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From complexity responses to enacted practice: Mindfulness as a multi-level metacognitive capability in project leadership

Jutta Tobias Mortlock [a,*], Neil Turner [b], Anke C. Plagnol [a], Anya Beaumont [a], Mike Bourne [b]

[a] Department of Psychology and Neuroscience, City St George's, University of London, London, United Kingdom
[b] Cranfield School of Management, Cranfield, Bedford MK43 0AL, United Kingdom

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ABSTRACT

Project complexity research has established that structural, socio-political, and emergent complexities require different response capabilities, yet little is known about *how* project leaders enact these responses in practice. Drawing on practice theory and strategy-as-practice, this study examines how project leaders mobilise mindfulness as a multi-level metacognitive practice to address project complexity. We analyse qualitative data from a flagship UK government Project Leadership Programme, including open-ended survey responses ($n = 58$) and semi-structured interviews ($n = 10$) with senior project leaders. Our findings show that mindfulness is enacted at individual, team, and organisational levels to operationalise planning and control, relationship-building, and flexibility responses. Mindfulness functions both as relief, enabling leaders to regulate stress and reactivity, and as engagement, supporting sustained attention, psychologically safe dialogue, and adaptive sensemaking. We contribute to theory by extending project complexity research from identifying effective responses to explaining how response capabilities are enacted across organisational levels through socially embedded metacognitive practice. We contribute to practice by offering a scalable and context-sensitive repertoire of mindfulness practices that project leaders can embed in leadership development, governance routines, and team interactions to build sustained capability for navigating structural, socio-political, and emergent project complexity.

Knowledge is a rumour until it lives in the muscle.

1. Introduction

Complex projects are marked by uncertainty, technical challenge, stakeholder conflicts, and unforeseen events, among other potential problems (e.g., Bakhshi et al., 2016; Bosch-Rekveldt et al., 2011; Geraldi et al., 2011; Maylor & Turner, 2017; Williams, 1999). Project managers must respond to these complexities by recognising and adapting to changing circumstances and by leading their teams appropriately. More specifically, three types of responses to project complexity have been shown to be effective: planning and control, relationship development, and flexibility (Maylor & Turner, 2017). This is the *what* – the practices that project managers and leaders need to engage in – the question is, *how* should they enact these practices?

We draw on mindfulness science to illuminate the *how* of enacting responses to project complexity. Mindfulness in organisations is a metacognitive practice; the process by which actors monitor, select, and decide how to process information in the moment (Kudesia & Lang, 2021). In addition, mindfulness is a multi-level construct, which can be validly and reliably measured across both individual and collective levels, and which is cultivated through meditation and non-meditative practices that work teams or entire organisations may put in place (Sutcliffe et al., 2016). This is relevant for project management research because a growing body of literature research suggests that mindfulness may promote resilience in projects (Feng & Trinh, 2019), improve megaproject conflict management (Wang & Wang, 2023), and enhance megaproject team improvisation although existing research generally remains focused on individual mindfulness (Jiang et al., 2025). Particularly relevant for this study is that leadership is crucial for the emergence of mindfulness: only when leaders actively support and consistently cultivate mindfulness through social practices at work can organisations benefit from it (Roberts et al., 2005).

Hence we focus on project leaders in this study to examine the link between mindfulness and project complexity, and propose that mindfulness practice at individual, team and organisational levels helps

* Corresponding author at: Department of Psychology and Neuroscience, City St George's, University of London, Northampton Square, Clerkenwell, London EC1V 0HB, United Kingdom.
E-mail address: Jutta.Tobias-Mortlock@citystgeorges.ac.uk (J.T. Mortlock).

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project leaders enact effective responses to project complexity. Thus, we position different types of mindfulness practice as the concrete mechanisms by which project leaders can navigate and respond to complexity. In other words, if Maylor and Turner's (2017) three project response types are *what* project managers need to resort to in the face of different types of project complexities, then – so we argue here – mindfulness as metacognitive practice across organisational levels of analysis are *how* they can enact these responses. Through this, we argue that mindfulness can support the attainment of project success, in a broader sense as recognised by current literature.

We intend to illuminate this link by exploring how senior project leaders across a range of UK government departments enact what they have learned after completing a Project Leadership Programme (PLP) designed to equip them with the knowledge and tools to lead the most complex projects across the UK government. Some of these individuals are what may be termed 'accidental project managers' (Pinto et al., 2025), who find themselves running key pieces of work, even though their career trajectory may not always have been project-based. The PLP is a flagship UK project management learning and development programme, created in 2015. To date, approximately 3000 senior civil servants from over 30 government departments have completed their PLP learning journey. Over the course of 12 months, PLP participants learn about and apply insights on strategy and its implementation, leadership theory, different types of project complexity, as well as on individual, team and organisational mindfulness.

The goals of the PLP align closely with calls in the project management literature for new paradigms that move beyond rigid control to embrace sensemaking and flexible responses in complex project environments (Maylor & Turner, 2017; Williams, 1999). By linking mindfulness practices to the distinct challenges posed by complexities, this study offers a novel lens for understanding how individual and collective mindfulness techniques can support more resilient project management practices. The research question that we address in this work is: *"How do project leaders enact mindfulness at individual, team, and organisation-wide levels to address different types of project complexity?"*

2. Theoretical background

In the current study, we explore how mindfulness practices at different organisation levels – namely, at the individual, team, and organisational level – can further aid project leaders in addressing different types of complexity by offering specific practices to enhance their own and their teams' responses. Drawing on empirical data gathered from participants in the PLP, we seek to develop a conceptual framework that maps mindfulness-based approaches to each distinct dimension of project complexity. In the following sections, we first review the literature on project complexity, then explain the theoretical lens for this study and provide relevant definitions of mindfulness and its practice, followed by a brief review of the literature on collective forms of mindfulness, leading up to an outline of theorised linkages between project complexity, response capabilities, and mindfulness as well as the theoretical framework for this study.

2.1. Project complexity

The nature of project complexity has been a challenge both for researchers and practitioners for many years (e.g., Baccarini, 1996; Jaafari, 2003; Maylor et al., 2008; Pich et al., 2002; Shenhar & Dvir, 1996; Tatikonda & Rosenthal, 2000), and this has been recognised with regard to the corresponding difficulties in managing performance (Maylor et al., 2023). It is a slippery, contested concept with multiple interpretations and, as yet, no agreed-upon definitions (Bakhshi et al., 2016; Geraldi et al., 2011; Maylor & Turner, 2017).

Importantly, complexity can be assessed both objectively and subjectively. A particular project's characteristics may be said to have a numerically quantifiable complexity. Yet, subjectively, different managers may believe it to be higher or lower than that based on their levels of knowledge and experience of the context. Authors distinguish between complexity *in* (an objective measurement) a project and complexity *of* (a subjective perception) that project (Cicmil et al., 2009).

Complexity attributes covering technical issues such as project size, budget, scope, and resourcing are well established (e.g., Bosch-Rekveldt et al., 2011; Senescu et al., 2012; Shenhar & Dvir, 2007), but the day-to-day realities managers face cover a wider range of challenges, including the more 'social' aspects of the work. The systematic literature review by Geraldi et al. (2011) identified five overarching forms of complexity, namely *structural, uncertainty, dynamic, pace*, and *socio-political*. This was followed by Maylor et al. (2013) who merged some of these in creating the Complexity Assessment Tool (CAT) looking at three overarching dimensions: *structural, socio-political* and *emergent* complexities. These are defined as follows:

(1) Structural complexity: increases with the number of people involved, financial scale, number of interdependencies within and without, variety of work being performed, pace, breadth of scope, number of specialist disciplines involved, number of locations and time-zones.
(2) Socio-political complexity: increases with the divergence of people involved, level of politics or power-play to which the project is subjected, lack of stakeholder/sponsor commitment, degree of resistance to work being undertaken, lack of shared understanding of the project goals, lack of fit with strategic goals, hidden agendas, conflicting priorities of stakeholders.
(3) Emergent complexity: increases with novelty of project, lack of technological and commercial maturity, lack of clarity of vision/ goals, lack of clear success criteria/ benefits, lack of previous experience, failure to disclose information, rising to prominence of previously unidentified stakeholders, any changes imposed on or by the project." (Maylor & Turner, 2017, p.1080)

This relies on a 'lived experience' ('complexity of') approach (Cicmil et al., 2009) where complexity is determined by the manager's view of the situation they face.

Maylor and Turner (2017) subsequently proposed that addressing these three types of complexities could be aided by three types of operational capabilities in response: a 'planning and control' response to enable coordination (e.g., using established project management tools and techniques), a 'relationship-building' response to address socio-political complexity (e.g., ensuring that sufficient, early attention is paid to interpersonal and stakeholder relations, to defuse or prevent conflict and enable effective project working), and 'flexibility' in response to emergent project complexity (e.g., accommodating variations and changes when they arise, as appropriate). In addition, the authors suggested a strategic or temporal sequence for project actors to deal with complexity: first, *understand* the situation, then *reduce* unnecessary complexity and streamline processes as best possible, and, finally, *respond* by adapting dynamically, adjusting plans, behaviours, and structures in real time as conditions change. The three response types of 'planning and control', 'relationship-building', and 'flexibility', the authors argued, can be deployed in any one of the *understand-reduce-respond* sequence. However, they showed that actual management practices were more varied than this, incorporating not just the 'expected' response. Empirical evidence showed that each complexity type could be addressed with each response option, i.e., all nine elements in a three-by-three framework of complexity and response types are realistic management approaches and highlighting that there is not necessarily a 'correct' approach to dealing with complexity manifestations.

Subsequent empirical work (e.g., Antonacopoulou, 2022; Baxter & Turner, 2023; Boehme et al., 2021, 2024; Turner et al., 2018) supported these ideas in both the supply chain and project contexts, and this framework is extensively cited. However, there are significant areas that

require further investigation. Work to date has looked at identified complexities and responses implemented, but two underexplored areas are that of (1) why some implemented solutions are ineffective in resolving complexity, and (2) how organisations can implement systems so that complexity is addressed more adequately. A multi-level perspective is also missing in these studies, and our approach of investigating the individual, team and organisational level thus offers further insight.

It is important to consider the results of these managerial actions. The assessment of project 'success' is a contested, messy, and much-discussed topic within the field. Although the 'iron triangle' of time, cost and quality/performance (Barnes, 1988) is still pervasive, a broader interpretation is now more common. Ika and Pinto (2022) provide a review of this topic and show how this project plan success needs to be accompanied by wider business case success (i.e., providing the intended benefits), and agreement amongst the stakeholders. The importance of the perspectives of key stakeholders (e.g., Davis, 2017) acknowledges that performance has a strong subjective component, and that project delivery evaluation is a function not only of having access to the right information at the right time in order to deliver the objective results, but also of processing information in ways that fit the needs of the situation and the perceptions of those involved or impacted (Maylor et al., 2023). As Pinto et al. (2025, p.5) argue, "The politics of projects - who holds power, whose interests are prioritized, and how value is negotiated - are inescapable realities that must inform how we train, credential, and support project professionals." Pinto et al. (2025) deliberately emphasise the idea of project 'leader' over 'manager' and, as we will show, this line of argument supports the investigation of mindfulness when considering the practical reality of project complexities, especially with regard to socio-political impact.

2.2. Conceptualising mindfulness as a multi-level metacognitive practice

The concept of mindfulness derives from Eastern contemplative traditions that originated more than 2500 years ago; yet, the idea of being or becoming *mindful* is independent of religion, spirituality, or a particular philosophy. Any person quickly becomes mindful when *motivated* to do so; imagine driving down a road and noticing that the road is icy, or meeting your love interest's family for the first time. A substantial body of research has linked mindfulness to better physical and mental health, and to improved relationships, at home and at work (Brown et al., 2007; Creswell, 2017).

Over the last 40 years, mindfulness has experienced an unprecedented renaissance, in particular in the field of behavioural science, where 8-week mindfulness training programmes derived from the seminal and extensively researched Mindfulness-Based Stress Reduction (MBSR) programme designed by mindfulness scholar Jon Kabat-Zinn (1982) have become ever more popular among researchers and practitioners alike (Galante et al., 2021.

Before we present a framework to study the link between mindfulness and responses to project complexity empirically, we first explain why we use practice theory (Bourdieu, 1977; Giddens, 1984; Schatzki et al., 2001) and in particular strategy-as-practice (Whittington, 1996) as a theoretical lens for our study. Practice theory conceptualises social life as constituted through embodied and recurring practice in relation to context at hand. Strategy-as-practice applies this lens to organisational strategy by examining the situated activities, tools, and interactions through which strategy is enacted.

This lens is particularly appropriate for studying project leadership under conditions of complexity. Complex projects are not governed solely by formal plans or rational decision rules but are enacted through ongoing sensemaking, interaction, and adaptation. Accordingly, our interest lies not in abstract cognitive states or decontextualised skills, but in how project leaders enact ways of noticing, interpreting, and responding to unfolding situations in practice. Within this practice-theoretical framing, we conceptualise mindfulness as a metacognitive practice (Kudesia, 2019; Kudesia & Lang, 2021). Mindfulness, from this perspective, refers to the capacity of individuals and collectives to monitor experience, regulate attention, and deliberately choose how to think and act in response to situational demands. This means our analytical focus is the *practice* of mindfulness in a particular project context: enabling actors to avoid automatic responses and to engage with complex situations in a more deliberate and context-sensitive manner.

Prior mindfulness research has introduced several distinctions to describe how this metacognitive capacity operates. For example, scholars distinguish between mindful attention, referring to bottom-up perceptual awareness, and mindful conceptualising, referring to top-down sensemaking and interpretation (Dahl et al., 2015; Daniel et al., 2022). In the present study, we do not treat these as separate forms of mindfulness. Rather, consistent with a metacognitive and practice-based view, we conceptualise mindfulness as the capacity to flexibly move between attention and conceptualisation depending on what the situation requires. Mindfulness thus lies not in attention or cognition alone, but in the regulation of their interplay in action.

We further draw on Choi et al.'s (2021) distinction between mindfulness as relief and mindfulness as engagement to clarify the functional purposes of mindfulness practice. Mindfulness as relief refers to practices oriented towards stepping back from stress, emotional reactivity, or cognitive overload, thereby restoring equilibrium. Mindfulness as engagement refers to practices oriented towards leaning into experience with openness, curiosity, and sustained attention, enabling sensemaking, learning, and adaptation. Rather than representing competing definitions, these orientations describe different ways in which mindfulness as metacognitive practice may be enacted in response to situational demands.

From a practice theory perspective, the analytical value of these distinctions lies not in parsing internal cognitive mechanisms, but in understanding how mindfulness is enacted in relation to its purposes and contexts. Practices are teleoaffectively structured, i.e. organised around ends-in-view, norms, and affective orientations (Schatzki, 2002). This makes a purpose-based distinction between relief-oriented and engagement-oriented mindfulness particularly salient. This framing allows mindfulness to be analysed as an embodied, socially embedded practice rather than as an intrapsychic mental state. Accordingly, in this study we conceptualise mindfulness as a situated, purposive, and socially embedded metacognitive practice that enables project leaders to enact planning, relational, and adaptive responses to complexity. This provides a coherent foundation for linking mindfulness to project leadership and project complexity while avoiding the proliferation of parallel conceptual frameworks.

2.3. Collective forms of mindfulness

Mindfulness is not merely an individual metacognitive practice. As mentioned above, workplace mindfulness can apply at individual as well as collective levels of analysis (Sutcliffe et al., 2016).

Team mindfulness, introduced by Yu and Zellmer-Bruhn (2018), is a comparatively recent construct that operates at the interpersonal, or meso, level, positioned between the individual-level emphasis of most mindfulness research and the organisation-level perspective applied to collective mindfulness, outlined below. It refers to a team's shared perception that interactions among members are characterised by present-moment attention and awareness, coupled with non-judgement in interpersonal exchanges. This shared mindset is associated with reduced conflict and fewer antisocial behaviours, such as undermining colleagues. Although Yu and Zellmer-Bruhn do not identify specific interventions for cultivating team mindfulness, they highlight its potential as a means of mitigating team conflict. To the best of the authors' knowledge, the only team mindfulness training programme published in the scientific literature to date is Tobias Mortlock et al. (2022) study in a United Kingdom military setting.

Collective mindfulness is a social construct, defined as a team's collective capability to become aware of discriminatory details about emerging issues and to act swiftly in response to these details (Weick et al., 1999). In other words, people working together and acting mindfully on a collective scale manage stress collectively; they are able to anticipate, detect, and appropriately respond to unexpected, stressful problems (Vogus et al., 2014; Weick et al., 1999). Collective mindfulness concepts include bottom-up and top-down (collective cognitive) processes; in particular the *bottom-up* dynamic socio-cognitive processes of mindful communication and interaction called *mindful organising* (Vogus & Sutcliffe, 2007, 2012; Weick & Sutcliffe, 2006), as well as the *top-down* concept of *organisational mindfulness* (Weick & Sutcliffe, 2006; Weick et al., 1999) relating to organisation-level processes and routines geared at generating real-time insights and reflections on the reliability and resilience of an organisation.

A substantial body of scientific evidence indicates that collective mindfulness is a hallmark of High-Reliability Organisations (HROs) (e.g., Wang et al., 2021; Weick & Sutcliffe, 2015). HROs operate in highly stressful, complex, and volatile environments, for example, nuclear submarines, intensive care units, or air traffic control centres, where reliable performance must be sustained under conditions of uncertainty and risk (Saunders et al., 2016; Weick & Sutcliffe, 2015). Unexpected challenges frequently make the work life of people operating in an HRO stressful, not least because failure to perform in an HRO often results in loss of limb or life. However, at the core of an HRO to develop capacity to avoid catastrophic failure and perform in nearly error-free ways despite operating in extreme, stressful conditions, are five interrelated processes of collective mindfulness (Weick et al., 1999). These are (1) *sensitivity to operations*, paying attention to and continuously checking if day-to-day processes align with organisational strategy, or if instead people at work's espoused theories or mental models are out of sync with their theories-in-use (Argyris & Schön, 1974); (2) *preoccupation with failure*, the extent to which people at work are actively engaged with – or perhaps even fascinated with, without jumping to premature judgement about – past and future problems that inevitably arise in HRO operations; (3) *reluctance to simplify*, the behavioural norm of welcoming challenging debate rather than brushing complex issues under the proverbial carpet; (4) *commitment to resilience*, the collective preparedness to step up and step in when the group's collective capacity to address unexpected challenges changes (e.g., a team member drops out of action); and (5) *deference to expertise*, avoiding the automatic tendency to defer in decision-making to the most experienced or most highly ranked individual, rather than listening to the person who is most qualified in the moment to decide on action, independent of their status in the group hierarchy.

2.4. Theoretical linkages and framework for this study

We draw on Maylor et al.'s (2013) three-fold conceptualisation of project complexity - comprising *structural, socio-political*, and *emergent* dimensions, Maylor and Turner's (2017) three response operational capabilities (*planning and control, relationship-building*, and *flexibility*), and the conceptualisation of mindfulness as a multi-level construct in organisations, as synthesised in the review by Sutcliffe et al. (2016), to develop a combined theoretical framework that integrates these conceptualisations. This framework, depicted in Fig. 1 below, is included for the following three reasons.

First, scholarship in mindfulness suggests that responses to project complexity may be meaningfully enhanced through mindfulness practices across levels of analysis. At the individual level, mindfulness has been associated with enhanced attentional regulation and metacognition, which may be relevant for planning and control processes by supporting leaders' capacity to reflect on complex interdependencies and sustain focus, as suggested in conceptual work (Glomb et al., 2011). At a team level, team mindfulness (Yu & Zellmer-Bruhn, 2018) enhances psychological safety and non-judgemental attention to interpersonal processes, enabling relationship-building responses to socio-political complexity. At the organisational level, research on collective mindfulness (Weick & Sutcliffe, 2006) highlights how shared attentiveness and heedful interrelating enable flexibility responses to emergent complexity, such as adapting to unexpected disruptions. We speculate that mindfulness practices may cross levels of analysis, i.e., individual mindfulness practices influence team-level mindfulness processes and vice versa, and organisation-wide mindfulness practices are influenced by and influence lower-level mindfulness practices.

Second, there is mounting evidence linking collective mindfulness to reliability and resilience in contexts characterised by persistent complexity. Studies in HRO contexts demonstrate that mindfulness practices underpin the capacity to manage ongoing complexity through early problem detection, safety culture development, error containment, adaptive resilience, and safety-criticality (Callari et al., 2019; Feng & Trinh, 2019; Gracia et al., 2020; Martínez-Córcoles & Vogus, 2020; Saunders et al., 2016). In addition, in project settings, research suggests that mindfulness as a metacognitive practice is highly relevant for individual and collective performance (Daniel et al., 2023; Turner et al., 2016). For example, collective mindfulness may be critical for organisational resilience in megaprojects (Wang et al., 2021).

Finally, although prior research has considered mindfulness in various project contexts (Daniel et al., 2023; Daniel, Daniel & Smyth, 2022; Jiang et al., 2025), it rarely addresses its multi-level (individual, team, organisational) dynamics in relation to project complexity.

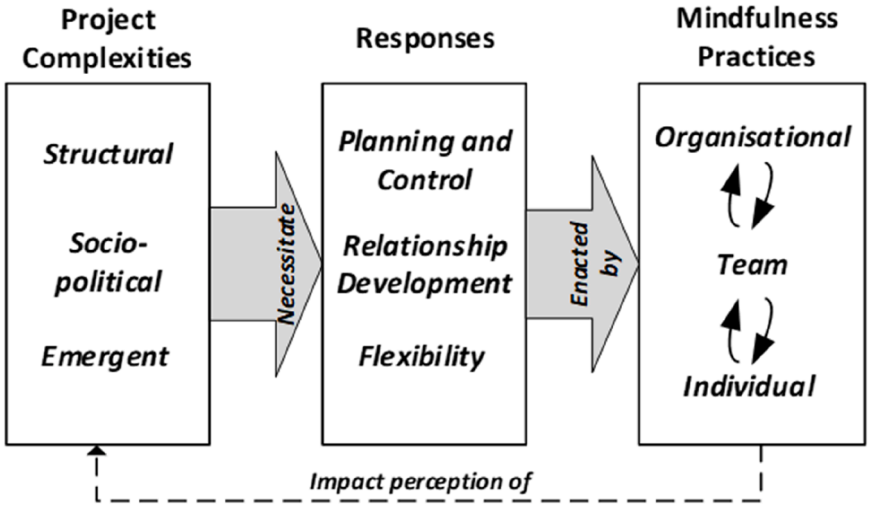

Fig. 1. The study's theoretical framework.

Evidence indicates that individual mindfulness supports present-moment awareness and enhanced decision-making (Hafenbrack et al., 2013). Team mindfulness fosters attentiveness, openness, and coordination (Wang et al., 2021). Organisational mindfulness enables early detection of issues and adaptive responses (Daniel et al., 2022; Wang & Wang, 2023). However, it is not yet known if and how these practices differentially contribute to address structural, socio-political, and emergent complexity faced by project leaders. There is evidence that mindfulness may shape perceptions of complexity itself by altering how project actors attend to uncertainty, ambiguity, and stakeholder dynamics (Donaldson-Feilder et al., 2019). This indicates that mindfulness practices may not only enable effective responses to complexity but also influence how complexity is experienced and constructed within projects.

Taken together, recent scholarship points to a nascent and promising link between mindfulness and project complexity, yet the nature of this link or how it is enabled remains underexplored. Therefore, to the best of our knowledge, ours is the first scientific exploration to address this gap by examining how mindful practices may be linked to more effective management of project complexity across organisational levels.

As identified earlier, our overall research question (RQ) guiding the empirical investigation was: *"How do project leaders enact mindfulness at individual, team, and organisation-wide levels to address different types of project complexity?"*

3. Methodology

3.1. Research design

We use a qualitative exploratory methodology, which we deem appropriate for generating new knowledge on the link between mindfulness and project complexity. We chose Grounded Theory (Strauss & Corbin, 1990) as fit for the present study because it enabled us to examine our data in rich detail and explore a more nuanced perspective of project complexity. Specifically, we investigate *a priori* mappings of different levels of mindfulness against emergent mindfulness and complexity-related themes through iterative coding of our empirical data. In so doing, we also lean on Gioia et al. (2013) who suggest that rigorous qualitative research examines existing theory and empirical data simultaneously, essentially linking up "knowing" with "not knowing" (ibid.). This also enables us to combine *inductive* with *abductive* research; in other words, combining theory with data to generate inferences and thus new theoretical insights (Magnani & Gioia, 2023). The Gioia approach is particularly suited to developing grounded conceptual frameworks from participants' experiences. It provides a systematic process for moving from informant-centric, first-order terms to researcher-centric, second-order themes and, ultimately, to aggregate theoretical dimensions.

We collected data from mid-June 2024 to November 2024 drawing on two sources: (1) an online survey with open-ended questions, and (2) semi-structured, individual interviews which explored the same topics as the online survey in further depth.

3.2. Participants

Our survey and interview participants were recruited from several cohorts of Project Leadership Programme (PLP) participants who completed the programme between 2020 and 2023, i.e. individuals who had finished the course at between one and four years prior to data collection. The participants were senior project managers working in a variety of senior civil servant roles (see Appendix B for participant demographics). As mentioned above, the PLP is a twelve-month programme accredited by the Association for Project Management (APM), designed for project leaders in all UK government departments and hosted at a UK business school. Through four face-to-face residential modules which include five overnight stays at the business school, psychometric testing, online pre-learning and 4–6 h of executive coaching throughout the 12 months, its core aim is to develop project leadership skills across the public sector and create a new cadre of elite project leaders and programme directors, specifically targeting three core project leadership competencies: self-leadership, commercial leadership, and technical project leadership. To date, approximately 3000 individuals in the UK civil service have completed this programme, in cohorts of approximately 50 individuals, i.e., 7 cohorts per year. We describe the PLP in more detail in Appendix A. Our sample is particularly well suited for this study because the PLP explicitly incorporates mindfulness practices at individual, team, and organisational levels. Within the programme, participants were trained to apply these practices directly in their project leadership contexts, thereby translating both experiential and reflective insights into work realities. As a result, this group is uniquely qualified to speak to how mindfulness practices can be mobilised as responses to different forms of project complexity, and to evaluate their practical relevance for project management. Studying project complexity and mindfulness in this sample of senior project managers in the UK civil service can thus be seen as a "critical case" according to Flyvberg's (2006) categorisation of purposeful case selection types as these participants are well-placed to reveal critical insights that will also be relevant in other contexts.

3.3. Data collection

Participation was voluntary; participants were invited via email from the PLP organiser. 126 individuals completed the anonymous online survey, which was hosted on Qualtrics; 58 of these responses were complete and included in the analysis. In addition, 10 semi-structured confidential interviews were conducted by a trained research assistant. The interviews were all audio-recorded and then transcribed.

The anonymous online survey consisted of open-ended questions related to Maylor et al.'s (2013) three types of project complexities and mindfulness, inviting participants to describe (1) their perceptions of different types of project complexities and how they addressed these complexities in their work; (2) what mindfulness means to them personally (in other words, requesting their own interpretation of the construct rather than providing dictionary or literature definitions) at individual, team, and organisational levels; (3) why and how they might have cultivated mindfulness at any of the three levels; (4) what challenges they might have encountered in so doing and how they might have overcome those; and (5) what their key learnings about this are. In addition, the online survey asked about the participants' department, their job role, their job programme and in which year they completed the PLP (see Table B1 in Appendix B).

The semi-structured interviews focused on participants' experiences with, perceptions of, and challenges in embedding learning insights relating to mindfulness and project complexity. For the interviews, we also collected age, years of experience, and the size of the team they were leading at the time, as well as the government department they worked for and their job role (see Table B2 in Appendix B).

The instruments were pilot-tested with 8 PLP alumni who completed the course in early 2024, and the wording of some of the open-ended questions was adapted for improved comprehensibility. Participation was voluntary; participants were invited via email from the PLP organiser.

3.4. Data analysis

Our data analysis process consisted of two stages: In the first stage, we used inductive coding to gain an understanding of how project leaders established mindfulness at the individual, group and organisational level and of how project leaders address different types of project complexities. In doing this we drew on the Gioia method (Gioia et al., 2013), whereby the details of the data are captured as closely as possible, initially in the first order themes (shown in Figs. 2 and 3). We

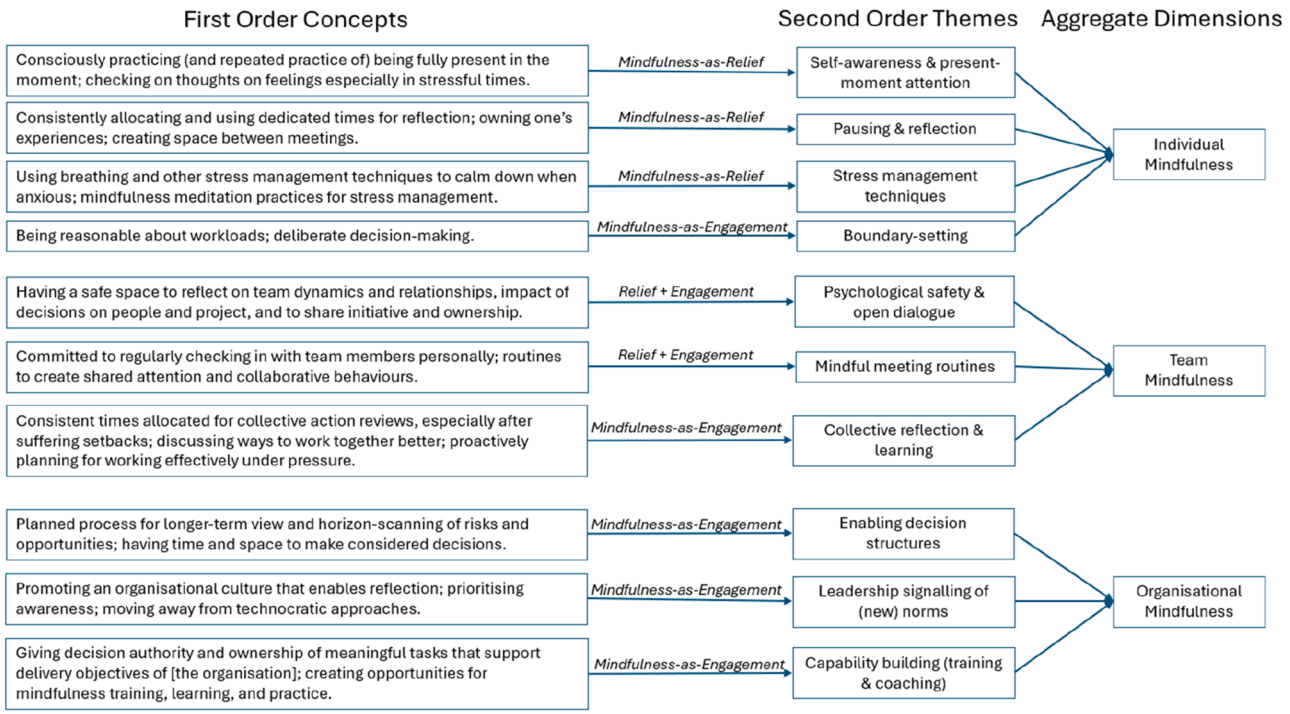

Fig. 2. Gioia analysis of how project leaders embed mindfulness at individual, team, and organisational levels.

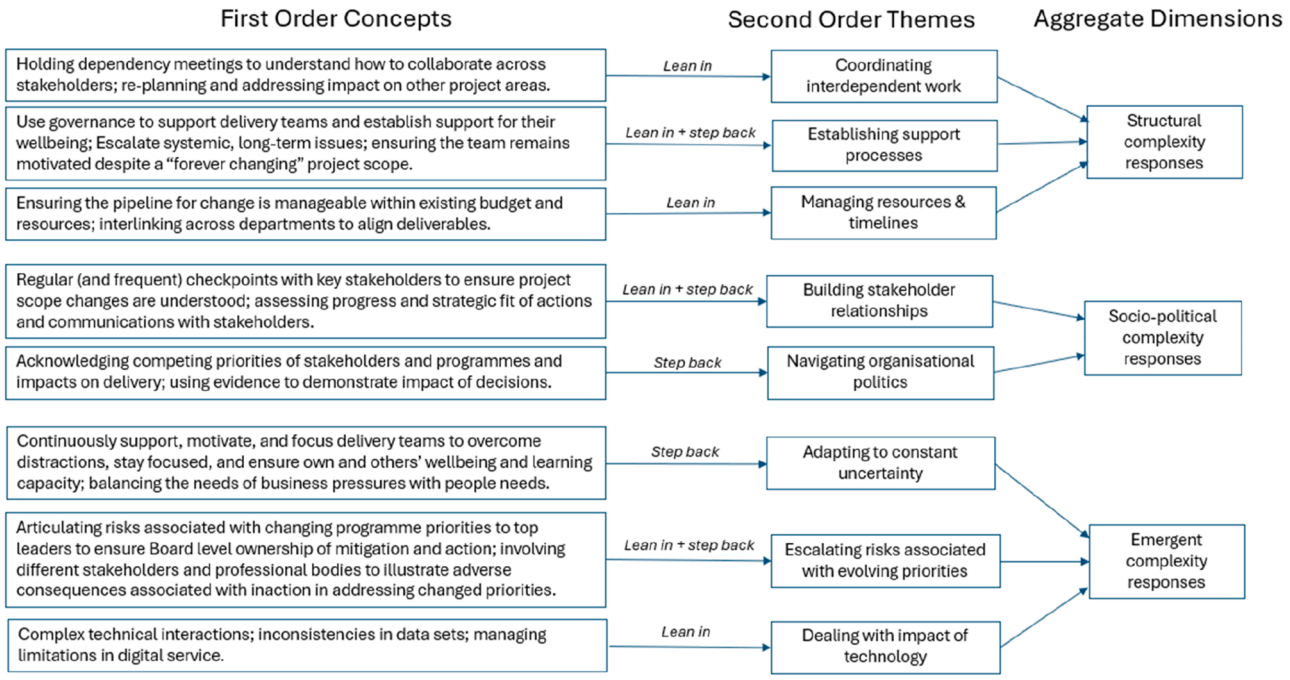

Fig. 3. Gioia analysis of how project leaders address different types of project complexity.

chose the Gioia method because it provides a transparent, inductive scheme for deriving themes from qualitative data by progressing from first-order participant concepts to second-order themes and aggregate dimensions using a transparent and traceable process linking raw data with conclusions from data analysis. Recent studies in project management have applied the Gioia methodology to examine procuring agile software development, stakeholder-based megaproject resilience, power relations in project finance, governance interfaces, and field-level sensemaking (Aoufi et al., 2022; Morkan et al., 2023; Pisotska et al., 2022).

We applied a consistent process of reading, coding, and interpreting data (Aoufi et al., 2022). Second-order categorisations are then identified, which are "researcher-centric concepts, themes, and dimensions" (Gioia et al., 2013, p.18). Rather than use these to develop the data-specific aggregate dimensions, we were guided by the three levels of mindfulness and by the three types of project complexity within our analysis.

In the second stage, we conducted further coding based on the Maylor and Turner (2017) model. Specifically, the team analysed and categorised the data based on the nine project complexity / response

types within the model (3 types of project complexity and 3 response types). This enabled us to further sub-categorise each of Maylor and Turner's (2017) categorisations into the three mindfulness levels (i.e. individual, group, organisation). This resulted in 27 possible codes (i.e. $3 \times 3 \times 3$), and a structured way of presenting the detail of the data in an ordered and tabular manner. The team iterated between the data and the analysis framework to confirm that the data represented the respondents' responses accurately and comprehensively and to ensure that our analyses and conclusions were justified (Eisenhardt & Graebner, 2007). The coding was performed in concert by two researchers, with multiple review and feedback sessions with the extended research team to validate coding interpretations. This involved multiple rounds of discussion and necessarily became detailed in attempting to capture all the points that arose in the interviews and to validate coding interpretations. A reduced version of the significant findings from this analysis, offering a distillation of themes most relevant to answer the RQ are shown in Table 1. In this way, Table 1 demonstrates the practical application of Fig. 1 (the study's theoretical framework) by mapping each project complexity dimension onto codes derived from the empirical data.

4. Findings

We report the findings from our data analyses in the sections below.

4.1. Overview

In line with Gioia et al. (2013), we first provide our analysis of how the project leaders in our study enact mindfulness at individual, team, and organisational levels (see Fig. 2), followed by an analysis of how they understand and address different types of project complexity (Fig. 3). We then outline how we have combined and synthesised these two analysis models to generate a comprehensive overview of how mindfulness at multiple levels may offer practices to illuminate Maylor and Turner's (2017) three types of responses to project complexity (see Table 1).

4.2. How project leaders enact mindfulness at individual, team, and organisational levels

While mindfulness as metacognitive practice has not been linked specifically to multi-level processes of mindfulness, it may be differentially relevant to different levels of analysis in mindfulness practice for project leaders, as we explore below. Our coding results depicting the approaches our participants have taken to embed mindfulness at multiple levels of analysis in their organisations are shown in Fig. 2.

The general mechanism involved in embedding mindfulness in a project leadership context, in other words, the process through which learning about mindfulness may have been translated into action in our participants' project lives, seemed to involve *"making space"* and *"considering the space between stimulus and response"*, which came up numerous times. This suggests that our participants were learning to monitor their experience with acceptance in accordance with the theorised process through which mindfulness training typically occurs: monitoring (Lindsay & Creswell, 2017) and decentering from or reperceiving one's experience (Bernstein et al., 2015).

To cultivate individual mindfulness, the data clearly show that our participants practice mindfulness as a means to generate (1) self-awareness and present-moment attention, (2) pausing and reflection, using mindfulness-based (3) stress-management techniques, and (4) boundary-setting. The key second-order themes raised by participants at this level of analysis are broadly in line with Choi et al.'s (2021) *mindfulness as relief* frame, frequently mentioning *"taking a mindful minute"* to slow down, manage one's awareness in the present moment, and respond, rather than react during moments of stress. In the words of our participants, individual mindfulness is about *"looking after yourself well"*

Table 1
Integrating three levels of mindfulness practices (understand, connect, transform) with three response capabilities (planning, relational, flexibility) to address three types of project complexity.

Complexity management	Structural Complexity	Socio-political Complexity	Emergent Complexity
Planning Response - *Understand*			
Individual Mindfulness	Pausing and reflection plus boundary-setting are used to triage tasks, stabilise schedules and coordinate dependencies.	Deliberate pausing and reflection are used to check assumptions and prepare disciplined, bias-aware stakeholder plans.	Present-moment attention and reflection support rapid re-prioritisation under uncertainty without over-reacting.
Team Mindfulness	Mindful meeting routines and collective reflection keep dependencies visible and recalibrate plans and handovers.	Mindful meeting routines provide predictable touchpoints to align messages and track stakeholder commitments.	Short, mindful check-ins and retros update assumptions frequently and keep action lists current as conditions change.
Organisational Mindfulness	Enabling decision structures and support processes standardise governance, resource allocation, and change control.	Enabling decision structures define engagement pathways while leadership signalling clarifies rules of the game.	Enabling decision structures support scenario planning and fast risk escalation as priorities evolve.
Relational Response - *Connect*			
Individual Mindfulness	Self-awareness and present-moment attention help leaders hold constructive coordination conversations across interfaces.	Self-awareness and stress-regulation keep conversations constructive when interests clash, building stakeholder trust.	Empathic, composed presence sustains credibility with stakeholders during surprises and ambiguous shifts.
Team Mindfulness	Psychological safety and open dialogue enable teams to surface constraints and negotiate workable cross-team agreements.	Psychological safety and open dialogue help teams build relationships and navigate organisational politics together.	Psychological safety invites weak-signal sharing and joint sensemaking when novel issues emerge.
Organisational Mindfulness	Leadership signalling of new norms bridges silos and legitimises cross-functional escalation routes.	Capability building and leadership signalling establish organisation-wide norms for respectful challenge and coalition-building.	Leadership signalling legitimises course-corrections and connects units for rapid knowledge sharing.
Flexibility Response - *Transform*			
Individual Mindfulness	Stress-management and boundary-setting allow leaders to re-sequence personal work without loss of control.	Boundary-setting and present-moment attention help leaders adapt tone and tactics as power dynamics shift.	Boundary-setting and stress-management free capacity to experiment and pivot personal effort quickly.
Team Mindfulness	Collective reflection and learning support adaptive reallocation of work and cadence adjustments as structures shift.	Teams vary engagement tactics mindfully, preserving trust while re-framing proposals as stakeholder priorities evolve.	Collective reflection and learning underpin safe-to-try experiments and dynamic resequencing of work.
Organisational Mindfulness	Capability building equips units to pivot plans quickly within clear but flexible	Governance is flexed to open alternative forums or sponsorship routes when	Capability building enables agile practices, while decision structures

(*continued on next page*)

Table 1 (*continued*)

Complexity management	Structural Complexity	Socio-political Complexity	Emergent Complexity
	decision structures.	existing channels become politicised.	expedite pivots and the escalation of evolving risks.

and *"meditation, reflection…, compassion, calm space"*.

However, Choi et al.'s (2021) *mindfulness as engagement* frame also applies here, specifically when engaging in boundary-setting at work. Several participants related that striving to *"be reasonable"* about their own and their subordinates' workload was an incarnation of personal mindfulness practice, indicating considered, conscious engagement with their stressful work realities. Furthermore, making decisions deliberately was considered a core individual mindfulness practice. *"It is about taking the time to consider what your next steps/approach is rather than having to make a snap decision"*, said a participant.

To cultivate team mindfulness, the project leaders in our sample discussed ideas that can be categorised into the following second-order themes: (1) mindful meeting routines, and (2) collective reflection and learning. Team mindfulness, a participant suggested, was helpful in addressing *"high levels of stress and anxiety within the team alongside a constantly reactive/firefighting approach"*, adding that it enabled the team to step back and reflect on what the work meant to them.

Cultivating team mindfulness, collective learning, and open dialogue in the team did not only take the form of discussing the benefits of a culture of psychological safety across team members and other key stakeholders, but also the deliberate creation of processes designed to foster constructive debate, such as the creation of "*a 'project decision-making principles and protocols' document that served to get others thinking about their roles."* Team mindfulness practices appear to vary in format, ranging from proactively making space for mindful team rituals to cultivating awareness in decision-making and dedicating effort to build a team culture of psychological safety, yet the overall shared intent of these practices seems aligned with the stated intent of team mindfulness; the cultivation of prosocial behaviour to minimise interpersonal conflict (Yu & Zellmer-Bruhn, 2018).

The one key phrase that encapsulates how project leaders embedded mindfulness in their project teams is *"committed team time"*. This involves focusing on fostering personal connections among team members, encouraging *"open conversation offering a safe space to discuss concerns and challenges, avoiding blame and judgement and focusing on resolution."* In addition, project leaders enacted mindfulness in their teams by mobilising their team to consider work issues from a long-term, strategic perspective, by deliberately making *"time to reflect and consider personal reactions and decisions as part of the decision-making process."*

Mindful meeting routines were discussed by several participants, encouraging team members to offer informal insights into their 'inner weather', mood, and energy levels. This in turn seemed to cultivate a supportive team culture, with people either offering help as appropriate, or becoming aware how best to relate to others. Additional mindful meeting rituals mentioned included the facilitation of short breathing exercises, meditation, and virtual yoga sessions among team members.

Mindfulness *as relief* seemed to apply to both of the above-mentioned second-order themes, yet these themes also related to mindfulness *as engagement*. This is because the concepts involved appeared to associate improved team collaboration with how they understood team mindfulness. One participant argued we should *"treat it as another tool, another technique that really helps you to manage the people aspects of project and stakeholder management and the stresses that arise from it."*

Finally, team mindfulness appeared to be cultivated by focusing on communication and information sharing, *"to keep colleagues informed, comfortable and contributing."* *Mindfulness-as-engagement* was enacted also through actively welcoming challenge. This included hearing *"what was on people's minds as the project moved forwards"*, and not freely sharing suggestions, concerns, or ideas was deemed an unacceptable cultural norm: *"if people did not come forward with worries and concerns we would assume they were not actually paying attention."*

However, other project leaders in our sample shared their struggles with embedding what they had learned about team mindfulness. Said one participant, *"Team mindfulness is a good concept but it is very difficult to apply in most corporate organisations as it is seen as low priority activity compared to the never-ending urgent delivery tasks that these environments focus on."* This indicates that if organisational routines are not built or changed to enable organisation-wide mindfulness, and project teams are constantly fire-fighting to meet urgent deadlines, then any attempt to create more mindful team routines is bound to be challenging.

To cultivate organisational mindfulness then, the following second-order themes were extracted: (1) enabling decision structures, (2) leadership signalling of (new) norms, and (3) capability building which includes training and coaching. All of these are incarnations of *mindfulness-as-engagement*, pointing to its broader utility to project leaders at this level than mindfulness predominately practiced as non-judgemental present-moment awareness. Unsurprisingly, *"culture is a big driver for organisational mindfulness and positive working practices,"* explained one participant. Enabling decision structures that promoted organisation-wise mindfulness included *"horizon scanning, seeing the bigger picture, getting involved at the outset and engaging key stakeholders early."* This is reminiscent of the HRO hallmark "preoccupation with failure" (Weick et al., 1999), by being *fascinated* rather than threatened by potential risks and taking *"a more nuanced approach*" to analysing risks and opportunities.

Leadership signalling new norms of behaviour was deemed essential by several participants, considering their own role-modelling mindful behaviours as necessary and effective: *"by applying myself to model these [mindful] behaviours I'm seeing a difference in how my team and other colleagues interact with me and I with them."* Organisation-wide mindfulness seemed to relate to a particular style of leadership, in particular *"the ability to drive better output for the benefit of the organisation through thoughtful thinking and creating a culture that enables reflection"*.

Finally, participants stressed the importance of coaching and training in building organisation-wide capacity for mindfulness. One project leader summarised this imperative as *"clarifying the aims of the programme and communicating these, making sure the work was aligned to these and that new starters were given ownership of meaningful tasks that would help them to learn and develop."* Overall, the themes presented here suggest that for our sample of project leaders, mindfulness appears certainly beneficial as a means to provide stress relief for individuals and teams – yet its potential as a way to generate more proactive engagement with the opportunities and challenges presented to them in their project realities may be even more beneficial in particular at collective levels of analysis.

4.3. How project leaders address different types of project complexity

When analysing how project leaders address different types of project complexity, we built on Choi et al.'s (2021) *mindfulness as engagement* vs *mindfulness as relief* motivations and categorised emerging second-order themes into *lean in* vs *step back*. We did this in order to bridge the theoretical gaps between the mindfulness and project complexity literatures.

Structural complexity was addressed primarily through mechanisms designed to (1) coordinate interdependent work, (2) establish support processes, and (3) manage resources and timelines. To coordinate interdependent work streams, leaders described the importance of holding dependency meetings and re-planning activities to ensure alignment across multiple stakeholders, often supported by structured governance processes that enabled escalation of systemic issues and sustained team motivation despite shifting scopes. Support processes were leveraged to address longer-term challenges and support delivery teams, as captured in the comment: "*Most of my time is spent trying to*

support my delivery teams… supporting their wellbeing." Additionally, leaders sought to manage resources and timelines by explicitly linking workstreams across departments to align deliverables.

When categorising emerging themes into *lean in* vs *step back*, we found that all three second-order themes included *lean in* characteristics, because they indicated conscientious and consistent engagement with governance structures and stakeholders. Only the 'establishing support processes' theme here referred to healthy practices that related to *stepping back*: One participant related that when setting up project support structures, they were particularly concerned with *"remaining mindful of my impact on others."*

In navigating socio-political complexity, project leaders placed emphasis on (1) building stakeholder relationships and (2) navigating organisational politics. They built and maintained stakeholder relationships through regular, frequent checkpoints to ensure shared understanding of scope changes and alignment of actions. Navigating organisational politics seemed equally critical, with leaders acknowledging, facing and working with competing priorities: "*Much of the complexity of our programme is driven by political uncertainty.*"

When categorising second-order themes in this group into *lean in* vs *step back*, it seemed that the latter infused both, with the 'building stakeholder relationships' theme also incorporating elements of *lean in*: when discussing helpful practices to generate healthy stakeholder relationships, one of our participants said they were *"spending time listening and asking questions… and working on building good, trusted relationships with colleagues*". This indicates mindful and proactive stakeholder engagement.

Addressing emergent complexity involved (1) adapting to constant uncertainty, (2) escalating risks associated with evolving priorities, and (3) dealing with impact of technology. Leaders frequently mentioned that their project work brought with it significant uncertainty and complexity, which means they had to *"continuously support, motivate and focus colleagues to overcome distractions and ensure accountability alongside wellbeing, development and happiness at work."* The mechanisms through which they engaged in these supportive behaviours included "*taking a reflective approach"* and *"sustaining my own and others' wellbeing."* Several participants also related that escalating risks to senior leadership helped because it increased visibility of evolving issues. There was also evidence of carefully presenting this information to senior stakeholders who were reluctant to update plans and dates in the face of this uncertainty. There was also evidence of resorting to informal reviews of programme plans by associated professional bodies to highlight to ministers that reluctance to make decisions ramps up project risk. Finally, leaders recognised that dealing with the impact of technology was challenging, noting that emergent complexity could stem from the technical environment itself: "*Complex technical interactions between real world activities and digital solutions create uncertainty that must be managed iteratively*."

Finally, categorising second-order themes in this group resulted into an even balance between *leaning in* and *stepping back*. While 'adapting to constant uncertainty' seemed more linked to *stepping back* because of its strong focus on providing relief from the stressors of the project and *leaning in* seemed to be predominately required when dealing with the impact of technology, healthy responses to emergent complexity generally balanced a relief with an engagement motivation for the practices discussed.

These findings taken together illustrate the actions that project leaders take to stabilise and adapt their approaches depending on the type of complexity encountered. They draw on a repertoire of practices that range from highly structured coordination to nuanced political negotiation and flexible, resilience-oriented action. Overall, responses to structural project complexity tend towards *leaning in* and thus proactive engagement practices, socio-political complexity responses seem to focus somewhat more on *stepping back*, and emergent complexity responses seem to balance relief with engagement-type responses. While these illuminate *what* can help address different types of project complexity, they do not fully explain *how* project leaders can enact these practices. We attempt to address this in the next section.

4.4. Combining 'the what' with 'the how' in response to different types of project complexity

Project leadership in complex programmes is challenging. More specifically, what responses to take to different types of project complexity is not always apparent, neither is it obvious how to enact these responses. When combining the two Gioia models to uncover an integrative answer to this study's RQ, analysis iterated between the data and the Gioia models. Integrative coding was performed in concert by two researchers, with multiple review and feedback sessions with the extended research team to validate coding interpretations. The analysis necessarily became lengthy and while all 27 combinations could be represented by merging several second-order themes per cell, a synthesised summary of the most beneficial mindfulness practices to address project complexity across mindfulness levels and response capability is presented in Table 1 below. We clustered these into three meaningful yet tentative categories (*understand, connect, transform*, discussed below). In sum, the synthesis brings together in three speculative sections the essence of *what* helpful responses the project leaders in our study say they have taken to address different types of project complexity alongside *how* they say they have beneficially enacted this through mindfulness practices at different levels of analysis.

'Understand' to enact planning and control responses to structural complexity

The first way in which the project leaders in our sample responded to complexity was by cultivating understanding through planning and control practices. These responses were most closely aligned with the management of structural complexity, where the challenge arises from the number, variety, and interdependence of tasks, technologies, and stakeholders. At the individual level, mindfulness enabled leaders to regulate attention and sustain metacognitive awareness, which supported their ability to monitor interdependencies without becoming overwhelmed. Here, mindfulness sometimes took the form of stepping back to avoid cognitive overload while at other times leaning into the detail required for effective planning. At the team level, team mindfulness enhanced the collective ability to make sense of interdependencies by encouraging members to listen attentively and to coordinate without judgement. This allowed teams to balance engagement in task detail with stepping back to recalibrate when tensions arise. At the organisational level, collective mindfulness became institutionalised in routines of review, anticipation, and mindful action reviews, embedding planning and control into the organisational fabric while also providing opportunities to pause and reconsider. Although planning and control responses most directly address structural complexity, they also contribute to navigating socio-political and emergent complexity by offering a shared base of clarity and coordination upon which relational and adaptive responses can build.

'Connect' to enact relationship-building responses to socio-political complexity

The second form of response was concerned with connection through relationship-building practices, which seemed particularly salient for addressing socio-political complexity. inherent in multi-stakeholder project environments. At the individual level, mindfulness allowed leaders to regulate emotional responses in difficult exchanges, enabling them to step back from defensiveness while also leaning into conversations with empathy and openness. At the team level, team mindfulness seemed to have fostered psychological safety, attentiveness, and non-judgemental dialogue. At the organisational level, collective mindfulness appeared to sustain a culture of respect, voice, and heedful communication across functional and hierarchical boundaries, allowing the organisation to maintain collaborative practices despite political tensions. While relationship-building responses were especially important in contexts of socio-political complexity, they seemed also relevant

to structural complexity, where coordination depended on trust, and to emergent complexity, where adaptation required collaboration across boundaries. Relationship-building thus provided the connective tissue that enabled other responses to be effective.

'Transform' to enact flexibility responses to emergent complexity

The third mode of response involved transformation through practices of flexibility, which were most directly mobilised in relation to emergent complexity. Emergent complexity is characterised by the unknown, the unpredictable, disruption, and rapid change, and requires project leaders to improvise and adapt. At the individual level, mindfulness practices seemed to have helped leaders to step back from stress reactions in the face of uncertainty, while also leaning in to creative problem-solving and improvisation. At the team level, team mindfulness seemed to have enhanced the capacity for adaptive coordination, enabling members to reflect collectively on changing conditions while simultaneously engaging in experimentation and redistribution of tasks. At the organisational level, collective mindfulness appeared to support resilience through governance practices that legitimised both pausing to reconsider and acting decisively in response to disruption. Although flexibility responses are most closely linked with emergent complexity, they also seemed to contribute to navigating socio-political complexity by enabling adaptive approaches to stakeholder dynamics, and to structural complexity by allowing plans to be adjusted when interdependencies shift. Flexibility, therefore, is not only about rapid reaction but about institutionalising the capacity to pause, reflect, and adapt at multiple levels of practice.

Taken together, these three forms of response suggested that different types of project complexity tend to evoke a dominant form of mindfulness-enabled practice: planning and control for structural complexity, relationship-building for socio-political complexity, and flexibility for emergent complexity. Yet each response also seemed to have secondary relevance across other types of complexity, underscoring that the boundaries between them seem porous rather than rigid. Across all three, mindfulness appeared to operate both as relief, enabling leaders and collectives to step back from stress, overload, and defensiveness, and as engagement, enabling them to lean in to detail, dialogue, and improvisation. This dual capacity seems to highlight how project leaders can translate mindfulness practices into organisational responses that are not merely reactive but become embodied, shared, and routinised (Reckwitz, 2002), thereby allowing organisations to sustain effective action under conditions of complexity.

5. Discussion

This study offers new insights into how project leaders navigate structural, socio-political, and emergent complexities by deploying distinct but interrelated operational responses -planning and control, relationship-building, and flexibility - enacted through mindfulness practices at individual, team, and organisational levels. By situating these findings within practice theory (Reckwitz, 2002) and the strategy-as-practice perspective (Jarzabkowski et al., 2007; Langley, 2015), we advance understanding of the micro-level enactments through which project leaders translate strategic intent into situated action under conditions of complexity.

5.1. Contributions to theory

This study makes the following three interrelated contributions to theory. First, we advance project complexity theory by illustrating *how* response capabilities are enacted through mindfulness as a multi-level metacognitive practice. This research incorporated and then evolved Maylor and Turner's (2017) typology relating complexities and responses (see Table 1 above). The complexity-response mapping, as noted, has been successfully used in various contexts to classify specific managerial choices (e.g., Baxter & Turner, 2023; Boehme et al., 2024; Turner et al., 2018). However, this body of work has focused primarily on identifying *what* responses are deployed in the face of different types of complexity, rather than explaining *how* such responses are enacted in practice across organisational levels. In this work we have moved away from this logic, and Table 2 below develops a different approach to capturing managerial practices.

From our empirical data, this offers a typology of mindfulness practices at the individual, team, and organisational levels, in line with the types of project complexity encountered. In contrast to previous studies, this focuses not on specific solutions, but on approaches that support the identification of resolutions at multiple levels, including pauses, check-ins, open dialogue, self-awareness, signalling, and respectful challenge. By bringing together the concepts of mindfulness and project complexity, this offers a deeper understanding of the *route* to effective solutions in such environments, an area previously underdeveloped. In doing so, we extend project complexity theory by shifting attention from response categories as static managerial choices towards the situated practices through which project leaders understand, connect, and transform complex situations. This contribution reframes complexity responses as enacted, processual, and socially mediated, rather than as discrete techniques or tools.

Second, adopting a Strategy-as-Practice perspective, we reconceptualise project leaders as translators of strategy (Langley, 2015) who embody and mobilise mindfulness in the translation of strategic intent into situated action under conditions of complexity. In our work, mindfulness is shown not as an isolated individual intervention but as a socially embedded metacognitive capacity that infuses operational capabilities across levels of practice, in line with Tobias Mortlock et al. (2022) team mindfulness training programme. This reframes mindfulness from an individual-level intervention to a socially embedded capacity that enables organisations to engage productively with complexity. Drawing on Ladkin and Taylor (2010) work on embodied authentic leadership, we suggest that mindfulness functions as the "how" of building embodied knowledge of self, others, and the organisation. In this sense, mindfulness enables project leaders to translate strategic intent into practice through embodied attentiveness, illustrating that knowledge is not abstract but lived, resonating with the saying attributed to the Asaro of Indonesia and Papua New Guinea that "*knowledge is a rumour until it lives in the muscle*." This contribution extends strategy-as-practice-based views of leadership by foregrounding mindfulness as a form of embodied knowing through which strategic responses to complexity are made possible, resonating with practice-based views of knowledge as lived rather than abstract.

Third, we refine mindfulness theory through a multi-level, dual-purpose conceptualisation of mindful metacognition. Our data suggest that mindful attention to provide relief from project stressors can be as central as mindful conceptualising for adaptive project performance. This broadens existing theory by demonstrating that mindfulness practices can be distributed across multiple levels of analysis and embedded in organisational systems, rather than confined to individual cognition. Building on conceptualisations of mindfulness as metacognitive practice (Kudesia, 2019) and distinctions between mindfulness as relief and mindfulness as engagement (Choi et al., 2021), this study shows how these orientations are dynamically combined and enacted across individual, team, and organisational levels. Project leaders are shown to both step back to regulate stress, emotion, and overload, and lean in to complexity through sustained attention, dialogue, and adaptive sensemaking. By demonstrating that mindfulness as relief and mindfulness as engagement are enacted collectively through team interactions, leadership signalling, and organisational routines, this contribution extends mindfulness theory beyond its dominant intrapsychic framing. Mindfulness emerges as a socially distributed, purpose-driven practice that supports both stabilisation and transformation in complex project environments.

Taken together, these three contributions integrate project complexity theory, practice theory, and mindfulness scholarship to explain not only *what* responses to complexity are effective, but *how*

Table 2
A map of cross-level mindfulness practices to address different types of project complexity.

	Individual level	Team level	Organisation-wide
Emergent complexity	Deliberate pausing, stress-regulation, and boundary-setting free leaders to re-prioritise rapidly without over-reacting.	Short mindful check-ins and collective reflection routines help teams update assumptions and experiment safely.	Capability-building and leadership signalling enable adaptive routines, scenario planning, and agile pivots under uncertainty.
Structural complexity	Focused attention, pausing, and boundary-setting help leaders triage tasks, stabilise schedules, and sustain clarity.	Mindful meeting routines and open dialogue make dependencies visible, recalibrate handovers, and maintain cross-functional alignment.	Decision structures and governance processes are flexed to support coordination, resource allocation, and strategic alignment.
Socio-political complexity	Perspective-taking, self-awareness, and present-moment regulation sustain constructive conversations and stakeholder trust.	Psychological safety and mindful communication routines foster trust, help teams align across interests, and navigate organisational politics.	Leadership signalling and capability building create organisation-wide norms for respectful challenge, coalition-building, and escalation across hierarchies.

project leaders embody, share, and routinise these responses across organisational levels. In doing so, the study positions mindfulness as a generative organising capacity for sustained performance in complex projects, rather than as a peripheral wellbeing intervention.

5.2. Contribution to practice

We make the following three contributions to practice. First, Kudesia (2019) argues that the dominant means of applying mindfulness is using a "borrowing" process, rather than "blending" assumptions in organisational theory building (citing Oswick et al., 2011). Findings from our study point to the potential to question the assumption that mindfulness in organisations always needs to be "trained", and that the mindfulness training needs to "borrow" or use as basis the 8-week MBSR training format, and then adapt it to a specific workplace context. Clearly, not all mental activity, such as reflection or meditative practice, is mindfulness. But mindfulness can be defined operationally and by its purpose; as mental discipline with the two-fold purpose of (a) deeply understanding and (b) transforming suffering (Bodhi, 2011) – or "stress", to use a more commonplace term in the jargon of today's workplaces. Crane et al. (2017) have offered a flexible definition of the warp and the weft involved in mindfulness-based programmes; meaning that there are certain essential elements (the warp, as in a weaving loom) that always must be included, and certain others (the weft, as in fabric or yarn in weaving) that are specific for a particular programme. The authors argue that "a sustained intensive training in mindfulness meditation practice" (ibid, p .1) is essential for cultivating mindfulness. The data from this study suggest that this may not be required for cultivating mindfulness in project leadership, especially at levels of analysis that step beyond the individual. This is because PLP participants engage in very few, very short mindfulness meditative practices on the PLP, and the participants in our study do not across the board report engaging in sustained intensive mindfulness meditation – yet they do report that they practice, and cultivate, mindfulness in their work. We therefore suggest that mindfulness can be learned through means that step beyond what is today considered 'classic' 8-week mindfulness training. Further research would be useful in this area.

Second, the participants in our study are all civil servants in senior government official roles. However, they have reported on a breadth of mindfulness practices ranging from brief "mindful minutes" to "fortnightly face-to-face resets". While not quite as numerous as the metaphorical 84,000 Dhamma doors, describing the extremely varied paths to enlightenment in the Mahayana tradition of Buddhism, it would appear that the context in which our participants found themselves was the driver for which particular door (or approach) to embedding mindfulness they chose. We argue that as long as the metacognitive practices outlined in this study are performed in the interest of the two-fold purpose of mindfulness following (Bodhi, 2011), then they are indeed mindfulness practices, and thus represent Dhamma doors, opening up the path towards transformation. In the concrete context of project leaders grappling with project complexity, this means mindfulness as metacognitive practice forms the basis of practical approaches to addressing structural, socio-political, and emergent complexity. We furthermore argue that these practices can extend the transformative potential of mindfulness beyond individual self-help. We lean on this assertion on Kabat-Zinn's (2011) call to consider mindfulness as transformative and a pursuit of liberation from suffering, not merely for the benefit of the self, but also for the benefit of others and for society as a whole. To illustrate this point further, Kabat-Zinn (ibid.) stressed that MBSR should be considered as "one of a possibly infinite number of skilful means" (ibid, p. 3) to bring mindfulness into mainstream society. Follow-up research on which of these means to bring mindfulness into busy project leaders' work contexts may be particularly skilful would be helpful.

Third, the PLP participants are encouraged to learn together in small groups over the course of 12 months. Peer to peer learning is a strong learning enabler on the course. This is akin to the 'third jewel' in traditional mindfulness practice, which may have been emphasised comparatively less in current approaches to facilitating learning in mindfulness for project leaders. In Buddhism, the essential pillars of mindfulness practice are referred to as the 'three jewels': the teacher or facilitator (in Buddhism this has originally been the Buddha); the teaching elements or topics to focus on during the practice (traditionally referred to as the dharma); and the community of mindfulness practitioners (referred to as the sangha; Hạnh, 2020). Of course, in a traditional Eastern contemplative context, the sangha would consist of monastics coming together to meditate, but in today's world, this word also refers to a community of Buddhist practitioners regularly practising mindfulness together. While this paper is not concerned with religious or spiritual mindfulness practice, we argue that creating connections among participants learning about mindfulness may be an important and understudied element that helps cultivate mindfulness practices in workplaces. Further research may help illuminate this topic more.

5.3. Limitations

This single-case exploratory study is certainly not representative of the project leadership landscape across sectors and industries. Furthermore, while the PLP population is large and ever-growing, we sampled only a small proportion of course participants. In addition, the PLP is but one incarnation of how learning about mindfulness and project complexity can be facilitated. To understand the transformative potential better that mindfulness practices at individual and collective levels may represent for project leaders, mindfulness researchers and trainers should move away from using cross-sectional survey based-methods to assess *descriptive* links between mindfulness constructs and project leadership variables and instead move towards exploring more *prescriptive* frameworks to *generate* effective project complexity responses using new approaches to training mindfulness as metacognitive practice at individual and collective levels. An example of this is Tobias Mortlock et al. (2022) multi-level mindfulness training pilot intervention, and follow-up research collaborations may be able to continue prying open the 'black box' of addressing project complexity in innovative and ever more effective ways.

6. Conclusion

In this qualitative study, we examined how senior project leaders across UK government departments enact mindfulness practices at individual, team, and organisational levels. Our findings demonstrate that project leaders integrate mindfulness practices into their leadership repertoires in ways that extend beyond stress reduction and personal wellbeing. Instead, mindfulness is mobilised as a metacognitive practice that facilitates planning and control, enhances relational capacities, and enables flexible responses to complexity across organisational levels.

By analysing mindfulness as a multilevel and practice-based phenomenon, our study contributes to the growing literature that conceptualises mindfulness not solely as an individual cognitive skill but as a set of embodied and routinised practices enacted collectively within organisations (Kudesia, 2019; Sutcliffe et al., 2016). We argue that current approaches risk treating mindfulness as a "borrowed" construct (Oswick et al., 2011), transferred wholesale from clinical and therapeutic contexts into organisational ones. Our findings instead highlight the potential of defining mindfulness operationally through its purpose: as a discipline directed towards deep understanding and transformation of challenges and suffering (Bodhi, 2011). Such a perspective opens up opportunities to blend and adapt diverse assumptions about mindfulness in ways that enrich theory-building in project leadership and complexity management.

In addition to theoretical contributions, we advance practice by offering a testable map of mindfulness practices that can be deployed to address structural, socio-political, and emergent project complexity. This framework provides practitioners with a repertoire of "skilful means" (Kabat-Zinn, 2011) for cultivating mindfulness across levels of analysis and situating it as a practical capability for navigating the dynamic challenges of contemporary projects. In doing so, we respond to calls to extend the scope of mindfulness research beyond intrapsychic interventions, foregrounding its role as an organising and relational resource in complex project environments.

Finally, we come back to the ideas of 'success' introduced earlier. We have shown how embracing mindfulness supports effective responses to the complexities encountered. There is no linear, agreed, path from mindfulness to success, but our work supports Pinto et al. (2025, p.5) who argue that "today's leaders must demonstrate not only technical competence but also political sensitivity, emotional intelligence, and strategic narrative skills. These are not "soft" skills - they are success skills in today's project environments."

Taken together, this study highlights the value of approaching mindfulness not as a borrowed intervention but as a set of practices embedded in, and generative of, project leadership. We hope this work stimulates further research into how mindfulness as metacognitive practice is enacted across organisational levels and contributes to effective responses to project complexity.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this manuscript, the authors used ChatGPT to assist with table formatting, clarification of text, identification of relevant citations, and reference checking. After using this tool, the authors reviewed and edited all content as needed and take full responsibility for the content of the publication.

CRediT authorship contribution statement

Jutta Tobias Mortlock: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Neil Turner:** Methodology, Data curation, Conceptualization. **Anke C. Plagnol:** Methodology, Formal analysis. **Anya Beaumont:** Writing – review & editing, Visualization, Project administration, Formal analysis, Data curation. **Mike Bourne:** Writing – review & editing, Supervision, Methodology, Investigation, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

Appendices

Appendix A1. How mindfulness is taught on the PLP

The PLP includes 3.5 days of face-to-face learning about mindfulness at individual, team and organisational levels. Additionally, the topic of mindfulness at individual and collective levels is discussed in the context of decision-making throughout the programme and set as the topic for the first of the three written assignments (2000 words; specified below) as well as discussed in the coaching conversations that the PLP participants engage in between taking part in the four PLP modules.

In the PLP, the concept of mindfulness is operationally defined as a metacognitive practice (Kudesia, 2019), and applied to the learning environment of PLP participants across three levels of analysis and into their project management reality. PLP participants are invited to apply mindfulness to their personal reflective practice during the programme as well as embed mindfulness in their projects upon completing the programme. The PLP structure is thus a suitable case context for examining the relationship between mindfulness and project complexity at an operational level.

The mindfulness component of the PLP was designed by three management scholars with extensive expertise in the theory of mindfulness at individual and collective levels and in-depth executive education experience of translating this knowledge into generating effective learning outcomes for senior leaders. Learning content about mindfulness was divided into three main sections: individual-level mindfulness, team-level mindfulness, and mindful organising to promote HRO and organisational resilience. While the scholar responsible for designing and facilitating learning on individual mindfulness on the PLP is a qualified psychotherapist with extensive experience in facilitating mindfulness meditation practice, mindfulness training on the PLP includes only very brief meditative practices. In other words, PLP participants only engage in 2–3 min meditative practices designed to help them generate purposeful non-judgemental present-moment awareness, as is typical for MBSR and derivatives (see Creswell, 2017, for an overview). Instead, teaching about mindfulness on the PLP follows Ellen Langer's socio-cognitive approach to mindfulness, defining mindfulness as "openness to novelty" (Langer, 1989), and linking mindfulness as metacognitive practice to improved decision-making.

After learning about leadership and effective strategy definition and execution in Module 1, PLP participants' learning journey of mindfulness starts with an online self-paced e-learning course that introduces the concept of mindfulness in the context of mindful vs. mindless decision-making, specifically linking mindful decision-making with emotional intelligence (EI: Goleman, 2006). Over the course of four parts, the participant is invited to try out and practice mindfulness techniques designed to increase the four dimensions of emotional intelligence: self-awareness, self-management, social awareness, and relationship management. For example, to generate self-awareness, participants are invited to "notice 5 things" by paying attention to a stimulus through one of their five senses (based on Williams, 2010).

During the first day of Module 2, mindfulness is framed as mental discipline (leaning on Bodhi, 2011), specifically the mental discipline of noticing the gap between stimulus and response. Importantly, the overall mental frame for the day is mindfulness as a multi-level construct (based on Sutcliffe et al., 2016), and participants are informed that they will learn more about collective mindfulness later on during the PLP, especially in Modules 3 and 4. The specific theoretical backbone for this first full day of mindfulness learning originates in Vogus et al.'s (2014) theorising that the underlying affective foundation of HRO consists of prosocial motivation and emotional ambivalence, which the PLP mindfulness learning facilitators interpret as a balanced outlook. Participants then spend the morning developing practical competencies in individual mindfulness, specifically focusing on increasing personal resilience through two types of mindfulness practices: (a) learning to switch mental focus from "doing" to "being" and thus encouraging a grounded, embodied presence by focusing on the "five senses" (based on Williams, 2010); and (b) reflecting in small groups on the interplay between stress and recovery to build personal resilience (Jenson & Fraser, 2011) and (re-)committing to building more effective stress-recovery cycles into their daily and weekly work routines.

During the afternoon of the same day, they are introduced to team mindfulness, defined as a team's shared belief that interactions amongst team members are marked by present-moment awareness and nonjudgement. This learning occurs inductively, based on Yu and Zellmer-Bruhn's (2018) assertion that team mindfulness may operationally overlap with psychological safety (Edmondson, 1999). Leaning on Lechner and Tobias Mortlock (2022), learning centred around team mindfulness is further embedded by inviting participants to practice rapid relationship building using a pair exercise whereby partners complete each other's 'user manual'; a short questionnaire designed to rapidly build interpersonal closeness (Aron et al., 1997) and a prosocial team attitude. The entire group then reflects together in the debrief on what practical adaptations of this exercise can be embedded in the participants' project leadership contexts, to build constructive relationships with team members and key stakeholders rapidly.

Finally, participants are inductively prompted to reflect on the automatic tendency to make assumptions about others, and potentially judge them negatively, when they act in surprising or unexpected ways, leaning on Argyris's ladder of inference idea (cited in Senge et al., 1994), and encouraged to proactively notice such personal tendencies in their interactions with others back at work. The day concludes with a brief overview of the five hallmarks of HRO, and an outline of the assignment that the participants are required to complete between Module 2 and Module 3; a reflective report inviting them to analyse the link between mindfulness and decision-making in their work context, and what this means for their future actions, by applying 2 or 3 frameworks they have learned during the module.

During Module 3, the participants undergo experiential learning about mindful organising and the five hallmarks of HRO by working through a 1.5 day simulation of the events that unfolded on 31st July 2008 during the final ascent of K2, the second highest mountain on Earth, where 11 out of 32 climbers lost their lives. By watching a series of video interviews with the survivors of this disaster, as well as structured group reflections to uncover the underlying reasons and actions that created 'mindlessness' during the K2 disaster, participants are invited to practice risk management tools, scenario and contingency planning, as well as stakeholder mapping and red teaming, in order to become more comfortable with uncertainty and chaos (see also Fraher et al., 2017). The K2 disaster and its link to 'mindfulness-based' reliability is outlined in Kutsch et al. (2016).

In the final module of the PLP, Module 4, the participants spend a day learning about organisational resilience, leaning on Weick et al.'s (2005) organisational sensemaking and situational awareness framework, and reflecting on Denyer and Sutliff's (2021) 7-step organisational resilience model, including (1) discussing future failure; (2) considering connected impacts; (3) understanding essential outcomes; (4) defining impact thresholds; (5) balancing strategic choices; (6) stress testing thresholds; and (7) enabling adaptive leadership. Through short videos, interactive discussions, and small group reflections, this session brings together learning on complexity leadership (Murphy et al., 2017) and safety culture (Bisbey et al., 2021), to equip the participants with practical knowledge and tools to lead complex projects mindfully.

Appendix B

Table B1
Participant demographics for online survey (open-ended questions).

Department	Participant Number	PLP Year	Job Programme	Job Role
Cabinet Office	44	2021	All, but mostly infrastructure	Commercial / Technical Specialist
Department for Business & Trade	42	2023	Varies (Flexible Resource Pool)	Project/Programme Manager
Department for Education	29	2022	Business Transformation	Programme Manager
Department for Energy Security & Net Zero	4	2023	Rapid Response Team within Corporate Services	Project Assistance Team - Team Lead
Department for Energy Security & Net Zero	41	2022	Project delivery/Operations	
Department for Energy Security & Net Zero	58	2023	Energy Efficiency	Programme Manager
Department for Environment, Food & Rural Affairs	9	2022	Mixed - IT, infrastructure and operational transformation	
Department for Environment, Food & Rural Affairs	10	2022	Business transformation (flood and coastal risk management)	Portfolio Manager
Department for Environment, Food & Rural Affairs	28	2022	IT	Project Executive
Department for Environment, Food & Rural Affairs	31	2021	HR	Senior Programme Manager
Department for Environment, Food & Rural Affairs	33	2021	Farming and countryside transformation	Programme Manager
Department for Environment, Food & Rural Affairs	37	2022	Legislative implementation – incl. Infrastructure, IT	
Department for Environment, Food & Rural Affairs	50	2022	IT	Project Executive
Department for Levelling Up Housing & Communities	11	2023	Mix of infrastructure and change (legislative led)	Head of Portfolio Office

(*continued on next page*)

Table B1 (*continued*)

Department	Participant Number	PLP Year	Job Programme	Job Role
Department for Levelling Up Housing & Communities	19	2022	Digital transformation	Delivery Manager
Department for Levelling Up Housing & Communities	32	2022	Digital transformation	Head of Digital Delivery
Department for Levelling Up Housing & Communities	49	2022	Infrastructure	Head of PMO
Department for Science, Innovation & Technology	53	2023	Infrastructure	Stakeholder Engagement Lead
Department for Transport	8	2023	Infrastructure	
Department for Transport	40	2022	Transport Infrastructure	Programme Manager - Rail Integration
Department for Transport	54	2022	Infrastructure	Project Sponsor
Department for Transport	56	2022	Transformation	Benefits
Department for Work & Pensions	3	2021	Business Change including IT	Project Leader
Department for Work & Pensions	15	2021	Service Design	Project Manager
Department for Work & Pensions	25	2023	HR	Risk, Evaluation, Assurance and Reporting Lead
Department for Work & Pensions	36	2022	Benefits, then HR	Senior Learning Partner
Department for Work & Pensions	48	2022	Health Transformation	Programme Gateway/Horizon Scanning
Department of Health & Social Care	1	2023	Health	PMO Head
Foreign, Commonwealth & Development Office	27	2021	Climate Adaptation, Resilient Infrastructure - Bilateral Project Management of ODA funds	Portfolio Manager
Foreign, Commonwealth & Development Office	43	2023	International development	Senior Transnational Threats Adviser
HM Revenue & Customs	13	2021	IT Security	Senior Project Manager
HM Revenue & Customs	30	2023	Transformation	Head of PMO
Home Office	2	2023	Operational role	Operational Coordination Centre Lead
Home Office	5	2022	Procurement	Senior Project Manager
Home Office	16	2023	Data and Technology	Delivery Lead
Home Office	18	2022	IT	Programme Director
Home Office	23	2023	IT	Product Transition Delivery Manager
Home Office	26	2023	IT - National Infrastructure Programme	Programme Manager
Home Office	34	2022	Technology and Innovation Projects & Procurement Projects	Project Delivery Manager
Home Office	39	2021	IT	Programme Manager
Home Office	46	2023	IT	Head of PMO
Home Office	55	2023	IT, Policy, Process, HR	Programme Manager
Home Office	57	2022	Mixed Portfolio	Portfolio Manager
Local Government	47	2022	Development/Regeneration	Programme Manager
Ministry of Justice	12	2022	Infrastructure	Programme Manager
Ministry of Justice	14	2022	IT and Data	Lead Project Manager
Ministry of Justice	17	2023	IT	Senior Project Manager
Ministry of Justice	22	2021	Change Portfolio	Programme Manager
Ministry of Justice	24	2022	Infrastructure	Programme Manager
Ministry of Justice	35	2021	Transformation Change	Change Senior Project Manager
Ministry of Justice	38	2022	Capital Infrastructure	Principal Project Sponsor
Ministry of Justice	45	2021	Infrastructure	Project Director - Project Development
Ministry of Justice	51	2022	Policy	Senior Programme Manager
Ministry of Justice	52	2022	Infrastructure	Programme Manager
Other	7	2022	Science	Head Of Strategic Finance
Other	20	2023	IT	Senior Programme Manager
Other	21	2023	Now outside the civil service	Associate Director - Complex Change Programme
Scottish Government	6	2023	Digital	

Table B2
Participant demographics for semi-structured interviews.

Participant ID	Department	Cohort Year	Age	Years of Experience	Team Size
A	Home Office	2020	52	10	30
B	Ministry of Justice	2020	39	7	12
C	Home Office	2022	52	20	23
D	Energy Security & Net Zero	2022	50	14	16
E	Home Office	2021	41	7	10
F	Home Office	2022	44	10	60
G	Foreign Commonwealth & Development	2022	61	15	12
H	HR Revenue & Customs	2020	46	20	5
I	National Health Service	2022	55	30	15
J	National Health Service	2022	41	9	12

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