specific change initiative (Koivisto et al., 2013; Rodell & Colquitt, 2009; See, 2009; Soenen et al., 2017). These fairness cues help them make predictions about how a change will affect them personally.

### **The Effects of Dispositional Tendencies Associated with How People React to Uncertainty**

Change inherently involves more uncertainty than the status quo; direct and indirect approaches to addressing such uncertainty can reduce uncertainty but are unlikely to extinguish it completely. People's dispositional tendencies associated with reactions to uncertainty can affect how they react to change (Geletkanycz, 1997; Gonzalez et al., 2023; Griffin et al., 2007; Heidenreich & Handrich, 2015; Judge et al., 1999; Lepine, Colquitt & Erez, 2000; Oreg, 2003; Wood & Swait, 2002; Zhou et al., 2017). Much of the existing research focusing on dispositional tendencies considers their direct effects on reaction to change (see the link from "Individual's uncertainty tolerance and uncertainty expectation" to "Reaction to change" in Figure 2).

Researchers often distinguish between two categories of dispositional tendencies that contribute to individuals' reactions to change—their level of comfort with uncertainty, and the valence of their default expectation under uncertainty (e.g., Judge et al., 1999). The first of these categories includes dispositions that at their core capture the extent to which people feel comfortable with not knowing what will happen; examples are tolerance of ambiguity (Budner, 1962; MacDonald, 1970), intolerance of uncertainty (Carleton et al., 2007), need for closure (Webster & Kruglanski, 1994), risk aversion (Cable & Judge, 1994), openness to experience (McCrae & Costa, 1987), need for change (Mehrabian & Russell, 1973), and dispositional resistance to change (Oreg, 2003). The more people are uncomfortable with uncertainty, the more likely they are to react negatively to change. The second category includes dispositions that at their core capture the extent to which people expect or focus on positive versus negative outcomes when there is uncertainty; examples

are regulatory focus (Higgins, 1998), self-efficacy (Bandura, 1982; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs & Rogers, 1982), locus of control (Rotter, 1966), positive affectivity (Watson et al., 1988), and cognitive flexibility (Martin & Rubin, 1995). The more people expect or focus on negative outcomes, the more likely they are to react negatively to change.

### Strategies Enacted by Change Agents

Change agents often play a crucial role in fostering positive responses to change. For instance, employees suggest new ideas to managers, managers encourage employees to embrace new procedures, top executives seek to gain support from organizational members for strategic change, founders pitch their new ventures to potential investors, marketers work to gain favorable consumer evaluations of new products. Although existing research has highlighted many strategies that change agents can employ to foster positive reactions, these strategies remain separated in various literatures. The DOU framework provides a way to integrate these strategies based on the specific uncertainties they address.

**Conceptual uncertainty.** Strategies that facilitate conceptual understanding of change help individuals interpret the change. Some strategies help people get familiar with the change. Categorization cues in brand names and bundling a new item with a related item help people categorize very new products (Goode et al., 2013; Reinders et al., 2010). Analogies, symbols, and metaphors provide a bridge between the familiar and the new, helping people understand change using existing schemas (Feiereisen et al., 2008, 2013; Gioia et al., 1994; Heidenreich et al., 2022). Skeuomorph—a design element that serves no functional purpose but helps people understand the relations between new products and old ones—is another powerful tool, once used by Edison to help people understand the electric bulb in the context of gas lighting (Hargadon & Douglas, 2001). Other strategies concretize the change to facilitate conceptual understanding. Mental simulation—imagining using a new product—helps individuals to better understand the product by considering how it can be utilized in likely usage scenarios (Hoeffler, 2003). Narratives featuring a protagonist using a new product convey information in a way that is engaging and applicable (van den Hende, Dahl, Schoormans & Snelders, 2012). Entrepreneurs using gestures in presentations help potential investors form mental imagery and aid their understanding of the venture

(Clarke et al., 2019). Leaders disambiguate the meaning of change through constructing concrete images, modeling actual behaviors, and creating shared understanding via dialogue (Corley & Gioia, 2004; Gioia & Chittipeddi, 1991; Labianca et al., 2000; Spee & Jarzabkowski, 2017).

**Functional value uncertainty.** Evaluation of change's functional value can be altered directly, through providing positive information about the value of change. Marketers attempt to do this through communicating functionality information (Kawakami et al., 2013; Kawakami & Parry, 2013; Konya-Baumbach et al., 2019; Parry et al., 2012), comparing benefits between new products and existing ones (Heidenreich et al., 2022; Heidenreich & Kraemer, 2016), and using mental simulation to help consumers identify the value of using products (Dahl & Hoeffler, 2004; Hoeffler, 2003; Talke & Snelders, 2013). Change agents in organizational contexts attempt to do this through providing legitimate reasons for change (Rafferty & Restubog, 2010; Rousseau & Tijoriwala, 1999), telling a narrative about change (Balogun et al., 2015), framing the change in line with organizational needs (Kannan-Narasimhan & Lawrence, 2018; Sonenshein & Dholakia, 2012) and change recipients' value (Howard-Grenville et al., 2017), and creating "small wins" during change to prove its value (Reay et al., 2006). Change agents may also encourage individuals to reassess their deeply held beliefs. For example, they may prompt top managers to reevaluate their long-held assumptions about what adds value to their organization (Tripsas & Gavetti, 2000). Similarly, they can guide professionals in adapting their occupational identities to redefine what they consider valuable (Nelson & Irwin, 2014).

Evaluation of a change's functional value can also be altered indirectly, through aligning the change with the evaluator's mindset. The framing of ideas can be tailored to align with managerial cognitive and motivational orientations (Burris et al., 2022; Falchetti et al., 2022). For example, because experts have more concrete mental representations and novices have more abstract mental representations, novel ideas framed in abstract "why" terms are valued more by novices, whereas novel ideas framed in concrete "how" terms are valued more by experts (Falchetti et al., 2022).

**Process uncertainty.** Evaluation of change's process can be altered directly, through providing positive information about the process of change. Studies show that comprehensive and transparent communication about how the change will be implemented can alleviate anxiety and encourage cooperative



behavior (Rafferty & Restubog, 2010). Setting and communicating a set of obligations and responsibilities, including concrete steps and plans, can help clarify what managers and employees should do during change (Valentine, 2018). Additionally, invoking shared organizational values can facilitate coordination and collective action (Woiceshyn et al., 2020). Finally, marketers can use word of mouth to signal low learning cost and high user support (Kawakami et al., 2013; Kawakami & Parry, 2012; Parry et al., 2012). Change agents can also facilitate positive evaluation of the process by providing more support. For example, involving the individuals affected by change in the decisions about how to implement it can enhance commitment and reduce resistance (Kim et al., 2011). Additional measures include enhancing planning and behavioral control to alleviate anxiety and bolster self-efficacy during change (van Dam et al., 2021; Ye et al., 2007). Moreover, change agents can facilitate smoother adaptation by offering specialized training, not only in new technologies (Marler et al., 2009, 2006) but also in emotion regulation (Niessen & Jimmieson, 2016) and cognitive control strategies (Niessen & Lang, 2021).

Evaluation of change's process can also be altered indirectly, through changing recipients' feelings and perceptions of the organization. For example, change agents can improve overall perceptions of justice (Rodell & Colquitt, 2009). They can also address the negative emotions of those undergoing change (Huy, 2002): in emotional support sessions, when employees are encouraged to verbalize their private feelings about change this elicits calm and attenuates fear, and helps to develop a sense of agency in the change process.

**Impact uncertainty.** Evaluation of change's impact can be altered directly, through providing positive information about the impact of change. Communicating how organizational change will affect employees, and tailoring the messages to specific audiences, can help reduce uncertainty about the change's impact and facilitate positive reactions (Battilana & Casciaro, 2012; Hill et al., 2012; Sonenshein & Dholakia, 2012). Individuals can also frame the status and identity implications of change in a positive way. Emphasizing status enhancement opportunities can motivate greater buy-in from change recipients (Compagni et al., 2015; Gerstner et al., 2013). Status affirmation (Huy, 2011; Kellogg, 2012; Malhotra et al., 2021; Ullrich et al., 2005) can serve as a psychological safeguard and enhance receptivity to change. Facilitating the alignment between change, culture, and identity can reduce negative evaluation of

change's impact (Canato et al., 2013; Kammerlander et al., 2018; Lifshitz-Assaf, 2018; Tripsas, 2009). For example, through refocusing and reconstructing their identity into "solution seekers" rather than "problem solvers," NASA scientists experienced less identity threat and had greater willingness to adopt the open innovation model (Lifshitz-Assaf, 2018).

Evaluation of the change's impact can also be altered indirectly, through changing recipients' perceptions of organizational fairness and change agents. For example, enhancing perceptions of fairness of the organization and the decision-makers positively affects change recipients' prediction of the change's impact on themselves (Koivisto et al., 2013; See, 2009). Leveraging relational mechanisms such as benevolence-based trust and the personal approval of change agents can also increase support of change (Battilana & Casciaro, 2013; Fugate & Soenen, 2018; van Dam et al., 2021).

## DISCUSSION

Our goal in the current paper is to build a broad framework to help guide future scholarship on how individuals react to change—a major facet of organizational life. A literature review of research in management, psychology, and marketing revealed seven different clusters with distinct emphases. We integrated the research in these different clusters in several ways, grouping each cluster by research foci and then combining elements from each grouping to develop a broad and integrative model of individuals' reactions to change. By bringing all the DOUs together in a single uniting DOU framework (see Figure 2), we integrate disparate approaches and phenomena related to reactions to change. In contrast to the prior fragmented approach, the contribution of the DOU framework resides in its capacity to integrate the existing research through the lens of uncertainty, allowing specific communities of practice studying individual reactions to change to better engage in a dialogue with other nonoverlapping communities. In the sections that follow, we map how the DOU framework can: (a) contribute to change research by helping scholars continue to build upon and integrate research efforts from a broad range of change research communities, (b) identify future change research questions of relevance to a broad range of communities, (c) identify future research questions of relevance to specific research communities represented within each of the three research foci discussed earlier, (d) contribute to practice.

### How the DOU Framework Can Help Scholars Continue to Integrate Insights from Different Communities of Practice?

The DOU framework can enhance current change research in at least two ways. First, this approach suggests that scholars in a focal cluster can gain critical insight from considering two central levers when attempting to understand how people in their context will react to change: people's goals, and features of a change related to uncertainty reduction (i.e., novelty and ambiguity). Considering these two levers will allow scholars to better determine the factors that are important to an individual's reactions to change. People's goals will guide the uncertainty domains they focus on and the information they view as relevant (and irrelevant) to answer their questions. For example, managers may consider different information compared to employees when assessing the same change. Managers who have goals around choosing a change may focus on functional value, whereas employees who have goals around implementing a change may focus on process. Change features of novelty and ambiguity will further determine how difficult or easy it is for a person to answer their questions about a change. The greater the novelty and ambiguity, the more difficult it is to find and interpret information that is directly relevant to answering specific questions. As a result, for more novel or ambiguous changes, individuals may rely more on indirect ways of answering their questions, including attending to their own affective states or their trust of the person responsible for promoting the change. Hence, considering these two aspects of the change context, individuals' goals and change features related to uncertainty reduction can help scholars identify when certain factors are important to individuals' reactions to change, and when they are not.

Second, the DOU framework to studying reactions to change suggests that it is *not* helpful for future scholars to only focus on a person's organizational *role*, because roles do not equate to goals. Research on reactions to change has focused on the roles individuals occupy, yet people with the same roles do not necessarily have the same goals vis-à-vis the change. For example, the creativity literature shows how the managerial role primarily evokes the uncertainty domain of functional value in the form of creative forecasting and creativity assessments (Berg, 2016; Mueller et al., 2018), whereas the voice literature shows how the managerial role primarily evokes the uncertainty domain of impact in the form of status

threats (Burris, 2012). Hence, the fact that a person occupies a managerial role does not per se dictate which uncertainty domain the person views as relevant.

People in different roles also do not necessarily have different goals related to the change. Mid-level managers who evaluate subordinates' ideas in the voice literature and employees who react to organizational change in the macro-organizational change literature occupy two distinct roles, yet their respective literatures identify that both mid-level managers and employees can have concerns about the implication of change for their status (Burris, 2012; Huy, 2011; Kellogg, 2012). Although on the surface the voice literature studies the managerial role, whereas the organizational change literature studies the role of employees, from a DOU perspective both consider the impact of change on individuals' status. Therefore, focusing on individuals' goals can help scholars identify and integrate relevant insights from other literatures. Examining the variance of goals vis-à-vis the change for people within the same role might be a fruitful way for future research to identify why different people in the same role react to change in different ways.

### Examples of How the DOU Framework Helps to Expand the Types of Questions a Broad Range of Change Researchers Might Pursue

In addition to the above implications of the DOU framework for current change research, several new research avenues can also be derived directly from the framework. We discuss three potential avenues below.

**What are the antecedents and consequences of domain relevance?** The DOU framework identifies that not all uncertainty domains are relevant all the time. An important question to answer is what makes a domain more relevant. The framework notes that individuals' goals shape the uncertainty domains individuals consider relevant. Thus, future change research might examine what makes certain goals more important to individuals than others. One contextual factor that influences the importance of an individual's goals is what the individual is responsible and accountable for. Responsibility means individuals have greater agency over the achievement of their goals (Connolly, Ordóñez & Coughlan, 1997); greater autonomy in a domain increases individuals' sense of ownership, making the domain more important to their sense of self-efficacy. Accountability means that an individual's actions are likely to be

scrutinized by other people; this creates pressure to ensure those evaluations in a domain are well-informed and justifiable (Tetlock, 1992). Managers can be responsible and accountable for deciding to change, implementing a change, or both. Future scholars might examine whether managers who are only accountable and responsible for deciding to change (rather than implementing a change) might focus exclusively on the uncertainty domain related to functional value, potentially at the expense of other uncertainty domains that the manager is not responsible or accountable for. If true, this could provide a new explanation for the phenomenon of managers embracing infeasible ideas (Bunderson & Sutcliffe, 2003; Hirst, van Knippenberg & Zhou, 2009).

Another contextual factor that may influence the importance of a person's goals is whether a change is temporally close or distant. Temporal distance is one aspect of psychological distance. According to construal level theory (Trope & Liberman, 2010), people tend to focus on an object's or event's value when it is psychologically distant, and its feasibility when it is psychologically close. Consider a manager who is responsible for both deciding on a change and implementing the change. If the change is happening within the next week, scholars can examine whether the manager may be more likely to prioritize questions about the immediate processes. Conversely, when the change is not immediate but is projected to occur in a more distant future, scholars can examine whether the functional value of change may be more important than the process of change.

Finally, the framework identifies that people answer questions in the domains they deem relevant. When an individual's goal becomes more important, the domain that links to that goal also becomes more important. One potential consequence of increasing the relevance of a domain is that people's reactions in that domain will become stronger in intensity. In other words, people may become more activated in their reactions. Whereas change research has traditionally focused on the valence of responses (Oreg, Bartunek, Lee & Do, 2018), new theoretical and measurement developments now enable researchers to examine both the activation and valence dimensions of the change response (Oreg, Sverdlik, Paine & Seo, 2024). Thus, future research can examine whether the importance of an individual's goals is related to the activation of their response.

***What happens when people view more than one uncertainty domain as relevant?*** Existing research has largely considered different DOUs independently,

exploring how one or a set of factors influence judgments related to a DOU. However, in the real world people often encounter these DOUs simultaneously. Indeed, people can have multiple goals, which may be synergistic or in conflict (Emmons, 2003). Examining how people simultaneously deal with different goals and corresponding uncertainty domains presents an important new direction for future research on reaction to change. Below, we outline several possibilities, describing the scant existing research in the organizational change literature that deals with people's mixed reactions in multiple uncertainty domains. More research is needed to systematically examine the phenomena.

When people view more than one uncertainty domain as relevant, they may determine the change as favorable or unfavorable with respect to each of the relevant domains. For example, a person might care about functional value, impact (e.g., status impacts), and process (e.g., how hard it is to learn to use the change), and view the change as favorable in all three and so positively react to change. A more interesting and perhaps likely scenario is a person's assessment of a change being mixed, such that they view the change as positive in one domain (e.g., functional value) but negative in others (process and impact).

One possibility is that any negative evaluation within a domain will result in an overall negative reaction to change irrespective of whether the person also experiences a positive evaluation in a separate domain. Because people are generally loss averse (Kahneman & Tversky, 1979), and bad is generally stronger than good (Baumeister, Bratslavsky, Finkenauer & Vohs, 2001), the domain that is evaluated negatively may exert a larger influence on people's reactions to change than the domain that is evaluated positively.

Another possibility is that people may prioritize one domain over another when they have reactions of different valence in different domains. An example from existing organizational change research is Compagni et al. (2015), who examined the decision-making process of surgeons considering the adoption of robotic surgery. Their study revealed that early adopters were motivated by the potential for social status gains. They were willing to embrace the innovation despite feeling uncertain about its economic value. This suggests that a favorable perception in the impact domain can significantly offset concerns related to functional value uncertainty for those who adopt early. Interestingly, late adopters, faced with social pressure to adopt the technology,

were also less concerned about its functional value, because adoption was less of a choice for them. Instead, they were more concerned about the process of adopting the technology.

Yet another possibility is that when people encounter changes that are favorable to one domain and not favorable to another, they might form stepwise assessments of the change. An example from existing organizational change research is Fedor et al. (2006), who investigated employee support for organizational change and identified a nuanced interplay between the impact and process domains. They found that employees had low support for the change when the change was perceived as having a negative impact on one's group, regardless of the process of adaptation. However, if the change was viewed as having a positive impact on one's group, the adaptation process mattered: the easier the process was perceived to be, the more support it received. This study thus highlights a potential stepwise response such that a positive evaluation in the impact domain is a necessary step whereby people then turn to other relevant domains such as process to determine their reaction.

A final possibility is that when people encounter changes that are favorable in one domain and not favorable in another, they may experience a new DOU: motivational uncertainty, related to not knowing what they want. Said differently, people may find that their desire to achieve goals in one domain (e.g., functional value) conflicts with their desire to achieve goals in another domain (e.g., impact). Consider the classic example of a physician considering a new patient procedure that has been proven empirically to be far superior to the status quo. The physician might experience a conflict between the domains of functional value and impact, as they may interpret the new procedure as having high functional value but threatening their status as an expert in the status quo. If the physician values both the functional value and impact equally, they may then ask the question: "What do I want, given that achieving both is not possible in the moment?" Classically, the appraisal literature has defined goal conflicts as goals perceived to interfere with the achievement of each other (Emmons & King, 1988), and theory suggests that ambivalence toward change may be quite common (Piderit, 2000). A recent body of literature on tensions in organizations has emerged, revealing that people can deal with paradoxical, conflicting, or contradictory elements in adaptive ways (Miron-Spektor, Ingram, Keller, Smith & Lewis, 2018). While not specifically focused on motivation per se, the research on tensions may provide a useful theoretical lens through which to

examine how change recipients deal with motivational uncertainty while reacting to change.

#### ***When can uncertainty create opportunities?***

Although prior change research has generally discussed uncertainty in a negative way, the DOU framework also allows for the possibility of uncertainty creating opportunities for individuals to react positively to change. This is because uncertainty itself can be a positive or a negative experience. Uncertainty reduces individuals' capability to predict and manage their environment effectively (Berlyne, 1960; Inglis, 2000), and therefore is typically conceptualized as a negative state that individuals are motivated to diminish (Weary & Edwards, 1996). However, research has also noted that uncertainty can generate excitement (Ruan, Hsee & Lu, 2018; Shen, Fishbach & Hsee, 2015), and novelty is desirable for individuals who are open to experience (González-Cutre, Sicilia, Sierra, Ferriz & Hagger, 2016). Further, the process of reducing uncertainty can be a pleasant experience (Loewenstein, 1994). Moderately new products often generate a positive reaction in consumers because resolving the incongruity in schemas is rewarding (Meyers-Levy et al., 1994; Noseworthy et al., 2014). The creativity literature has also noted the power of curiosity, a positive emotion characterized by a desire to reduce uncertainty, in generating positive reaction to novelty (Lievens, Harrison, Mussel & Litman, 2022). The literature on the discrete emotion of awe identifies uncertainty as a key appraisal associated with awe (Keltner & Haidt, 2003), and suggests that people are more likely to embrace new technologies when they experience awe in response to the technologies (Chirico, Ferrise, Cordella & Gaggioli, 2018). Therefore, uncertainty can be associated with negative or positive emotions. Because uncertainty is inherent to change, an important avenue for future research is to study how to evoke positive emotions associated with uncertainty such as excitement, curiosity, and awe when individuals encounter change.

#### **Examples of How the DOU Framework Helps to Expand the Types of Questions a Specific Research Cluster Might Pursue**

In all, our review suggests that scholars working in the different clusters we identified can ask new questions they might not have yet considered and draw on insights from scholars working in other clusters who have spent more time considering a relevant DOU. As examples, below we select one cluster from each research focus to illustrate how the

DOU framework can help to expand and enrich the type of questions researchers within a given cluster might pursue. Our intention is not to suggest that all DOUs should always be considered. Rather, scholars may use the DOU framework to identify when an uncertainty domain is likely to be relevant for the individuals they study.

**Research focus 1 (how people react to new things): Creativity cluster.** Creativity research has traditionally focused on whether new ideas are judged to be both novel and useful (Amabile, 1982). Correspondingly, creativity research has made large strides in answering questions related to what an idea is (Hua, Harvey & Rietzschel, 2022) and when ideas are perceived as creative, or novel and useful (Harvey & Berry, 2023; Loewenstein & Mueller, 2016). While the field of creativity has amassed an impressive amount of scholarship relating to the question of why and when ideas are perceived to be creative, research has shown that creativity assessments have a positive (Horn & Salvendy, 2009), negative (Mueller, 2014), and no relationship (Baer, 2012) with idea endorsement decisions.

The DOU framework may help future research to reconcile these conflicting findings. Studies may examine the different goals an evaluator may have, which will influence the kinds of factors that determine individuals' reaction to new ideas. For instance, in a typical lab study, participants incentivized to accurately predict the outcome of an idea may be focused on the functional value of the idea. Since creativity assessments are likely highly relevant to a person's questions around an idea's functional value, assuming lab participants are told to value both novelty and usefulness, they will be highly likely to endorse ideas they view as creative in this context. If, however, those in the lab study are tasked with accurately explaining the idea to someone else, their endorsement of a given idea may be less related to creativity perceptions and more related to their conceptual understanding of the idea. In other words, the DOU framework considers that people may have goals beyond whether ideas are novel or useful (e.g., have functional value) and so endorse or reject ideas for reasons irrespective of whether they are seen to be creative. The framework further suggests that individuals may ask questions beyond features of the idea itself, including the process of implementing the idea and the broader impact of the idea. For example, people can care about whether an idea might influence their own identity and status irrespective of whether the idea also has functional value (e.g., is useful or novel). The DOU framework thus may explain when

creativity assessments may not be related to a person's reaction to a given change.

The DOU framework also sheds light on alternative ways in which an idea's creativity may shape a person's reaction to the idea. That is, even if a person's goals make functional value less central to their overall reactions to an idea (thus rendering direct judgments of an idea's creativity less predictive of a person's reaction to the idea), a person's perception of an idea being creative may still play an important role in how the person reacts to the idea. An idea's perceived level of creativity—particularly, its novelty—may be instrumental in shaping reactions to it by influencing how people address their central DOUs. This is because an idea's novelty may relate to how difficult it is for people to answer the questions they have in their DOUs: if an idea is novel, uncertainties may be more difficult to reduce directly, and people may therefore be more likely to use indirect ways to answer the questions that they have. For example, they may rely on their trust in the person who proposed the idea and their own affective feelings at the time of evaluating very creative ideas. This provides a theoretical rationale for the finding that highly novel ideas have a greater variability of value assessments generally (Johnson & Proudfoot, 2024), as people are more likely to craft their value assessments based on indirect factors that can vary situationally across individuals (e.g., feelings, mindsets) when ideas are new.

While past creativity research has focused on idea novelty as the distinguishing characteristic of a creative idea (Diedrich, Benedek, Jauk & Neubauer, 2015), future research may also examine what makes an idea ambiguous, and the consequences of idea ambiguity. This is because ambiguity and novelty do not necessarily always have the same consequences, and some effects that have been attributed to novelty may have been mediated by ambiguity. For example, it is possible that people reject highly novel ideas because the ideas are ambiguous—and so have conflicting interpretations; conflicts can create tensions, leading to negative reactions. However, at times, conflicting interpretations may also encourage elaboration of ideas. Furthermore, as suggested by research on people's construal of multiculturalism (Yogeeswaran & Dasgupta, 2014), sometimes ambiguous ideas with underspecified meaning may be embraced more compared to clear, concrete ideas, if people focus on the value of abstract ideas as opposed to being bogged down by the implementation details of concrete ideas.

**Research focus 2 (how decision-makers react to change): Voice cluster.** The voice literature has focused on managers' concerns about how subordinates' ideas may affect their own status (Burris, 2012) and managerial self-efficacy (Fast et al., 2014), as well as the value of the idea for the organization (Burris et al., 2017). While research has examined managers' consideration of the resources required for implementing the idea (Burris et al., 2017), future research may examine their concern for the implementation process beyond resources required; for example, managers may consider organizational support as another important determinant of how easy or difficult the implementation will be. Future research may also consider managers' goals to understand the change and the corresponding conceptual uncertainty domain. For example, managers may have heightened concerns about understanding an idea if they are responsible for explaining the idea to their boss.

Future voice research may also examine how managers can productively deal with novelty, ambiguity, and their associated uncertainty when reacting to subordinates' ideas. This focus is important as most voice interventions focus on helping subordinates feel psychologically safe to speak up, or identifying strategies subordinates can use to pitch ideas to managers rather than how managers can make better decisions (Bain, Kreps, Meikle & Tenney, 2021; O'Donovan & McAuliffe, 2020). A focus on managerial decision-making is especially relevant for scholars studying managers who evaluate subordinates' early-phase ideas. Prior research has identified that managers are highly likely to reject ideas quickly during the first stage of idea evaluation (Li et al., 2019; Satterstrom, Kerrissey & DiBenigno, 2021), instead of green-lighting ideas to be developed more fully into a white paper or proposal that is assessed again during the second phase of idea evaluation. Ideas, when first voiced to supervisors, are likely to be relatively early-phase. These early-phase ideas are ambiguous, so not only difficult to communicate but also difficult to understand (Berg, 2019; Yang et al., 2023). Li et al. (2019) identified the problem of managers chronically rejecting early-phase ideas due to the effortful cognitive processing required to understand and the resulting cognitive overload, feelings of stress, and cognitive exertion when evaluating them. Hence, future research might examine how managers can productively deal with the ambiguity in subordinates' early-phase ideas.

Managers occupy many different roles in which they engage in varied behaviors, such as decision-making and information processing (Mintzberg, 1990).

The multifaceted nature of managerial responsibilities may make managerial evaluation of subordinates' ideas a particularly fruitful context within which to consider an individual's mixed reactions across different DOUs. For instance, when subordinates propose a new initiative, a manager's response is influenced by their different roles. From a decision-making perspective, they consider the idea's organizational value. Meanwhile, their information processing role involves contemplating how to effectively communicate their understanding of the idea to higher-ups. Consequently, a manager might react positively to an idea when considering its value, but react negatively when they feel they do not have a good understanding of it. Systematic research into the interplay of these domains can yield deeper insights into how managers evaluate new ideas, and can more generally help us understand the way in which individuals may react to different forms of uncertainty that occur at the same time.

**Research focus 3 (how change recipients react to change): Organizational change cluster.** From a phenomenological perspective, research on organizational change (across macro- and micro-literatures) has considered all four DOUs (Rousseau & Tijoriwala, 1999; Spee & Jarzabkowski, 2017; Tripsas & Gavetti, 2000; Wanberg & Banas, 2000), as well as novelty and ambiguity (Battilana & Casciaro, 2012; Corley & Gioia, 2004; Huy, 2002; Labianca et al., 2000). Despite the breadth of this research, our cluster analysis indicates a lack of sufficient interaction between macro- and micro-organizational change literatures. This gap suggests that there is potential for greater dialogue and cross-pollination between these literatures. For example, studies in micro-organizational change have yet to examine the aspect of conceptual uncertainty. This presents an opportunity for micro-organizational research to incorporate insights from the macro-organizational change literature.

Overall, more consideration can be devoted to exploring the relative importance of different DOUs—for instance, how individuals' roles and corresponding goals influence attention paid to different uncertainty domains. It is possible that top managers who are responsible not for implementation but for deciding whether the organization should adopt a change simply focus on functional value without spending time and effort considering how difficult the process will be. This would suggest that some top managers may positively evaluate changes, even though those changes are infeasible as they are too difficult for others in the organization to implement.

In contrast, front-line managers who feel more responsible for implementing the change, but not for accurately evaluating whether the organization should change, may spend time and effort considering process uncertainty without focusing on functional value of change. If so, change agents' rational persuasion efforts to help people understand the value of a change to the organization are unlikely to help those responsible only for implementing change.

The organizational setting provides a rich context for exploring the interplay between the functional value of change and the impact of change in shaping employees' reactions to change. Because organizational changes are generally aimed at bringing value to the organization, the functional value of organizational change differs from, and often conflicts with, the impact of change on employees. For example, the adoption of artificial intelligence technology aims to improve operational efficiency and streamline processes within an organization. However, such technological adoption can also increase employees' concerns about job security and the nature of their work, potentially affecting their morale and job satisfaction. Understanding how employees weigh the functional value of these changes against their impact is an area that warrants investigation in future studies.

Finally, existing research shows the nuanced effects of ambiguity in shaping the meaning of change. Strategic ambiguity—change expressed at a strategic level of abstraction—can be beneficial by allowing individuals to interpret the vision in ways that are desirable to them (Eisenberg, 1984; Gioia, Nag & Corley, 2012; Sillince, Jarzabkowski & Shaw, 2012). However, this same ambiguity can lead to divergent interpretations of the change, causing deviations from the intended course of action (Sonenshein, 2010), hindering concerted actions (Denis, Dompierre, Langley & Rouleau, 2011), and creating internal contradictions (Abdallah & Langley, 2014). Therefore, understanding how to effectively leverage strategic ambiguity to facilitate change remains a key area for future organizational change research. The DOU framework suggests that while strategic ambiguity can enhance the perceived value of change by allowing room for desirable interpretations, it also increases uncertainty about the change process; that is, strategic ambiguity may increase positive reactions among individuals with goals to assess the value of change, but negative reactions among those who have goals to bring about the change. Future research may utilize the DOU framework to examine why and for whom strategic ambiguity may lead to positive versus negative reactions.

## Practical Implications

The DOU framework suggests strategies change agents should enact, as well as when and for whom they should enact such strategies. Not all changes are created equal, and strategies to overcome negative reactions to change are relevant to change in some contexts but not others. Consider a top-level manager who attempts to influence a mid-level manager to embrace a change that is highly novel. If the top-level manager uses strategies to address the conceptual uncertainty alone (e.g., analogies and metaphors), these may help the mid-manager answer the question "What is the change?" but the top-level manager may still encounter resistance if the change threatens the mid-level manager's identity. Further, change that evokes more DOUs can evoke more challenges in different forms and so require more strategies to overcome these negative reactions. Change agents will experience more difficulty attempting to promote change that disrupts routines and challenges a person's status, relative to change that disrupts routines but enhances one's status.

Our review also suggests that while uncertainty involved in change is typically experienced negatively, it may at the same time present opportunities for change agents to shape change recipients' reaction to change. When uncertainty comes from lack of information, greater uncertainty creates opportunities for change agents to fill the knowledge gap with positive information about change. When uncertainty comes from ambiguity in how to interpret information, greater uncertainty creates opportunities for change agents to help change recipients interpret information in a positive way. Indeed, many strategies we identified in existing research are related to these ideas. For example, communication about the benefits of change or using sensegiving methods, such as framing techniques, narrative construction, and storytelling, are effective strategies to address uncertainty that arises from either information scarcity or interpretation ambiguity. Interestingly, when a change involves low levels of uncertainty, it may actually constrain the ability of change agents to leverage these communication strategies effectively. In such cases, since there are fewer gaps in information and less room for interpretation, shaping positive reactions can become a more challenging endeavor.

Critically, our review reveals why focusing on the general process of change alone can be insufficient to successfully bring about change. One needs to examine the DOUs evoked by a particular change to pinpoint challenges in a particular domain and employ specific strategies in that domain to

overcome challenges. Given limited resources, employing specific, targeted strategies may play a crucial role in bringing about successful change.

## CONCLUSION

To paraphrase Heraclitus, in our ever-evolving world, change is the only constant. While research examining individuals' reactions to change has made tremendous progress, this progress has developed independently within distinct and siloed research communities examining very different change contexts. The current review integrates the vast expanses of knowledge from seven research clusters into a DOU framework. Through the lens of uncertainty, we gain a deeper understanding of the multifaceted challenges posed by change. With this framework, we aim to bring unity and structure to the vast expanse of research and foster a more integrative approach to studying how individuals react to change in future research.

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