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# Control enactment in context: Understanding the interaction of controlee and controller perceptions in inter-organisational project teams

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## Abstract

Control is necessary for aligning the actions of management (i.e., controllers) and subordinates (i.e., controlees) around common goals. The enactment of control often fails in practice; however, as controlee perceptions may not match those of controllers, leading to a myriad of possible outcomes. Through an interpretive case study of two inter-organisational IT projects, we reveal how controlees' appraisals and responses to controls are context-dependent and play out across multiple levels (e.g., personal, professional, project and organisational contexts). We build on a coping perspective of IS controls to theorise the 'coping strategies' that controlees pursued relevant to these contexts and the 'coping routes' followed when combining different consecutive coping strategies. We find the process need not end with the selection of a single strategy but can potentially continue as both the controller and controlees make ongoing readjustments. While Behavioural Control Theory traditionally assumes the presence of a single control hierarchy, interorganisational IT projects are multi-level entities that amalgamate different structures and cultures. Our study moves beyond the existing assumptions of Behavioural Control Theory to discuss how a controller's

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choice of activities shapes the salience of different contexts in controlee appraisals.

KEYWORDS
alignment, information systems projects; context; control enactment; controller-controlee perceptions; coping theory; interpretive research

## 1 | INTRODUCTION

Control enactment aims to create the conditions for effective task performance by ensuring that controlees act in accordance with predefined strategies for fulfilling set goals (Cram & Wiener, 2018). Behavioural Control Theory provides insights into how a controller can align controlees' efforts towards the achievement of organisational objectives through enacting appropriate control configurations (Wiener et al., 2016). A controller (e.g., project manager) may, for example, use procedures, guidelines, checklists and project plans to guide the actions of different controlees (e.g., developers) (Remus et al., 2020).

However, IS control literature is characterised by certain assumptions, which should be evaluated in light of recent findings from research and practise. Following a problematization approach (cf. Monteiro et al., 2022; Sandberg & Alvesson, 2011), we sought to articulate these assumptions and develop alternative grounds for research.

First, research has typically adopted a *deterministic perspective*, which assumes that appropriate controls will result in desired controlee behaviours and satisfactory results (Murungi et al., 2019). This is in spite of the abundance of examples where controls fail to produce intended behaviours and the outcomes deviate from the controller's expectations (Chua & Myers, 2018). This suggests that while controls are important for aligning the efforts of controlees, they may not always be sufficient for achieving expected outcomes (Keil et al., 2013). Mähring et al. (2017) question the related assumption that control mechanisms are consistently received by controlees as intended by the controller.

Considering these issues, the propensity for misalignments between controller and controlee perceptions is high in complex IT projects, as reflected by the degree to which controller goals are inconsistent with those of controlees (Cram, Brohman, & Gallupe, 2016a; Liu & Chua, 2020). However, control research has often assumed a sequential relationship between controller activities and controlee responses, overlooking the influence that controlees might have on control enactment over time (Chua & Myers, 2018; Murungi et al., 2019). More recent literature has argued for directing increased attention towards the controlee perspective and social construction of controls (e.g., relationship building, alternative social structures and shared cognition) where outcomes are a product of the dynamic process through which controllers and controlees interact (Chua & Myers, 2018).

For instance, Murungi et al.'s (2019) emotion-centred model of information systems (IS) project control dynamics suggests a cyclical relationship between control activities (cue) and controlees' responses (adherence/resistance), which are classified as active or passive in nature. While they observe differences between the appraisals of controlees, they do not go so far as to explain why controlees respond in different ways to controlling activities over time. As controls are typically studied within strong hierarchical command structures, further research is also needed to investigate control configurations and controlee agency in distributed hierarchies, given that systems development is often performed outside the boundaries of a single organisation in today's business world (Cardinal et al., 2017). Chua and Myers (2018) find that controls are a negotiated order that must be understood according to the organisational or social context in which they are enacted. Their findings suggest that the structures and traditions of an organisation are important for understanding controller choices. However, research is needed to

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investigate the impact of context on controlee perceptions and how these can vary across multiple levels of context (Heumann et al., 2015; Venkatesh et al., 2018). This includes studies on how these perceptions evolve and change over time, moving beyond the assumption that controlee responses are a single, once-off event.

Motivated by a problematization approach, our research seeks to investigate the following two questions: (1) *How do controller and controlee perceptions interact in distributed IT projects?* (2) *Why do controlees respond to the same IS project control activity in different ways?* Building on the controlee-centric model of Murungi et al. (2019), we adopt a bidirectional view that investigates both control activities and controlees' responses. This aims to address the aforementioned shortcomings of a deterministic view of control enactment by revealing instances when controllers' and controlees' perceptions come into conflict in distributed settings (Cram, Brohman, & Gallupe, 2016a; Wiener et al., 2016). We extend previous work by synthesising complementary insights from Behavioural Control Theory (e.g., control formality, control coerciveness and alignment) and Coping Theory (e.g., appraisal, response, agency and coping routes) to understand misalignments across both sides of the controller-controlee dyad.

Against this background, we discuss controlees' agency in appraising and responding to control activities and how these responses are shaped by the wider context in which controls are enacted and control misalignments occur. More specifically, we investigate control enactment within the context of inter-organisational IT projects[1] where partners with different decision-making rights work to develop new systems with the promise of sharing benefits, costs and risks (Hekkala et al., 2021). Control in inter-organisational IT projects is complicated by several unique contextual factors. First, inter-organisational IT projects are characterised by diversity in the form of organisational cultures (Kappos & Rivard, 2008; Westerman et al., 2019; Wiewiora et al., 2013) and professional identities (Carter & Grover, 2015; Spears, 2021). This can make the choice of controls increasingly difficult when a shared vision is absent (Hekkala et al., 2021; Stjerne et al., 2019). To address differences in their cultural backgrounds, Moody et al. (2016) argue that inter-organisational actors must negotiate project expectations and controls early on. Spears (2021) similarly observes that group identity (e.g., intra- or inter-organisational) can affect compliance intentions by creating normative social influences. Second, controllers may lack the direct authority to control the actions of team members who are employees of different partner organisations (Cram, Brohman, & Gallupe, 2016b). Relational risks can occur as a controlee may be distracted from their project work if other non-project tasks are escalated by senior management in their own organisation (Das & Teng, 1998, 2001). The emphasis placed on goal-oriented monitoring of controlees in prior literature may be less appropriate for more complex structures, as control must go beyond the fulfilment of singular objectives relevant to one organisation.

Our study draws on first-hand observations across the timelines of two inter-organisational IT projects involving diverse teams. The first case study ('E-Health Project') was conducted over 6 months and involved an inter-organisational team designing a health IT system for remotely monitoring the well-being of patients. The second case study ('intensive care unit [ICU] Project') was conducted over a 5-month period, during which time a different inter-organisational team was designing a mission-critical clinical decision support system for an intensive care unit. To gain first-hand, ongoing insights into changes in both control enactment and coping processes over time, we combine real-time participant observations with data from interviews and project documents across the two cases. This answers the call of Murungi et al. (2019) to go beyond retrospective interviews about individuals' experiences through observing ongoing and evolving practices.

Our findings reveal how controlee responses to attempted controls play out across multiple contexts (e.g., personal, professional, project and organisational). We also find that controlees in inter-organisational settings can seek agency across multiple contexts and enact a range of possible responses that are not necessarily predetermined by the controller. Drawing on a coping perspective of IS control, we identify four *coping strategies* that controlees adopt when appraising and responding to control misalignments in inter-organisational IT projects: *Realignment*, *Compliance*, *Avoidance and Manipulation*. The choice of strategy is informed by perceived opportunities

[1]This contrasts with IT outsourcing arrangements which are based on contractual relationships between a client (principal) and provider (agent) (Choudhury & Sabherwal, 2003).

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and threats within a pertinent context during control episodes. Our research is among the first to investigate the phenomenon of *coping routes* within IT projects, which reveals how controlees engage in consecutive cognitive and behavioural efforts at managing disruptions caused by control misalignment. While prior research has focused on a unidirectional relationship between control activities and controlee responses, our findings suggest a triadic model of control enactment (controller-controlee-others), where controllers and controlees dynamically adjust to misalignments in inter-organisational IT projects. We also discuss how self- and clan controls may affect the salience of personal and collective contexts in controlee appraisals to provide a deeper appreciation of the controlee perspective.

The remainder of the paper is structured as follows: Section 2 presents the theoretical background to the paper based on a review of relevant literature on Behavioural Control Theory, salient aspects of the controlee perspective and introduces a coping perspective to IS control. Section 3 describes the research design underpinning the study and its two case studies. Section 4 presents findings from our case studies, and a cross-case analysis is presented in Section 5. Section 6 discusses contributions relevant to the academic and practitioner communities and Section 7 concludes the paper.

## 2 | THEORETICAL BACKGROUND

### 2.1 | Behavioural control theory

Control is a central tenet of IT projects and refers to a controller's (e.g., the team leader's) attempts at aligning the actions of controlees (e.g., developers) to achieve organisational objectives (Cram & Wiener, 2018; Kirsch, 1996; Liu & Chua, 2020). Prior IS control literature has focused attention on the activities and artefacts used by controllers to regulate or adjust the behaviour of controlees. This can include tools such as standard operating procedures, requested status reports, penalties and rewards for delivery (Gaebert & Kautz, 2020). Cardinal et al. (2017) identify three dimensions of control: *control formality*, *control coerciveness* and *control singularity*.

Behavioural Control Theory first suggests that controller activities can be conceptualised as either *formal* or *informal* modes of control (Liu & Chua, 2020; Remus et al., 2020; Wiener et al., 2019). Using formal modes, the controller can monitor and evaluate subordinates' actions through input controls (e.g., resource allocations), behavioural controls (e.g., monitoring controlee compliance), or outcome controls (e.g., measuring outputs to compare with the planned goals) (Kirsch, 1996; Remus et al., 2020). Formal modes place structural pressures on controlees to conform and are typically used in settings with wide hierarchical distances between managers and subordinates (Kirsch, 1996; Wiener et al., 2015). On the other hand, informal modes of control centre on clan controls and self-control, which are categorised by more implicit determinants of controlee behaviours (Kirsch, 1996; Liu & Chua, 2020; Wiener et al., 2016). Clan control is enabled through collective social norms (e.g., shared experiences, rituals), whereas self-control is enabled by individuals whose behaviours are self-chosen and self-regulated (Maruping et al., 2009; Remus et al., 2020). Clan and self-control may be best employed where controlees are well positioned to work independently due to their access to requisite knowledge and the means of delivery. On the other hand, formal controls may be more appropriate for routine tasks where the controller is more knowledgeable on how to direct controlee actions (Liu & Chua, 2020).

Wiener et al. (2016) later extended Behavioural Control Theory to include two styles of *control coerciveness*: authoritative and enabling. Authoritative control refers to unilateral approaches where the controller is dominant, affording the controlee little or no influence over the enactment of controls (Gregory et al., 2013; Remus et al., 2020). The controller uses enforcement tactics (e.g., mandatory procedures, rewards and penalties) to tightly align the behaviours of controlees with organisational goals (Persson et al., 2012; Syed et al., 2021). On the other hand, enabling control relies on a bilateral approach where the controller and controlee collaborate in the enactment of controls through ongoing interactions (Gregory et al., 2013; Remus et al., 2020). The controller empowers the controlees by granting them some flexibility in deciding how they react to contingencies and by seeking feedback

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from controlees on the performance of controls (Liu & Chua, 2020; Syed et al., 2021). This is achieved through transparent feedback cycles, which provide opportunities for repair when breakdowns in control activities occur (Wiener et al., 2019).

Remus et al. (2020) found that control styles have more explanatory power than control modes for predicting individual control effects. However, complex IT projects are more likely to experience an ongoing and multifaceted interplay between control formality and control coerciveness (Cardinal et al., 2017). For instance, Liu and Chua (2020) suggest that the informal mode of controlee self-control may not arise when an authoritative style of formal control is enacted. *Control singularity* refers to how different controls combine and complement each other (Cardinal et al., 2017). Choudhury and Sabherwal (2003) and Soh et al. (2011) find that a portfolio of controls may be required in outsourcing projects to respond to changes taking place over the timeline of the projects. For example, a project manager may initially enforce outcome controls before moving to behavioural controls later in the project. Similarly, Kirsch (2004) suggests that control choices may vary by project phase, with informal controls employed initially for sensemaking purposes and formal controls utilised later for structuring work. Recent work has investigated the concepts of control degree (relaxed or tight), which refers to the frequency and intensity of control feedback (e.g., daily vs. weekly stand-up meetings) (Cram & Wiener, 2018; Gregory et al., 2013) and control purpose (value-appropriation or value-creation), which looks at why different control activities are chosen (Wiener et al., 2019). Value creation aims to fuse together the diverse knowledge and skill sets of controlees, while value appropriation aims to ensure they work in accordance with goals.

Table 1 presents a review of Behavioural Control Theory research published in the AIS Senior Scholar Basket of Eight journals and other reputable IS journals over the last 10 years (see Appendix E). We direct attention towards empirical studies on system development projects. Our analysis reveals the literature's primary focus on the controller's perspective and the specification and performance of control activities. With very few exceptions (e.g., Chua & Myers, 2018; Liu & Chua, 2020; Murungi et al., 2019), we find that literature assumes the unilateral enactment of control modes and styles results in controlee behaviours that are in direct alignment with the controller's intention (Chua & Myers, 2018). Such a deterministic view, however, does not consider the dynamic social process through which controllers and controlees interact and behavioural concerns around how controls are enacted in practice (Wiener et al., 2019). Empirical research on the relationship between controller- and controlee-centric factors is therefore nascent.

Our review of IS control literature suggests that research has often focused on the context of single organisations with an individual (e.g., a manager) at the apex of a hierarchy who is conferred responsibility for guiding system development. This, however, neglects 'decentralised' models of control where different organisations and professions collaborate within the context of an inter-organisational IT project team (cf. Soh et al., 2011; Tiwana & Keil, 2009). For instance, inter-organisational projects are increasingly employed for the collaborative development of digital solutions to novel problems in complex environments (Hekkala et al., 2021; Loebbecke et al., 2016). The aim is to bring together diverse organisational actors in the pursuit of objectives that are very challenging, if not impossible, to achieve without collaboration. Our research investigates control challenges in inter-organisational IT projects where individuals from diverse backgrounds come together to form complex structures that exist only for a bounded period (cf. Tanriverdi & Du, 2020). A key problem in such projects centres on how best to align efforts towards the delivery of shared outcomes (Lehtinen & Aaltonen, 2020).

Literature suggests it is essential to address differences between organisational actors' unique identities, cultures and priorities in a project (Daniel et al., 2013; Spears, 2021). Acknowledging the controlee perspective in complex IT projects is necessary for understanding how inter-organisational teams can capitalise on the opportunities afforded by the diversity of backgrounds through stronger social bonds, while at the same time avoiding structural anarchy. For instance, Cram, Brohman, and Gallupe (2016b) suggest that 'frictions' within diverse teams can inhibit controlees' support for control changes, making the controller-controlee relationship harder to manage when changes in circumstances occur. The relationship is seen as mutually interdependent, requiring equal attention to both the controller's attempts and the controlees' responses to control (Liu & Chua, 2020). Our research therefore investigates the *emergent relationship*

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**TABLE 1** Recent empirical findings from IS behavioural control theory research.

| Authors | Context | Primary findings/outcomes | Perspective |
|---|---|---|---|
| Ahmed et al. (2022) | IS implementation projects | Control configurations facilitated different stakeholder orientations. Control change was triggered by low shared understanding. | Controller |
| Chua and Myers (2018) | ISD outsourcing | Controllers must consider organisational contexts, controlee meanings and intent when negotiating controls as socially constructed orders. | Controller-controlee |
| Chua et al. (2012) | Large IT projects | Formal control can enable clan control by providing a figure of authority, symbols of accepted behaviours and resourcing/approval. | Controller |
| Cram, Brohman, and Gallupe (2016a) | ISD projects (agile vs. waterfall) | Controllers must seek to align the dimensions of the control environment, control mechanisms, socio-emotional behaviours and control execution. | Controller |
| Cram and Wiener (2018) | Systems development projects | Control degree and style explain controlees' perceptions of legitimacy (e.g., justice, autonomy) better than control modes alone. | Controller-controlee |
| Cram and Brohman (2013) | ISD projects (agile vs. waterfall) | Control can differ depending on control objectives (product or process-focused) and control practices (focused on prevention, or detection/correction). | Controller |
| Cram, Brohman, Chan, and Gallupe (2016) | System development projects | Control revision and adjustment can centre on both project (ISD) and non-project-oriented (enterprise architecture) processes. | Controller |
| Di Tullio and Staples (2013) | Open-source software projects | Extensive use of outcome, behaviour and clan control (Defined Community) supported the strongest coordination and project climate. | Controller |
| Gaebert and Kautz (2020) | Short-term ISD outsourcing | Short-term outsourcing is typified by high human asset specificity and subsequent behaviour-based formal controls (triggers fixed-price contracts). | Controller |
| Gregory and Keil (2014) | IS implementation projects | Controllers must often meet conflicting demands. This requires the use of both bureaucratic and collaborative styles for control ambidexterity. | Controller |
| Gregory et al. (2013) | ISD offshoring projects | Control balancing can centre on a portfolio of control type, degree (tight vs. relaxed) and style (unilateral vs. bilateral). | Controller |
| Heumann et al. (2015) | Large IS projects | IS control can differ across hierarchical levels. Project-level can be influenced by senior management controls that are emulated by project leaders. | Controller |
| Ho and Rai (2017) | Open-source software development | Input (e.g., accreditation) and outcome (e.g., code acceptance) quality controls enhance volunteers' continued participation intentions. | Controller |
| Jenkin et al. (2019) | ISD Projects | Control mechanisms possess different levels of sensegiving and sensemaking potential. Cognitive activities change mutual understanding over time. | Controller |

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**TABLE 1** (Continued)

| Authors | Context | Primary findings/outcomes | Perspective |
|---|---|---|---|
| Keil et al. (2013) | IT projects | Risk (requirement and user aspects) negatively influence the effects of informal and formal control on process performance in an IT project. | Controller |
| Liu and Aron (2015) | Business process offshoring | Incentives and process codifiability are associated with higher levels of quality in offshoring. Dual governance is enacted by the client and provider. | Controller |
| Liu and Chua (2020) | Complex IT projects | Transparency and repair are essential for supporting controlees' understanding of the controller's goals and enabling clan controls. | Controller-controlee |
| Mähring et al. (2017) | IS offshoring projects | Higher control transmission consistency and the use of outcome control enhances project performance, beyond control specification alone. | Controller-controlee |
| Moody et al. (2016) | Cyber-infrastructure projects | Process model incorporating authoritative controls by controllers and 'field controls' by individuals or collective entities in a project. | Controller |
| Murungi et al. (2019) | Healthcare IS projects | Controlee's negative emotional appraisals of control activities can lead to resistive behaviours over time and impact control effectiveness. | Controller-controlee |
| Narayanaswamy et al. (2013) | ISD projects | Relational ties and shared understanding between controllers and controlees can minimise control loss in multi-hierarchical organisations. | Controller-controlee |
| Persson et al. (2012) | Agile distributed ISD | Communication technologies can support the enactment of formal and informal controls in distributed agile ISD. | Controller |
| Ramasubbu and Kemerer (2021) | IT outsourcing projects | Control balancing (periodic adjustments in control configuration) supports technical debt remediation once migration processes have been identified. | Controller |
| Remus et al. (2020) | ISD projects | Control style is more important than control modes in explaining individual-level control effects (e.g., task performance and job satisfaction). | Controller-controlee |
| Schaarschmidt et al. (2015) | Open-source software projects | The enactment of behavioural control (leadership control) and clan control (resource deployment control) differ across firm-initiated and multi-vendor projects. | Controller |
| Srivastava and Teo (2012) | Offshore systems development | Process control significantly impacts the relationships of contract specificity with both cost and quality performance. | Controller |
| Syed et al. (2021) | IS projects | Control style ambidexterity improves project performance, directly and in combination with formal and informal controls. | Controller-controlee |
| Venkatesh et al. (2018) | IS projects | The controller's project-related knowledge mitigates technical IS project risk by facilitating the enactment of process controls. | Controller |

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**TABLE 1** (Continued)

| Authors | Context | Primary findings/outcomes | Perspective |
|---|---|---|---|
| Walser et al. (2021) | ISD projects | Controlee perceptions of legitimacy (e.g., fairness) affect intentions to comply. Informal, relaxed, bilateral controls are perceived as more legitimate. | Controller-controlee |
| Wiener et al. (2015) | IS offshoring projects | Clan control has a positive impact on project performance but can be difficult to achieve in client-vendor relationships. | Controller-controlee |

**TABLE 2** Salient aspects of the controlee perspective.

| Aspect | Description | References |
|---|---|---|
| Agency | Controlees have the agency to choose how they respond to control activities, pursuing actions that either support the controller or their self-interests. | Liu and Chua (2020), Wiener et al. (2016) |
| Control misalignment | Communication issues can lead to gaps in understanding between controllers and controlees. Controlees may disagree with the appropriateness of chosen controls. | Cram, Brohman, and Gallupe (2016b), Narayanaswamy et al. (2013) |
| Control appraisal and meanings | Controlees may engage in the socio-emotional appraisal (e.g., anger or happiness) of controls. Ascribed meanings (e.g., legitimacy) to controls are subject to change. | Chua and Myers (2018), Murungi et al. (2019), Walser et al. (2021) |
| Response to controls | Controlees' appraisal and ascribed meanings can affect their responses to a controller's actions and influence whether controls are enacted as intended (adherence or resistive). | Cram and Wiener (2018), Murungi et al. (2019) |
| Context | Controlee meanings are shaped by the wider context (structures and relationships) in which controls are enacted. | Chua and Myers (2018), Heumann et al. (2015) |

between controller and controlee perspectives during control enactment, particularly within the context of inter-organisational project teams. We focus attention on the evolving process of control enactment by investigating how *"the interaction between the controller and the controlee is conducted"* (Wiener et al., 2016, pg. 15).

## 2.2 | The controlee perspective

Motivated by our review of IS control literature and its predominant focus on the controller perspective, we next present salient aspects of the controlee perspective (see Table 2). Firstly, controlees are said to possess the *agency* to choose how they respond to control activities, despite the presence of constraining structures (Chua & Myers, 2018; Wiener et al., 2016). While controls seek to encourage behaviours that are aligned with the fulfilment of organisational goals, controlees' responses may be less aligned with these intentions (Cram & Wiener, 2018; Liu & Chua, 2020; Tiwana & Keil, 2009). Control enactment also rests on controlees' interpretation of controls which may result in responses that are intended or unintended by controllers (Chua & Myers, 2018). Controlees can choose to support the controller by bridging situational contingency gaps or choose pursuits aimed at self-interest or self-protection. Liu and Chua (2020) assert that control centres on an ongoing co-production involving the controller and controlee where outcomes are a product of both the controller's activities and controlee's responses.

*Misalignments* between controller and controlee perceptions can emerge when there is a gap between attempted and realised controls and the controlees' behaviours are not consistent with the controller's intentions

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(Chua & Myers, 2018; Cram, Brohman, & Gallupe, 2016a; Cram, Brohman, & Gallupe, 2016b; Wiener et al., 2016). This could stem from a lack of communication and shared understanding between controlees and controllers around the control modes and styles to be enacted in a situation or later decisions to change controls (Narayanaswamy et al., 2013). Beyond the specification of control formality and coerciveness, Mähring et al. (2017) assert the importance of effective communication between controlees and controllers during control enactment in IS offshoring projects. Misalignments may also arise when controlees question the appropriateness of controls (Cram & Wiener, 2018; Narayanaswamy et al., 2013). Cram, Brohman, and Gallupe (2016a) point to issues of appropriation when controls are not suited to the task or environment, such as when adopting an agile methodology in a highly regulated environment like banking. Such "situational contingency gaps" can affect process efficiency and the reliability of control attempts (cf. Liu & Chua, 2020). This can require control redesign in response to misalignments between control attempts (cue) and controlee responses (effect).

One potential explanation for these unintended consequences is controlees' *appraisal and ascribed meanings* to controls (Chua & Myers, 2018). For instance, controlee responses can be triggered by their appraisals of control activities as an opportunity or threat, which in turn influences their behaviours (Liu & Chua, 2020; Murungi et al., 2019). Cram and Wiener (2018) suggest that controlees may experience negative socio-emotional effects, including demotivation, stress and anger, when control activities are appraised to be unfair or misaligned with situational needs. Controlees can also appraise controls as helpful and experience positive socio-emotional effects such as happiness, motivation and excitement at work (Murungi et al., 2019).

Controlees can then respond with different behavioural *responses* (active or passive) depending on how control activities are appraised. For instance, resistant behaviours to perceived threats can centre on workarounds, such as voicing complaints (passive resistance) or cancelling meetings (active resistance) where controlees disagree with the appropriateness of controls (Cram & Wiener, 2018; Murungi et al., 2019). Controlees' subsequent behaviours are uncertain, however, as meanings are subject to change (Liu & Chua, 2020).

*Context* also influences the responses of controlees based on underlying structures and relationships between actors (Heumann et al., 2015; Remus et al., 2020). While Behavioural Control Theory traditionally assumes the presence of a single hierarchy where controlees are answerable to one controller, inter-organisational IT projects are multi-level entities that are shaped by the presence of diverse structures and cultures. We, therefore, need a multi-level perspective of context and control transmission to understand controller and controlee misalignments in inter-organisational projects (Heumann et al., 2015). For instance, research suggests that the tradition of an *organisation* can dictate, which controls are favoured at the *project level*, which may end up being mindlessly applied to complex IT projects regardless of their benefit to the task at hand (Chua & Myers, 2018; Liu & Chua, 2020). *Individuals* also may favour certain controls based on the traditions within their specific professions or functions (Liu & Chua, 2020; Remus et al., 2020). This implies that in complex IT projects, there may be interconnections between organisational, project and individual contexts, with social meanings in one context potentially affecting another.

We next review IS coping literature to better understand controlees' cognitive and behavioural responses across these different levels.

## 2.3 | A coping perspective of IS controls

Coping refers to the cognitive and behavioural attempts made by individuals to manage disruptive events or demanding situations within their surroundings (Lazarus & Folkman, 1984; Salo et al., 2020). The coping process begins by cognitively appraising (implicitly or explicitly) the relevancy of an emerging situation and evaluating potential consequences as either an opportunity or a threat (Folkman & Moskowitz, 2000; Pirkkalainen et al., 2019). For example, a situation may be cognitively appraised in terms of its benefits or risks (Beaudry & Pinsonneault, 2005), or it may alternatively be deemed no longer relevant (Salo et al., 2020). Individuals further appraise the extent to which they can then assert agency in responding to situations (Lazarus & Folkman, 1984; Tarafdar et al., 2019).

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Following cognitive appraisal, attention turns to enacting strategies with the primary goal of maintaining or restoring a sense of well-being over the likely consequences of a situation (Beaudry & Pinsonneault, 2005, 2010). Coping strategies refer to enacted attempts to manage potentially disruptive events in practice (Beaudry & Pinsonneault, 2005; Lazarus & Folkman, 1984; Salo et al., 2020). *Problem-focused coping* typically occurs when high levels of agency are perceived and attention turns to actively managing and changing the situation (Lazarus & Folkman, 1984; Wang et al., 2017). Examples of problem-focused responses include resisting a situation through the creation of workarounds (Murungi et al., 2019), repairing breakdowns in control activities (Liu & Chua, 2020), adhering to the controller's goals (Murungi et al., 2019), or leaving a situation (Beaudry & Pinsonneault, 2005). Alternatively, *emotion-focused coping* typically occurs when lower levels of agency are perceived and attention turns towards managing emotions associated with the situation (Lazarus & Folkman, 1984; Wang et al., 2017). Examples of emotional-focused responses include venting frustrations (Cram, Brohman, & Gallupe, 2016a), empathising with others (Salo et al., 2020), or expressing fear and anxiety (Beaudry & Pinsonneault, 2010).

The coping process culminates with the selection of a problem-focused or emotion-focused coping strategy that results in 'closure', whereby a disruptive event no longer requires coping (Lazarus & Folkman, 1984). However, more recent research on 'coping routes' suggests that closure is not always straightforward and that coping may progress from one strategy to another in the search for closure (Beaudry & Pinsonneault, 2010; Salo et al., 2020). For instance, controlees might seek to handle their emotions first and then switch to a problem-focused strategy when that fails (the complementary route). Controlees could also respond with different problem-focused strategies (trial and error route) or could reassess the relevancy of the situation altogether (reappraisal route). Coping strategies are therefore subject to change over time depending on the situational need, and different combinations may be sought where the initial coping strategy was unsuccessful.

Prior IS research has investigated coping across diverse contexts, such as technology use and adaption (Beaudry & Pinsonneault, 2005, 2010), cybersecurity (Herath et al., 2014; Liang et al., 2019; Wang et al., 2017), technostress (Pirkkalainen et al., 2019), technology addiction (Tarafdar et al., 2019) and information overload (Jones et al., 2004). However, despite its potential for understanding the controlee perspective, coping theory has to date received limited attention in IS control literature. An exception is Murungi et al.'s (2019) study of controlee emotion, which provides initial insights in this regard. Building on data from retrospective interviews, they find that adherence or resistive behaviours are shaped by the controlee's emotions and their perception of an opportunity or threat. Negative emotions and resistive behaviours may be delayed rather than immediate, which in turn impacts control effectiveness.

Although such controlee appraisals and responses are key to control enactment, in-depth case studies investigating the interplay between the controller's activities and the controlees' cognitive and behavioural responses remain scarce and limited (refer to Table 1). Prior research has focused on the sequential relationship between controller activity (cue) and controlee response (event). However, recent work suggests that controlee responses are not solely predetermined by the controller and that controlees may perceive high levels of agency in disruptive situations (Cram, Brohman, & Gallupe, 2016a; Wiener et al., 2016) (refer to Table 2). Controlees may adapt to perceived opportunities and threats over time, exercising their agency to pursue goals (e.g., through problem-focused coping strategies), or avoid anxiety (e.g., through emotion-focused coping strategies). For instance, Tiwana and Keil (2009) explore gaps between attempted and realised controls in IT outsourcing where controlees engage in opportunistic behaviours in pursuit of goals, which diverge from those of the controller. Controllers must similarly remain cognisant of controlees' perceptions of a situation (Lazarus & Folkman, 1984). This requires controllers to remain alert and adapt over time as controlees choose between different coping strategies.

Table 3 provides insights into the controlee perspective using constructs from coping theory to provide an understanding of controlees' cognitive appraisals and responses to controls. Ontological, epistemological and axiological considerations for integrating Behavioural Control Theory and Coping Theory are elaborated on in Appendix A.

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**TABLE 3** Summary of concepts from coping theory with illustrative examples.

| Concept | Description | Illustrative example (controlee perspective) |
|---|---|---|
| Cognitive appraisal | | |
| Relevancy | Personal evaluation of an event's relevancy and potential consequences (opportunity or threat) (Lazarus & Folkman, 1984). | Controlees may evaluate formal controls as a threat if extra workload is created (e.g., admin documentation) and they are afforded less autonomy over project tasks. |
| Perceived agency | Perceived freedom to make choices within a situation and confidence in handling problems (Lazarus & Folkman, 1984; Pirkkalainen et al., 2019). | Controlees' perception of agency can vary depending on individual and contextual characteristics. Agency is therefore situationally constructed rather than predetermined. |
| Behavioural response | | |
| Coping strategy | An attempt at coping with disruptive events through problem- or emotion-focused approaches (Beaudry & Pinsonneault, 2010). | Controlees may adhere to informal controls if they appraise the controls as an opportunity for empowerment and to express their capabilities. |
| Coping route | The progression from one coping strategy to another where prior attempts are unsuccessful at reaching closure (Salo et al., 2020). | Controlees may initially vent their frustrations (emotion-focused strategy) when penalties are enacted as a formal output control. When this is unsuccessful, they may switch to self-protection (problem-focused strategy). |

Following the works of Alvesson and Sandberg (2011), Chatterjee and Davison (2021) and Sandberg and Alvesson (2011), we adopted a problematisation approach to theory building. This was used to identify themes and assumptions in the existing control literature and support the construction of research questions that present alternative perspectives. As per Alvesson and Sandberg (2011), Table 4 highlights the assumptions identified from existing literature (see Tables 1–3), evaluates alternative assumptions and articulates the implications for our study. This problematization approach strengthens the case for using Coping Theory as a lens to understand the hitherto under-investigated controlee perspective.

Building on this approach, our study investigates how controllers and controlees adjust to misalignments in complex, distributed control hierarchies, such as inter-organisational IS projects. Our conceptual model (see Figure 1) builds on theoretical descriptions from Tables 1–3 to represent control as an ongoing co-production process between controllers and controlees. This model investigates the interplay and potential misalignments between control attempts (controller activities) and coping strategies (controlee problem- and emotion-focused responses). Control activities can trigger controlee appraisals within a specific context (e.g., organisational, project, professional and personal) and responses (coping strategies), which in turn can shape control redesign efforts. This interaction can further be categorised as either aligned or misaligned depending on the degree to which controller goals are inconsistent with those of controlees. This builds on recent calls by Chua and Myers (2018), Murungi et al. (2019) and Liu and Chua (2020) for research on the dynamic enactment of controls, moving beyond the study of control activities alone.

Our model contrasts with the unidirectional perspectives of control, where outcomes are predetermined by the controller, suggesting that controlee responses can also trigger changes in controller activities based on an ongoing interplay between controller and controlee perceptions.

## 3 | RESEARCH DESIGN

An interpretive case study approach (Klein & Myers, 1999; Sarker et al., 2018a, 2018b) was chosen to study the information-rich cases of two inter-organisational IT projects (see Appendix F). Multiple case research allows

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**TABLE 4** Problematization approach.

| Assumption | Category | Alternative assumption | Implications for study |
|---|---|---|---|
| 1. IS research to date has privileged the controller perspective by adopting a deterministic view of control enactment. | In-house assumption (*What*) RQ1 | Controls often fail in practice due to misalignments between controller and controlee perspectives. | We focus attention on difference in controlees' responses to the same IS project control activity. |
| 2. IS control research has assumed a sequential relationship between controller activities and controlee response. | In-house assumption (*When*) RQ1 | The dynamic perspective of control suggests an interplay between control activities and controlee responses. | Our study investigates how controlee responses can trigger changes in both controller and other controlees' responses. |
| 3. The majority of control studies have been conducted in settings with clear control hierarchies. | Paradigmatic assumption (*Method-ological*) RQ1 | Systems development work is increasingly conducted outside of the traditional organisational boundary. | We investigate control in two inter-organisational projects involving different organisations and disciplines. |
| 4. Existing research has assumed controlee appraisals are limited to the project context. | In-house assumption (*Where*) RQ2 | Distributed IS projects can involve a matrix of organisational structures, disciplines and cultures (multiple levels). | We provide insights into controlee appraisals across multiple contexts. |
| 5. IS research has primarily investigated coping as a once-off event. | Paradigmatic assumption (*Epistem-ological*) RQ2 | Controlees may engage in iterations of coping where their initial strategy was unsuccessful. | Our study investigates changes in controlees' responses over time in the form of coping routes. |

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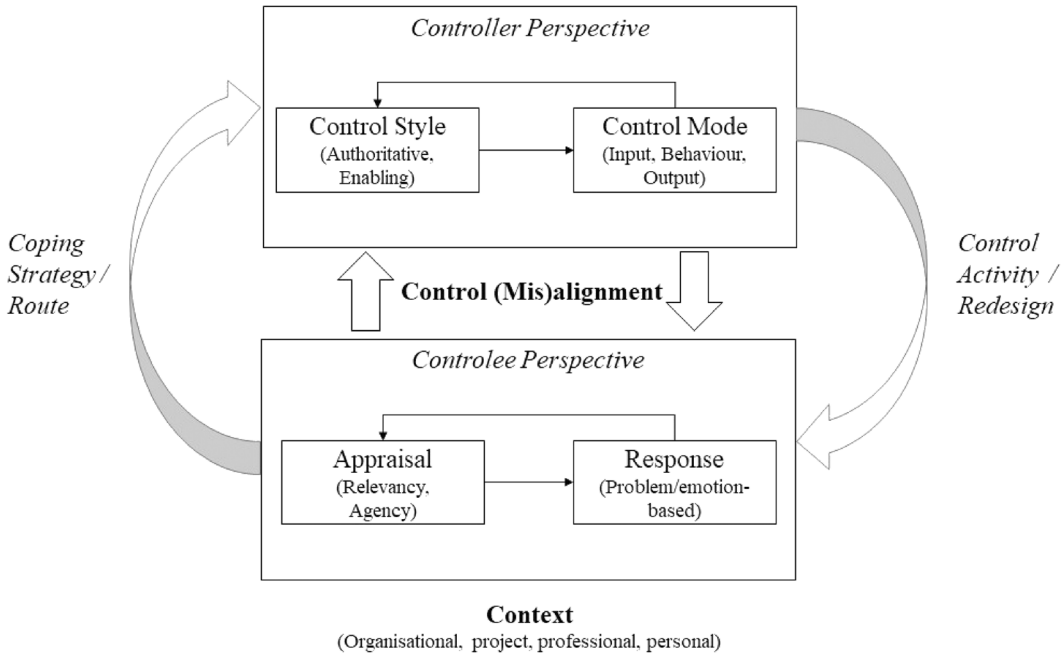


**FIGURE 1** Conceptual model.

researchers to pursue interesting lines of enquiry across different but related contexts, uncovering themes that can be combined or contrasted to deliver a broader set of insights (Miles & Huberman, 1994). An interpretive approach further enables researchers to elicit 'rich' accounts of subjective meanings in a way that is not divorced from the context under investigation (Klein & Myers, 1999). Care is taken to recognise differences in interpretations among participants while remaining sensitive to potential biases (Klein & Myers, 1999).

The cases were purposefully selected based on the following criteria: (i) the projects involved several collaborating organisations, including research centres at a national university and industry partners; (ii) the projects involved team members from different organisational and disciplinary backgrounds; (iii) the projects involved team members distributed across geographical locations; (iv) the projects involved a high level of task interdependency among team members. Our study focuses on the controller-controlee dyad interactions in the field of practice, which represent the situated, temporal and dynamic nexus of action in the social world where individuals and groups continuously interact (Schatzki, 1997).

The lead author was given unrestricted access to the development teams of both projects. This allowed him to engage with team members in their natural settings and observe interactions firsthand over an extended timeframe. In total, data was gathered across 11 months of engagement in the field. During this time, the lead author was present on site 2–5 days per week over 8 h per day. Observational data was complemented with an analysis of 18 semi-structured interviews (see Appendix G for the interview protocol) and a large corpus of documents from both projects. Data collection ceased when the research team's access to the project came to an end and there were no further opportunities to conduct interviews. Following principle seven (suspicion) of Klein and Myers' (1999) evaluation framework for interpretive research, the author team engaged in critical reflection throughout the research process by questioning any assumptions that may have emerged during the lead author's interactions with subjects. During weekly meetings, the team challenged the lead author's preconceptions and treated any initial findings with suspicion to reveal any socially created distortions (cf. Klein & Myers, 1999). This helped to manage the impact of any biases on the research.

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**TABLE 5** Inter-organisational IT team in the E-Health project.

| Role | ID | Affiliation | Experience |
|---|---|---|---|
| Research Fellow (Controller) | RF | IT Innovation Lab | 20+ years' experience in leading IT projects in industry. |
| Centre Director | CD | University | 20+ years' experience in academia, including leading high-profile research projects. |
| Full-time Developer | FTD | IT Innovation Lab | 5 years' IT development experience. |
| Part-time Developer | PTD | IT Innovation Lab | 1 year of IT development experience. |
| Systems Analyst | SA | IT Innovation Lab | 2-years' systems analysis experience. |
| Funded Investigator | FI | University | 20+ years' IT development experience across the IT industry and academia. |
| Data Analytics Lead | DA | Consulting Ltd. | 20+ years' experience as a data integration architect. |
| Subject Matter Expert | EX | SME Ltd. | 20+ years' experience as an entrepreneur. |
| Medical Consultant | MC | National Hospital | 20+ years' experience as a consultant. |
| Clinical Researcher | CR | National Hospital | 5 years' experience as a clinician. |
| Nurse | NR | National Hospital | 2 years' experience as a nurse. |

## 3.1 | Case study 1: the E-Health project

The E-Health Project was a collaborative effort involving partners from industry and academia, including a national university ('University'), an innovation centre ('IT Innovation Lab'), a global technology company ('Consulting Ltd.'), a local start-up ('SME Ltd.') and a public hospital ('Hospital'). A health insurance company was the largest cash contributor but was not directly involved in the day-to-day project activities. The project had two primary objectives: (1) the development of a new health IT platform to enable the remote self-monitoring of patients' wellbeing in their homes, inpatient clinics and GP clinics and (2) the completion of a research study to evaluate the platform as it was being used by patients to record symptoms and vital sign readings. The platform was to integrate an Electronic Medical Record (EMR) with a smartphone app and other medical devices.

This case study focused on a period of 6 months between June 2015 and January 2016, during which time the lead author was present in the live project environment 5 days a week and had direct access to members of the inter-organisational IT team. Data for the case study was collected and triangulated from three different sources: direct participant observations, semi-structured interviews and project documents. Participant observations were collected in the shared development labs, at team meetings and during informal engagements across different locations, as well as at events, such as co-design workshops. The lead author recorded over 150 pages of participant observations in his field notes. This data was complemented by 12 semi-structured interviews with members of the inter-organisational team, with each interview lasting between 60 and 90 min. The first author recorded and transcribed the interviews (totalling 141 pages of transcripts). Finally, over 300 project documents and emails were analysed to unearth further insights into the inter-organisational environment.

Table 5 lists members of the geographically dispersed inter-organisational team that was formed to develop the proposed platform. The team consisted of different professionals who were based across office locations at the IT Innovation Lab, Consulting Ltd., SME Ltd. and the Hospital. This team included a senior centre director, a medical consultant, a research fellow, a clinical researcher, a nurse, a full-time developer, a part-time developer, a data analytics lead, a systems analyst, a funded investigator and a subject matter expert working in a start-up. In addition to face-to-face meetings, the team communicated mostly via email and shared documents via a collaboration platform and network drive.

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**TABLE 6** Inter-organisational IT team in the ICU project.

| Role | ID | Affiliation | Experience |
|---|---|---|---|
| Principal Investigator (Controller) | PI | University | 20+ years' experience in academia, including leading high-profile projects. |
| Postdoc Researcher | PDR | University | 3 years' experience in academia. |
| Developer | DEV | Research Centre | 3 years' experience in IT development. |
| Research Officer | RO | Research Centre | 7 years' administration experience in industry. |
| Research Nutritionist | NU | Research Centre | 15+ years' experience in healthcare. |
| Lead Neurologist | LN | ICU ward | 20+ years' experience as a senior clinician. |
| ICU Dietician | DI | ICU ward | 15 years' experience in healthcare. |
| Pharmacist | PA | ICU ward | 15 years' experience as a clinical pharmacist. |

## 3.2 | Case study 2: the ICU project

The ICU Project was a collaborative effort involving partners from industry and academia, including a national university ('University'), a clinical research centre ('Research Centre') and an ICU ward in a local hospital. A multinational medical products company, a global pharmaceutical company and a technology start-up provided funding and support for the project but were not involved in the day-to-day activities of the project. The ICU Project had two main objectives: (1) the development of a decision support system to assist clinicians in treating patients in the ICU ward; and (2) the completion of a research study to evaluate the system's efficacy for improving patient outcomes and supporting the development of a new treatment management strategy. The decision support system would consist of interactive dashboards for visualising changes in the patient's condition over time and personalised screens for healthcare practitioners to analyse patient outcomes.

This case study focused on a five-month period between November 2016 and March 2017, during which time the lead author was present in the field for 2–3 days a week and had direct access to the inter-organisational IT team. In addition, he attended project team meetings (each typically lasting 2 h, twice a week), observed informal interactions in the lab and stakeholder group meetings (bi-monthly). He recorded over 50 pages of participant observations in his field notes. To increase the robustness of the findings, the field notes were triangulated with: (i) data from 8 semi-structured interviews with members of the team, with each interview lasting between 45 and 60 min (totalling 84 pages of transcripts); and (ii) over 100 project documents, including team email threads, slide decks and meeting minutes.

Table 6 outlines the project team, which consisted of a principal investigator, a lead neurologist, a pharmacist, an ICU dietician, a developer, a postdoctoral researcher, a research officer and a research nutritionist. The inter-organisational IT project team was dispersed across three locations: a public hospital, the main campus of a university and a research centre located off-site on a satellite campus. The team communicated through email, conference calls, an online knowledge repository and weekly face-to-face meetings.

## 3.3 | Data analysis

We followed an inductive and abductive approach (cf. Sarker et al., 2018a) to data analysis consisting of five phases. Our unit of analysis was individual perceptions of control enactment in the inter-organisational project. Perceptions were analysed using the participants' own words and the meanings they assigned to phenomena (Klein & Myers, 1999). In Phase 1, the first three authors used open coding (Miles & Huberman, 1994) to inductively explore patterns and insights in the data (including interviews, documents and observations from 11 months in the field).

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The authors repeatedly re-read the corpus of qualitative data, highlighting meaningful pieces of text and commenting in the margins to outline potential relationships between concepts. This produced an initial inventory of over 5000 codes, which was managed using NVivo. Initial codes were inductively generated and highlighted concepts such as 'top-down vs. bottom-up hierarchy', 'empowerment', 'project delegation', 'project uncertainty', 'resistance', 'task conflict' and 'disengagement'.

In Phase 2, abduction (Peirce, 1974) was used to identify plausible theories that might explain coded observations. The abduction process centres on a theoretical re-description of findings using a chosen theoretical lens to interpret and reconceptualise phenomena in abstract terms (Bygstad et al., 2016). Following the completion of inductive coding, the authors undertook a review of IS literature on IT projects and systems development to explore theories that might explain the findings. The authors considered several alternative lenses, including the Theory of Practice (Bourdieu, 1977), Activity Theory (Engeström, 1987) and Social Cognitive Theory (Bandura, 1989). Eventually, they settled on Behavioural Control Theory (Cram, Brohman, & Gallupe, 2016b; Wiener et al., 2016), which could provide an understanding of managerial interventions for aligning efforts towards a shared objective and addressing misalignments within diverse collectives in inter-organisational teams. Without the presence of effective controls in inter-organisational projects, value outcomes are unlikely to be realised. Secondly, Behavioural Control Theory could help explain how controllers can respond when controls do not produce the desired result and controlee behaviours differ from a controller's expectations (Cram, Brohman, & Gallupe, 2016b). This is an important consideration as controllers must often engage in control redesign and 'trial and error' to ensure effective performance. Literature on Coping Theory (Lazarus & Folkman, 1984) was later utilised to support the creation of an evolving narrative around the controlee perspective and how team members respond to the disruptive events of control misalignment.

In Phase 3, each author coded the enactment of controls based on the concepts from Wiener et al.'s (2016) integrated theory of IS project control. The authors began by analysing the roles in the inter-organisational projects, their hierarchical relationships and the enacted modes and styles of controls. Following Liu and Chua (2020), the 'controller' was defined as an individual responsible for designing, managing and assigning project tasks, while 'controlees' were defined as any individual responsible for executing assigned project tasks. Tables 7a and 8a in the Findings section provide illustrations of root nodes from the coding process, such as control coerciveness (authoritative, enabling), control formality (input, behavioural, outcome, clan and self-control), controller activities and controlee perceptions of enactment.

In Phase 4, the authors coded 'control misalignment' as situations where the choice of controls did not result in desired controlee behaviours (Cram, Brohman, & Gallupe, 2016a; Wiener et al., 2016). Control misalignments arose when the perceived goals of controlees were inconsistent with those of the controller, often leading to unintended outcomes. The authors identified critical turning points (cf. Choudhury & Sabherwal, 2003) in the project when there were significant changes in the choice of control activities (see Appendix H). Critical turning points were coded as 'episodes', which punctuated a stable period of control and required changes in the controller's responses (Choudhury & Sabherwal, 2003). Tables 7b and 8b in the Findings section provide illustrations of the coding process, including controller activities, control redesign and the controlee's perspective.

In Phase 5, the authors analysed the coping processes in response to control misalignments. Following Lazarus and Folkman (1984), the analysis of coping firstly involved coding individuals' appraisals of situations in terms of relevancy and agency. Relevancy was coded as a controlee's stake in a situation and the anticipated consequences either as an 'opportunity' or 'threat' (Salo et al., 2020) within organisational, project, or individual contexts. Agency was coded as a controlee's perceived ability (high/low) to make choices despite the presence of control structures (Chua & Myers, 2018). The authors further coded the controlees' responses as either 'problem-focused' (taking action to manage or change the situation) or 'emotion-focused' (managing emotions associated with the situation) (Lazarus & Folkman, 1984). This analysis led to the identification of coping routes adopted by individual controlees in response to control episodes. Coping routes were coded when controlees did not achieve closure after the initial problem-focused or emotion-focused strategy, requiring them to undertake multiple rounds of the coping process

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(see the example in Table 9). 'Closure' was coded when a disruptive event no longer required coping due to a decision being reached (Lazarus & Folkman, 1984) or a project deadline having been passed.

To ensure trustworthiness during data analysis (Klein & Myers, 1999), the authors organised case analysis meetings on a weekly or fortnightly basis across an 18-month period to compare codes and address potential biases through the joint analysis of data (c.f. Miles & Huberman, 1994, pg. 76). The results of these meetings were recorded in meeting minutes and used to assure a higher level of validity in data analysis. Emergent themes were discussed with other scholars in the IS field on an intermittent basis (see acknowledgements). The authors shared early drafts of the analysis via email and invited feedback on the proposed contributions.

## 4 | FINDINGS

This section presents the findings from the two case studies. We identify episodes in each case when major shifts were observed in the choice of control activities (see Appendix H for the project timeline, critical turning points and episodes of control). The analysis is therefore divided into 'before' and 'after' major shifts in control activities when controller-controlee perceptions came into conflict. We discuss the interplay between controller activities and controlee strategies in Section 5.

### 4.1 | Control enactment and misalignments in the E-Health project (case 1)

The research fellow, as the designated controller (see Appendix I), sought to enact enabling controls through a series of design workshops where the IT specialists and clinicians met as a group for the first time (see Table 7a). As observed in the field notes, the control purpose was to create value using design workshops as a shared space to negotiate goals, tasks and roles early in the project. The research fellow commented: "*I don't think people realised, but the workshops were carefully crafted in terms of bridging gaps* [*between different professions*] *where for the first time we had a shared space where people could collaborate and learn from one another*". The data analytics lead later observed in an interview that the workshops were crucial for creating a shared sense of direction: "*There was good engagement during* [*these*] *workshops… That's when I realised that* [*the project*] *was more complex than I had initially thought, and I learned a lot from the sharing of insights*". The clinical researcher was also supportive of the research fellow's attempts, and in the absence of the medical consultant, she assumed responsibility for providing clinical input into the emerging requirements.

However, as the weeks passed, misalignments between the controller and controlees' perceptions became increasingly apparent. After being absent during the previous months, the medical consultant returned in month four and openly challenged the research fellow's enabling style of control. During her absence, the clinical researcher assumed responsibility for agreeing to requirements requiring clinical input. However, the medical consultant now questions many of these decisions and, in one meeting, overturns several requirements that had previously been agreed upon without her input. She reminded the research fellow of her authority as the primary clinical expert on the project and later explained: "*It is my role to scope out the clinical needs and the regulatory issues, what the patient needs, what the doctor wants, and the impact that will have*".

As evident from subsequent email interactions, this had a detrimental impact on the team and particularly on the confidence of the clinical researcher, who now became reluctant to make further decisions without deferring to the medical consultant. This, in turn, delayed many decisions. With the immovable deadline for commencement of the clinical study getting closer, the IT specialists felt they had no alternative but to make '*educated guesses*' at the outstanding decisions. The research fellow observed that the medical consultant had subtly transferred the onus for the delivery of the system to the IT specialists, while at the same time retaining a veto over key requirements of the system: "*There was more power* [*for clinicians*] *from not taking ownership of decisions because they were accountable for*

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**TABLE 7** (a) Episode 1 (May–July): controller styles and modes and controlees' perspectives; (b) Episode 2 (August–December): control redesign and controlees' perspectives.

| Style–mode | Controller activity | Controlees' perspectives | Illustrative quote (controlee) |
|---|---|---|---|
| (a) | | | |
| Enabling Clan Control | The controller led vision-building exercises where shared norms, values and future project activities would be defined. | The funded investigator appraised the vision-building exercises as an opportunity to better understand the project objectives and to guide the direction of the project. | *"In terms of common interests and commonality of vision, it only happens when [everyone] is at the table… [MC] later recalled a session that we did on the fifth floor of the hospital. That was the day it clicked for her, and because it clicked for us too"* (*FI*). |
| | The controller encouraged combining clinical and IT knowledge by mapping patient journeys. | The clinical researcher saw journey mapping as an opportunity to showcase her clinical expertise. She was actively involved in the design of journey maps. | "[*CR*] *looked at it and she worked through it logically and made changes… She suggested changes and then said, 'now let us move on'… it wasn't as clear in her head as on the journey map*." (PTD) |
| | The controller organised design workshops to provide an opportunity to negotiate requirements. | The systems analyst saw workshops as an opportunity to support his efforts at gathering requirements. | *"I think the [RF] did a great job in creating a sense of openness and that also made people let their guard down a bit. Like we are all learning and figuring things out at the same time… When it came to workshops, every part was very clearly thought out"*. (SA) |
| | The controller supported informal knowledge sharing to disseminate information and provide feedback. | The full-time and part-time developers saw informal meetings in the shared office as an opportunity to progress work and make decisions. | "[*The RF*] *trusts our words… he always said I trust you and always had my back which made me feel confident."* (*FTD*) |
| (b) | | | |
| Authoritative Input Control | The controller introduced top-down decision-making, formal project planning and the mandatory reporting of progress (against the budget, scope and timeline). He assigned tasks, tracked performance and managed any deviations from the plan. | The medical consultant appraised controls as a threat and perceived high agency (owing to her professional seniority) to ignore these requests and veto decisions. | "[*This caused a great deal of*] *conflict in the team… The differences built up and* [MC] *decided corrective action was required. If it had not been corrected, the issue could have become bigger*." (CD) |
| | | The subject matter expert appraised the project plan as a threat to his organisation's role in the project. As a smaller partner in the project, he perceived limited agency to change the plan. | "*We were shoehorned into deadlines which were not feasible for us. But I understand that you need to have deadlines as the project can run forever… There has been a lack of engagement this year, but the project has continued as planned*" (EX) |
| | The controller set higher levels of accountability to ensure the | The clinical researcher appraised IT specialists' approach to requirements | "*A lot of work was done by* [*SA*] *and* [*CR*] *around the requirements documentation. However, I think the* |



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**TABLE 7** (Continued)

| Style–mode | Controller activity | Controlees' perspectives | Illustrative quote (controlee) |
|---|---|---|---|
| Authoritative Behavioural Control | project would be delivered on time, within budget, and to an acceptable quality standard. | gathering as aggressive. As a junior member of staff, she perceived low agency to change this but shared her concerns with the medical consultant. | *clinicians were not used to this level of detail, iterating through different versions. This was a challenge for the [CR]. She was overwhelmed*." (DA) |
| | | The developers perceived low agency to prevent scope creep but appraised an opportunity to progress their work as they were no longer required to engage with the clinical researcher. | "*The team faced major difficulties owing to reduced engagement from [CR], but this latest change in reporting lines helped release pressure as the developers got on with things as best as they could. They were now back in control of their destiny*". (RF) |
| Authoritative Outcome control | The controller insisted that all tasks upon completion would require formal team sign-off. | The medical consultant perceived high agency to ignore the IT specialist's sign-off requests while retaining a veto on the features of the system. | "*Unless the clinicians evaluate the solution positively it will not be judged as a success… Clinicians had power in justifying the project*" (DA) |



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*nothing. In a way, they could always turn around and blame someone else for missing or incorrectly defining requirements. They retained the veto on key requirements*".

In Episode 2, the research fellow shifted towards authoritative controls with the purpose of appropriating value through documenting, communicating, assigning tasks and deadlines (see Table 7b). He explained in an email exchange that it was now a matter of "*adjust or bust*", and responsibility for work packages would need to be assigned to individuals to track their performance and manage any deviations. During a subsequent interview, the research fellow revealed that he was particularly wary of the decrease in engagement from the clinicians, who "*judge the efforts of the team as if the team has nothing to do with them*". The clinicians disagreed with the appropriateness of these latest control activities and valued a 'wait and see' approach, whereby they would retain the right to make late changes to requirements. Despite the IT specialists' repeated requests for formal feedback on interim deliverables, clinicians often failed to respond to emails in a timely fashion, and in some situations did not respond at all. This meant that an increasing list of features was being developed that had not been signed off on by the clinicians. The nurse later commented on the tensions between the IT specialists and clinicians: "*in a medical setting, you'd be more used to things not being so streamlined whereas the technologists expect a lot of things should happen now. But it's a lot harder when you're working with patients*".

It was therefore of little surprise when recorded system logs showed that the clinicians had made no attempts to log in to evaluate the prototypes, which had been created by the developers and the systems analyst to generate feedback. One developer noted that the clinicians' lack of response was due to the low prioritisation of the development activities: "*There was a lack of availability and interest among clinicians… [The clinical researcher] never worked on a [IT] project before and didn't realise the importance of requirements for defining the path forwards*". The second developer commented: "[*the clinical researcher's*] *priority is what* [*the medical consultant*] *asks her to do which is anything but project tasks… it's not a priority*".

Disagreements escalated further in month five when the clinicians began querying why the platform was not yet fit for purpose. Field notes highlight a series of difficult conversations that took place during a formal review meeting attended by the research fellow, a part-time developer, a systems analyst and a clinical researcher. During this interaction, the clinical researcher demanded the re-inclusion of an algorithm to predict patient readmission to the hospital, which had previously been ruled outside the project's scope. The research fellow advised that deadlines for including additional features had been notified to the clinicians and had now passed. After an hour of dialogue, the clinical researcher became annoyed with this '*stubbornness*' and abruptly left the meeting to '*return to the ward*.' Three days after this interaction, the centre director emailed the research fellow to insist that the team be more respectful of the norms within the clinical profession and request that they disengage from the clinical researcher, who '*needed space*'. This marked a breaking point in the team structure and imposed a clear delineation between the work of the clinicians and IT specialists. The centre director later explained in an interview that the decision was prompted by the medical consultant, who indicated that the IT specialists' engagements with the clinical researcher were '*too harsh*' and a source of unnecessary anxiety.

In a subsequent email, the centre director informed the research fellow that the medical consultant had '*ruled*' the patient readmission algorithm back into scope. The IT specialists felt they were now solely responsible for the onerous task of completing system development. Despite the extra pressure that these late changes put on the project timeline, the two developers and systems analyst appraised an opportunity to '*rescue*' the project, as they would no longer be impeded by the need to wait for clinician feedback. They worked overtime to ensure that the system would be delivered on time. The research fellow observed how the "*relationships on* (*the IT*) *side were very positive… people were honest in their engagements with one another … particularly our two developers, where if one didn't agree with the other you knew all about it! I think this was positive as all disagreements were dealt with there and then*".

The final version of the system, including the additional features, was delivered on time for the clinical study to begin in February. However, this was done at some personal cost to the IT specialists, including longer working hours and strained relationships within the wider team.

The next section presents findings from the second case, the ICU project.

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## 4.2 | Control enactment and misalignments in the ICU project (case 2)

The principal investigator, as the controller (see Appendix I) used enabling controls to encourage exploratory discussions during the kick-off meetings (see Table 8a). She stated that: "*The meetings at the beginning were quite unruly and I felt as the chair that it was absolutely necessary to let that happen for a particular period… The level of complexity is really startling and there are assumptions within each discipline which needed to be tested in a project like this*". The control purpose was to create value by affording team members an opportunity to learn more about each other's organisations, professions and objectives. For instance, at one of these initial meetings, the lead neurologist explained that the project should not generate unnecessary change in the ICU ward and that the Clinical Decision Support System (CDSS) must complement *rather* than replace the work practices and expertise of its staff. He asserted that the CDSS should display digitised patient information but should exclude prescriptive modelling of patient outcomes and that decisions around patient treatments should be made solely by the clinical staff. He later remarked how "*introducing a new technology without understanding* (*how*)*… to use it effectively*, *safely*, *and judiciously*" could lead to unnecessary work-related issues in the ward, and he preferred to maintain the status quo of current practices insofar as possible.

As documented in field notes, the lead neurologist's engagement with the project began to wane from the second month onwards due to conflicting obligations in the hospital. During this period, communication issues became apparent as the ICU dietician began to lead discussions about the CDSS design. She hoped that leading the CDSS design would increase her influence in the ICU ward going forward: "*this will be a real enhancement to ward rounds and the role of the dieticians. Information is power and I think that* [*the CDSS*] *will be very useful*". She started utilising private email interactions and side meetings with the principal investigator, pharmacist and research nutritionist to solidify her influence on the direction of the project. She pushed for the re-inclusion of the prescriptive modelling feature, which would be based on her completed PhD research. However, some team members were not invited to these meetings, and the decisions conflicted with the lead neurologist's prior assertion that the new technology should not change work practises in the ICU ward.

Others perceived that they too had an opportunity to make unilateral and sometimes self-serving decisions within their domains of expertise. The postdoctoral researcher observed the mounting confusion at meetings where both the ICU dietician and research nutritionist assumed they had the casting vote on key decisions. Despite the principal investigator's best intentions to use enabling controls for stimulating value creation, it became apparent that the team members were increasingly working in silos, as evidenced by several disconnected email threads.

Misunderstandings between controlees and the controller created uncertainties around the schedule and unintended interdependencies between delegated tasks. The pharmacist felt that this was due to the lack of clearly communicated controls from the principal investigator: "*a* [*designated*] *project manager would have the health* (*of the*) *project in mind. They could see the bigger picture*, *and they could move things forward and pull in the resources that are required… But no one has been emailing me saying 'will you do this?*'". Meeting minutes show how the project was now encountering delays as the team struggled to deliver a working prototype according to the agreed schedule. The project was in danger of imploding as uncertainties grew around who was making decisions and which decisions would and would not stand.

In Episode 2, the principal investigator consequently responded by introducing more formal controls with the purpose of appropriating value through delegating clear and accountable tasks (see Table 8b). Upon the lead neurologist's return to the project in month four, the principal investigator sought to mediate a compromise between the ICU dietician and the lead neurologist's conflicting interests. The meeting centred on the role of the CDSS in the ICU ward and whether the exclusion of some features could be justified. Following intense negotiations, the lead neurologist acceded to the ICU dietician's demand that the prescriptive modelling feature be ruled in scope. He insisted though that the feature would remain subservient to the expertise of those in the ward.

Field notes reveal how the developer privately expressed concern that the lead neurologist was not convinced of the benefits of the prescriptive modelling feature and that this might impact the success of the CDSS: "[*The lead*

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**TABLE 8** (a) Episode 1 (October–December): controller styles and modes and controlees' perspectives; (b) Episode 2 (January–April): control redesign and controlees' perspectives.

| Style / mode | Controller activity | Controlees' perspectives | Illustrative quote (controlee) |
|---|---|---|---|
| (a) | | | |
| Enabling Clan Control | The controller provided the space for exploratory discussions to build shared norms, values and understanding. | Controlees appraised the early meetings as an opportunity to understand the project objective and align the direction of the project with their professional and organisational goals. | "[*A*]*t the initial meetings*, [*there*] *would have been a lot of discussions… quite a few times I* [*needed*] *to emphasise the importance of the research aspect because I think a lot of the team* [*only*] *see the technology*" (PDR) |
| | | In the absence of the lead neurologist, the ICU dietician appraised an opportunity to increase the influence of dieticians in the ward. Using backchannels, she persuaded a select subgroup to re-include the prescriptive modelling feature in the requirements. | "*Sometimes there are people who would email two or three people in the project team and not include everyone. And that may be appropriate, but then you hear oh this is happening in the project and you did not know anything about it*." (PA) |
| Enabling Self-control | The controller supported high levels of autonomy so that individuals could utilise their expertise to achieve complex goals. | The developer, as sole IT expert on the team, appraised an opportunity to demonstrate his professional abilities and he highlighted the importance of technology and his role in the project. | "*A team of one is incredibly difficult. It does give you a lot of credibility though as what you say goes. No one else can challenge you*." (DEV) |
| (b) | | | |
| Authoritative Input Control | The controller delegated tasks to manage deviations in performance. | The post-doc researcher welcomed the PI's attempts to clarify roles, appraising it as an opportunity to progress decision-making and reduce confusion. | "*My role was initially set out by the* [*PI*], *that's what it would have been… I see myself as someone who helps the* [*PI*]. *So, if she wants something done then I will help her that way*." (PDR) |
| Authoritative Behavioural Control | The controller used top-down negotiations to control what features would and would not be delivered by the proposed software. | The developer appraised the absence of feedback as a threat to his work and became despondent about the lack of agency. This prompted him to re-evaluate his role in the project. | "*The approach has been somewhat agile in the sense we build out the important pieces as quickly as possible, but do not go too far down the road… This is what we are doing until someone tells us that's not going to work or it's wrong. Cause it's the only way to get feedback from them.*" (*DEV*) |
| | | The lead neurologist appraised an opportunity to transfer de facto responsibility for the CDSS platform to the ICU dietician, but still sought plaudits if the project was a success. | "[*LN*] *seemed to suggest that* [*ICU consultants*] *did not want to use* [*the software*]. *The consultants said… there is still the concern that the practice changes for the whole ward based on the results of the intervention group*." (NU) |



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**TABLE 8** (Continued)

| Style / mode | Controller activity | Controlees' perspectives | Illustrative quote (controlee) |
|---|---|---|---|
| Authoritative Outcome Control | The controller used group meetings to negotiate desired outputs and make different interests explicit. | The lead neurologist appraised the negotiated re-inclusion of the prescriptive modelling as a threat to the status quo in the ICU ward. | *"At times [viewpoints are] quite different and we would not necessarily always agree… we have so many different professions and… we need to understand the level of complexity in helping to formulate and to be very clear ourselves"* (LN) |
| | | The pharmacist noted the lead neurologist's role in the ICU ward may mean that the decision to re-include prescriptive modelling could be reversed later. | *"It's kind of like what he [LN] says goes. And you must, not really argue a case, but work around him if you disagree with him. So, he would have had a lot of influence [on the project]."* (PA) |



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*neurologist's*] *name is going against* [*the CDSS*] *for certification, his name is going against it for insurance, his name goes against it for everything. So, if he says jump, it's very much a case of 'how high?' To get into the unit he has to* (*approve*) *every aspect of it*". Others were also silently concerned that the lead neurologist and his colleagues might later veto its use in the ward. Indeed, these suspicions were realised, when at a meeting in the fifth month, consultants asserted that they would not use the CDSS in their day-to-day work and that the dieticians would now be its sole users in the ward.

As the sole IT expert on the team, the developer was at pains to convey the impact that the uncertainty around requirements was having on his progress. He informed the principal investigator of his growing concerns about the delivery timeline and how he was not receiving replies from team members to his emails seeking clarification on requirements. He explained that: "*I depend on others for my work, but the problem is that they're doing nothing… the requirements haven't been finalised*". Others, however, were becoming frustrated with what they perceived as the developer's preoccupation with asking '*difficult*' questions, which they often ignored. As the developer was neither a '*clinician nor a scientist*,' he increasingly viewed himself as alienated in a '*team of one*' having little agency to turn things around. Despite his work being critical to the success of the project, he felt his professional concerns were being ignored.

The developer felt dissatisfied with the way things were going and felt increasingly isolated within the team. Consequently, in month six, he took matters into his own hands and decided to leave the project and pursue career opportunities elsewhere. A project report later highlighted the knock-on effects that this decision had on the system launch date. Additional funding would be required from the industry partners to keep the remaining team employed on the project to its conclusion. In the end, the system was delivered to the ICU ward, albeit later than planned and exceeding the original budget.

## 5 | CROSS-CASE ANALYSIS AND DISCUSSION

Control enactment in both case studies was initially successful in aligning the efforts of controlees with agreed project goals (c.f. Kirsch, 1996; Wiener et al., 2019). In Episode 1 of the E-Health project, the controller (research fellow) supported a dialogical approach to negotiating collective social norms through an *enabling style of clan controls*. In Episode 1 of the ICU project, the controller (principal investigator) encouraged self-chosen and self-regulated behaviours through an *enabling style of self-control*. The control purpose in both cases was to create value and foster legitimacy in control enactment by providing opportunities for controlees to engage in feedback cycles (Cram & Wiener, 2018; Wiener et al., 2019). Clan control and self-control were chosen based on controller perceptions that controlees were experts in their domain and were best positioned to foster collective norms (c.f. Maruping et al., 2009; Liu & Chua, 2020).

Controlees' responses to control enactment were meanwhile shaped by their appraisal of evolving situations across multiple levels of context (cf. Heumann et al., 2015). We find that perceptions of context can be *personal* (how one perceives oneself independent of any collective), *professional* (how one perceives one's standing within the collective of a profession), *project* (how one perceives one's role within the collective of a team), or *organisational* (how one perceives one's role within the collective of an organisation). The ultimate choice of controllee response depends on which context is perceived to be most pertinent at a given point in time and the controlee's ability to resolve potential misalignments in that context. For example, controlees in inter-organisational IT projects may experience disharmony between *project* and *organisational* contexts when project goals conflict with the demands of their day-to-day organisational roles. While the controlees may perceive themselves to be good 'team players' (project context), they may struggle to balance this with their perception of being 'good employees' (organisational context). They may therefore decide on a response that seeks to address this disharmony by making sacrifices within one context to preserve their standing in the other. At a more general level, this can be explained as an ongoing tension between the individual and collective.

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Initially, controlees in both cases (during Episode 1) responded positively to the controls, perceiving an opportunity to bring their expertise to bear on the project. They perceived harmony between professional, project and organisational contexts. For example, in the E-Health project, the clinical researcher was supportive of the research fellow's choice of controls and enthusiastic about providing clinical input during requirements gathering. This aligned with her interest in adding a successful IT rollout to her resume (professional context) and increasing her standing within the ICU ward (organisational context). Similarly, in the ICU project, the controlees were also supportive of the principal investigator's choice of controls and provided their input during exploratory discussions to shape the vision (project context).

Despite the initial acceptance of controls in both case studies, control misalignments (c.f. Cram, Brohman, & Gallupe, 2016b) were becoming increasingly apparent as the months passed. In the E-Health Project, misalignments arose when the medical consultant began to openly question the use of clan controls, which she perceived as a threat to her identity as a medical expert (professional context) and her authority within the hospital (organisational context). She leveraged her professional status to challenge requirements previously agreed upon by the team, acting in the knowledge that her actions might threaten the timeline of the project. The medical consultant deemed personal and professional contexts to be more important than the project context. Other controlees then adapted their activities in response to the actions of the medical consultant. For instance, even though there was no change to control activities, the IT specialists re-appraised their situation in response to the impact that changing requirements might have on their workloads. Misalignments also arose in the ICU project as controlees, such as the ICU dietician, sought to pursue opportunistic professional and organisational goals, even when these did not align with the goals of the project. This caused other team members to re-appraise their situations. For instance, the developer now appraised a growing threat to the quality of his work within the project team.

These systemic shifts in both cases meant that the controllers felt they had little option but to redesign their controls in response to the growing misalignments that were threatening the success of the projects. In both cases, the controllers responded by enacting more authoritative style of formal controls. The control purpose aimed to achieve appropriate value through building accountability for the execution of project tasks (Gregory et al., 2013; Wiener et al., 2019).

In turn, controlees re-appraised and responded to these adjustments. Figure 2 illustrates four coping strategies that were inductively revealed from our cross-case data. The figure was guided by concepts from Coping Theory as identified in Table 3 (c.f. Beaudry & Pinsonneault, 2005; Lazarus & Folkman, 1984). Vertical columns relate to controlees' *appraisal of relevancy*, which can centre on the opportunities or threats they perceive within a given context. The

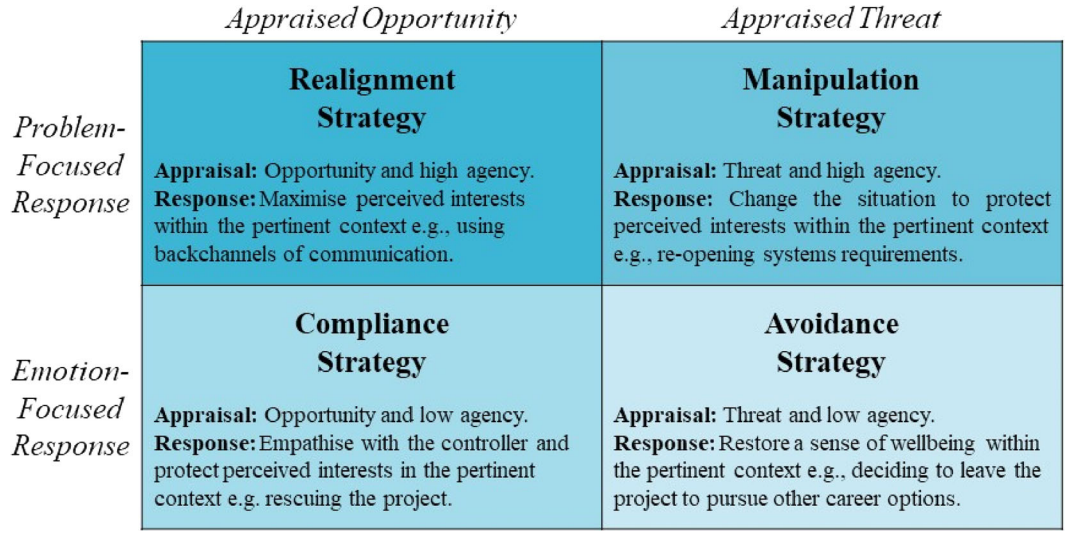


**FIGURE 2** Matrix of controlee coping strategies.

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horizontal rows focus on controlees' *responses*, which depend on their perceived level of agency and can take the form of problem-focused or emotion-focused strategies. We discuss the four coping strategies in detail below.

The *realignment* strategy refers to situations where controlees appraise both an opportunity and high levels of agency. They respond with a problem-focused coping strategy aimed at maximising their perceived interests within the pertinent context. For example, in the second case, the ICU dietician uses backchannels of communication to achieve her professional goals, negotiating the re-inclusion of a prescriptive modelling feature that she perceived would increase the influence of dieticians in the ICU ward. However, this was perceived as a '*land grab*' by some team members (e.g., the lead neurologist, the developer and the nutritionist), who felt excluded from contributing to these decisions, despite the relevance of their expertise. The dietician's coping strategy frustrated the other team members due to what they perceived as its single-minded focus on the maximisation of interests for one group to the exclusion of others. They also felt this would be a '*hollow win*' for the ICU dietician, as the consultants could use their high levels of authority to veto the use of the feature in the ward.

The *compliance* strategy refers to situations where controlees appraise both an opportunity and low levels of agency. They respond with an emotion-focused coping strategy that empathises with the controller and protects their perceived interests within the pertinent context. In the E-Health project, the clinicians' tendency to ignore requests for feedback caused increasing levels of anxiety among other team members, given the potential impact on deadlines. Following the centre director's mandate to reinclude the patient readmission algorithm and to break off communication with the clinical researcher, the IT specialists appraised the situation as an opportunity to continue with their work but now with less dependency on the input of the clinicians. The developers and analysts decided to '*double down*' and make the '*best of a bad situation*'. They complied with the requests of the research fellow to '*do what is necessary*', including working overtime, to ensure the system was delivered. They were motivated by the desire to be perceived as '*rescuers*' of the project in the face of considerable challenges and personal costs.

A third coping strategy, *avoidance* refers to situations where controlees appraise both an emerging threat and low levels of agency. They respond with an emotion-focused coping strategy aimed at restoring a perceived sense of well-being within the pertinent context. This coping strategy was seen in the ICU project when the developer decided to leave the team following months of frustration with the project. The developer had made numerous requests for feedback from team members but felt they had abdicated responsibility for the CDSS to him. He consequently felt he was "*a team of one*". The developer recognised that while he may have had lower levels of agency within project and organisational contexts, he had high levels of agency within his career. To maintain a sense of personal well-being, he decided to leave the project and pursue career opportunities elsewhere. He felt "*he had no professional alternative, but to leave*" the project, as he did not wish to have a '*failed project*' on his resume. This contrasts with the clinical researcher in the E-Health project, who felt she had no professional alternative but to remain on the project out of loyalty to the medical consultant, whose support would be crucial to her future career options.

Lastly, the *manipulation* strategy refers to situations where controlees appraise both a threat and high levels of agency. They respond with a problem-focused coping strategy aimed at changing the situation to protect their perceived interests within the pertinent context. For example, in the E-Health Project, the medical consultant saw the controller's enabling style as a threat to her authority and sought to overturn previous decisions made in her absence. As clinical lead on the project, she insisted on changing previously agreed requirements and reincluding the patient readmission algorithm in the project scope, even though the feature was of questionable value. She was less concerned about the impact that "*re-opening the book of requirements*" would have on the project timeline and the workload of other team members.

The cross-case analysis also shows some controlees moving along a 'coping route' (cf. Salo et al., 2020) consisting of consecutive coping strategies aimed at achieving 'closure' (cf. Lazarus & Folkman, 1984). Changes in coping strategy typically occur where a controlee's prior attempt was unsuccessful or disruptions occur in the wider environment. The coping routes pursued by controlees differed across the two cases, with some changing from problem-focused coping strategies to emotion-focused coping strategies (e.g., developer in the ICU project – see Table 9) or vice versa (e.g., IT specialists in the E-Health project – see Appendix J). Akin to existing process models of

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**TABLE 9** Summary of coping route followed by the developer in the ICU project.

| Coping route | Description | Controlee perception |
|---|---|---|
| Coping Round 1: *Realignment* | The developer appraised high agency and an opportunity (project context) to shape the direction of the project by utilising his expertise (Episode 1 of the ICU project). | The controlee is invested in delivering the system requirements agreed upon at the beginning of the project. |
| Coping Round 2: *Manipulation* | The developer appraised high agency and a threat to his role (project context), responding with a problem-focused strategy aimed at requesting repair of issues (Episode 2 of the ICU project). | The controlee requests that the controller redesigns control activities to better support his work in the face of scope creep. |
| Coping Round 3: *Compliance* | The developer appraised low agency and an opportunity (project context) to respond with an emotion-focused strategy that would rescue the project (Episode 2 of the ICU project). | The controlee aims to '*put his head down*' and deliver on the work demands and impending deadlines placed on him by the controller. |
| Coping Round 4: *Avoidance* | The developer appraised low agency and a threat (project context), responding with an emotion-focused strategy that would restore a sense of well-being. | The controlee seeks to distance himself from the situation and takes up career options outside the project. |

control that focus on the controller's perspective (Cram, Brohman, & Gallupe, 2016b; Moody et al., 2016), we therefore suggest that controlees may sequentially change between different responses over time. The process needs not end with the selection of a single strategy but can potentially continue as the controller or controlees repeatedly make readjustments. Table 9 presents an example from the ICU project that summarises how the developer changed coping strategies across episodes 1 and 2. While all controlees have agency to select their coping strategy, closure can be pursued through different routes.

Building on this insight, we find that the enactment of controls in distributed environments is best represented as a triadic model (controller-controlee-others) rather than the dyadic model (controller-controlee) traditionally depicted in literature. As illustrated in Figure 3, controlee behaviour is shaped by control activities, but in certain situations, their behaviours are also shaped by the coping strategies or routes of other controlees. For example, in the E-Health Project, the IT specialists' *compliance strategy* was chosen in response to the medical consultant's *manipulation strategy* and the resulting threats to the project timeline caused by late changes to the system requirements. Similarly, in the ICU project, we see the developer's coping route as a response to the ICU dietician's *realignment* strategy, whereby she took advantage of the controller's enabling style of control enactment to pursue different goals without consideration of the impact on others. The developer in turn felt his only option was to move between a series of consecutive coping strategies, as summarised in Table 9.

Further to the triadic model, we find that control formality and control coerciveness can trigger different controlee coping strategies and coping routes by affecting their perception of context. For instance, enabling self-control in the ICU project seems to have increased the salience of personal contexts in controlee appraisals and triggered coping strategies, such as realignment and avoidance, which centred on personal goals. Meanwhile, enabling clan control appears to have increased the salience of collective contexts and proved important in the E-Health project for facilitating trust and collaboration among the IT specialists, later triggering the adherence coping strategy.

Table 10 presents a set of propositions for future research based on the findings from our cross-case analysis and our theoretical integration of Behavioural Control Theory and Coping Theory. The next section summarises our propositions as tentative theoretical statements enfolded in literature and presents contributions from our research.

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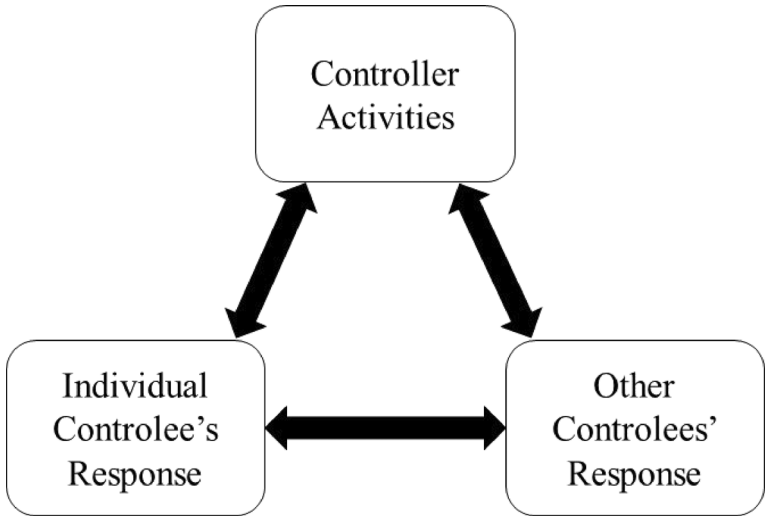


**FIGURE 3** Triadic model of dynamic control enactment.

## 6 | CONTRIBUTIONS AND IMPLICATIONS

Our first broad contribution is to highlight how controller-controlee interactions can be explained by the theories of Behavioural Control Theory and Coping Theory. The synthesis of these two theories offers complementary accounts of the controller and controlee perspectives in distributed settings (RQ1). Following a problematization approach, we observed that research (see Appendix E) has traditionally assumed a deterministic view of controls with less attention directed towards the controller-controlee perspective in tandem (see Table 4, assumptions 1–3). Failure to recognise both sides of the controller-controlee dyad is perhaps one reason why research is inconclusive on why controls fail in practice (Cram & Wiener, 2018; Liu & Chua, 2020). Our study adds to the control literature by revealing how control emerges through a dynamic process of co-enactment that results from an interweaving of not two but three sides of the *controller-controlee-others* triad. An interpretive research approach was chosen (see Appendix F) to generate thick descriptions of controller and controlee meanings based on data gathered from two in-depth case studies.

Our second broad contribution is to theorise a context-dependent view of controlee appraisals and highlight how controlees' coping strategies are shaped by appraisals within a pertinent context (organisational, project, professional and personal levels). The literature has previously assumed that the controlee perspective is isolated to a single context (see Table 4, assumptions 4–5). We argue that a multi-level view of controlee appraisals provides a better understanding of the social construction of controls in distributed environments (e.g., inter-organisational projects). This in turn is crucial to understanding why different controlees respond in unexpected ways to controlling activities (RQ2). Appendix B–D evaluates our synthesis of theories and proposed contributions in more detail following the guidelines of Corley and Gioia (2011), Weber (2012) and Rivard (2014).

### 6.1 | Research contributions

Following an interpretive research tradition, we used Coping Theory (cf. Beaudry & Pinsonneault, 2005; Salo et al., 2020) as theoretical scaffolding to consider how controlees appraise and respond to control misalignments through different coping strategies (see Figure 2). Our first contribution is to discuss how controlee responses are

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**TABLE 10** Summary of findings (propositions) and their relationship to data, theoretical contributions and research gaps.

| Proposition | Data (cross-case analysis) | Contributions | Future research |
|---|---|---|---|
| Proposition 1: Controlees' response (coping strategies) to attempted controls are context dependent and can centre on personal, professional, project and organisational contexts (Assumption 1, 2 in Table 4). | In Case 1, the developers' *Compliance* strategy centred on the project context while the medical consultant's *Manipulation* strategy focused on her organisational context. | Extends the controller-centric view of context and control choices (Chua & Myers, 2018) | The interplay between different contexts of controlee relevancy. |
| Proposition 2: Controlees can seek agency across multiple contexts, moving between different contexts until an effective strategy is found (Assumption 3, 4 in Table 4). | In Case 2, the developer appraised limited agency to change situations within the project or organisation context. He therefore sought agency in a personal context and left the team. | Presents a hierarchical perspective of controlee agency, beyond the single context of a team. | The salience of different contexts on perceived controlee agency. |
| Proposition 3: Unsuccessful coping strategies increase the likelihood of controlees continuing the coping process by switching to an alternative problem or emotion-focused strategies (Assumption 5 in Table 4). | Following unsuccessful attempts to demand feedback from clinicians (*Compliance*), the developers in the E-Health project saw opportunities to decouple their work and progress tasks (*Realignment*). | Applies the idea of Coping Routes (Salo et al., 2020) to control enactment and the controlee perspective | Antecedents of 'closure' for controlee coping process and resilience building. |
| Proposition 4: Coping processes are a response to both control activities as well as the chosen coping strategy or coping route of other controlees (Assumption 1, 5 in Table 4). | In Case 2, the ICU Dietician's responses were shaped by both the controller and the coping strategies of other controlees e.g., LN distancing themselves from the project. | Extends the dyadic model of control enactment (Remus et al., 2020) | The tension between controller and controlee-driven responses. |
| Proposition 5: Self-control can increase the salience of personal contexts in controlee appraisals. Clan controls can increase the salience of collective contexts e.g., project, organisations, professions (Assumption 3 in Table 4). | In Case 1, clan controls initially supported the creation of a shared vision by shifting the focus of controlee's appraisals to the project context. In Case 2, self-control empowered actors such as the ICU developer to engage in coping strategies focused on a personal context. | Questions the assumption that control modes only operate in a single context. | The effects of control degree on controlee appraisals e.g., organisational, professional. |

context-dependent and their choice of coping strategy may depend on whether the situation is appraised as either an 'opportunity' or 'threat' within personal, professional, project, organisational contexts (Proposition 1). We identified four coping strategies (*realignment*, *manipulation*, *compliance* and *avoidance*) that were enacted within a pertinent context. In the E-Health Project, for instance, the clinical researcher reduced her engagement (*avoidance*) amid a

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perceived threat to her *personal* wellbeing while the IT specialists perceived the situation as an opportunity to increase their *professional* status by rescuing the project from failure (*realignment*). While prior literature has assumed a controller-centric view of context, we reveal how controlees can respond differently to the same control activity depending on the focal point of their relevancy appraisal.

Our second contribution reveals that the controlee's choice of coping strategy involves multiple appraisals of agency within personal, professional, project and organisational contexts (Proposition 2). We find that if a controlee fails to reach closure in one context, they turn attention to another context where they may have more agency. Towards the end of the ICU project, the developer perceived limited agency within the project and organisational contexts to cope with mounting threats to his work and eventually decided to enact agency within a personal context by leaving the project. This provides a more nuanced view of agency by suggesting that if controlees cannot cope with disharmony in one context, they will refocus their appraisal in a different context. In doing so, we extend the control literature by explaining why controlees within the same team may perceive controls differently depending on the context of their appraisal.

Our third contribution is to theorise coping routes (see example in Table 9 and Appendix J), which are pursued by controlees when their initial coping strategy is unsuccessful (Proposition 3). Process models of control have previously been conceptualised from the controller's perspective. We extend the literature by theorising how controlees also engage in a sequence and combination of emotion- and problem-based strategies. This can involve multiple attempts at coping as controlees look for an effective coping strategy aimed at closure (Beaudry & Pinsonneault, 2010; Salo et al., 2020). In the ICU project, the developer enacted a problem-based strategy to demand change from the controller (*manipulation*) before then moving onto an emotion-based strategy that handled his frustrations (*avoidance*). We extend the work of Chua and Myers (2018) and Murungi et al. (2019) by presenting a broader range of controlees' responses to those outlined in prior research and recognising the different coping routes that controlees enact in distributed control hierarchies.

We also present a triadic model of control enactment that suggests that a controlee's response to control enactment can also be shaped by the coping strategy or coping route of other controlees (Proposition 4). Literature to date has primarily focused on the controller perspective and performative aspects of control activities, which are represented in a dyadic *controller-controlee* model (Chua et al., 2012; Tiwana, 2010; Wiener et al., 2016). We find, however, that in certain situations, controlee responses are also shaped by the coping strategies or routes of other controlees as they utilise their agency to trigger outcomes beyond those expected by the controller. This triadic *controller-controlee-others* model was seen in the E-Health project when the medical consultant's *manipulation* strategy, which consisted of 'requesting control changes' and 'transferring responsibility', prompted the IT specialists to adopt a *compliance* strategy to prevent outcomes that would be detrimental to the controller's efforts. This answers Chua and Myers' (2018) call to investigate controlees' responses to control attempts in instances where conflict emerges.

Our fifth contribution provides further insight into the triadic model by highlighting the relationship between control activities and context salience in controlee appraisals (Proposition 5). Prior research has focused on how control coerciveness and control formality impact controlee behaviours but rarely addresses the context of controlee appraisals. Based on our findings, we first suggest that enabling self-control can increase the salience of the personal context. We see this in the ICU Project, where controlees developed singular visions for the project, seeing the CDSS as either a chance to gain added influence in the ward (e.g., the ICU dietician) or a threat to their existing modes of working (e.g., the lead neurologist). In contrast, we find that enabling clan controls can increase the salience of collective contexts (organisation, project team and professions), such as in the E-Health project, where they supported clinicians and IT specialists in creating a shared vision. Control literature has previously focused on a narrow range of settings where the controller-controlee relationship is based on clear hierarchical structures within a single organisation (Cram & Wiener, 2018; Ouchi, 1979; Wiener et al., 2019). However, we find that such assumptions do not hold for inter-organisational IT projects where diverse actors are

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brought together from different legal entities in the pursuit of shared goals (Hekkala et al., 2021; Soh et al., 2011; Stjerne et al., 2019).

## 6.2 | Practical contributions

Our first practical implication is to recommend that controllers' choice of control activities for cross-boundary forms of work should consider controlees' organisations and professional traditions to prevent situational contingency gaps over time. In contrast to Chua and Myers' (2018) controller-focused view of context, we find that controlee structures can also determine what control styles and modes are acceptable. This was seen in the E-Health Project when the centre director demanded that the research fellow and the IT specialists respect the wide hierarchical distances found in the medical profession, where clinicians expect that there will be deference to seniority. 'Trial-and-error' redesign and combinations of controls are therefore necessary in inter-organisational IT projects to address emerging misalignments and failed control attempts. Consistent with Kirsch (2004), we find that informal controls were more likely to be found in the early stages of the two case studies, as they provided the team with an opportunity to engage in collective sensemaking. However, we find that controlees may still subvert these controls and revert to coping strategies that are beneficial within personal or organisational contexts rather than strategies that best serve the project context. Later in both projects, in the face of increased misalignments and mounting challenges to the project's success, controllers reverted to more authoritative styles of control that aimed at ensuring alignment with project objectives (c.f. Kirsch, 1996; Wiener et al., 2016).

We also recommend that controllers and controlees engage in open dialogue early to support arriving at a shared understanding of contextual differences (Jenkin et al., 2019; McCarthy et al., 2021). For example, design workshops (enabling control) can help controllers and controlees articulate the opportunities and threats being perceived, foster the shared knowledge and commitment needed for control alignment (c.f. Mähring et al., 2017), and build empathy for fellow team members. Controllers must navigate underlying politics within and between organisations or professions, as well as the reactions of controlees, to ensure that immediate or delayed resistant behaviours do not occur (Murungi et al., 2019). Controllers need to be particularly conscious of situations where underlying contexts involve very strong structural elements (e.g., hierarchies), such as the clinical profession. In some situations, this requires a more extensive repertoire of responses than assumed in much of the control literature to both 'give' and 'receive' direction during control enactment. We suggest the role of controllers is often more akin to that of a 'conductor' where they continuously respond to what is happening in front of them during a process of co-enactment.

## 6.3 | Limitations and future research

There are, nonetheless, limitations inherent in our study that future research might seek to address. One limitation of our cross-case analysis relates to the unique context in which the case studies took place: health IT projects involving collaboration between IT specialists and clinicians. While we believe that the findings are still representative of other complex IT projects involving multiple organisations, such as IT outsourcing arrangements, future research can investigate unique contexts, such as multi-team systems and open-source communities. A second limitation relates to the lead author's involvement in both case studies, which it could be argued created certain information-processing biases during data analysis. To address this, findings were triangulated from multiple sources of data, and the co-authors continuously questioned each other to overcome any subjectivity bias in the lead author's analysis (Klein & Myers, 1999).

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We hope our study and supporting propositions will inspire future research, both qualitative and quantitative, on the emergent aspects of control. First, research can seek to explore how subgroup formation may impact the controller-controlee relationship over time. This might also help practitioners anticipate the emergence of possible control misalignments where different individuals assert group-level preferences for certain controls in an IT project. Given the plurality of social identities in inter-organisational teams, a key challenge centres on how to create a shared sense of belonging in project teams, in addition to their loyalty to collaborating organisations and professions. Secondly, future research is needed to investigate collective and individual *resilience* (cf. Kossek & Perrigino, 2016; Luthans, 2002) during control enactment and how controller-controlees learn from stressful situations such as control misalignment over time. This may also involve controlees learning to deploy multiple coping strategies simultaneously through trial-and-error coping routes. Thirdly, the relationship between control enactment and project success in complex IT projects merits further research to understand the implications of *control purpose* (Cram & Wiener, 2018; Wiener et al., 2019). Our findings suggest that while formal controls can be used to constrain and align actions towards a pre-defined outcome, informal controls can imbue collectives with the power to specify their own desired outcomes by limiting top-down mandates. However, further research is needed to explore the link between control and power relations across other project settings and team configurations.

## 7 | CONCLUSION

In this paper, we discuss how different controlees 'cope' with control misalignments by optimising their responses to perceived opportunities and threats in a pertinent context. Four coping strategies are outlined that controlees utilise relevant within personal, professional, organisational, or project contexts: *Realignment*, *Compliance*, *Avoidance and Manipulation*. We see how controlees follow 'coping routes' by combining coping strategies in response to the control activities of the controller and the coping strategies of other controlees. This provides a complementary triadic *controller-controlee-others* perspective to the controller-centric model that has dominated literature to date. We further indicate that interactions are subject to change over time, with controllers and controlees recursively adapting their responses through control redesign and coping routes, respectively. We find that the choice of self- and clan control affects the salience of personal, professional and organisational contexts in controlees' appraisals, as well as the propensity for misalignments during control activities.

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### CONFLICT OF INTEREST STATEMENT

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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## REFERENCES


Ahmed, Z., Eryilmaz, E., & Alzahrani, A. I. (2022). IS diffusion: A dynamic control and stakeholder perspective. *Information & Management*, *59*(1), 103572.

Alvesson, M., & Sandberg, J. (2011). Generating research questions through problematization. *Academy of Management Review*, *36*(2), 247–271.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175–1184.

Beaudry, A., & Pinsonneault, A. (2005). Understanding user responses to information technology: A coping model of user adaptation. *MIS Quarterly*, *29*, 493–524.

Beaudry, A., & Pinsonneault, A. (2010). The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use. *MIS Quarterly*, *34*, 689–710.

Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge University Press.

Bygstad, B., Munkvold, B. E., & Volkoff, O. (2016). Identifying generative mechanisms through affordances: A framework for critical realist data analysis. *Journal of Information Technology*, *31*(1), 83–96.

Cardinal, L. B., Kreutzer, M., & Miller, C. C. (2017). An aspirational view of organizational control research: Re-invigorating empirical work to better meet the challenges of 21st century organizations. *Academy of Management Annals*, *11*(2), 559–592.

Carter, M., & Grover, V. (2015). Me, my self, and I (T): Conceptualizing information technology identity and its implications. *MIS Quarterly*, *39*(4), 931–957.

Chatterjee, S., & Davison, R. M. (2021). The need for compelling problematisation in research: The prevalence of the gap-spotting approach and its limitations. *Information Systems Journal*, *31*(2), 227–230.

Choudhury, V., & Sabherwal, R. (2003). Portfolios of control in outsourced software development projects. *Information Systems Research*, *14*(3), 291–314.

Chua, C. E. H., Lim, W.-K., Soh, C., & Sia, S. K. (2012). Enacting clan control in complex IT projects: A social capital perspective. *MIS Quarterly*, *36*, 577–600.

Chua, C. E. H., & Myers, M. D. (2018). Social control in information systems development: A negotiated order perspective. *Journal of Information Technology*, *33*(3), 173–187.

Corley, K. G., & Gioia, D. A. (2011). Building theory about theory building: What constitutes a theoretical contribution? *Academy of Management Review*, *36*(1), 12–32.

Cram, W. A., Brohman, K., & Gallupe, R. B. (2016a). Information systems control: A review and framework for emerging information systems processes. *Journal of the Association for Information Systems*, *17*(4), 2.

Cram, W. A., & Brohman, M. K. (2013). Controlling information systems development: A new typology for an evolving field. *Information Systems Journal*, *23*(2), 137–154.

Cram, W. A., Brohman, M. K., Chan, Y. E., & Gallupe, R. B. (2016). Information systems control alignment: Complementary and conflicting systems development controls. *Information & Management*, *53*(2), 183–196.

Cram, W. A., Brohman, M. K., & Gallupe, R. B. (2016b). Hitting a moving target: A process model of information systems control change. *Information Systems Journal*, *26*(3), 195–226.

Cram, W. A., & Wiener, M. (2018). Perceptions of control legitimacy in information systems development. *Information Technology & People*, *31*(3), 712–740.

Daniel, S., Agarwal, R., & Stewart, K. J. (2013). The effects of diversity in global, distributed collectives: A study of open source project success. *Information Systems Research*, *24*(2), 312–333.

Das, T. K., & Teng, B.-S. (1998). Between trust and control: Developing confidence in partner cooperation in alliances. *Academy of Management Review*, *23*(3), 491–512.

Das, T. K., & Teng, B.-S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies*, *22*(2), 251–283.

Di Tullio, D., & Staples, D. S. (2013). The governance and control of open source software projects. *Journal of Management Information Systems*, *30*(3), 49–80.

Engeström, Y. (1987). *Learning by expanding: An activity-theorical approach to developmental research*. Orienta-Konsultit.

Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, *55*(6), 647–654.

Gaebert, C., & Kautz, K. (2020). The contract-type choice for short-term software development outsourcing: The role of behaviour-based formal control. *Journal of Information Technology*, *36*(3), 241–257.

Gregory, R. W., Beck, R., & Keil, M. (2013). Control balancing in information systems development offshoring projects. *MIS Quarterly*, *37*, 1211–1232.

Gregory, R. W., & Keil, M. (2014). Blending bureaucratic and collaborative management styles to achieve control ambidexterity in IS projects. *European Journal of Information Systems*, *23*(3), 343–356.

Grix, J. (2019). *The foundations of research* (3rd ed.). Bloomsbury Publishing.

Hassan, N. R., Mingers, J., & Stahl, B. (2018). Philosophy and information systems: Where are we and where should we go? *European Journal of Information Systems*, *27*(3), 263–277.


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Hekkala, R., Stein, M., & Sarker, S. (2021). Power and conflict in inter-organisational information systems development. *Information Systems Journal*, *32*(2), 440–468.

Herath, T., Chen, R., Wang, J., Banjara, K., Wilbur, J., & Rao, H. R. (2014). Security services as coping mechanisms: An investigation into user intention to adopt an email authentication service. *Information Systems Journal*, *24*(1), 61–84.

Heumann, J., Wiener, M., Remus, U., & Mähring, M. (2015). To coerce or to enable? Exercising formal control in a large information systems project. *Journal of Information Technology*, *30*(4), 337–351.

Ho, S. Y., & Rai, A. (2017). Continued voluntary participation intention in firm-participating open source software projects. *Information Systems Research*, *28*(3), 603–625.

Jenkin, T. A., Chan, Y. E., & Sabherwal, R. (2019). Mutual understanding in information systems development: Changes within and across projects. *MIS Quarterly*, *43*(2), 649–671.

Jones, Q., Ravid, G., & Rafaeli, S. (2004). Information overload and the message dynamics of online interaction spaces: A theoretical model and empirical exploration. *Information Systems Research*, *15*(2), 194–210.

Kappos, A., & Rivard, S. (2008). A three-perspective model of culture, information systems, and their development and use. *MIS Quarterly*, *32*, 601–634.

Keil, M., Rai, A., & Liu, S. (2013). How user risk and requirements risk moderate the effects of formal and informal control on the process performance of IT projects. *European Journal of Information Systems*, *22*(6), 650–672.

Kirsch, L. J. (1996). The management of complex tasks in organizations: Controlling the systems development process. *Organization Science*, *7*(1), 1–21.

Kirsch, L. J. (2004). Deploying common systems globally: The dynamics of control. *Information Systems Research*, *15*(4), 374–395.

Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, *23*(1), 67–93.

Kossek, E. E., & Perrigino, M. B. (2016). Resilience: A review using a grounded integrated occupational approach. *Academy of Management Annals*, *10*(1), 729–797.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Lehtinen, J., & Aaltonen, K. (2020). Organizing external stakeholder engagement in inter-organizational projects: Opening the black box. *International Journal of Project Management*, *38*(2), 85–98.

Liang, H., Xue, Y., Pinsonneault, A., & Wu, Y. A. (2019). What users do besides problem-focused coping when facing IT security threats: An emotion-focused coping perspective. *MIS Quarterly*, *43*(2), 373–394.

Liu, G., & Chua, C. E. H. (2020). The reinforcing effects of formal control enactment in complex IT projects. *Journal of the Association for Information Systems*, *21*(2), 7–341.

Liu, Y., & Aron, R. (2015). Organizational control, incentive contracts, and knowledge transfer in offshore business process outsourcing. *Information Systems Research*, *26*(1), 81–99.

Loebbecke, C., Van Fenema, P. C., & Powell, P. (2016). Managing inter-organizational knowledge sharing. *The Journal of Strategic Information Systems*, *25*(1), 4–14.

Lowry, P. B., Zhang, J., Moody, G. D., Chatterjee, S., Wang, C., & Wu, T. (2019). An integrative theory addressing cyberharassment in the light of technology-based opportunism. *Journal of Management Information Systems*, *36*(4), 1142–1178.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *23*(6), 695–706.

Mähring, M., Wiener, M., & Remus, U. (2017). Getting the control across: Control transmission in information systems offshoring projects. *Information Systems Journal*, *28*(4), 708–728.

Maruping, L. M., Venkatesh, V., & Agarwal, R. (2009). A control theory perspective on agile methodology use and changing user requirements. *Information Systems Research*, *20*(3), 377–399.

Mayer, K. J., & Sparrowe, R. T. (2013). Integrating theories in AMJ articles. *Academy of Management Journal*, *56*(4), 917–922.

McCarthy, S., O'Raghallaigh, P., Fitzgerald, C., & Adam, F. (2021). Shared and fragmented understandings in inter-organizational IT project teams: An interpretive case study. *International Journal of Project Management*, *39*(7), 762–773.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (An expanded sourcebook ed.) Sage Publications.

Monteiro, E., Constantinides, P., Scott, S., Shaikh, M., & Burton-Jones, A. (2022). Editor's comments: Qualitative research methods in information systems: A call for phenomenon-focused Problematization. *MIS Quarterly*, *46*(4), iii–xix.

Moody, G. D., Kirsch, L. J., Slaughter, S. A., Dunn, B. K., & Weng, Q. (2016). Facilitating the transformational: An exploration of control in cyberinfrastructure projects and the discovery of field control. *Information Systems Research*, *27*(2), 324–346.

Murungi, D., Wiener, M., & Marabelli, M. (2019). Control and emotions: Understanding the dynamics of controllee behaviours in a health care information systems project. *Information Systems Journal*, *29*(5), 1058–1082.

Narayanaswamy, R., Grover, V., & Henry, R. M. (2013). The impact of influence tactics in information system development projects: A control-loss perspective. *Journal of Management Information Systems*, *30*(1), 191–226.

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Ouchi, W. G. (1979). A conceptual framework for the design of organizational control mechanisms. *Management Science*, *25*(9), 833–848.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications Inc.

Peirce, C. S. (1974). *Collected papers of charles sanders peirce* (Vol. 5). Harvard University Press.

Persson, J. S., Mathiassen, L., & Aaen, I. (2012). Agile distributed software development: Enacting control through media and context. *Information Systems Journal*, *22*(6), 411–433.

Pirkkalainen, H., Salo, M., Tarafdar, M., & Makkonen, M. (2019). Deliberate or instinctive? Proactive and reactive coping for technostress. *Journal of Management Information Systems*, *36*(4), 1179–1212.

Ramasubbu, N., & Kemerer, C. F. (2021). Controlling technical debt remediation in outsourced Enterprise systems maintenance: An empirical analysis. *Journal of Management Information Systems*, *38*(1), 4–28.

Remus, U., Wiener, M., Saunders, C., & Mähring, M. (2020). The impact of control styles and control modes on individual-level outcomes: A first test of the integrated IS project control theory. *European Journal of Information Systems*, *29*(2), 134–152.

Rivard, S. (2014). Editor's comments: The ions of theory construction. *MIS Quarterly*, *38*(2), 3–16.

Salo, M., Makkonen, M., & Hekkala, R. (2020). The interplay of IT users' coping strategies: Uncovering momentary emotional load, routes, and sequences. *MIS Quarterly*, *44*(3), 1143–1175.

Sandberg, J., & Alvesson, M. (2011). Ways of constructing research questions: Gap-spotting or problematization? *Organization*, *18*(1), 23–44.

Sarker, S., Xiao, X., Beaulieu, T., & Lee, A. S. (2018a). Learning from first-generation qualitative approaches in the IS discipline: An evolutionary view and some implications for authors and evaluators (PART 1/2). *Journal of the Association for Information Systems*, *19*(8), 752–774.

Sarker, S., Xiao, X., Beaulieu, T., & Lee, A. S. (2018b). Learning from first-generation qualitative approaches in the IS discipline: An evolutionary view and some implications for authors and evaluators (PART 2/2). *Journal of the Association for Information Systems*, *19*(9), 909–923.

Schaarschmidt, M., Walsh, G., & von Kortzfleisch, H. F. O. (2015). How do firms influence open source software communities? A framework and empirical analysis of different governance modes. *Information and Organization*, *25*(2), 99–114.

Schatzki, T. R. (1997). Practices and actions a Wittgensteinian critique of Bourdieu and Giddens. *Philosophy of the Social Sciences*, *27*(3), 283–308.

Soh, C., Chua, C. E. H., & Singh, H. (2011). Managing diverse stakeholders in enterprise systems projects: A control portfolio approach. *Journal of Information Technology*, *26*(1), 16–31.

Spears, R. (2021). Social influence and group identity. *Annual Review of Psychology*, *72*, 367–390.

Srivastava, S. C., & Teo, T. S. H. (2012). Contract performance in offshore systems development: Role of control mechanisms. *Journal of Management Information Systems*, *29*(1), 115–158.

Stjerne, I. S., Söderlund, J., & Minbaeva, D. (2019). Crossing times: Temporal boundary-spanning practices in interorganizational projects. *International Journal of Project Management*, *37*(2), 347–365.

Syed, T. A., Wiener, M., Mehmood, F., & Abdelrahman, M. (2021). Control-style ambidexterity and information systems project performance: An expanded view of control activities. *European Journal of Information Systems*, 1–23.

Tanriverdi, H., & Du, K. (2020). Corporate strategy changes and information technology control effectiveness in multibusiness firms. *MIS Quarterly*, *44*(4), 1573–1617.

Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2019). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, *30*(1), 96–124.

Tiwana, A. (2010). Systems development ambidexterity: Explaining the complementary and substitutive roles of formal and informal controls. *Journal of Management Information Systems*, *27*(2), 87–126.

Tiwana, A., & Keil, M. (2009). Control in internal and outsourced software projects. *Journal of Management Information Systems*, *26*(3), 9–44.

Venkatesh, V., Rai, A., & Maruping, L. M. (2018). Information systems projects and individual developer outcomes: Role of project managers and process control. *Information Systems Research*, *29*(1), 127–148.

Walser, R., Cram, W. A., Bernroider, E. W. N., & Wiener, M. (2021). Control choices and enactments in IS development projects: Implications for legitimacy perceptions and compliance intentions. *Information & Management*, *58*(7), 103522.

Walsham, G. (1995). Interpretive case studies in IS research: Nature and method. *European Journal of Information Systems*, *4*(2), 74–81.

Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, *15*(3), 320–330.

Wang, J., Li, Y., & Rao, H. R. (2017). Coping responses in phishing detection: An investigation of antecedents and consequences. *Information Systems Research*, *28*(2), 378–396.

Weber, R. (2012). Evaluating and developing theories in the information systems discipline. *Journal of the Association for Information Systems*, *13*(1), 2–30.

Westerman, G., Soule, D. L., & Eswaran, A. (2019). Building digital-ready culture in traditional organizations. *MIT Sloan Management Review*, *60*(4), 59–68.

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Wiener, M., Mähring, M., Remus, U., & Saunders, C. (2016). Control configuration and control enactment in information systems projects: Review and expanded theoretical framework. *MIS Quarterly*, *40*(3), 741–774.
Wiener, M., Mähring, M., Remus, U., Saunders, C., & Cram, W. A. (2019). Moving IS project control research into the digital era: The "why" of control and the concept of control purpose. *Information Systems Research*, *30*(4), 1387–1401.
Wiener, M., Remus, U., Heumann, J., & Mähring, M. (2015). The effective promotion of informal control in information systems offshoring projects. *European Journal of Information Systems*, *24*(6), 569–587.
Wiewiora, A., Trigunarsyah, B., Murphy, G., & Coffey, V. (2013). Organizational culture and willingness to share knowledge: A competing values perspective in Australian context. *International Journal of Project Management*, *31*(8), 1163–1174.

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## APPENDIX A

### ONTOLOGICAL, EPISTEMOLOGICAL, AND AXIOLOGICAL CONSIDERATIONS

The integration of different theoretical perspectives is often necessary for investigating research questions that "cannot be fully addressed by drawing only upon a single theory" (Mayer & Sparrowe, 2013, p. 917). This requires important ontological, epistemological, and axiological considerations however, to ensure consistency, proximity, and compatibility between different perspectives during theory building (cf. Lowry et al., 2019). Building on guidelines from Mayer and Sparrowe (2013) on theory integration, and Hassan et al. (2018) on philosophy in IS, we reflect on such considerations to justify our conceptual model and the integration of constructs from both Behavioural Control Theory (Wiener et al., 2016) and Coping Theory (Lazarus & Folkman, 1984).

In their Academy of Management Journal editorial, Mayer and Sparrowe (2013) discuss how the bringing together of two theories can often provide novel insights into phenomena that neither theory could offer independently. One suggested way of achieving this is through the integration of disparate theoretical perspectives to study a single phenomenon (Mayer & Sparrowe, 2013). While some of the underlying assumptions inherent in Behavioural Control Theory and Coping Theory may seem incompatible at face value, we identified opportunities for theory building by addressing gaps in one theory with the strengths of another (cf. Mayer & Sparrowe, 2013). Both theories seek to understand decision-making and human behaviour but do so in different yet complementary ways. We next discuss the strengths of Behavioural Control Theory and Coping Theory in turn, reflecting on how our conceptual model challenges implicit assumptions in each.

Behavioural Control Theory focuses on the dyadic relationship between a controller (e.g., manager) and controlee (e.g., subordinate), whereby control activities are enacted to "generate cooperation among a collection of individuals or units who share only partially congruent objective" (Ouchi, 1979, p. 833). The strength of Behavioural Control Theory is that it provides insights into the managerial interventions required to align individual efforts towards the achievement of a common objective. An implicit assumption in the theory is that controlees' behavioural responses are shaped by the controller's choice of control activities, spanning a portfolio of control modes (formal and informal) and styles (authoritative and enabling).

More recently, IS scholars have observed that controls often fail to produce the outcome intended by the controller in practice, and controlee behaviours are not predetermined by the selection of control activities (Chua & Myers, 2018; G. Liu & Chua, 2020). Cram, Brohman, and Gallupe (2016a) note that control misalignment commonly arises when there is conflict between controller and controlee perceptions. However, Behavioural Control Theory

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is largely silent on how controlees cognitively process such disruptions and determine their behavioural or socio-emotional response. The individual decision-making process of controlees is nevertheless crucial for understanding why controls often fail and may represent the missing link on how to ensure effective control enactment in practice.

Coping Theory aims to understand how individuals appraise and respond to disruptive events through enacting a range of coping strategies that aim to restore a sense of well-being (e.g., closure). As stated by Lazarus and Folkman (1984), coping strategies can be problem- or emotion-focused depending on whether the situation is perceived as an opportunity or threat by the individual within a relevant context. We propose that Coping Theory can offer new insights into how controlees appraise and respond to control misalignments as a disruptive event. The main strength of Coping Theory is that it explicates the cognitive and behavioural processes that individuals go through when faced with challenging situations in their surrounding environment. This can help address gaps in Behavioural Control Theory around the controlee perspective. The decision to integrate two theoretical perspectives is subject to important ontological, epistemological, and axiological considerations, which we discuss next.

Ontological considerations centre on the nature of being, existence, and the field of metaphysics (Hassan et al., 2018). Both Behavioural Control Theory and Coping Theory recognise human agency as an important ontological assumption that shapes reality. In Behavioural Control Theory, agency is signified by the enactment of self-control where controlees formulate their own plans of action as recognised experts in the field (Kirsch, 1996). Meanwhile, in Coping Theory, human agency is enacted through the selection of coping strategies across different contexts. Individuals' perception of agency can depend on the situation they find themselves in (e.g., high or low agency) and in turn influences their selection of problem or emotion-focused coping strategies.

Epistemological considerations then concern the nature of knowledge, how we gain knowledge, and ensure knowledge is valid (Hassan et al., 2018). Behavioural Control Theory and Coping Theory's consideration of how social context influences decision-making and human behaviour is epistemologically consistent. For instance, recent control literature highlights the importance of context in control transmission across hierarchical levels (Heumann et al., 2015) and social control as a negotiated order (Chua & Myers, 2018). Coping Theory similarly recognises the importance of context by considering how individual appraisals and responses are situationally constructed within a specific social environment (Salo et al., 2020).

Finally, axiological considerations focus on questions of ethics, aesthetics, and politics (Hassan et al., 2018). Behavioural Control Theory and Coping Theory can be categorised as non-normative theories for explaining decision-making and human behaviour; however, the focus of their axiological assumptions differs slightly. Behavioural Control Theory primarily centres on the axiological perspective of politics, theorising how controlees should be governed to achieve shared objectives through the enactment of control activities by a controller. Coping Theory meanwhile, directs attention towards the axiological perspective of ethics, showcasing how individuals should behave in response to disruptive events (e.g., control misalignments) according to whether a situation is perceived as an opportunity or threat. Neither theory addresses the axiological considerations of aesthetics which concern the ideals of beauty, art, and taste (Hassan et al., 2018).

Following extensive reflection, we can thus conclude that drawing on Behavioural Control Theory and Coping Theory to develop our conceptual model is defendable from a philosophical viewpoint. The proceeding appendices offer further justification for our theoretical contributions, as informed by the guidelines of Corley and Gioia (2011), Weber (2012), and Rivard (2014) on theory building.

## APPENDIX B

### ESTABLISHING A SUBSTANTIAL THEORETICAL CONTRIBUTION (CF. Corley & Gioia, 2011)

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| | |
|---|---|
| Originality | *Revelatory*<br>• Our study reveals that integrating the complementary insights of two theories, Behavioural Control Theory and Coping Theory, is practically useful and revelatory. Firstly, our research illustrates the theoretical considerations we need to apply when studying control enactment from the perspective of both controllers and controlees. The resulting integrated model can help explain why controls fail to produce anticipated results in practice, highlighting the different ways that controlees can contextually appraise and respond to disruptive events such as control misalignments. In addition, we also explain how both controller and controlee responses are subject to change over time by considering the potential for 'trial and error' redesign of controls (controller perspective) and coping route (controlee perspective) which moves beyond the static conceptualisation of controlee responses in literature.<br>• Our conceptualisation of coping in control enactment is practically useful while also remaining parsimonious. We assert that directing more focus towards the context dependent nature of controlees' perspectives is important and contributes towards a more complete explanation of control enactment than found in existing literature.<br>• Building on a comprehensive review of literature, we summarise key findings from recent control research published in reputed IS journals and point towards salient aspects of the controlee perspective. We integrate these two perspectives in our conceptual model which can be considered more revelatory than the unidirectional models presented in prior literature which privilege the controller perspective.<br>• Our research shows how controlees may seek to engage in different coping routes to deal with the disruptive event of control misalignment. Our study represents the first time that the concept of coping has been applied to control research which arguably constitutes a practically useful contribution.<br>• Our research study reveals that the controller-controlee relationship is a process of unfolding, and modifications may be required on both sides in response to control misalignments. While prior studies have mainly focused on the controller perspective, they do not move so far as to consider how controlees cognitively and behaviourally cope with control misalignments in different ways. Our research is scientifically useful as it overcomes limitations associated with a controller-centric perspective to study the dynamic interactions through which agency is enacted in complex IT projects over time and the influence that controlees can have on control enactment. This finding goes beyond existing literature and may help explain why controls sometimes fail to produce intended outcomes.<br>• To better understand this issue, we introduce Coping Theory to control literature by highlighting the importance of controlees' appraisal and response in context. Coping theory departs from the rational perspective of controls by considering the effect of both cognitive and emotional responses by controlees. It also recognises agency and the ability of controlees to make choices which may not always be in alignment with the intentions of the controller. This is scientifically useful as it provides insights into the unintended consequences that can arise when controls fail to produce anticipated behaviours. We therefore argue that drawing on both control theory and coping theory can offer new insights into the dynamic nature of controller-controlee interactions. We thus contribute scientifically useful knowledge on the context dependent nature of controller and controlee perspectives during control enactment. This presents more nuanced insights into the complex practice of control.<br>• Our research also shows different coping routes that controlees pursue to navigate between coping strategies. This is a key research contribution from our study and recognises that both controller and controlee responses are dynamic and uncertain. Akin to existing process models of control which focus |

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| | | |
|---|---|---|
| | | on the controller perspective, we suggest that controlees may also sequentially choose between different responses. The process need not end with the selection of a single strategy but can potentially continue as the controller or controlees make readjustments. We suggest that this is more scientifically useful than assuming a static view of controlee responses at a point in time. |
| Incremental | Not applicable | Not applicable |
| | Practically useful | Scientifically useful |
| | Utility | |

## APPENDIX C

### EVALUATING THEORIES IN INFORMATION SYSTEMS (CF. Weber, 2012).

Our theoretical contribution to literature is discussed next based on the five criteria presented by Weber (2012) for evaluating and developing theories in information systems.

| Criterion | Summary of our theoretical contributions to literature |
|---|---|
| Construct(s) | Our study provides a compelling account of misalignments between the controller and controlee perspective in control enactment. The controller perspective has been largely overlooked in IS literature to date (see the results of our literature review in Appendix E) and is conceptualised as a series of context dependent problem- and emotional-focused coping strategies and a sequence of coping routes which dynamically respond to controller activities and redesign efforts (modes and styles) over time. This contribution deepens our understanding of control enactment where outcomes deviate from the expectations of controllers. |
| Association(s) | Our conceptual model proposes a novel interplay between constructs from Behavioural Control Theory and Coping Theory to understand interactions between the controller and controlee perspective across personal, professional, project, and organisational contexts. The association between constructs is illustrated in Figure 1 of the manuscript which presents relationships in our model.<br>Static phenomena are associations where "the values of one construct are somehow related to the values of another construct", whereas dynamic phenomena are associations where "two constructs in a theory [...] shows that a history of values for instances of one of the constructs is conditional on a history of values for instances of the other construct" (Weber, 2012, p. 8).<br>The majority of IS control literature has focused on static phenomena, with controlee behaviours largely predetermined by control activities. We instead focus attention on dynamic phenomena in the form of interaction between Behavioural Control Theory and Coping Theory and the resulting effects on control enactment. This suggests that control activities affect controlee response strategies and vice versa. We further indicate that these are subject to change over time, with controllers and controlees recursively adapting their response through control redesign and coping routes, respectfully. This dynamic approach to studying the phenomena indicates that control enactment is in a process of continuous unfolding with changes at both the level of both the controller and controlee perspective. |
| State(s) | State(s) refer to a complex attribute which can be measured using corresponding values. There are several states pointed towards in our study including those relevant to Behavioural Control Theory and Coping Theory, more specifically. Our unit of analysis was individual perceptions of control enactment which was coded using an interpretivist approach to qualitative data analysis (see Appendix F). |

(Continues)

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| Criterion | Summary of our theoretical contributions to literature |
|---|---|
| Event Space | The event space's primary components include control enactment, integration of the controller perspective (control activities and redesign), and controlee perspective (coping strategies and coping routes) which influence control enactment. Subcomponents of the controller perspective include control modes (input, behavioural, outcome, clan, and self-control), control style (authoritative and enabling) and control alignment while the controlee perspective includes the subcomponents of coping strategies (problem- and emotion-focused) and coping routes.<br>This event space has not previously been explored in control literature (see the results of our literature review in Table 1 of the manuscript). We therefore contribute to literature by considering both the controller and controlee perspective in a single study. |
| Novelty | Our study contributes to existing literature by integrating the two viewpoints (Behavioural Control Theory, and Coping Theory) to better understand the controller- and controlee perspective in control enactment. For example, our integrated theory considers misalignments between controller activities (modes and styles), and controlee appraisals (agency and relevancy), and responses (problem- and emotion-focused). While Behavioural Control Theory only may be appropriate for studying routine IT projects with clear hierarchical structures in a single organisation, our integrated theory is more relevant to complex IT projects such as interorganisational projects involving diverse collectives with equal decision-making rights who share benefits, costs, and risks. |

## APPENDIX D

### IONS OF THEORY CONSTRUCTION (CF. Rivard, 2014)

The significance of our theoretical contribution is elaborated upon following the aspects of good theory construction proposed by Rivard (2014). We discuss how our theory showcases the key aspects of contributions suggested by Rivard (2014).

| Aspects | Our paper |
|---|---|
| Motivation / Definition | The motivation of our study and research question was guided by a review of recent control literature published in reputed IS journals including the AIS senior scholar basket of eight (see Table 1 of the manuscript). Based on the outcome of this review, the following motivations were proposed: (1) to better conceptualise the controlee perspective in control enactment, (2) to develop an integrated framework which considers both the controller and controlee perspective, and (3) to investigate misalignments between controller and controlee perspectives over time.<br>Prior literature has primarily focused on the controller perspective as a static phenomenon. We contribute by conceptualising the interplay between controller and controlee perspectives across multiple levels of context. |
| Erudition | Consistent with the notion of erudition (breadth and depth of knowledge on a topic), we undertook a comprehensive literature review (please see Table 1 of the manuscript) to ensure that our theoretical contribution was situated in the existing discourse on control literature while also furthering our knowledge of control enactment. Building on existing literature, we remained cognisant of the findings from previous research which have applied Behavioural Control Theory to study IT projects (e.g., systems development and IT outsourcing).<br>Erudition is then developed further by integrating Behavioural Control Theory and Coping Theory to study misalignments between controller and controlee perspectives. We draw on the concepts of coping strategy and coping routes to expand our erudition beyond existing literature on the topic. |

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| Aspects | Our paper |
|---|---|
| Imagination | In our study, imagination was demonstrated by integrating two viewpoints (Behavioural Control Theory, and Coping Theory) to better understand control enactment. Imagination was also employed to conceptualise a context dependent view of controller and controlee perspectives, moving beyond prior literature's predominant focus on control activities.<br>This allowed us to study misalignments between controller-controlee perspectives over time, using imagination to connect components of Behavioural Control Theory, and Coping Theory in a parsimonious way. Imagination centred on the creation of a compelling account of control enactment, which combines a dynamic representation of controller and controlee interactions. |
| Explanation | Our study arguably showcases elements of both variance and process theories. As noted by Rivard (2014), while interpretivist researchers may be understandably hesitant to imply causality, it is nevertheless important to reflect on causal relationships as part of the theory building process to "answer the question of why". Building on the guidelines proposed by Rivard (2014), we reflect on the nature of causal relationships while recognising the limitations of interpretivist research and the need for future research to validate these claims.<br>In line with variance theory, our conceptual model identifies how endogenous constructs such as control activities (modes and styles) and coping strategies (appraisal and response) can vary, encompassing a spectrum of authoritative and enabling controls as well as problem and emotion-focused coping strategies. Consistent with process theory, we also identify patterns and how constructs can change over time in forms such as control redesign (moving from enabling to authoritative) and coping routes (moving from emotion-focused to problem-focused). This is evidenced through a sequence of events in the timeline of the two case studies. |
| Explanation (Continued) | While existing literature on control can primarily be categorised as either variance or process theories, our conceptualisation of dynamic control enactment seeks to combine elements of both in the form of a continuous interplay between controller and controlee interactions across personal, professional, project and organisational contexts. We explain how constructs from Behavioural Control Theory and Coping Theory interact, with controllers seeking to adjust their control activities to misalignments, while controlees engaging in a sequence of coping strategies. |
| Presentation / Cohesion | Our study offers a compelling and parsimonious account of dynamic control enactment, moving beyond previous conceptualisations in existing literature. We draw on the diverse yet complementary viewpoints of Behavioural Control Theory and Coping Theory to better explain the interaction between controller and controlee interactions in context. We further explain philosophical considerations behind the decision to integrate these two theories in Appendix A and discuss why the theoretical model is both useful and justifiable in Appendix B and C.<br>We further present a series of propositions (see Table 9 of the manuscript) to explain the relationships between our constructs which future research can seek to investigate. This strengthens our theoretical development by referencing supporting literature and cohesively highlighting gaps / inconsistencies. Our theoretical explanations of the controller and controlee perspective can guide future studies and guide further theorising on control enactment in complex IT projects. |

## APPENDIX E

### LITERATURE REVIEW OF BEHAVIOURAL CONTROL THEORY RESEARCH

We next document the search strategy, results, and summary statistics from our review of IS control literature on the controller/controlee perspective.

Our review began by searching citation databases such as Scopus and Science Direct for relevant articles on control in IS projects (e.g., IS development projects, IT outsourcing, and open-source software development). The following terms were used in the initial search.

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| Search terms | Database |
|---|---|
| (Control* OR Controlling) AND (Technology OR Information Technology OR Information System OR Application OR Computer OR Mobile OR Applications OR Information OR Software) AND (Development Project* OR Project*). | Scopus |
| (Control OR Controlling) AND (Information Technology OR Information System OR Information OR Software) AND (Project).[2] Science direct does not support more than 8 fields in the search box. | Science Direct |

We refined our search to focus on papers published in the AIS Senior Scholar Basket of Eight journals and other reputed IS journals (e.g., Information & Management, Information & Organisation, Information Technology & People) over the last decade (2012 to 2022). This resulted in 96 articles being identified. Unrelated articles were then filtered which resulted in 64 results after the initial screening (e.g., excluding editorials, non-empirical papers, and unrelated terms such as 'control variables,' 'demand-control model,' 'controlled lab experiment' etc.). We narrowed down the list to 42 after reading the abstracts and scanning the papers (related to project controls, excluding algorithm/modelling papers). Finally, the papers were read in full and screened to include only those that presented an in-depth discussion on Behavioural Control Theory. The final sample included 30 articles after the third screening. The search results were coded based on the context, findings, perspective (controller, controlee), theoretical lens, methods, and core constructs. The results from our screening process are presented in the tables below with references available at the end of the online appendices (Table E1).

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**TABLE E1** Summary of recent IS control theory research (expanded from Table 1 of the manuscript).

| Authors | Journal | Context | Primary findings / outcomes | Theory used | Method | Core constructs | Perspective |
|---|---|---|---|---|---|---|---|
| Ahmed et al. (2022) | Information & Management | IS implement-ation projects | Control configurations facilitated different stakeholder orientations. Control change was triggered by low shared understanding. | Control balancing theory, stakeholder engagement and sensitivity | Case study | Control balancing, configuration, stakeholder orientation, IS diffusion. | Controller |
| Chua and Myers (2018) | Journal of Information Technology | ISD outsourcing | Controllers must consider organisational contexts, controlee meanings and intent when negotiating controls as socially constructed orders. | Control theory and negotiated order theory | Case study | Control enactment; negotiated order; context. | Controller-controlee |
| Chua et al. (2012) | MIS Quarterly | Large IT projects | Formal control enables clan control by providing a figure of authority, symbols of accepted behaviours, and resourcing/ approval. | Control theory, social capital theory | Case study | Clan controls, social capital (structural, cognitive, relational). | Controller |
| Cram, Brohman, Chan, and Gallupe (2016) | Information Systems Journal | ISD projects (agile vs. waterfall) | Controllers must seek to align the dimensions of control environment, control mechanisms, socio-emotional behaviours, and control execution. | IS control change and IS control dimensions (Cram 2011) | Case study | Control modifications, the sources of IS control. | Controller |
| Cram and Wiener (2018) | Information & Management | Systems development projects | Control degree and style explain controlee's perceptions of legitimacy (e.g., justice, autonomy) better than control modes alone. | Control theory | Case study | Control environment, control mechanisms, socio-emotional behaviours, control execution. | Controller-controlee |
| Cram and Brohman (2013) | Information Technology & People | ISD projects (agile vs. waterfall) | Control can differ depending on control objectives (product or process focused) and control practices (preventive or detective/ corrective focused). | Control theory, institutional theory | Case study | Legitimacy and control modes, style, degree. | Controller |
| Cram, Brohman, Chan, and Gallupe (2016) | Information Systems Journal | System development projects | Process model of control revision and adjustment including both project (ISD) and non-project | Control theory | Case study | Control objectives (product / process), and practices (preventive / | Controller |

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**TABLE E1** (Continued)

| Authors | Journal | Context | Primary findings / outcomes | Theory used | Method | Core constructs | Perspective |
|---|---|---|---|---|---|---|---|
| | | | oriented (enterprise architecture) processes. | | | detective / corrective). | |
| Di Tullio and Staples (2013) | Journal of Management Information Systems | Open-source software projects | Extensive use of outcome, behaviour, and clan control (Defined Community) supported the strongest coordination and project climate. | Control theory | Quantitative study | OSS, governance, control configurations. | Controller |
| Gaebert and Kautz (2020) | Journal of Information Technology | Short-term ISD outsourcing | Short-term outsourcing is typified by high human asset specificity and subsequent behaviour-based formal controls (triggers fixed price contracts). | Transaction cost economics, control theory | Quantitative study | Control modes, contract type | Controller |
| Gregory and Keil (2014) | European Journal of Information Systems | IS implement-ation projects | Controllers must often meet conflicting demands. This requires the use of both bureaucratic and collaborative styles for control ambidexterity. | Control, management styles | Case study | Control ambidexterity. | Controller |
| Gregory et al. (2013) | MIS Quarterly | ISD offshoring projects | Process model of control balancing centred on a portfolio of control type, degree (tights vs. relaxed), and style (unilateral vs. bilateral). | Control balancing | Longitudinal case study | Control dynamics; control balancing phases (coordinated control; authoritative control; coordinated control; trust-based control). | Controller |
| Heumann et al. (2015) | Journal of Information Technology | Large IS projects | IS control can differ across hierarchical levels. Project-level can be influenced by senior mgmt. controls that are emulated by project leaders. | Control theory | Case study | Control across multiple levels. | Controller |
| Ho and Rai (2017) | Information Systems Research | Open-source software development | Input (e.g., accreditation) and outcome (e.g., code acceptance) controls for quality enhance volunteers' continued participation intentions. | Control theory | Quantitative study | Accreditation and code acceptance, quality controls. | Controller |



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**TABLE E1** (Continued)

| Authors | Journal | Context | Primary findings / outcomes | Theory used | Method | Core constructs | Perspective |
|---|---|---|---|---|---|---|---|
| Jenkin et al. (2019) | MIS Quarterly | ISD Projects | Control mechanisms possess different levels of sensegiving and sensemaking potential. Cognitive activities change mutual understanding over time. | Control theory, sensemaking | Longitudinal | Mutual understanding; cognitive activities (sensemaking and sensegiving). | Controller |
| Keil et al. (2013) | European Journal of Information Systems | IT projects | Risk (requirement and user aspects) negatively influence the effects of informal and formal control on process performance in an IT project. | Control theory | Quantitative study | Controls and risks (user risks and requirements risks). | Controller |
| Liu and Aron (2015) | Information Systems Research | Business process offshoring | Incentives and process codifiability are associated with higher levels of quality in offshoring. Dual governance is enacted by the client and provider. | Dual governance mechanisms, agency theory | Quantitative study | Process codifiability, incentives, output quality. | Controller |
| Liu and Chua (2020) | Journal of the Association for Information Systems | Complex IT projects | Transparency and repair are essential for supporting controlees' understanding of the controller's goals and enabling clan controls. | Control theory | Case study | Controls and performance. | Controller-controlee |
| Mähring et al. (2017) | Information Systems Journal | IS offshoring projects | Higher control transmission consistency and the use of outcome control enhances project performance, beyond control specification alone. | Control theory | Quantitative-matched pair survey | Control transmission in offshoring IS projects. | Controller-controlee |
| Moody et al. (2016) | Information Systems Research | Cyber-infrastructure projects | Process model incorporating authoritative controls by controllers and 'field controls' by individuals or collective entities in a project. | Control theory | Longitudinal | Authority-based controls, field-based controls, control portfolio. | Controller |

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**TABLE E1** (Continued)

| Authors | Journal | Context | Primary findings / outcomes | Theory used | Method | Core constructs | Perspective |
|---|---|---|---|---|---|---|---|
| Murungi et al. (2019) | Information Systems Journal | Healthcare IS projects | Controlee's negative emotional appraisals of control activities can lead to resistive behaviours over time and impact control effectiveness. | Control dynamics (Kirsch) and emotions | Longitudinal | The dynamic interplay between control activities and emotions. | Controller-controlee |
| Narayanaswamy et al. (2013) | Journal of Management Information Systems | ISD projects | Relational ties and shared understanding between controllers and controlees can minimise control loss in multi-hierarchical organisations. | Congruence framework and influence tactics and control | Quantitative matched survey | Influence tactics, congruence. | Controller-controlee |
| Persson et al. (2012) | Information Systems Journal | Agile distributed ISD | Communication technologies can support the enactment of formal and informal controls in distributed agile ISD. | Control theory | Case study | Distributed agile teams; control enactment. | Controller |
| Ramasubbu and Kemerer (2021) | Journal of Management Information Systems | IT outsourcing projects | Control balancing (periodic adjustments in control configuration) supports technical debt remediation once migration processes have been identified. | Control theory | Quantitative study | Technical debt and control balancing. | Controller |
| Remus et al. (2020) | European Journal of Information Systems | ISD projects | Control style is more important than control modes in explaining individual-level control effects (task performance and job satisfaction). | Integrated IS project control theory | Quantitative study | Control enactment and individual-level control effects. | Controller-controlee |
| Schaarschmidt et al. (2015) | Information & Organisation | Open-source software projects | The use of behavioural control (leadership control) and clan control (resource deployment control) differs across firm-initiated and multivendor projects. | Control theory | Quantitative study | Open-source software, single vendor project multivendor projects, and communities. | Controller |



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**TABLE E1** (Continued)

| Authors | Journal | Context | Primary findings / outcomes | Theory used | Method | Core constructs | Perspective |
|---|---|---|---|---|---|---|---|
| Srivastava and Teo (2012) | Journal of Management Information Systems | Offshore systems development | Process control significantly impacts the relationships of contract specificity with both cost and quality performance. | Control theory, transactional and relational controls | Quantitative study | Contract performance; contract types, mechanistic governance. | Controller |
| Syed et al. (2021) | European Journal of Information Systems | IS projects | Control style ambidexterity improves project performance, directly and in combination with formal and informal control. | Ambidexterity | Quantitative matched survey | Control style and mode ambidexterity. | Controller-controlee |
| Venkatesh et al. (2018) | Information Systems Research | IS projects | The controller's project-related knowledge mitigates technical IS project risk by facilitating the enactment of process controls. | Control theory, boundary spanning | Quantitative multi-level | Technical IS project risk, IS project control, IS project-related knowledge. | Controller-controlee |
| Walser et al. (2021) | Information & Management | ISD projects | Controlee perceptions of legitimacy (e.g., fairness) affect intentions to comply. Informal, relaxed, bilateral controls are perceived as more legitimate. | Control legitimacy and compliance | Quantitative study | Control enactment and legitimacy perceptions. | Controller-controlee |
| Wiener et al. (2015) | European Journal of Information Systems | IS offshoring projects | Clan control has a positive impact on project performance but is difficult to achieve in client-vendor relationships. | Control theory | Quantitative matched survey | Informal controls and clan controls; client-vendor relationships. | Controller-controlee |



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## APPENDIX F

### JUSTIFICATION OF THE INTERPRETIVE CASE STUDY RESEARCH APPROACH

The following section discusses our choice of interpretive research as a qualitative genre. The discussion is guided by the four elements of qualitative research outlined in Sarker et al.'s (2018a), Sarker et al.'s (2018b) two JAIS editorials. Table F1 provides a summary of the salient aspects (i.e., the ontological, epistemological, and axiological) of each element and how our study aligns with the interpretive research tradition. Our approach can be classified as

**TABLE F1** Salient aspects of the interpretivist genre of qualitative research (Sarker et al., 2018a, 2018b).

| Element | Summary | Alignment with study |
|---|---|---|
| Data | Interpretive research aims to gather thick descriptions and insights through interactions between the researcher and the subject (Klein & Myers, 1999). This is achieved through the use of researcher-provoked data (e.g., creative interviews), as well as user-generated content (e.g., project documents) and naturally occurring talk (e.g., emails). The researcher aims to move beyond facts and objective information to understand subjective understandings and feelings within a specific context (Sarker et al., 2018a). | Our interpretive case studies draw on empirical material from interviews, participant observations, project documents, and emails to develop an 'authentic' account of controller-controlees' subjective experiences. We also seek to understand control enactment and coping as a socially constructed reality by investigating the dynamic interplay between control activities/redesign and coping strategies/routes. This moves beyond facts to understand the meanings of subjects. Contextualisation is provided by revealing multiple levels of appraisals (e.g., personal, professional, project, and organisational). |
| Theory | The role of theory in interpretive research is to act as a "lens to interpret or unfold complicated social processes" (Sarker et al., 2018a, p. 759). Theory can fulfil the dual role of an upfront guide that informs the research as well as an outcome from the interpretive study. The choice of theoretical scaffolding also supports the researcher's iterative movement between data collection and data analysis (Walsham, 1995, 2006). This can impart meaning and order to data when developing narratives or accounts of social processes. | Behavioural Control Theory and Coping Theory were chosen to act as an 'upfront guide' for our interpretive case studies and provided the theoretical scaffolding to understand controller and controlees' perceptions. The two theories were used to produce novel insights into the interplay between control activities (modes and styles) and coping strategies (appraisal and response) as well as their dynamic relationship over time (control redesign and coping routes). Theory also represents an outcome from our interpretive study as we develop new conceptual models to understand the social process of controller-controlee interactions. |
| Analysis | Induction and abduction represent core data analysis strategies for interpretive research (Sarker et al., 2018a). Induction involves the emergence of insights from the data in local settings, while abduction seeks to ensure the 'mental leap' from data to concepts and theories (Patton, 1990). Induction primarily focuses on coding and abstraction to discover concepts and meanings from the data (e.g., open coding). Abduction goes further by utilising creative approaches to reasoning from data to theory. | Both inductive and abductive analysis was used in our interpretive case studies to move from data to theory. Five phases of thematic analysis were undertaken by the authors to explore the research questions. The first phase involved open coding to inductively discover different concepts that explained controller and controlee interactions. The second phase then moved to abductive analysis to identify plausible theories that might explain coded observations. Phases three, four, and five then utilised abductive reasoning to code control enactment, control alignment, and coping using concepts from Behavioural Control Theory |

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**TABLE F1** (Continued)

| Element | Summary | Alignment with study |
|---|---|---|
| | | (Wiener et al., 2016), and Coping Theory (Lazarus & Folkman, 1984). |
| Claims | Claims in interpretive research usually centre on the presentation of new insights which can take the form of "theory, a framework, or [...] a plausible reinterpretation of the phenomenon" that is poorly understood (Sarker et al., 2018a, p. 763). Interpretation can seek to deliver a theory-informed narrative using a chosen theoretical lens as scaffolding for the analysis (Walsham, 1995, 2006). New concepts and insights are then generated by moving from inductive to abductive reasoning. | Our interpretive case study provides theory-driven insights into the understudied relationship between controller and controlee perceptions. Behavioural Control Theory and Coping Theory are drawn upon to present a conceptual model of controller-controlee interactions building new insights from concepts such as control activities and coping processes. |

**TABLE F2** Expectations of quality and rigour for the interpretivist genre of qualitative research (Klein & Myers, 1999).

| Principle | Summary | Alignment with study |
|---|---|---|
| Hermeneutic cycle | Understandings of a complex whole is formed from "preconceptions about the meaning of its parts and their interrelationships" (Klein & Myers, 1999, p. 71). This iterative cycle is at the heart of interpretive research. | Control enactment (as a whole) was conceptualised in the form of an ongoing interplay between two parts, the controller and controlee perspective. The authors engaged in cycles of hermeneutic reasoning to understand each part individually (control activities/redesign and coping strategies/routes) and their relationship (how controlee responses shaped control redesign). This supported a 'global understanding' of control enactment as well as a deeper appreciation each part. |
| Contextual-ization | The researcher should critically reflect on the contextual background of the case study to provide clarity on how and why events unfolded. This may include historical or social details relevant to the case study. | The authors reviewed and analysed research material relevant to both the project and organisations involved in the two case studies. This provided a contextual information necessary for understanding events in the two cases by uncovering the relationship between the respective organisations, their history, and roles in the projects. |
| Interaction between the researchers and the subjects | Critically reflection is required to appreciate how research data was socially constructed through interactions with participants. The researcher strives to uncover potential assumptions in their understanding. | The author team engaged in regular dialogue to critically appraise how research data may have effect by their interactions with the subjects. Case analysis meetings were scheduled on a weekly or fortnightly basis across an 18-month period to reveal potential assumptions through questioning and comparison of data from different sources e.g., interviews, participant observations, and project documents. |

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**TABLE F2** (Continued)

| Principle | Summary | Alignment with study |
|---|---|---|
| Abstraction and generalisation | Building on principles one and two, the researcher seeks to move from the data towards abstractions and concepts. This in turn provides a theoretical lens to understand social action. | During phase two of data analysis, the authors engaged in abductive reasoning to discuss theoretical lenses that might be used for understanding the findings. Theoretical re-description was undertaken using Behavioural Control Theory and Coping Theory to explain managerial interventions for aligning objectives in the interorganisational team and controlee responses. |
| Dialogical reasoning | The researcher must remain sensitive to any differences between the case study findings and the theoretical scaffolding that guides the research design. This involves the ongoing questioning of preconceptions through cycles of revision. | Differences between theory and the case study findings were framed as an opportunity for novel contributions. For instance, through ongoing cycles of revision and data analysis, the authors discovered that controlees sometimes responded with coping strategies that were as much a response to other controlees' strategies as the control activities themselves. This questioned the controller dominant perspective in Behavioural Control Theory and informed our proposed Triadic Model of Dynamic Control Enactment (see Figure 3 in manuscript). |
| Multiple interpretations | The researcher must remain sensitive to conflicting interpretations by different participants, recognising the potential for multiple narratives for the same event. | Triangulation was used to assess underlying assumptions in participants' accounts of events. This involved a constant comparison of data from interviews, participant observations, and project documents to revealed multiple narratives on control enactment and controlees responses. For instance, our analysis uncovered how controlees often appraised the same event as either an opportunity or threat depending on their different perspectives. |
| Suspicion | Sensitivity to underlying biases in the narratives of participants is also essential to uncover potential distortions in the qualitative data collected by the researcher. | Weekly meetings were scheduled to reveal latent preconceptions in the emerging findings. During these meetings, the author team would treat all preliminary insights with suspicion and continuously questioned each other to reveal any socially created distortions in the data. |

interpretation-centric and inductive as per Sarker et al.'s (2018a) map of First-Generation Genres in Qualitative Research.

Our study does not align with the other qualitative genres identified by Sarker et al. (2018a, 2018b) for the following reasons. In contrast to positivist case study research, we do not treat data as representative facts nor theory as generalisable and falsifiable constructs. Instead, our study frames data as subjective meanings which emerge within a social context involving participants and the researcher (Grix, 2019; Klein & Myers, 1999). Our study also

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does not seek to validate theory through hypothetico-deductive reasoning and the matching of empirical data with predicted patterns. Theory is instead viewed as lens to move from data in a local setting to broader abstractions. Similarly, our work would not align with the open, axial, and selective coding procedures of the grounded theory methodology nor the principle that theory should emerge solely from the data (Sarker et al., 2018a). Following the guidelines of interpretivist research, our work draws on existing theories as theoretical scaffolding to develop new insights (Grix, 2019; Walsham, 1995, 2006). While recognising the value of all genres of qualitative research, we chose the interpretive case study approach as best suited to our work.

We next draw on Klein and Myers' (1999) principles of interpretive research as a set of methodological guidelines for evaluating quality and rigour in our study (Table F2).

## APPENDIX G

### INTERVIEW PROTOCOL

1. How would you describe your role on the project?
2. How would this differ from your role in your organisation?
3. Why did your organisation decide to collaborate with X?
4. Why do you think the other partner became involved?
5. What were your expectations for the project before it commenced?
6. How would you describe the approach to control that was adopted?
7. Which team members do you think had a strong influence in controlling the project?
8. How would you describe team members' response to controls?
9. What would you see as being some of the differences between controllers and controlees?
10. What would you perceive as being some of the challenges faced around control in interorganisational project?
11. How would you describe differences in controls across organisations?
12. How would you rate the effectiveness of controls for aligning a shared understanding among the interorganisational team?
13. What are some of the ways of coping you would see for control in interorganisational projects?
14. What were the three key moments of the project for you? (E.g., successes or failures)
15. In the end, what outcome was realised in the project?
16. What would you say has been the short-term and long-term impact of the project?
17. What would you say are some of the lessons learned from the project?

## APPENDIX H

### CRITICAL TURNING POINTS AND CONTROL MISALIGNMENT IN THE CASE STUDIES

The critical turning point from episode 1 to episode 2 in the E-Health Project case study was coded when the research fellow decided to change from enabling clan controls to authoritative input, behavioural, and outcome controls in month four of the project (see Table 7b of manuscript). This was a response to the decreasing levels of communication between clinicians and technologists, as well as the transferring of responsibility that had been observed by the controller. Authoritative controls were therefore chosen to ensure tasks and deadlines would be documented across the work packages and controlees would be assigned responsibility to deliver outputs and manage any deviations in performance (Figure H1).

The following excerpt is provided from one of the interviews to provide an illustration of how controlees' appraisal of relevancy and agency was coded during this period of control misalignment: "*We don't have something to lead with but this isn't the case with clinicians. If went to* [*MC and CR*] *now with requirements they would change it again*

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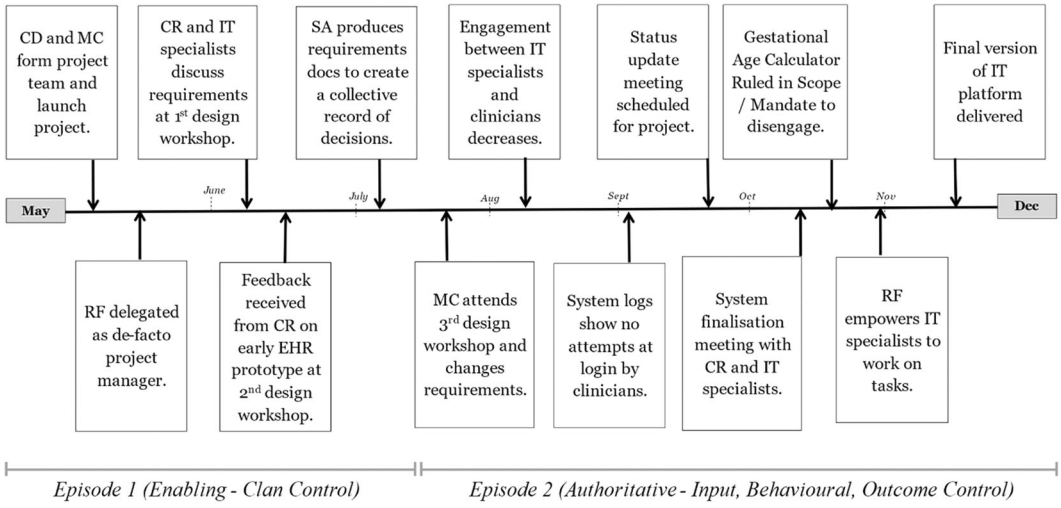


**FIGURE H1** E-Health project timeline, critical turning points, and episodes of control.

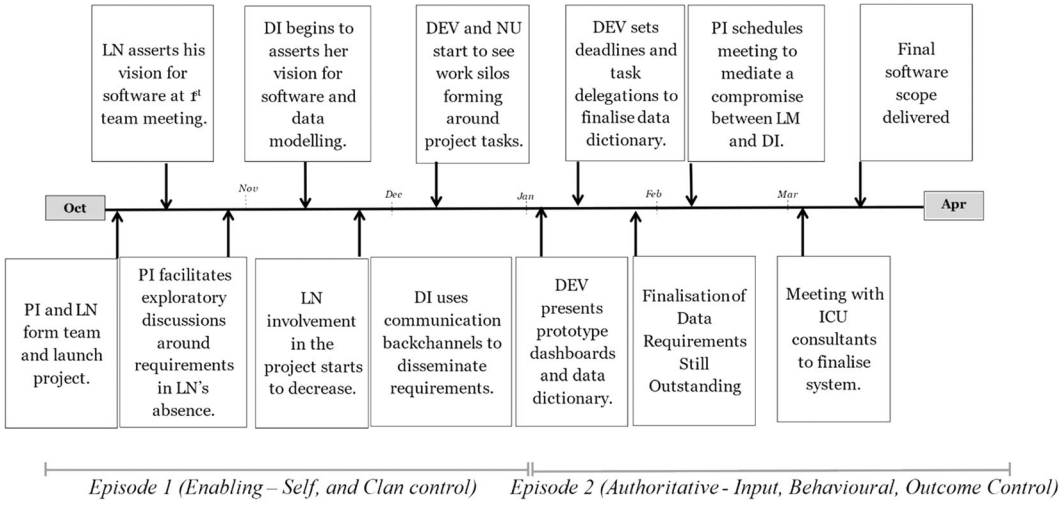


**FIGURE H2** ICU project timeline, critical turning points, and episodes of control.

[…] *I am willing to not understand things but figure out how it works. I'm not focused on the nitty gritty instead I'm focus on what can be changed* (*customised not pulled apart*)" [PTD]. We firstly coded this excerpt as an appraisal of low agency and then coded an "opportunity" for perceived relevancy. This code then informed the aggregate coping strategy of "*Compliance*".

In the ICU project case, the critical turning point from episode 1 to episode 2 occurred when the principal investigator switched from enabling self and clan controls to authoritative input, behavioural, and outcome controls in month four of the project (see Table 8b of the manuscript). This aimed to deal with the multiple objectives that different controlees were seeking to pursue in the absence of the lead neurologist. Formal controls aimed to clarify the decision-making hierarchy in the project by delegating clear and accountable tasks to controlees (Figure H2).

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The codified example below illustrates how controlees in Case 2 appraised their relevancy and agency during this period of control misalignment: "*IT projects are difficult. Health IT projects are even more difficult. A team of one is incredibly difficult. It does give you a lot of credibility cause what you say goes, cause no one else can challenge you but it is difficult*" [DEV]. We firstly coded this excerpt as an appraised "Threat" for relevancy and then coded the controlee's appraisal of high agency. This code then informed the coding of an aggregate coping strategy of "*Manipulation*".

## APPENDIX I

### CONTROL RELATIONSHIPS IN CASE STUDY 1 AND 2

The centre director and medical consultant were joint awardees of the E-Health Project grant. Both were highly respected figures in their respective disciplines and had successfully led high-profile projects. To secure the funding, the centre director formed a collaboration with industry partners, who assigned resources to the project team. A research fellow, two developers, and an analyst were recruited in the IT Innovation Lab. A clinical researcher and nurse were recruited in the Hospital. In month two of the project, the centre director and medical consultant delegated the full-time role of controller to the research fellow who would now oversee the development of the system and manage the team, including the 'IT specialists' (two developers, analyst), 'clinicians' (clinical researcher, nurse), and 'industry partners' (data analytics lead, subject matter expert). This decision was made to expedite work on the IT project as the centre director and medical consultant were increasingly being pulled between multiple roles in their respective organisations (Figures I1 and I2).

Both the principal investigator and lead neurologist were joint awardees of the ICU project grant and held positions of seniority in their respective organisations. The principal investigator was a veteran of leading successful projects in the University and the Research Centre. The lead neurologist had previously led the successful rollout of an EHR in the local hospital. Despite their impressive track records, the ICU project was an unusual undertaking for both, as they have outsourced the systems development activities to external entities in their previous projects. For

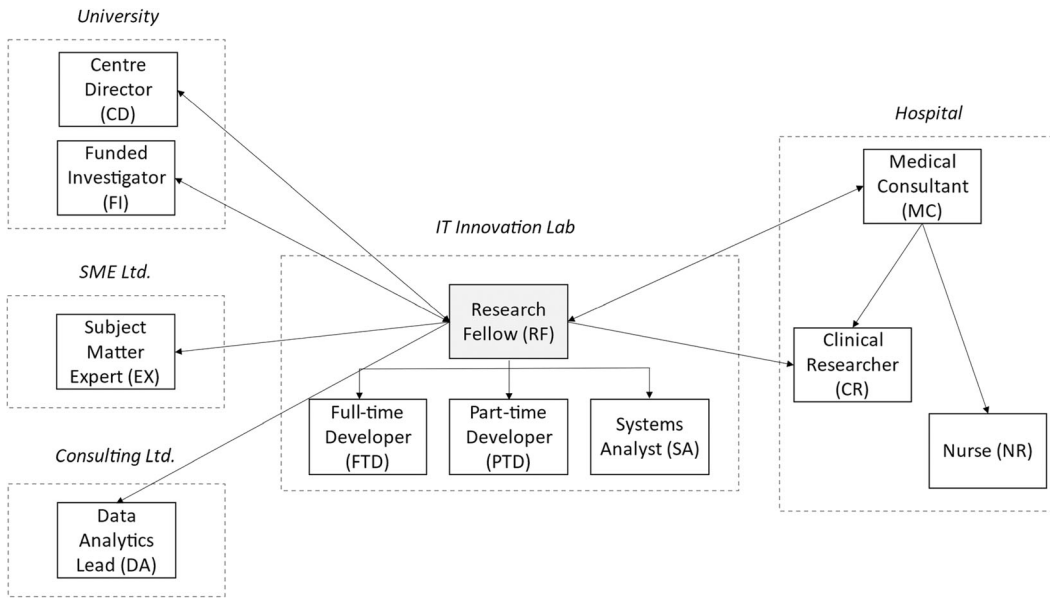


**FIGURE I1** Control relationships in the E-Health project (RF as controller).

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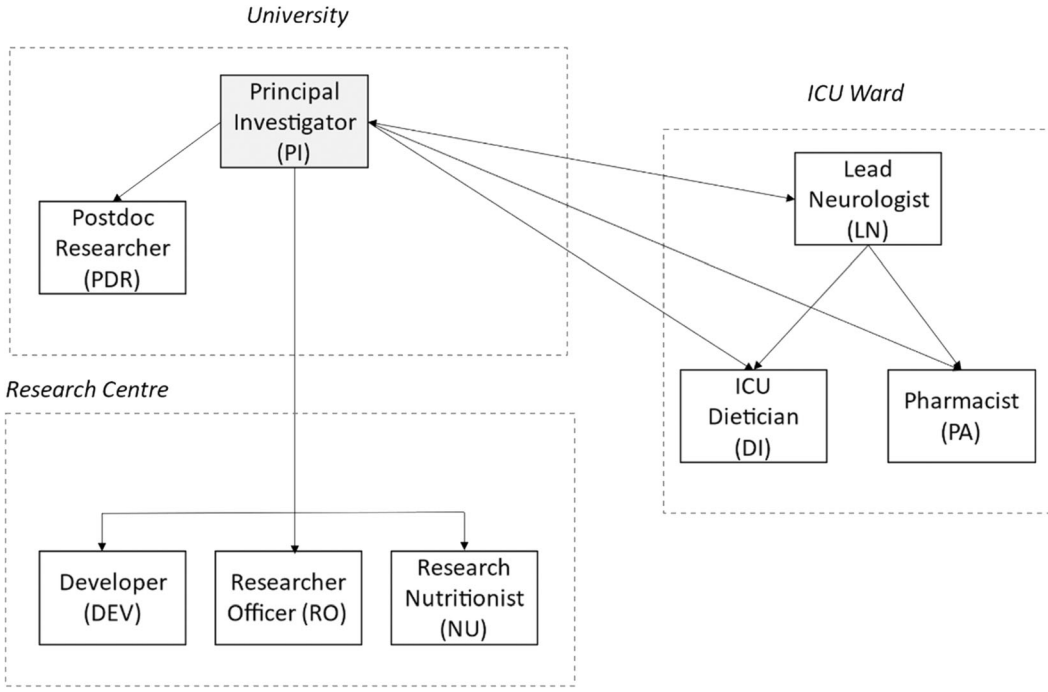


**FIGURE I2** Control relationships in the ICU project (PI as controller).

this project, a diverse group of professionals were recruited from different disciplinary and organisational backgrounds to develop the Clinical Decision Support System. The team included a developer, two clinicians, and three researchers. The principal investigator acted as controller in the ICU Project and was accountable for delivering the proposed system and research study. The lead neurologist agreed to support the implementation of the Clinical Decision Support System in the ICU ward of which he was a senior member.

## APPENDIX J

### SUPPLEMENTARY ANALYSIS OF COPING ROUTES

The table below presents further examples of coping routes from case study 1. This includes the coping routes pursued by the medical consultant and IT specialists as they navigated between consecutive coping strategies in the E-Health Project. We find that controlees' appraisals depend on context and can vary across multiple levels such as the organisation, project, profession, or individual. This suggests that coping strategies do not occur in isolation and are often foreshadowed by further iterations of coping where initial strategies are unsuccessful.

| Coping route | Description | Controlee perception |
|---|---|---|
| Medical consultant – Case 1 | | |
| Coping Round 1: *Avoidance* | The medical consultant appraised limited interest in the project, responding with an emotion-focused strategy of 'distancing' herself from the project (Episode 1 of the E-Health project). | The controlee expresses indifference towards control activities and ignores the controller's requests for feedback. |

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| Coping route | Description | Controlee perception |
|---|---|---|
| Coping Round 2: *Manipulation* | The medical consultant appraised high agency and a threat (organisational level), responding with a problem-focused strategy aimed at re-including system requirements, previously ruled out of scope (Episode 2 of the E-Health project). | The controlee pursues self-interests by going around the controller to influence the project's direction. |
| Developers / Analyst – Case 1 | | |
| Coping Round 1: *Compliance* | The developers/analyst appraised low agency and an opportunity (project level) to respond with an emotion-focused strategy that would 'rescue' the project (Episode 1 of the E-Health project). | The controlees empathise with the controller and rally behind control activities to save the project from failure. |
| Coping Round 2: *Realignment* | The developers/analyst appraised high agency and an opportunity (project level) to respond with a problem-focused strategy that would utilise their expertise (Episode 2 of the E-Health project). | The controlees support the chosen control activities and work to align their actions with the controller's goals. |

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