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Designing Meetings Systemically:

Towards a deeper, more holistic understanding of how meetings work

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Preface

This thesis is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. I further state that no substantial part of my thesis has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. It does not exceed the prescribed word limit for the relevant Degree Committee.

Elements of this work have previously been published in collaboration, in the earlier stages of this PhD, as part of developing ideas and analysing the early data specifically associated with design meetings, as follows:

> Bedingfield, C. S., & Clarkson, P. J. (2020). Design Meetings: Towards an Understanding of Stages and Activities that Influence Success. *Proceedings of the Design Society: DESIGN Conference*, *1*, 501–510.

For Tom and our remarkable families,
including those we have lost and those we are yet to meet

Abstract

Designing Meetings Systemically: Towards a deeper, more holistic understanding of how meetings work | Caroline Bedingfield | csb76

Meetings consume significant organisation resources and are important for organisational success but attendees tend to consider them poor value for time. Many studies of meetings have focused on identifying correlational links between individual variables and meeting satisfaction. Few have studied meetings holistically leading to a lack of understanding on which to base systemic design of meetings.

This research considers meetings as embedded in wider systems and studies them as a systems challenge. Eighteen knowledge workers were interviewed using a range of techniques to explore a meeting's wider context and then a systems approach was used to analyse this context. The findings confirm that meetings are influenced by many factors from other systems including the organisation, the team, the work and the individuals. A rich picture identifies four non-clock stages of a meeting embedded in its wider context, including one stage not previously identified in the literature where attendees transition from their individual pre-meeting tasks to form a cohesive unit for the duration of the meeting. The rich picture identifies eight activities which underpin a holistic understanding of meetings, across the four stages, including Social Contracting which three studies' findings show is important but under-represented in extant literature. A conceptual framework was developed from the findings and trialled with ten meeting hosts who confirmed that it helped them design meetings more systemically.

The conceptual framework provides a holistic picture of meetings which encourages and informs systemic meeting design. It also provides a deeper explanation for many of the individual design features that have been linked to meeting satisfaction and unifies meeting science literature with a common language and set of shared reference points. It emphasises the value of systemic meeting design, treating meeting design as a systems challenge – from which many of the future meetings we all attend will benefit.

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Humblest of thanks to my supervisor, Professor John Clarkson, and my advisor, Dr Nathan Crilly. Both have been endlessly supportive and wise and are princes among men, making this such a rewarding and enjoyable experience.

Thank you to Dr Martin Duffy for his great generosity, providing me with a powerful combination of time, challenge and encouragement and a glimpse into the real world of social science.

Dr Ian Hosking was my original connection to the Engineering Design Centre and is a fellow ‘later-in-life’ PhD student. He encouraged and coached me throughout. Another prince among men.

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Foreword

"If you want to change our culture, you're going to need to change our meetings first."

Eight years ago, the HR director of a well-known organic vegetable box company called me to talk about a project proposal I had written for her. My company helped its clients develop fast, agile ways of working in which people were self-responsible, took initiative and spoke honestly to each other. She wanted to complete this work in her organisation, but she felt meetings were standing in the way of any potential progress and running counter to the type of culture she wanted my help to develop. My personal interest in improving meetings was already high but this was the first time a client had specified meetings as a barrier to progressing their culture and insisted we start by improving them.

I spent the following four years observing the problems people experienced in meetings and exploring possible ways to solve them. I had limited success. Although I did manage to create a set of templates and workshops that meeting-goers found helpful, most didn't find it easy to change their own meetings or those of others meaningfully or permanently. I couldn't therefore honestly say that I had a good answer to the question of how to design meetings holistically. No solution seemed to work consistently well. Diverse factors seemed to influence what people experienced in a meeting and meeting settings seemed to differ greatly from each other. The levels of formality observed ranged from agenda-driven meetings controlled by one person to highly unstructured meetings where the purpose was to encourage emergence of discussion. Both seemed equally to create value and generate frustration. Meetings appeared to be far more than a site of discussion and decision-making but also a place for self-management of identity, challenging or defending power, resolving conflicts of goals and values and uprooting (or resisting the uprooting of) established ways of working.

The one constant was that people seemed universally to resent their own meeting 'load' and consider many meetings poor value for time. This position was swiftly reversed when they were *not* invited to a particular meeting, which generated an even greater level of resentment! There was no single way to characterise these vastly differing meetings to which everyone wanted to be invited, but few seemed to perceive as necessary or valuable.

As a facilitator and workshop designer, I was surprised at the extent to which people hold opposing views of what a good meeting looks like and whether a particular meeting was good or not. Reviewing my professional reflection notes, collected over 17 years, I observed that there are people who say they *always* prefer a clear agenda to be provided in advance and followed during the meeting, and some who say they *always* consider an agenda too constraining. However, my notes also revealed many inconsistencies. A meeting design characteristic, device or other intervention might work well one day and fall flat on another, for no obvious reason. I noted many times how difficult it is to judge whether a meeting design characteristic would be perceived as useful.

If I mentally switched seats and compared my experiences as a facilitator with my experiences as a meeting attendee, I noted that as an attendee I am also inconsistent. Even in the same type of meeting, with the same people, my lived experience varies greatly. My reflection is that the inconsistent behaviour I observed in others and experienced myself was likely to be entirely consistent, but with a set of influences I couldn't see.

My notes also revealed how a negative view of a particular meeting sometimes changes over time. A meeting that was perceived at the time to be unproductive or unpleasantly confrontational can be viewed differently, after some time has passed. Attendees might reflect that "It had to happen, I guess," or "At least it brought it to a head".

Turning to the meeting science literature offered limited insight. A handful of texts shed some light on the complexity of what I had observed but the main body of work seemed to examine a narrower range of surface-level factors, mostly focused on the meeting itself. I wasn't convinced these surface-level factors on their own could complete the picture of the ingredients required for a 'good' meeting.

The Engineering Design Centre (EDC) at the University of Cambridge conducts research using a systems approach to address real world problems – usually located in soft systems where there is no straight forward definition of the problem and no single optimum solution. A chance connection to the EDC led to a series of rich conversations about the role of meetings in the type of soft systems studied by this niche of engineering. An opportunity arose for me to contribute a study of meetings, using the soft systems lens. My proposed research didn't fit neatly into any one research stream in the EDC but was seen to have the potential to contribute knowledge to a community where systems tools and solutions are both

implemented through meetings. It was a pleasingly cross-disciplinary and relevant side project for a team of soft systems engineers to engage with.

This PhD research, therefore, arose from my desire to make more in-depth progress on tackling the problematic nature of meetings by tapping into the systems thinking and design tools available to me. To do this, I knew I had to use my knowledge and experience to ask the right questions of the right people, whilst simultaneously discarding any pre-conceived ideas I might have about what I might hear. Solving the ill-defined 'problem of meetings' in its entirety was obviously beyond the scope of this research but I was determined to address meetings with sufficiently wide a lens as to do justice to meeting problems I had seen in my professional career. This led to a carefully designed series of studies, intended to design *in* the value of my experience as a practitioner-turned-researcher and to design *out* my own biases and those I might elicit from study participants. The soft systems engineering lens provided a way to structure my role as a practitioner-turned-researcher, facilitated by my location within a systems and design-led area of engineering.

1 Introduction

If you're reading this during the working day, tens of thousands of people in the UK will be in a meeting right now, making decisions that may affect your life.

Cast your mind back to all the meetings you have been to which have been boring, unsatisfying or frustrating. Think about the occasions when you have had to attend a meeting that took up valuable time and from which you derived little benefit. If you run most of the meetings you attend, and you regard them as valuable, are you sure that all those attending would agree? Meetings ask uncomfortable questions of individuals, teams and organisations.

Meetings are generally treated by organisations as stand-alone events which require a standard set of processes such as an agenda, timely start and finish times and creation of an action. In the literature, a similar story emerges. Although studies of meetings have bloomed in the last three decades, meetings are mostly studied in isolation and at surface-level and there is scant evidence that satisfaction with meetings is improving (Allen et al., 2015).

The original research idea was inspired by the researcher's own experience of trying to improve meetings in organisations through designing them more holistically. The research approach was influenced by the engineering design research community, which exposed holistic ways of viewing problems and systems approaches to structuring them.

1.1 A (re-)introduction to meetings

Workplace meetings in the UK today have a long history, weaving through the civilising of society in the Middle Ages and more recently the establishment of modern management practices in the workplace. They are now subject to gentle mockery, such is the distaste for them. This section shares some of the context that makes meetings what they are today and also some of the wider work-based trends which are relevant to the consideration of how to learn how to design meetings more systemically.

The word 'meetings' has become loaded with meaning and is usually met with a combination of dark humour and mild derision. A quick Google search pulls up a host of

social media memes, visualising and verbalising common meeting frustrations. These memes place speech bubbles above the heads of meeting attendees, voicing unsaid thoughts.

Long before the pain of meetings could be lamented on the internet, they were parodied on television, from the caricature of British civil service meetings in the sitcom *Yes Minister* in the 1970s to the painfully true-to-life comedy about life in a British workplace, *The Office* in the 2000s. Before that, thinkers and influencers throughout the 20th century provided with memorable soundbites about meetings. Camels are horses designed in committee meetings and those who enjoy meetings are probably not to be trusted.

But it has not always been so. Van Vree's (1999) book exploring the historic backdrop to meetings charts the role of meetings through the Middle Ages. As late as mid-nineteenth century England, a meeting was a euphemism for a physical duel - a process of accepting or rejecting proposals and reaching decisions through violence. Over centuries, meetings both contributed to and reflected the civilising of society and the deepening and enriching of interdependent social networks. To restrain from violence and battle instead with words through meetings became a sign of power and social status. As populations and cities grew, the prevalent purpose of meetings shifted from preparing for war or establishing peace, to administering taxation, governmental services and other areas of state formation. Crucial to this was the Protestant Reformation, which established ethical norms and sowed the seeds for meeting discipline throughout the class system.

The style of meeting seen in organisations today is thought to have been influenced by a type of group conversation developed in the 1960s in which participants sit in a circle and speak and listen in turn (Ravn, 2017). This style of group conversation is observable outside the work environment as much as inside it, in schools, groups and societies and sets the tone for a particular type of exchange. Back in the workplace, expectations about the format, rules and value of meetings are influenced by a range of social and societal experiences from wider life.

Arriving back in 2020, after several centuries of industrialisation followed by a digital and communication revolution, meetings remain an integral part of many people's

working life, from which meaning is derived and through which information is shared and decisions are negotiated (Allen, Lehmann-Willenbrock, & Rogelberg, 2015).

1.1.1 The persistent challenge of meetings

Most studies agree that the combination of the following three characteristics creates a problem that so far has resisted solution.

Firstly, employees spend significant time in meetings, though estimates vary greatly. In a summary of previous studies, Panko suggests 20% of working time is spent in meetings (1992). In another study, the upper estimate is 75% (Mackenzie & Nickerson, 2009). The time spent in meetings does not appear to reduce in line with the rate of technology change, as previously predicted by Lantz (2001), Shin and Higa (2005) and Sproull and Kiesler (1992). Rogelberg et al. (2007) offer four reasons why this might be the case, including flatter organisational structures and employee empowerment programmes. The industrialised world is at least 25 years into "shifting from individual jobs in functionalized structures to teams embedded in more complex workflow systems" (Kozlowski & Ilgen, 2006, p. 78) which places more emphasis on team communication, such as meetings.

Meetings consume visible organisational resources including time. It's estimated in Romano and Nunamaker's 2001 review paper that meetings account for between 7% and 15% of most organisations' personnel budgets. They also cost organisations in less visible ways, from the opportunity cost of using the time spent in meetings on more value-generating activities to the additional time consumed after a frustrating meeting, termed 'cooling off' by Doyle and Straus (1984).

Secondly, the act of meeting together is necessary for organisational success. Meetings are a setting in which specific information is exchanged and decisions are made (Leach et al., 2009), which is a crucial role in its own right. Meetings are also considered an integral part of an organisation's entire communication flow and act as "systemic connectors within the organisation's river of discourse" (Duffy & O'Rourke, 2015, p. 235). They are also an essential contributor to organisational sense-making (Schwartzman, 1989) and "set the tone for employees' workdays and shape their workplace experiences more generally" (Lehmann-Willenbrock et al., 2016, p. 1294).

Thirdly, meetings seem to be capable of creating a range of negative outcomes, the most common of which is low perceived usefulness and satisfaction by their attendees. In one study, respondents said that just under two thirds of meetings achieved their intended outcomes (Tobia & Becker, 1990) and in another as many as half of workplace meetings were rated as ineffective (Rogelberg et al., 2011).

Further studies have established a negative correlational relationship between dysfunctional meeting behaviours and team and organisational success several years on (Kauffeld & Lehmann-Willenbrock, 2012). When managers use meetings effectively, they can develop or support the psychological conditions for employee engagement (Allen & Rogelberg, 2013). However, attending meetings that employees perceive as ineffective may relate both to how emotionally exhausted they feel and also whether they plan to leave the company (Shanock et al., 2013).

Together these characteristics create a three-way problem where significant organisational resource is invested in events, which are known to be important for organisational success, but which employees rate poorly across role types and industries. Although the study of meetings has made much progress, research in the domain now called meeting science is still early in its maturity and relatively limited in scope (Rogelberg et al., 2011). Despite their ubiquity, meetings are understudied (Shanock et al., 2013). So, there is a case for studying meetings further and also for exploring how they are studied.

The next section summarises some of the macro-trends surrounding meetings, for contexts in which they occur and in search of insights for possible new ways to study them.

1.2 Organisational macro-trends influencing meetings

Studies of organisational events like meetings are influenced by the bigger picture of workplace macro-trends over the last century. For knowledge workers, meetings form an inextricable part of their work. The landscape in which knowledge workers operate has shifted significantly in the last century and continues to change.

Summarising this shifting landscape at a high level inevitably leads to an incomplete, and at least partly inaccurate, picture. Irrespective of research community, readers of this

thesis will have their own views about how the world of work is changing, from their general knowledge and experience. Captured here are some key trends that provide context for studies of meetings.

The seeds for many of today's organisational macro-trends were sown at least a century ago. The Industrial Revolution led to a focus on outputs and productivity, rather than human factors, in an organisation. The emergence of 'scientific management' as a discipline (a term coined first by Taylor's research into time and space in organisations - 1911) was based on traditional, hierarchical organisations in which employees completed specialised, commoditised tasks as efficiently as possible.

Viewing organisations as closed systems, independent of human activity, as the dominant theory of the first part of the 20th century, derived from the orthodox systems model. This focused on the formal, constructed concept of society (*Gesellschaft*) as described by late 19th century sociologist, Tönnies', and characterised organisations as rational, goal-seeking machines (Simon, 1957; Khandwalla, 1977; Pfeffer, 1978). This hard systems model was an obvious fit for addressing what were thought to be well-defined problems.

However, throughout the 20th century new thinking emerged which saw organisations as more than places for rational, coordinated completion of well-defined tasks at scale. Weber's theory of management, itself a development of Taylor's work on scientific management, was an early acknowledgment that focusing on technical productivity without addressing human emotions is risky (1981). Berger and Luckmann (1966) developed the idea that organisations are socially constructed and Barnard's influential Social System Theory posited that organisations were made up of people in relationship with one another, and that those relationships were crucial to the success of the organisation (Barnard, 1938). Silverman (1970) helped to explain how individuals shape others' experiences at work using the actions frame of reference which describes how individuals' actions impact the way in which others attribute meaning to the world. These scholars emphasise that organisations are context-laden and require holistic study. They place importance on designing for organisational success systemically, rigorously accounting for a wide set of interconnected influences.

Understanding and valuing connectedness has been in ascendence for at least half a century with organisational scholars recognising organisations as aggregations of

partners, suppliers and customers and foregrounding the relational dimension of organisations (Warren, 1967). Meyer and Rowan's institutional perspective on organisations suggested that organisations are not semi-rational actors seeking the best course of action, but instead obey the cultural norms (or 'myths') in that setting, for fear of losing social legitimacy and therefore power and access to resources (1977). DiMaggio and Powell (1983) linked this explicitly to network theory and were among a number of scholars at the time to study at the level of the organisational field. That is, they studied organisations together with consumers, suppliers, proponents, critics, gatekeepers, regulators, or advocates because it "directs our attention ... to the totality of relevant actors" (p. 148).

However, the hard systems orthodoxy has proved durable. There remains a tension between rationality and irrationality in studies of organisations, despite the significant maturation of the discipline and development of more rounded ways to view human socio-economic behaviour. Perhaps this is partly because it's perceived to be more straightforward to study a system if it's considered 'hard' and rational. McLuhan and Powers' (1989) exposition of the global village, in their book of the same name, explains how technology is drawing people and markets together and highlights the resultant clash between the rational, Western view of organisations where power is held centrally by few, versus the holistic, qualitative approach of the East, where power is distributed across many voices.

Checkland (1994, p. 81) asserts that, "It is the argument here that this goal-seeking model, largely adequate as it was in the management science that contributed to post-Second World War industrial development, is not rich enough to support and sustain the management thinking now needed by the crew of Spaceship Earth, that spaceship having become akin to a global village".

More recently, scholars have addressed specific methods of study for a messy world which may not obey a rational, goal-seeking model. Work on complexity has overlapped with organisational theory. Kurtz and Snowden (2003) question the universality of order (in which casual relationships in organisations can be identified), rational choices (in which individuals will make decisions at work based on minimising pain and maximising pleasure) and intentional capability (in which a course of action is deliberately and consciously chosen). In the same study, the authors pinpoint the shift in paradigm where

in a complex, irrational system, agents modify the system they are part of without rational explanations. If organisations exist in ‘un-order’, new methods are needed to study organisational problems.

Another important macro-organisational trend over the last century is the way in which work is organised and completed. More and more organisations are achieving goals through large multi-team projects such as those required to achieve speed-to-market for high quality innovations (Hoegl & Weinkauf, 2005) and this has required an increase in collaborative working. It’s argued that, “Coordination becomes much more difficult as project size and complexity increase” (Kraut & Streeter, 1995, p. 69). Furthermore, over the course of large-scale projects, previously unknown interdependencies emerge, requiring changes to coordination mechanisms (Moe et al., 2018).

This increase in collaboration brings with it a shift away from command-and-control leadership, the flattening of organisational hierarchies and a growth in cross-domain and cross-geography team working. Technology has made it possible for teams who are not located in the same place to work together on shared projects. Employees understand that collaboration is important with 97% of over 10,000 employees in a three-year study citing that in order to do their best work, they require conditions that encourage collaboration (Hall, 1994). Meetings represent one of the core organisational activities through which teams formally and explicitly collaborate.

However, collaboration can be costly and burdensome, consuming resources through communication, such as talking on the phone and sending and responding to emails. Together with meetings, these activities can occupy up to 95% of the working day, forcing employees to catch up on non-collaborative work at home in the evenings (Cross & Gray, 2013).

In addition to the sheer volume of communication related to collaboration, group work presents additional problems, specifically the cost of context switching (González & Mark, 2004) and difficulty in completing ‘deep work’, where intense and unbroken concentration is needed to solve demanding problems (Newport, 2016).

In this landscape where organisations are solving increasingly complex problems using larger and more interdependent teams, they should no longer be seen simply as rational, goal-oriented, closed systems, but instead as complex, dynamic systems with emergent

properties where cause and effect may not be easy to determine. This has a profound impact on how phenomena (such as meetings) within organisations are studied and informs methodological choices throughout this research.

1.3 The aims and scope of this research

Earlier in this chapter, the persistent three-way problem of meetings was outlined: meetings consume significant resources and play an important role in organisational systems but are perceived to under-deliver on their intended outcomes. The aim of this research is to contribute to solving this three-way problem by exploring the use of a research philosophy and toolkit, informed by both the systems engineering community and also by the increasing understanding of organisations as open, complex systems with emergent properties.

The research takes a practical, problem-solving approach, inspired by engineering, and designed to contribute a more holistic understanding of meetings, such that they can be designed systemically. The organisational macro-trends in section 1.2 point not only to the importance of a holistic approach to studying processes and events, such as meetings, but also to their systematic design. The two activities are interconnected, and this research explores how a holistic understanding of organisational events, like meetings, helps us design them systemically.

1.3.1 Initial research question

The overarching research question is below:

What can be learnt about designing meetings more systemically by taking a holistic approach to understanding meetings?

This question was derived from an informal observation that many studies of meetings view meetings in isolation, or in parts rather than as a whole. The question is designed to drive a more thorough review of this initial observation and to explore the degree to which meetings have already been studied holistically and look for guidance on how best to study meetings holistically.

1.3.2 Lexicon of terms used in this thesis

In this thesis, the following terms are defined as follows.

Meeting

Scholars find it hard to agree on the definition for a phenomenon which could be as informal as a conversation in a corridor or as formal as a board meeting, and which could take place in person, over the phone or via internet-enabled video software. Schwartzman (1986) defined meetings as prearranged gatherings of two or more individuals for the purpose of work-related interaction - a definition adopted by many. Other definitions were summarised in a 2001 review paper as, "A focused interaction of cognitive attention, planned or chance, where people agree to come together for a common purpose, whether at the same time and the same place, or at different times in different places" (Romano & Nunamaker, 2001, p. 1). This definition includes a wide range of meeting types as it was designed to bring together and summarise the literature to date. Later, a team of prolific meeting researchers defined meetings as, "Purposeful work-related interactions occurring between at least two individuals that have more structure than a simple chat, but less than a lecture" (Rogelberg, 2006, p. 474). This succinct definition provides some additional qualifications but doesn't provide enough detail to determine which meetings this does and doesn't include for this research. One study specifically considers unscheduled versus scheduled meetings and notes that across two case studies, the role of unscheduled meetings seems to be of high importance and is undervalued by project managers (Moe et al., 2018). For this reason, this study deliberately includes unscheduled meetings within its definition, whilst specifying there must be invitation and acceptance, however informal.

In this study a ***meeting*** is defined as a talking-based event comprising two or more people, where an invitation has been issued and accepted, whether formally or informally, and a conscious agreement made to hold a conversation in the same time and place. This place could be online, by phone or in person. There is a deliberate choice to communicate verbally rather than, for example, typing online, and at least one attendee has an intended purpose for the conversation.

Roles

In the Cambridge Handbook of Meeting Science (Allen et al., 2015) - the most recent and comprehensive attempt to bring together a diverse set of meeting science studies in a single volume - the following roles are considered interchangeable: meeting organiser, meeting facilitator, meeting leader, chair. In this research, the designated or self-appointed leader of a meeting is referred to as the ***meeting host***. This is the person at whose invitation the others are attending and who has the most control over the content and structure of the meeting. It is acknowledged that sometimes this role will fall to more than one person and that the identity of the meeting host may sometimes be unclear, perhaps because the meeting is informal.

A ***meeting attendee*** is defined as anyone who attends a meeting but is not the meeting host. A meeting attendee does not initiate the meeting, nor do they have full control over its content and direction.

The line between meeting hosts and meeting attendees is sometimes blurred. In this study, they are merely indicators of relative roles within a meeting.

The words 'holistic' and 'systemic' form a core part of the research questions in this document. They embrace the same idea – that 'parts' cannot be understood without reference to the 'whole' – but they are not used interchangeably.

Holism is used to refer to *understanding* things as a whole (Jackson, 2006) and enables things to be designed ***systemically*** - a *practical* application of holistic understanding (Checkland & Haynes, 1994). The former describes the philosophy, and the latter refers to the practice. Systemic design has evolved as a discipline which occupies the overlap of design thinking and systems theory principles (Jones, 2020) and is concerned with design of higher order social systems, such as a healthcare system or mega-city urban planning (Jones, 2014). This research does not focus on such a higher order social system, though it takes inspiration from the discipline of systemic design. Here, 'systemic design' of meetings means using holistic understanding to envision and plan at a systems level to solve meeting problems and produce desired effects.

1.4 Summary

In this introduction, it is suggested that meetings have a rich history in organisational culture and remain a persistent problem, consuming significant resources without

achieving full value. Wider trends affecting studies of organisations increasingly acknowledge organisations as complex, non-rational systems and subject to the challenges of increasing collaboration, of which meetings form a central part. The scene is set for an enquiry into the meeting science literature base, with a critical eye for where studies might be failing to address meetings in context and in relationship with wider complex, interdependent systems. This study is an opportunity to consider meetings more holistically, using a toolkit inspired by systems engineering and engineering design, in service of designing meetings systemically.

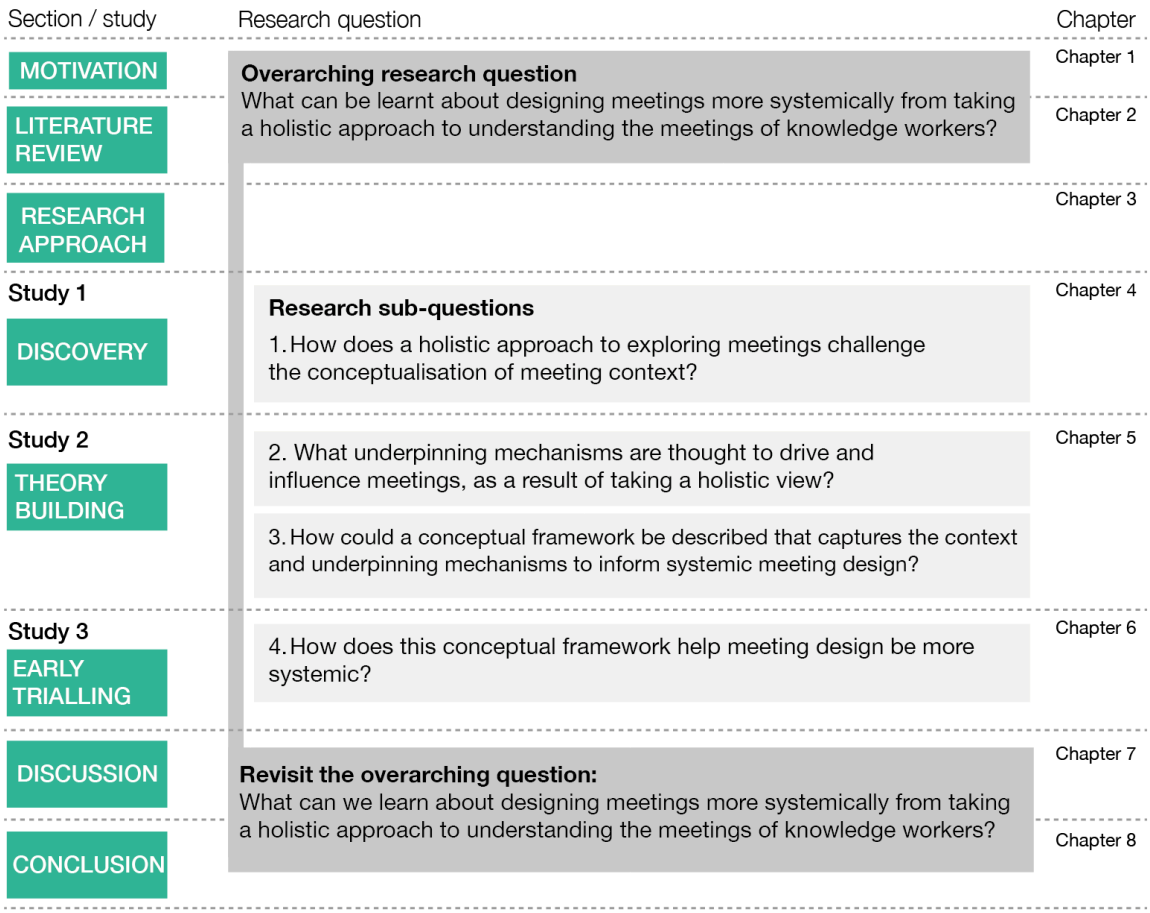


Figure 1: A summary of how the research questions are located by study and by chapter

As shown in figure 1, Chapter 2 examines existing meetings research and draws in overlapping research from often larger and more mature disciplines, such as group studies. The findings of the literature review are designed to catalogue the overarching research question as fully as possible and then drive a series sub-questions to further complete the answer. Chapter 3 describes the methodology used to answer these questions and why three sequential studies are chosen. More detailed methods and

findings are shared in chapters 4, 5 and 6 - one chapter devoted to each of the three studies. The findings of all three studies are discussed in full in chapter 7 in the context of the existing literature and, finally, the implications of these studies for the design of meetings are examined in chapter 8.

2 Literature review

This chapter explores studies of meetings, firstly looking for gaps with respect to holistic studies of meetings and secondly seeking guidance on how best to study meetings holistically, such that they can designed more systemically. The two are considered interconnected and discussed in parallel throughout this chapter.

To achieve these objectives, a short summary of how meeting science has evolved explores why meetings have been studied as they have to date. Then three observations based on a *narrative* literature review identify gaps in holistic thinking and guidance for future studies. These three observations are then augmented with a *systematic* literature review in which 118 studies were identified as forming all studies specifically about meetings and the characteristics of each are systematically counted and used to develop these observations. 'Systematic', in this instance, refers to the methodical and quantified nature of the second literature review. It is unrelated to the use of the word 'systemic', used throughout the research to refer to the use of systems thinking, where meetings are designed taking account of wider context and interrelated influences.

Studies from disciplines which overlap with meeting science are also woven in where they contribute guidance on how to study meetings holistically, including groups and teams studies and organisational psychology.

2.1 How major contributions to meetings science have shaped how meetings are studied

In this section, the knowledge generated by landmark papers in studies of meetings is presented in the form of a summary *narrative* review, outlining the body of knowledge available to those studying meetings today and helping explain why meeting science has focused on certain types of studies at the expense of others.

2.1.1 How meetings came to be a focus of studies

Although meetings have featured in studies for more than a hundred years, they have only recently been the specific focus of studies rather than a container or setting for studies of other phenomena.

Of the studies dedicated to meetings to date, areas of enquiry include descriptors of their profile (Mackenzie & Nickerson, 2009; Monge et al., 1989; Panko & Kinney, 1995), what happens in them (Miranda & Bostrom, 1999; Deppermann et al., 2010; Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock & Allen, 2014; Watson & Drew, 2017), their purpose (Allen, Beck, Scott, & Rogelberg, 2014), evaluation of factors that contribute to their success (Cohen et al., 2011; Elsayed-Elkhouly et al., 1997; Green & Lazarus, 1990; Nixon & Littlepage, 1992) and their connection to the wider organisation (Duffy & O'Rourke, 2017; Jarzabkowski & Seidl, 2008; Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock et al., 2018; Rogelberg et al., 2006; Schwartzman, 1986; Tracy & Dimock, 2004).

How did these studies originate? In group studies, group interactions take place within some kind of container, such as a meeting. Meetings were used to collect data about groups that took place in the workspace, community settings – both formal (such as a town hall event) and informal - and also under laboratory conditions. These studies looked like they could be studies of meetings but most were not. Nevertheless, studies of groups have generated a large knowledge base about how individuals think and behave in a group setting which has clear relevance and significance for better understanding meetings. Indeed, some key studies emerging from group studies have been influential in meeting science. One example is Bales and Strodtbeck's early study into intragroup interaction which explored the structure and phases of group problem solving and decision-making, resulting in the Interaction Process Analysis (IPA) (1951). This study became the foundation for more recent attempts to classify meeting interactions and explore their sequences and consequences, the most well-known and used being act4teams (S. Kauffeld, 2006) which is used in a number of studies of meetings (Kauffeld & Lehmann-Willenbrock, 2012; Klonek et al., 2016; Lehmann-Willenbrock et al., 2011).

However, little research into meetings in their own right was conducted until around 30 years ago, catalysed in part by one of the largest use-of-time studies in the workplace. The prolific management scholar, Henry Mintzberg studied the distribution of time and tasks across a manager's working day, offering the first real insight into how much time meetings consumed in many managers' diaries (Mintzberg, 1973). His surprise discovery was that typically managers were spending nearly 70% of their time in meetings, and

though subsequent studies of meeting time load (the proportion of time spent in meetings) show wide variations, they broadly support his findings.

Having established empirically what many organisations may have already suspected - that time spent in meetings was the single largest use of a manager's day - a flurry of studies was conducted to examine meeting load in more detail. These studies asked descriptive questions about how long these meetings lasted, how many people attended and whether they were scheduled in advance. Many of these studies of meetings in the 1980s were conducted or commissioned by organisations rather than initiated as pure academic studies. As meetings clearly represented a substantial cost for many organisations and were considered poor value for time, time invested in studying them was considered worthwhile. Other organisations undertook studies of meetings because their own mechanism for generating value related somehow to improving meeting infrastructure, technology or performance. Some of the best known examples were collaborations between the former and the latter, such as the study conducted by 3M and the Center for Effective Organizations in 1989, called *A Profile of Meetings In Corporate America* (Monge et al., 1989). This pattern of organisations studying their own meetings continues today. Companies like Amazon and Google conduct extensive research into meetings, though little of this research activity has translated into peer-reviewed literature.

In complete contrast to this early trend for studying quantitative descriptive characteristics of meetings, such as size and duration, a significant study was taking place in parallel, from a qualitative standpoint and using ethnography as the method of study. Schwartzman's book *The Meeting: Gatherings in Organizations and Communities* (1989) is credited with being the first scientific exploration of the meeting in its own right and is cited in 653 scholarly papers at the time of writing which, as a crude measure of its influence, is notably more than double the next highest cited paper or book specifically investigating meetings. In this book, in which meetings are richly and broadly explored as a social construct, Schwartzman widens the understanding of the role of meetings, arguing that they are not simply the site of group problem-solving and decision-making but are a place where organisational members make sense of and impose sense on their organisation. Within the pages of this book is a clear rallying cry to researchers to devote

more time to studying meetings as phenomena in their own right, rather than as convenient containers in which to study other themes of interest.

An upturn in studies focused specifically on meetings followed and by 1992, deliberate attempts were made to make studies of meetings more scientific. Nixon and Littlepage (1992) describe the meeting literature at the time as largely consisting of "observations, opinions and suggestions concerning how to run more effective meetings" (p. 361), citing multiple examples of studies where claims were not empirically tested. They accept that the findings of their own studies are subject to the limitations of the methods used and that their findings at least partially support opinions presented in previous less rigorous studies. One such example from their 1992 study was that the use of an agenda did not itself improve meeting effectiveness, but that if one was used, sticking to it *was* significantly related to meeting effectiveness. This supported what had been stated as opinion in other papers (Tropman, 1980). Nixon and Littlepage's early empirical study also validated previous empirical studies from group research which suggested that open communication was important for group performance (Harper & Askling, 1980; Lanzetta & Roby, 1960; Laughlin, 1988). However, they point out that in studies where outcomes are measured by responses to satisfaction questionnaires, perceived satisfaction with the process and outcome of a meeting does not necessarily mean the meeting was effective. Nixon and Littlepage (1992) acknowledge that attendees were more likely to perceive meetings in which they felt communication was open as better but that this does not provide evidence that the meeting had been more effective or generated better outcomes. Nevertheless, the scene was set for further empirical studies.

By the 2000s, meeting science was becoming more established as a discipline in its own right and was more recently defined by the Cambridge Handbook of Meeting Science as, "The study of what happens before, during and after meetings in the workplace" (Allen et al., 2015, p4). In the 2000s, organisational psychology began to take the lead with most researchers coupling meetings with other research interests in leadership, team effectiveness and employee affect and motivation. Meeting science is now the beneficiary of a raft of correlational studies which try to establish the strength of relationship between various design characteristics or meeting behaviours and perceived meeting effectiveness. Alternatively, they explore the link between certain meeting characteristics with other variables like intention to quit or emotional labour (Rogelberg et al., 2007).

As meetings science has grown and developed, there is a clear and major methodological overlap with discourse analysis. This is unsurprising given that "meetings are talk-saturated events" (Tracy & Dimock, 2004, p. 1). Dividing this research into those which fundamentally address meetings and those which do not is difficult, and discourse is a field with a high volume of research contributions, many of which feature meetings.

Van Vree's book, *Meetings, Manners and Civilisation: The Development of Modern Meeting Behaviour* (1999), is an exploration of the radical evolution of meetings as a part of the development of Western social civilisation. As such, it offers insights into how meetings have served the human need to assert or determine power structures, in whatever format was considered socially appropriate at the time. Meetings have changed from the mid-nineteenth century when a 'meeting' meant a duel (either a fight or bearing of arms in which the victor was considered divinely determined) to the milder mannered meetings of today following the pacification of society. However, the common thread is that meetings are one of the places in which status, power and control are established and maintained.

Given the ubiquity of meetings in the workplace (Monge et al., 1989), the high proportion of time they consume, particularly for managers (Mintzberg, 1973) and their perceived mediocrity (Green & Lazarus, 1991), it's no surprise that so many non-academic books and articles have been written in an effort to solve this widespread commercial problem. A search for "how to run a meeting" in Amazon yields 494 books on the subject and the same search string in Google returns over 3.3 million articles and videos.

On account of the direct crossover with organisational practice, academic researchers frequently write opinion type papers for high quality business publications, for example about the 'science and fiction' of meetings (Rogelberg et al., 2007). This is particularly common in sector journals where scholars write opinion articles about how to run meetings well in accountancy (Carlozzi, 1999; Tate et al., 2006), law (Anon, 2014) and healthcare (David Switzer, 2015; Li et al., 2008).

These books and articles greatly vary in their academic rigour, but some are well-cited in the academic literature, particularly those which include primary research. One example is Auger's volume which includes a study in the first edition which is then repeated and reported as a longitudinal study in the second edition. In this way, these books straddle

the academic and mainstream media, forming a rich seam of 'grey' literature (Carlozzi, 1999; Hall, 1976; Haynes, 2006; Mina, 2000).

Fifteen years after Schwartzman's early volume (1989), the meeting science community again called for researchers to "foreground meetings and take them as objects of study" (Tracy & Dimock, 2004, p. 121). However, as recently as 2015, a key volume bringing together studies from across meeting science states that, "A scientific look at meetings as a focal topic remains largely elusive", which it describes as "astonishing" (Allen et al., 2015, p. 3). This volume structures the body of work in meeting science into 31 essays, bringing together the somewhat scattered heritage of meetings studies together. Although it lacks a coherent narrative, it does an excellent job of showcasing the best of the current range of studies and using them as a springboard to pose new questions, designed to encourage further diversity of studies in meetings science.

The recent book written by the prolific meetings researcher, Rogelberg, is aimed at the business audience and its title *The Surprising Science of Meetings: How You Can Lead Your Team to Peak Performance* (2019) indicates an objective to summarise the body of knowledge in meetings literature in such a way as to be useful to the real-world business community. Despite its non-academic audience, it serves as an effective and comprehensive review paper. However, it treats meetings as standalone, mostly citing studies that index correlations between design characteristics and meeting satisfaction.

This literature review argues that studies of meetings to date have been dominated by certain disciplines which have influenced the types of questions asked and the ways in which they have been answered.

Three observations about how the understanding of meetings might be limited by the current literature base are considered in this section and the following section supplements this evidence by counting characteristics across the 118 papers in the systematic literature review that are thought to make up all studies specifically of meetings to date. These data help check whether the limitations that appeared to be present in the narrative review were in fact supported by a more rigorous search. As the body of literature specifically focused on meetings is relatively discrete and compact, there was a clear opportunity systematically to review, codify and characterise, in addition to developing a narrative through more informal reading of the literature.

2.2 Three observed limitations to understanding meetings

Whilst it is clear that meetings have been studied in many different ways by multiple disciplines, holistic studies are limited leading to gaps in understanding of meetings.

The first observation is that meetings have been studied through a relatively small number of methodological lenses, rendering some types of questions well answered and other types less well answered or even unasked. The second observation is that most studies focus on meetings as discrete events, and few account for wider systemic context in which they take place. The third observation is that many studies fail to account for the many types of meetings, treating them as the same, and potentially masking important differences and their complexity.

2.2.1 Observation one: Meetings are studied through few lenses

Early, informal reading and note-taking pointed to clusters of papers making similar assumptions.

There are many correlational studies using quantitisation which is the "numerical translation, transformation, or conversion of qualitative data" (Sandelowski et al., 2009, p. 208). One example is a study which asks respondents to rate their opinions on scales in a questionnaire. These studies use the quantitised data to evaluate the strength of the relationship between variables related to meetings. They measure either the impact of selected variables on perceived meeting satisfaction or the impact of the meeting on other variables. Going forward both groups of studies will be referred to as correlational studies.

The most common measure of meeting outcomes is a survey, recording perceived meeting effectiveness or meeting satisfaction on a scale. Few papers measure other outcomes, for example the impact of the meeting on the team's goals or key performance indicators, the speed or efficiency of task completion, the cohesiveness of the team, the level of understanding of content or the degree of participant alignment. In most cases, the measures of meeting effectiveness are focused solely on attendees' satisfaction as opposed to holistic studies where entities are considered collectively and the *integration* of phenomena is thought to yield insight (Schwartzman, 2015).

Another lens through which many studies view meetings appears to originate from discourse analysis. There is a natural overlap between the study of discourse and the study of meetings as meetings are primarily composed of discourse or 'talk' (Tracy & Dimock, 2004).

Modern discourse analysis, as distinct from the broader field of linguistics, can be traced back to the early 20th century, an early example being Leo Spitzer's *Stilstudien* (Style Studies) in 1928. More recently discourse analysis has been used to answer questions as diverse as the impact of pre-meeting speech patterns (Yoerger et al., 2018), how speech might predict consistency of understanding across a team in a meeting (Kim & Shah, 2016), what speech can tell us about managing conflict (Angouri, 2012) and how good and bad meetings differ in speech patterns (Murray, 2014).

Discourse analysis delivered through the method of conversational analysis provides a tangible, high resolution lens through which to view meetings. However it fixes the viewfinder at the micro-level and treats context superficially, such as "the culture and history of an organisation, the personal histories of the participants, their relationships and political goals; the role of industry-wide patterns and management trends; and the ethnic and national cultures of participants and the field site" (Wasson, 2000, p. 458).

A handful of studies of meeting use qualitative methods, usually ethnography or action learning methods. Although the absolute number of these studies is relatively small, one researcher using these methods has been particularly influential. Helen Schwartzman was one of the first scholars to study meetings, specifically. As an ethnographer, her 1989 volume was instrumental in elevating the academic discourse about meetings to the level of organisational dynamics and connecting meeting science to multiple disciplines including behavioural science, decision-making, relationships and political speech. Similarly, a few studies have leant on ethnographic research, such as the study of routines at work (Feldman & Pentland, 2003) and of course Schwartzman's own portfolio of meetings research (Schwartzman, 1981, 1986, 2015).

Observational methods are rare, one example being Volkema and Niederman's study (1995) in which a questionnaire was completed by observers, recording structures and formats used in the meeting of interest. The study sought to create an independent and accurate account of timings and tangible structures associated with meetings and

deliberately avoided opinion-based measurements such as perceptions of productivity or satisfaction. The researchers state that this choice was based on the problematic nature of self-completion surveys, citing recall problems and conflict between participation and ratings. This use of observation differs greatly as a method from ethnographic-style observation, simply seeking to capture descriptive, quantitative data as accurately as possible.

Studies using open-ended questions are surprisingly infrequent with just one example found in which researchers examined what lay behind people's feelings about meetings, specifically what made them look forward to or dread them (Allen et al., 2012). Responses to these open-ended questions were elicited in a written survey and analysis used constant comparison, derived from the qualitative method of grounded theory. Although the research questions drove the choice of qualitative methods, nevertheless this study concludes by recommending a rating scale using categories of affect developed though the coding of the open-ended survey questions.

One study, focusing on a single sector (healthcare) in a single country (Finland), is worthy of discussion because it addresses hospital management meetings rather than clinical meetings in the context of broader organisational information structures (Laapotti & Mikkola, 2016). Although the study findings may not be generalisable outside a hospital setting, the method of study is interesting and could be used in or across other sectors. Laapotti and Mikkola examine social interactions, adopting structuration theory which views "macro-processes and micro-processes as inextricably linked through ongoing, recursive social practice" (Canary, 2017, p. 1687). The authors use social network analysis and qualitative content analysis to highlight the complexity of the interaction between meetings and the organisations in which they are embedded.

Studies of meetings about software development make use of a wider range of methods, most related to projects conducted using the Agile philosophy. Agile is defined as a project management philosophy and set of methods which inspect and adapt in iterative cycles to meet customer needs, with a leadership philosophy of communication, accountability and transparency. Indeed, most truly mixed method papers in meeting science relate to Agile meetings. The overlap between studies of Agile meetings and the main body of meetings literature is limited, with few references in either direction. Common to all Agile methods is the high priority assigned to the human and

communication needs of managing software development, so it is perhaps unsurprising that this cluster of studies take a wider viewfinder than most studies of meetings. Two good examples relate to one particular type of Agile ceremony: the daily 'stand up' meeting. Both studies examine its usefulness, one using interviews and observation to build a grounded theory (Stray et al., 2016) and the other using an extensive survey to examine how attitudes to this meeting varied by employee role level, type of organisation, type of project and type of individual, amongst other variables (Stray et al., 2017).

There are pockets of more holistic studies, such as a discourse study by Duffy and O'Rourke (2017) which starts by laying out a different set of conceptual foundations, namely systems thinking, process thinking, CCO (communicative constitution of organisations) and sensemaking in an effort to "direct thinking away from an individual-centered view of meetings prevalent in extant meetings literature" (p. 1).

Another example of an integrative approach to studying meetings is an examination of scheduled and unscheduled meetings in an Agile environment which presents case studies derived from individual interviews, group interviews plus a review of internal project documentation such as tender documents and project plans (Moe et al., 2018). The main contribution to knowledge is that meetings are vital for coordination, and that coordination needs change over time, requiring flexibility in transitioning between scheduled and unscheduled meetings.

It's noteworthy that many studies of meetings cite Schwartzman's call for more holistic studies of meetings, but few respond to her methodological recommendations. Schwartzman emphasised complexity and inter-relatedness in studies of meetings. The body of work that followed has mostly tried to isolate individual variables and the significant evidence on initiation, conduct and termination of meetings is fragmented (Dittrich et al., 2011).

By contrast, complexity and holism is well recognised in group studies and is increasingly appreciated in studies of teams. This fact, together with the emphasis on the embedded nature of organisational routines, suggests studies of meetings may be enriched through methods that approach meetings as situated in complex, dynamic systems. A likely methodological shift is towards qualitative methods, suitable for addressing complexity and embracing holism.

2.2.2 Observation two: Most studies of meetings use a narrow boundary of interest

The body of work devoted to studies of meetings appears to focus mainly on better understanding what is happening within the boundary of the meeting – literally what happens between the start time and the finish time, with limited reference to wider influences.

It seems logical that early descriptive studies of meetings, profiling their size, duration, purpose and frequency would focus entirely on the meeting itself. If their goal was to understand further the basic characteristics of meetings in which managers were spending so much time (Mintzberg, 1973), then studying the attributes of the meeting between its start and finish time is entirely appropriate.

Notable examples of the many papers that focus solely on studying elements of the meeting event itself include explorations of structures and formats used within the meeting such as agendas, documents and minutes (Volkema & Niederman, 1995), a slew of studies examining the impact of meeting characteristics on participant satisfaction (Cohen et al., 2011; Geimer et al., 2015; Leach et al., 2009; Nixon & Littlepage, 1992) and studies of dialogue or micro-speech which attempt to explain meeting patterns (Clarke, et al., 2012; Halvorsen & Sarangi, 2015; Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock & Allen, 2017). The first review paper of studies of meetings is devoted almost exclusively to papers examining the variables within the meeting itself (Romano & Nunamaker, 2001).

Other papers address specific elements within the meeting, such as the study of the relationship between pre-meeting small talk and its ability to predict meeting success (Allen, Lehmann-Willenbrock, & Landowski, 2014), the impact of lateness (Mroz & Allen, 2017) or the exploration of the types of visual and written support materials that are used in meetings (Volkema & Niederman, 1996).

Studies largely consider meetings, even regularly scheduled meetings, as one-off events rather than as part of a sequence of connected meetings. The notable exception to this is a series of studies in which a sequence of meetings - ‘meetings collectively’ - is explored as part of a river of discourse within an organisation (Duffy and O'Rourke, 2017). Likewise, there is a qualitative study of meetings in an Agile environment which examines the role

of meetings as an inter-team coordination mechanism, casting the boundary of the study area around multiple meetings and multiple teams (Moe et al., 2018).

A handful of studies view meetings in the context of specific systems and one such paper reviews the role of meetings in the development and execution of strategy (Jarzabkowski & Seidl, 2008). Many other studies explore meetings in a specific sector setting such as school board meetings (Castor, 2007), clinical meetings (Kempnich, 1989; Li et al., 2008; Nielsen et al., 2009) and faculty administrative meetings (McGrevin & Lohr, 1989). In fact, there are at least eight entirely different papers titled *Meetings, meetings and more meetings* from sectors as diverse as commercial law, molecular therapeutics, analytical chemistry and public health. These studies were not included in the body of meeting science literature under review if they were considered to be specifically focused on the unique characteristics of meetings in a single sector.

A variation on studies which focus solely on the meeting event are those which consider the impact of a single factor outside the meeting on the meeting itself. One example is a study of the impact of leader-member exchange (the quality of relationship between a leader and someone led by them) on perceptions of meetings, such as how fairly people are perceived to be treated in a meeting (Baran et al., 2012). In this example, leader-member exchange "fully mediates the relationship between perceptions of supervisors' fairness (interactional justice) in group meetings and perceived organizational support", lending weight to the argument for widening the boundaries of studies (p. 1).

A further variation on studies which focus solely on the meeting event can be found in studies which consider the impact of perceptions of meetings on other factors outside the meeting event. The majority of these relate to establishing if positive or negative perceptions of meetings impact employee wellbeing, productivity and retention. Examples include one study which relates meeting time demands to employee wellbeing (Rogelberg et al., 2006) drawing in task interdependence, accomplishment striving and self-confidence, and exploring the moderating relationship between meeting time load and the Job Attitudes and Well Being (JAWB) score. Another study attempts to explain whether experiences in attending meetings are a facet of job satisfaction (Rogelberg et al., 2010) and a third explores the relationship between counter-productive meeting behaviours and emotional exhaustion experienced outside of meetings (Lehmann-Willenbrock et al., 2016). These take one step towards understanding meetings

holistically and designing them systemically, factoring in the impact of meetings on humans and providing a reason to consider them more widely.

There are some examples of studies which *do* use a wider boundary of study. Interestingly, a focused study of the use of support tools within a meeting includes a representation of inputs (or contexts), processes and outcomes of a meeting (Volkema & Niederman, 1996). These capture a wide range of inputs such as personal factors (attitudes, abilities, backgrounds), situational factors (stage of group development, social networks, climate), group structure (power, norms, group size, cohesiveness) and task (uncertainty, complexity) before focusing on tools as the central subject of interest in the study.

Over the last decade, Duffy and O'Rourke have conducted multiple studies of meetings with the boundary deliberately wider than the meeting itself, examining meetings collectively through a systems lens (Duffy & O'Rourke, 2015, 2017; O'Rourke & Duffy, 2012). Duffy develops a conceptual framework, MaSP (Meetings as Systemic Process), which depicts how a series of interconnected meetings - meetings collectively - act systemically "through the hybridicity of three distinct modes of connection – human actors, material artefacts and shared processes" (Duffy, 2016, p. i). One of the key contributions of Duffy's study and resulting model is that "meetings collectively then exhibit agency that individual meetings could not achieve alone", drawing attention to meetings as a skeleton "around which the organisation is perpetually regenerated" (p. 300). Using Duffy's perspective, meetings are the necessary intersection of diverse entities within the organisation, with porous communicative boundaries, which are by definition embedded in a wider system of interest and should be studied as such.

Other scholars of meetings have emphasised the need for a widening of study boundaries. Schwartzman called for more holistic studies of meetings and their inter-relationships with other organisational factors in her highly cited book (Schwartzman, 1989) and more recently in her summary of the state of meeting science research in *The Cambridge Handbook of Meeting Science* (Schwartzman, 2015). A more recent and comprehensive review paper of studies of meetings draws a similar conclusion, making the case for future studies that explore the influence of environmental, organisational and individual contingency factors on meetings and seeking to connect meeting practices with the meeting's purpose, as set in a wider organisational setting (Dittrich et al., 2011).

Some disciplines which overlap with meeting science pave the way for a more holistic route, adding weight to the argument that the boundary of interest in studies of meetings should be wider than the meeting event itself. Group researcher, Bales, points out there are four crucial factors impacting a group meeting, all of which arise from outside the meeting itself: personalities, culture, roles and past events (Bales & Strodtbeck, 1951). Tuckman makes the case for "delineations based on (a) the setting in which the group is found, (b) the realm into which the group behavior falls at any point in time, that is, task or interpersonal, and (c) the position of the group in a hypothetical developmental sequence (referred to as the stage of development)" (Tuckman, 1965, p. 384). Three of these four influences are situated outside the meeting event itself and all four remain largely unstudied by meeting scholars. Both Bales and Tuckman were studying groups rather than meetings and their work pre-dated the body of work now called meeting science.

Studies of teams have bloomed as the focus on the unit of the team in terms of organisational productivity and performance has increased (Humphrey & Aime, 2014). The choice to view teams as linked to their broader context has become increasingly important as studies of teams have come out of the lab and into real world settings. Scholars have characterised teams as complex and recognised the limitations of their existing frameworks and philosophies to address this characterisation. A further study issued a rallying cry for development of methodologies that are appropriate for this new lens: "We need to not only build on what we have, but… to take great … leaps to ensure that we are capturing and embracing the complexities of current team arrangements and seeking to better understand them rather than to fit them into current frameworks. We encourage researchers to "go there" in the next decade" (Mathieu, et al., 2008, p. 463).

Eleven years later came a follow up paper, emphasising that studies of teams must address the fact that teams are "complex and dynamic entities that face constant changes to their team structures and must simultaneously work to meet and adapt to the varying situational demands of their environment" (Delice et al., 2019, p. 1). The authors made a case for going beyond self-report surveys to using a study toolkit which was more sensitive to the complex changes that a team exhibits over time. There is an interesting parallel with studies of meetings which are themselves embedded in dynamic team settings but have relied on self-report questionnaires.

In summary, given that every meeting is a part of a wider organisational context, the narrow boundary of most studies and the treatment of meetings as stand-alone events is surprising. This thesis argues that though treating the duration of the physical meeting as the 'whole' fails to fully reflect the complex characterisation of the setting in which they are embedded. Though some studies identify single, uni-directional relationships between meetings and their context, meetings are rarely studied holistically, resulting in insufficient knowledge to design them systemically. Early studies of meetings as group events and therefore subject to the influences of groups in general provide a perspective that does not seem to have filtered through to more recent studies specifically of meetings. Finally, where pictures exist, they are not central to the study itself, nor are they developed further as a conceptual model at any point.

2.2.3 Observation three: Different types of meetings tend to be considered homogenous

Meeting science has moved on from the idea that meetings are purely a modality for conveying information, such as the definition of meetings as a communication tool used by groups and teams to accomplish organisational goals. There is now widespread recognition of the role of meetings not only as a way to coordinate team members, tasks and tools, but also as a means of managing ambiguity and making sense of recent events (Jarzabkowski & Seidl, 2008). This point was made by Schwartzman 20 years earlier when she asserted that meetings are not just a necessary part of organising, but are in fact a core part of working life and that their multi-purpose nature makes them so important to organisations (Schwartzman, 1989). More recently, Tracy and Dimock (2004) highlighted the diverse characterisation of meetings, observing that they solve and create problems, give information and misinformation, create and diffuse tension, celebrate and challenge organisational values and display and resist power.

One of a handful of studies seeking to create a taxonomy of meeting purposes suggests 16 categories, all of which are associated with completion of a task (Allen, Beck, Scott & Rogelberg, 2014). The data are drawn from free text responses to the question 'What was the purpose of that meeting?' within a survey on meeting experiences. One limitation to this method is that it only records the purpose each meeting attendee perceived and recalled, without reflection. This may fail to elicit a more reflective, nuanced or complete answer. A taxonomy of meeting purposes drawn from these data is therefore a catalogue

of these more limited or obvious responses. If respondents perceive tasks as the most appropriate response to the question of meeting purpose, the taxonomy will be limited to purposes related to task.

A less task-focused list of five meeting purposes is prepared in a review paper which drew on previous research to propose that meetings are sites for implementing strategy and categorised the roles of meetings as coordination, cognitive (sense-making), political, symbolic and social (Jarzabkowski & Seidl, 2008).

Despite a deepening of the understanding of meeting purpose, a further review paper of studies of meetings suggests that, "So far, studies have mostly described the different meeting functions on a stand-alone basis, neglecting the interaction between different functions" (Dittrich et al., 2011, p. 28). The same review paper goes on to argue that though meeting functions have been well documented, few links have been made between the function of a meeting and how it should be initiated, conducted and terminated.

So, whilst there are many examples of studies which examine the different categories of meetings or summarise the range of roles a single meeting can play, studies of meetings (and correlational studies in particular) do not seem to distinguish between these different categories or roles in their methods. In many cases, participants are asked to recall and rate the last meeting they went to. 'A meeting is a meeting', according to most studies, irrespective of its purpose and any other context. Although this is a simpler and more convenient way to study meetings, it is the opposite of a holistic approach in which meetings are seen to have many different purposes and be influenced by a unique combination of factors. Studying correlational relationships by averaging all meetings and ignoring their purpose and context does not increase understanding of meetings holistically and therefore limits the ability to design them systemically.

2.3 How these observations can be augmented with a systematic literature review

Based on the literature review so far, studies of meetings are observed to be dominated by a narrow range of studies, often considering only the meeting event itself and disregarding context. The purpose of the systematic review of the meeting science literature in this section is to add evidence to the three observations of the literature.

2.3.1 The systematic literature review method

A simple systematic review was designed and conducted to count a set of study characteristics thought to relate to the three observations in the previous section.

The first step was to establish a list of studies, the characteristics of which would be examined. In order to be included, studies had to be peer-reviewed, published in English after 1950 and focus specifically on meetings in the workplace. Studies of meetings in sectors with specialist requirements (e.g. clinical meetings) were excluded, as were those studying meetings in non-workplace settings and those focused specifically on intercultural differences, gender or meeting tools and technology. Notably this systematic review did not include those group sessions classified as workshops, although other reviews of the meetings literature have done so (Dittrich et al., 2011). The Dittrich et al. paper is valuable and insightful but its primary aim is to better understand the enactment of strategy in practice, through group meetings. It's logical that this would include workshops, as a group format commonly used in high stake strategy integration sessions in organisations. However, workshops are considered a different setting for the purpose of this literature review. No studies of workshops alone are included but it is acknowledged that some blurred boundaries exist between workshops and meetings. A total of 118 studies were identified for systematic review.

Each paper was coded across eight fields in an Excel database. In most cases, best fit was selected from a pre-determined list of multiple-choice options. In addition, the name, date and authors of the study were captured.

The data captured included classifying:

- the role that meetings play in the study
- the boundaries of the study
- whether the study accounted for different types of meetings
- whether the study accounted for external influences on the meeting
- the methods used in the study.

The full coding guide is included in Appendix 1.

One important limitation was the high-level nature of the coding process. Codes were used to attribute studies to one type or another. In reality, study characteristics did not form neat groupings. The systematic review also did not take account of cultural differences between studies conducted in different parts of the Western world, for example between Finland and North America, only noting that the publication language was English. For both these reasons, the *narrative* account is the primary study method and the *systematic* review provides additional insight in the form of a crude count of studies.

2.3.2 Systematic exploration of the three observed limitations to understanding meetings

The following three sections revisit the three observations in section 2.2.1 in turn, augmenting each with study characteristic counts from the systematic literature review.

Systematic exploration of observation one: Meetings are studied through few lenses

Studies were coded by the methods used, to explore whether a small number of approaches or lenses dominate, as noted in section 2.2.1. Table 1 below outlines the frequency with which different methodologies are used and a discussion of these findings with examples is shared below.

Table 1: The frequency of methods used to study meetings

Type of study	Frequency of studies using this method	Percentage of studies using this method
Correlational study	47	40%
Discourse analysis	24	20%
Literature review	8	7%
Mixed methods	14	12%
Positioning paper	3	3%
Qualitative study	14	12%
Quantitative descriptive study	8	7%
Total	118	100%

The single largest proportion of studies quantitise opinion data and search for correlation. In all but one of the 47 studies in this category, opinion data is collected via multiple choice survey responses and statistical analysis is used to search for correlational links. As such, 40% of all studies of meetings in this systematic review are correlational studies which attempt to account for a measure of variance in a meeting. This supports the observation made in the narrative literature review in section 2.2.1 that correlational studies are the single most prevalent study type in meeting science. Although correlational studies do not quite reach a majority, they nevertheless represent twice as many studies as the next most prevalent method of study. Many originate from a relatively small population of organisational psychologists, collaborating in different combinations to produce similarly designed studies.

The second most common study method is discourse analysis. Of the many studies of discourse during meetings, the 24 in the systematic review were selected as specifically exploring the characteristics of a meeting itself, rather than using a meeting as a helpful container for other meetings. These studies make up a fifth of all studies of meetings and are influenced by the communicative constitution of organisations or communication-as-constitutive (CCO) perspective, itself a rich seam of work in which organisations are viewed as constituted *through* communicative acts, rather than merely *producing* communicative acts. These studies share little crossover with correlational studies and rest on different philosophical foundations.

The remaining 40% of studies are divided across a range of other methods. Excluding literature reviews and positioning papers, the remaining empirical studies break down into qualitative, quantitative and mixed methods studies. This characterisation belies the fact that one of the handful of qualitative studies is possibly the most influential study in meetings science, and certainly cited the most often: this is Schwartzman's ethnographic research into the phenomenon of meetings (Schwartzman, 1989).

Comparing the frequency of papers from different methodological camps over time, an additional story emerges. Of the 24 papers using discourse analysis as the primary method, only five were written since 2009. Contrast this with the 48 papers produced from the organisational psychology discipline (the correlational studies) where 31 were written since 2009. Organisational psychologists and their philosophical and

methodological approaches are gaining share of voice and driving the volume of studies in meeting science.

By systematically noting the frequency of certain types of studies, there is good support for the original observation that studies of meetings draw together different approaches from methodologically discrete academic communities. Increasingly, they also feature a high proportion of studies from one community (organisational psychology) and adopt one key methodological choice (opinion data captured via survey and quantitised for studies of variance).

Systematic exploration of observation two: Most studies of meetings use a narrow boundary of interest

In section 2.2.1, it was argued that studies of meetings seem to have relatively narrow boundaries, often the boundary of the meeting start and close time. In this section, the codes applied to the 118 papers in the systematic review are analysed to examine this argument.

Comparing the boundaries of study of a large number of papers is challenging, so assumptions were made in order to group papers together. The first method of counting was to consider whether a paper studied the meeting itself or included activities and influences before the meeting or after the meeting. Nearly three quarters of all papers focused just on the meeting itself. Just under one in five addressed influences before, during and after the meeting. One in ten focused on what happened before the meeting as well as the meeting itself and just one paper focused on the meeting itself plus events after the meeting.

A second way to define the boundary of study of each paper related to any ‘systems’ around the meeting that the study specifically included, such as the team or the communication system, or the organisation itself. These codes were generated by those found in the studies. This proved to be an imperfect coding system as study characterisation and definition of a system boundary varied. However, this method provided some further insight into the range of system boundaries used in studies of meetings. The table below shows the number of studies per system boundary category, broken down by the types of study defined in the previous section.

Table 2: Breakdown of study boundaries by type of study

Type of study	Meeting only	Series of meetings	The individual or team	Commun-ication	Culture	Work / task	The organisation	Total
Correlational study	38		2	2	4	1		47
Discourse analysis	11	1		6	1		5	24
Literature review	4				2	2		8
Mixed methods	9	1	1	1	2			14
Positioning paper	1				2			3
Qualitative study	2			1	2	4	5	14
Quant descriptive study	8							8
Total	73	2	3	10	13	7	10	118
Percentage	62%	2%	3%	8%	11%	6%	8%	100%

The most striking finding from this breakdown is that the boundary of interest in 62% of studies is the meeting itself, specifically the start and finish time. By filtering only for studies since 2009, this percentage reduces to 53%, reflecting a slight increase in studies with wider boundaries in the last 10-12 years. In practice, this is simply the addition of a handful more studies examining meetings in the context of wider communication and achieving work goals.

At the next level of granularity, the type of study seems to be deeply connected to its boundary. Unsurprisingly, the quantitative descriptive studies, usually capturing characteristics such as meeting duration, size and frequency, are all focused within the boundary of the meeting itself. However, over four-fifths of correlational studies have the same boundary of study – the meeting event itself. By contrast, only two of the 14 qualitative papers in the systematic review focus solely on the meeting. The remainder set a wider boundary of study, with no single boundary dominating.

The systematic review data supports the observation that studies of meetings have narrow boundaries of interest and this is corroborated by other meeting scholars, for example the assertion that existing literature on all types of meetings is largely focused on meetings as stand-alone events rather than embedded in wider systems (O'Rourke & Duffy, 2012).

Systematic exploration of observation three: Different types of meetings tend to be considered homogenous

Although there are multiple taxonomies designed to categorise types of meetings, the third observation from section 2.2.1 was that studies of meetings seemed to treat meetings as homogenous. For example, in most correlational studies using surveys to collect opinion data about meeting experiences, the participant is asked simply to recall meetings at work in general (Leach et al., 2009; Rogelberg et al., 2010; Shanock et al., 2013).

Given the broad profile of meetings people experience at work, it appeared from the body of literature that few papers account for these wide differences in the types of meetings on which attendees might be reflecting when they captured their experiences. These differences in profile might relate to size or duration, meeting purpose, formality and style, level of investment of attendees, stage of work or organisational climate. The table below shows the extent to which papers take account of differences in meetings when analysing their data. If little or no account is taken of the profiles of the meetings under exploration, the study was classed as 'no differentiation'. If the study took account of basic descriptive factors such as the duration, modality, number of attendees and frequency, it was classed as a study that "differentiates on quant descriptors". Those studies that accounted for the purpose of the meeting or the quality of the meeting were coded as such, as were those studies that regarded meetings as unique events.

Table 3: How different types of studies treat different types of meetings

Type of study	No differentiation	Differentiates on quant descriptors	Differentiates on quality	Differentiates on purpose	Sees meetings as unique events	Total
Correlational study	40	2		5		47
Discourse analysis	13			10	1	24
Literature review	3			4	1	8
Mixed methods	9			5		14
Positioning paper	1			2		3
Qualitative study	2		1	7	4	14
Quant descriptive study	5	2		1		8
Grand Total	73	4	1	34	6	118
	62%	3%	1%	29%	5%	100%

Six in ten of all studies of meetings make no distinction between different types of meetings. The findings they present are based on a random selection of meeting types, and little or no account is taken of the profile of the meetings on which the data are based.

After filtering for study methods, it is striking that 85% of correlational studies make no distinction between different profiles of meetings. This dominance is reversed for the smaller number of qualitative studies in which 86% break down their findings by type of meetings in some way. Roughly half of discourse analysis studies account for meeting type, mostly differentiating by meeting purpose.

These counts support the original observation that studies of meetings tend to treat meetings as homogenous, and this is particularly true of studies from the psychology community using quantisation in search of correlation.

2.4 Implications of the literature review

The early scoping research question asked, “What can be learnt about designing meetings systemically from taking a holistic approach to understanding meetings?” Although many answers were possible, there is a compelling case for a series of studies which widen the viewfinder on meetings and conduct a richer series of studies that acknowledge the many facets of meetings and seek to place them within the organisational systems they are designed to serve.

The following three sections propose and discuss three routes, each one building on the last to shape the studies that follows.

2.4.1 Gap 1: Answer the call for holistic studies of meetings

Notable by its absence in meeting science is a body of studies which treat meetings holistically. The three observations made earlier in the chapter suggest that while meeting science is a diverse and fast-growing community, the vast majority of studies to date tend to focus on meetings as discrete stand-alone events, either connecting generalised experiences of undifferentiated meetings to other variables or studying with the boundary of the meeting event itself. Studies which explore meetings in the context of the wider systems in which they are embedded do exist and have been influential in shaping a broader understanding of meetings at the early stages of studies of meetings

(Schwartzman, 1989). Nonetheless, the subsequent body of knowledge in meeting science has been developed mainly through narrower lenses and based on the position that 'a meeting is a meeting'.

Listed below are eight calls for more holistic studies found in the literature.

Firstly, scholars acknowledge that meetings are not stand-alone but instead situated within and in relationship to wider systems, including Johnson et al. (2003) who categorises meetings as one of many everyday micro-activities in which strategy is shaped and delivered. Indeed, there is a great deal of support for studying meetings from a broader perspective to understand these inter-relationships, not least from Schwartzman's influential and widely referenced book in which the author repeatedly exposes the complexity and inter-relatedness of meetings and calls other scholars of meetings to address these issues in their research (1989).

Secondly, in the series of studies conducted by Duffy and O'Rourke in which meetings are studied collectively and systemically, the authors make the case against reductionism, arguing that meetings are part of a social system in which language makes connections between entities, and choose a systems lens through which to view meetings (Duffy, 2016; Duffy & O'Rourke, 2015, 2017; O'Rourke & Duffy, 2012). Duffy's concept of 'meetings collectively' is the first to show that meetings are connected together and that it is the cumulative effect of linked meetings over time that creates transformations. This is a significant departure from the 73 of 118 studies which treat meetings as stand-alone units of study.

Thirdly, *The Cambridge Handbook of Meeting Science* (Allen et al., 2015) points to a related set of future research areas highlighting the cultural influence of the organisation and team beyond the meeting and suggests that "interaction dynamics and emergent interaction patterns may differ considerably across different organizational contexts, meeting purposes, and meeting group compositions," and that "meeting research has yet to explore whether social influence fluctuates and changes" (p. 349). Schwartzman (2015) reinforces the point in closing the same book, stating the need for more holistic study of meetings: "This move away from the individual centeredness that has had such a great impact on our thinking about behaviour in organizational and work settings may be one

of the most important ideas embedded in several of the chapters in this book, and I would suggest that it be underlined and theorized in more detail in future research." (p. 740)

Fourthly, one extensive study of meeting satisfaction recommends future research on how meetings can actively be improved by studying the wider systems in which they are embedded, such as team development. This paper also suggests studying meetings from multiple angles at multiple levels to better understand the influences on the team meeting process (Kauffeld & Lehmann-Willenbrock, 2012).

Fifthly, other studies of meetings suggest specific areas into which the study boundary should be widened. One study of pre-meeting communication suggests future research should investigate the connection between pre-existing social relationships and meeting effectiveness (Allen et al., 2012, Allen, Lehmann-Willenbrock & Landowski, 2014). Another paper calls for more studies on how organisational structures affect meeting interaction structures, including in different organisations and contexts (Laapotti & Mikkola, 2016).

Sixthly, inspiration for a more holistic series of studies can be found in overlapping disciplines. In some groups studies of the 1950s which are essentially early studies of meetings, clear links are made between meeting activities such as decision-making and wider issues surrounding the meeting. Bales and Strodtbeck's *Phases of group problem solving* (1951) uses Interaction Process Analysis to make the distinction between the observations/conditions that are generated from the meeting itself and those generated *prior* to the meeting, specifically personalities, culture, roles and past events. Bach (1954) and Schutz (1958) similarly point to the role of a more holistic range of factors including personality, previous events, culture and purpose in group interactions.

Seventhly, Kozlowski and Chao (2018) make the same case from the perspective of team processes, of which meetings are considered to be an example. They describe concerns that "team processes, which are inherently dynamic, have primarily been assessed as static constructs" and explain that "team-level processes and outcomes are multilevel phenomena that emerge, bottom-up from the interactions among team members over time, under the shifting demands of a work context" (p. 576).

Finally, Bales, whose Interaction Process Analysis tool was mentioned earlier in this chapter, went on to develop SYMLOG together with Cohen (1979) - a systematic, multi-

level measure of behaviour patterns in group events which "takes effective account of the fact that every act of behavior takes place in a larger context, that it is a part of an interactive field of influences. The approach assumes that one needs to understand the larger context—personal, interpersonal, group, and external situation—in order to understand the patterns of behavior and to influence them successfully" (Bales, 2004, p. 4). It is this type of thinking that inspired this series of more holistic studies.

Multiple calls from meeting science itself to widen the viewfinder and explore inter-relationships, together with a pathway presented by the more mature disciplines such as group and teams studies, make a case for more holistic research studies into meetings. Doing so would create the required knowledge of wider context and influences to enable meetings to be designed more systemically.

2.4.2 Gap 2: Adopt methods appropriate to studying meeting context

Earlier in this literature review, it was argued that studies of meetings have been dominated by a relatively small number of methods, of which correlational studies of variance was the single largest group. In the previous section, it was suggested that meetings are situated events embedded in multiple complex systems, making them worthy of studies of a more holistic nature. The meeting science literature shares this view, calling for studies of inter-relationships with factors outside meetings. In this section it is proposed that a more holistic study will require different methods than those which have dominated studies of meetings to date and that a plurality of methods will help understand meetings more holistically and design them more systemically. First, the meeting science and related literature is scanned for clues as to the nature of these methods. Finally, a set of criteria is outlined for choosing a research approach for this series of studies.

Meeting science already points to flaws in the dominant methodology in recent studies. As calculated earlier in this chapter, 47 of 118 studies in the literature use a questionnaire tool to quantitise opinion data and test for correlations. Those studies typically seek to find correlations between a selection of independent variables and self-reported opinions of recent meetings. The quantitised opinion data can form either the dependent variable (resulting in the question 'What factors contribute to how attendees rate meetings?') or, less frequently, the independent variable (resulting in the question 'What impact do high

or low meeting ratings have on factors outside meetings?'). Could these studies form a paradigm in which many studies in a field follow a similar path, internally referencing within their community and drawing from a limited range of study methods to answer similar types of questions? Restricting methods risks distorting the area of study where the subject of interest is dictated based on the methods chosen in the paradigm (Lawson, 2012). There is little acknowledgement of such a possibility in correlational studies, although specific limitations of correlational methods are considered.

A study by Leach et al (2009) on design characteristics explores the relationship between a series of design characteristics and participants' perceptions of meeting effectiveness. The paper acknowledges the limitations of using a self-reported perception questionnaire to determine causality, in part due to the circularity of factors. For example, the authors acknowledge that the degree of effort or involvement of the participant is likely to influence the successful implementation of the design criteria and therefore how likely the participant is to rate the meeting as effective. On this basis, singling out individual characteristics of successful meetings, however actionable the findings may be, is distinct from considering the meeting as a complex system of interdependent variables in which many factors, internal and external to the meeting, contribute to its trajectory. Equally, measuring variables against quantitised opinion data does not speak to meeting effectiveness, but only to surface-level approval.

Leach et al. (2009) suggest addressing this circularity by collecting independent data about meeting content and effectiveness, such as observing meeting dynamics and the success of processes used in the meeting and also assessing whether the meeting actually achieves the actual goal. The authors go on to say that it would be interesting to understand more about the attendees and their relationship to each other.

As a contrast to variance theory, which is in use in many studies of meetings and in which the relative contribution of individual variables is calculated using the question 'to what extent?', alternative theories-in-use oppose this reductionist view. Maxwell (2010) describes Mohr's vision of process theory, which is an explicit counter to variance theory (1982), with examples such as variable-oriented and person-oriented or case-oriented approaches, propositional knowledge and case knowledge, and factor theories and explanatory theories. These theories share some characteristics such as seeing the world

as made up of interlinking events and processes, valuing context, and asking ‘why’ based questions.

Earlier in this chapter, it was shown that 73 of the 118 studies analysed treat meetings as generic – a meeting is a meeting. No account is taken of its purpose or context when evaluating what contributed to a meeting’s success or failure. A PhD thesis supports this with empirical evidence from tests conducted using *The Comprehensive Theoretical Model of Meeting Dynamics*, concluding that “the results also support the assertion that meetings are unique situations representing more than a simple collection of discrete, objective components” (Francis, 2006, p. 2). Treating meetings as homogenous may mask some important patterns. Is it possible that a narrow range of study methods is mirrored by a lack of acknowledgment of meeting type plurality?

Where so many studies focus on asking similar questions and answering them using similar techniques, there is a risk of adding to old ‘normal’ knowledge (Arman, et al., 2012) and that “following a replication strategy too closely they may miss the opportunity to generate rich, contextually sensitive data through direct observation of informants in their natural work setting” (p. 303).

In this instance, it’s possible that replicating similar methods has led to a concentration of studies on the impact of tangible meeting characteristics on generic meeting satisfaction but omits the less tangible influences such as norms, values and beliefs, where the evidence is more anecdotal (Huisman, 2001; Weick, 1995). These less tangible influences can vary widely by organisation in that what is acceptable or desirable in one organisation is not in another - so drawing generalisable conclusions about what is effective as a meeting practice is harder. These influences are also much harder to measure or observe, requiring more open-ended and time-consuming research methods which may partially account for why they remain largely unexplored.

A further clue as to why a more diverse range of methods might not have been adopted can be found in a social networking study which explains that, “The importance of the meetings for the organization is complex and difficult for participants to describe” (Laapotti & Mikkola, 2016, p. 125). Eliciting insights into the intangible influences underlying commonplace workplace events like meetings is likely to be a time-consuming process for which there has been limited appetite to date.

Few studies of meetings rely solely on open-ended methods, such as qualitative or problem-structuring methods. One study which narrowly missed selection for the systematic literature review is the only study whose primary data is qualitative interviews. Jarzabkoswki and Seidl's study of the role of meetings and workshops in strategy is rich and full of insights from the wide range of interviews completed, including highlighting how content segues from the business into meetings and then from meetings into the business again (2008). However, the study is primarily about workshops rather than meetings and is essentially a study of strategy in practice, rather than of meetings. Nevertheless, it remains a good example of using open-ended methods to explore a more holistic picture of meetings as situated in wider systems.

It's interesting to note that some of the most influential and oft-cited studies of meetings are drawn from the small number that use open-ended methods - Schwartzman's ethnographic study (1989) being the most obvious example and Doyle and Strauss's case study-based paper being another (1984). Widening the search for studies that might inform methods choices for a more holistic study, this section includes insights and guidance from related disciplines.

Firstly, by treating meetings as situated in fundamentally complex settings, there are several studies which suggest methods that might be most appropriate in a complex environment. Browning and Morris (2012) cite Weick and Browning (1986) and Snowden's (1999) narrative based methods, arguing that "the complexity and ambiguity of the environments that individuals face are best understood when language, including the richness of metaphor and the flexibility of the story, is invoked as a sensemaking device" (p. 140).

A second related discipline in which to search for methodological approaches is systems thinking, which itself has had to mature its approach to complex, human-based problems over the last half a century. In a paper reflecting on 30 years of action research, Checkland argues that "what is now much needed in the systems world in general is more engagement with complex reality, leading to more accounts of the interaction between systems ideas and lived experience. Only from such engagement will come the situated knowledge, which will establish systems as a field of both scholarship and well-founded action." (Checkland, 2010b, p. 1).

Systems literature also provides some language and structure to methods for a more holistic study. Ackoff (1974) helps to draw the distinction between a reductionist zoomed-in approach and holistic studies which zoom out, expanding the boundary of study and taking the view that it is helpful to include context and to allow layering of perspectives in service of enriching understanding. Churchman (1971) explains that systems methods can provide rigour and structure to questions about ‘what works’, make complex problems solvable and bring diverse perspectives together to help solve this problem. Furthermore, Checkland links back to choices between variance and process theory, claiming that if a holistic view of a phenomenon is taken "there are no absolutes in our epistemology; as systems thinkers we are virtually driven to a process view of the world" (1992, p. 1026).

Design literature takes a pragmatic lens on the data which might support a process theory approach: “The development of schemes to support group work, whether behavioral methods or new technologies like groupware, should be based on detailed knowledge about how groups work, what they do well, and what they have trouble with” (Olson et al., 1992, p. 347).

Once again, early “groups literature” provides an alternative to satisfaction data in a study where the role of a leader in a meeting’s solution generation and decision process is the subject of interest. The authors point to the importance of defining how a good or bad solution would be defined. They considered two options, the first being to measure the satisfaction of the participants with the solution and the second to investigate the intrinsic quality of the solution (Maier & Solem, 1952). They chose the latter; however this choice demanded meeting experiments conducted under lab conditions and the group was required to work on mathematical problems to which a clear right or wrong solution could be determined.

The dominance of one or two methods is by no means unique to meeting science. Organisational science is another example of a related domain which leans on one method (Podsakoff & Dalton, 1987). This is considered to be neither necessary nor helpful (Crilly, 2019), and is worthy of determined action to break up such mono-methodology (Martin, 1990).

This chapter has already presented a picture of a meeting science literature base dominated by a handful of study methods (§2.2 and §2.3). In this section, some of the limitations of those methods have been explored, making a case for an alternative methodological viewpoint in which meetings are seen as complex, unique events which are worthy of study situated in context. For this reason, the methods chosen must fulfil the following criteria. They must address complexity, address inter-relatedness and embeddedness and focus on 'why' rather than 'to what extent' questions. These methods will help us understand meetings more holistically in service of systemic meeting design.

2.4.3 Gap 3: Create a holistic picture to emphasise interrelatedness and context

A lack of holistic studies of meetings has led to few theories or pictures. In this section, the gap in theorising and picturing is explored and a case is made to develop a picture that captures meetings holistically and supports the systemic design of meetings. This picture is referred to as a conceptual framework throughout these studies which points both to its visual nature and its primary purpose in conveying a conceptual theory.

The meeting science literature is notable for an absence of pictures. Although some exist, such as Volkema and Niederman's diagram of meeting artefacts (1996), Duffy and O'Rourke's collective minding (2015) and river of discourse (2017), Laapotti and Mikkola's sociogram created through a study of social networks in a set of Finnish healthcare meetings (Laapotti & Mikkola, 2016) and Reinig's Meeting Satisfaction Model (limited by its focus on group support systems) (2003), they do not create a consolidated meeting science narrative. The closest to this type of unifying picture-based narrative comes from a paper titled as exploring the implications of lateness to meetings but which includes a figure summarising the key findings of meeting science studies to date (Mroz & Allen, 2017). This figure divides findings into before, during and after meetings and is as close to a central narrative picture as can be found in a meeting science study. A more holistic example is a figure which suggests an integrative framework of meetings and workshops (Dittrich et al., 2011) using a similar before, during, after (or input, process and output) format but which refers to workshops as well as meetings in reference to strategy as practice. The latter does provide clues as to what factors systemic meeting design should take into account, but doesn't offer a method for doing so. Also, the paper's focus is the role of workshops in delivery of business strategy – so it is not primarily a study of meetings.

This lack of conceptual picturing leads to a series of problems. Beyond 'before, during, after' or 'inputs, processes, outputs' there are no commonly accepted categories or breakdown of the stages of a meeting to structure studies or aid design, systemic or otherwise. There is no shared language; meeting science has no lexicon of its own through which more in-depth meaning can be established and contested.

Furthermore, meeting science has developed and progressed few theories. This absence of a sense-making framework to explain the underlying structures of meetings and create a holistic narrative somewhat limits the ability to solve the problem outlined in chapter 1, whereby meetings consume a large proportion of time at work but fail to deliver sufficient value, according to their attendees. Volkema and Niederman (1995) explain that the relatively low frequency of studies of meetings is in part because of "a lack of a theory of meeting structures and functions" (p. 4).

The literature leaves the door open for a further way to conceptualise how meetings work in relation to the complex systems in which they are embedded, how meeting design might draw from this relationship and how the link between the focus on single meetings and more systemic views of organisations might be made (Allen et al., 2015, Laapotti & Mikkola, 2016).

2.5 Summary of literature review

The purpose of the literature review was to examine the extent to which meetings have been studied holistically and seek guidance on how to conduct a holistic study in service of designing meetings more systemically. Despite consistent calls for more holistic studies (Kauffeld & Lehmann-Willenbrock, 2012; Leach et al., 2009; Schwartzman, 1989), few studies answer this call, in part because organisational psychology has made the biggest contribution to the discipline in the last two decades, influencing a slew of studies that look for correlations between individual variables. Three limitations to the literature base were observed and then evidenced with a narrative review followed by a more systematic review in which 118 meeting science papers were categorised and counted. These limitations were borne out by the counting exercise and comprised: a narrow boundary of interest, the dominance of study methods which separate out components rather than considering them together and a homogenisation of meetings types in studies of meetings, masking their complexity.

2.6 The refined research questions emerging from the literature review

The literature review partially answers the overarching research question by highlighting the lack of holistic studies and the concentration of studies adopting a narrow boundary of interest and a limited range of methods. These factors limit access to knowledge required to design meetings systemically. A case is therefore made for a holistic series of studies which use methods appropriate to a complex setting and form a conceptual framework. This conceptual framework will address the lack of holism in studies of meetings by emphasising meeting context and relatedness and summarising underpinning mechanisms in support of systemic meeting design.

The overarching research question is now refined, specifying meetings of knowledge workers defined as people whose "primary task is the manipulation of knowledge and information" (Davenport, 2005, p. 4). The scope was limited following the literature review for three reasons. Firstly, it is assumed that knowledge workers, who generate value through intangible resources, are more likely to attend meetings as a core part of their role. Secondly, this constraint was an obvious way to study a group who might reasonably be expected to have some similar experiences at work, such as working at a computer by default, managing their own time and attending meetings in which they are expected to contribute as a routine part of their working day. Thirdly, it was much easier to access and sequester the time of knowledge workers, in part because they spend time at a desk and have agency over their time.

The refined overarching research question is therefore:

> *What can be learnt about designing meetings more systemically from taking a holistic approach to understanding the meetings of knowledge workers?*

The literature review only partially answered this question, so the following sub-questions collectively are designed to help further complete the answer. These questions can be thought of as research objectives, each one building on the last and together answering the overarching research question.

The first sub-question examines how a holistic view changes what context is seen as relevant and what new boundaries of interest might be set:

1. *How does a holistic approach to exploring meetings challenge the conceptualisation of meeting context?*

Zooming back in to the meeting itself, the second sub-question explores underpinning mechanisms emerging from a more holistic understanding of meetings in context:

2. *What underpinning mechanisms are thought to drive and influence meetings, as a result of taking a holistic view?*

Circling back to the original aim of translating the outcomes of a holistic study into a theory which helps with the task of designing meetings systemically, the third sub-question draws together findings about the meeting's settings and its underlying structure, as follows:

3. *How could a conceptual framework be described that captures the context and underpinning mechanisms to inform systemic meeting design?*

Although this is a theory building study, and fully testing and validating the theory falls outside the scope of the research, a desire for usefulness and ecological validity led to the final question in which there is some early trialling of the conceptual framework in the real world:

4. *How does this conceptual framework help meeting design be more systemic?*

Together, the answers to these questions will form the basis for developing a new narrative that might help reveal some of the underpinning mechanisms of meetings, to ground previous studies in a more holistic picture and to bridge the gap to understanding how meetings can be designed systemically.

3 Research approach and methodology

The literature review makes the case for a studying meetings more holistically, using methods suited to holism and bringing the findings together into a picture that informs systemic meeting design. However, the literature offers little direction about how such a study might be conducted. For this reason, the methodology was designed by drawing inspiration from multiple related disciplines including social sciences, engineering, design and soft systems.

This chapter will outline why and how pragmatism was used to shape three open-ended studies which tracked three stages of the Design Research Methodology (DRM), each one building on the last to help answer the over-arching research question. It will discuss how the challenges of undertaking such an open-ended study and why a systems approach was adopted to provide structure and rigour.

In the first part of this chapter, factors influencing decisions around methodology are discussed. The next and largest section of the chapter is devoted to explaining the methodology, starting with high level philosophical choices and showing how they influence the selection of specific frameworks and methods. The final section introduces the three studies, explaining how they use the methodology to answer the research question.

3.1 Factors influencing the choice of research approach

There are a number of factors which shaped method choice and application for holistic study of meetings, which are described and addressed below.

3.1.1 The broad and dynamic landscape in which this study sits

Meetings take place in a complex and dynamic team and organisational landscape which itself is hard to characterise or measure (Delice et al., 2019). This landscape comprises multiple overlapping backdrops, without fixity or permanence, which requires the study to cast the net wide, exploring a range of potentially connected systems. These backdrops are changing all the time, as groups and organisations transition through different

developmental stages, providing little stability for studies of this nature and a wide set of influences to account for.

The outcomes of a meeting are diverse and affect many different systems, some of which may not be fully realised until considerable time has passed. Meeting attendees may not understand the full set of outcomes immediately, or ever. There are no common, agreed measures for the success of a meeting, either in the literature or in regular use in real organisations. Those that exist are based on self-report of each participant's satisfaction with the process and the outcome. Beyond individual satisfaction, there are no criteria nor ways to categorise the intended outcomes of a meeting. Therefore, studying whether something makes a meeting 'better' is problematic. Individual experiences are often contradictory and unpredictable. Within a group of people attending the same meeting, there may be a wide variation in experience and interpretation. An individual may experience or interpret the same experience differently on different days or in different settings.

A deliberately holistic study in such a complex setting presents challenges in eliciting, recording and analysing a potentially large data set. If the research is seeking to explore systemic meeting design, using a holistic research approach, then the scope must be limited in some way to generate sufficiently valuable knowledge with the available capacity. The decision was made to address meetings related to delivering work. To narrow the selection of participants further, only knowledge workers in the UK were recruited. The choice of knowledge workers ensures meetings are a similarly central part of all participants' role but does not limit participation to managers which some other studies do. This foregrounds meetings through the lens of collaboration rather than of management and does not solely focus on the views of managers. Focusing on the UK minimised potential differences created by national culture which was essential to avoid a dataset where differences of interest could not be distinguished from global cultural influences.

3.1.2 The choice to view meetings as part of complex systems

Meetings are part of the fabric of teams and organisations which are commonly characterised as complex systems, that is to say, exhibiting emergent properties that could not be predicted or reverse engineered by dissecting the system (Mathieu et al., 2019). In

this study, the choices to view meetings both as complex and as systems are somewhat interwoven, since neither serve as stand-alone characterisations.

Section 1.2 explained two organisational macro-trends are particularly important when situating a new study of meetings. The first is that scholars are shifting from a view of organisations as rational, co-ordinated and goal-seeking to a recognition that they can be messy, unpredictable and shaped by myth and emergence. Of course, there is no single 'true' lens through which to view organisations. The second macro-trend is that organisations are perceived to be increasingly complex, as larger, more dispersed teams collaborate on bigger projects. The growth of the 'global village' means that previously unconnected organisations and market forces are now inter-related and speed of communication is driving up the complexity and dynamics of these relationships.

Seeing meetings as part of complex systems is the bedrock of this study. In this section, complex systems are outlined, to explain the starting point for the methodological decisions and approaches.

Complex systems can be characterised in multiple ways. Social theorist and systems thinking scholar, Luhmann, defines complexity in terms of a threshold between two types of systems. A system is classified as complex if its inter-relatedness can no longer be fully described. A system is therefore complex when each element cannot be fully described without reference to other system elements and when information is missing, meaning the system cannot be fully observed (Luhmann, 1995).

More recently Kim and Kaplan (2006) explained that complex systems were fundamentally different from those systems which were merely complex insofar as they "comprised of populations of interacting entities where the overall system behavior is not predefined but rather emerges through the interactions of its entities" (p.37).

What all scholars of complexity have broadly agreed on for centuries is the unknowability of the future in a complex setting (Newton, 1687). Another word for complex used in the problem-solving domain is 'soft', used in the context of 'soft systems' as distinct from 'hard' systems in which traditional systems engineering approaches are effective. Checkland (1989) explains that in soft problem spaces the common characteristic is that the people in them will see and interpret the world differently, arising from different worldviews. These worldviews are not fixed and they change over time, colouring each

person's interpretation. However, soft problem spaces also always include people taking intentional action to solve problems and meet their goals.

In this study, complexity is recognised as a characterisation imposed by reseachers rather than the inherent nature of a system or phenomenon. Multiple definitions of complexity exist and authors cited in this research may vary in their exact definition of the term. This study adopts the simple definition of complexity as an open system with multiple interlinked influences which are hard to pinpoint and where system behaviour is hard to predict (Arthur, 1999; Rind, 1999; Whitesides & Ismagilov, 1999). At data analysis stage, it is not assumed that past events necessarily predict future events, nor that meetings can be completely understood - no matter how much data collection and analysis takes place.

3.1.3 The perspective from within the engineering design community

Had this research originated in the business school or the psychology department, this research may have adopted different methods. However, its location within the Engineering Design Centre (EDC) created several methodological influences. In this community, holistic approaches are favoured, research is often influenced by multiple disciplines and a systems approach is widely used. Indeed, the EDC has been at the centre of mapping (Günay et al., 2021), reviewing (Komashie et al., 2021) and applying (Clarkson et al., 2017) a systems engineering approach to real world problems like healthcare.

Cross-disciplinary studies are common in the EDC and its scholars haved progressed ways of blending methods to achieve a more complete picture such as graphic elicitation in interviews (Crilly, Blackwell, & Clarkson, 2006), classification of uncertainty in system design (Wynn, Grebici, & Clarkson, 2011) and the use of models in system design (Jun, Ward, & Clarkson, 2010; D. Wynn & Clarkson, 2005). There is no doubt that this philosophy and toolkit has influenced this research.

It is acknowledged that, "[Choice of research methods] is also very much about style. The architect's own preferences and ideas (whether innovative or solidly traditional) and the stylistic preferences of those who pay for the work and have to live with the finished result [are key]" (Hakim, 1987, p. 4). Hence the researcher's background in

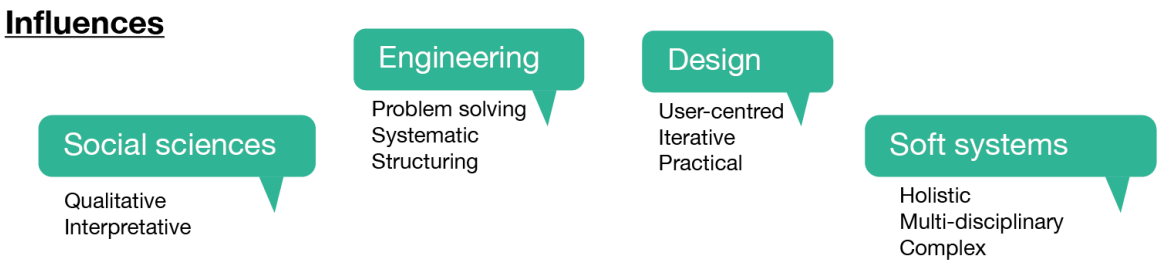
organisational systems also contributed to the choice of using a systems approach to structure this holistic study of meetings.

3.2 Defining the research approach

The literature review chapter established that many studies of meetings are characterised by a narrow boundary of interest and there is both a dominance of variance theory and a homogenisation of meetings types in these studies. It went on to make a case for studying meetings more holistically, using systems-based methods and aiming to generate a conceptual framework to visualise the findings and aid systemic meeting design.

In this section, the high-level methodological choices are explained from which the specific methods in studies 1, 2 and 3 (outlined in each study chapter) are derived.

Figure 2 shows how disciplines, approaches and methodologies have helped shape a coherent pathway through the enquiry. The major choices are highlighted and described in this section. Later in this chapter, each choice is unpacked and justified in more detail, including an overview of other candidate options.



Choices

Epistomology:	Pragmatism
Overarching research framework:	Design Research Methodology
Methods and tools inspired by:	Systems thinking Soft Systems Methodology (SSM) Grounded Theory Contextual Inquiry Graphic Elicitation
Contribution type:	Theory building

Figure 2: *Summary of the research approach and its influences*

Given the location of the study within in a community of academics spanning multiple disciplines, it was natural that the research would be influenced by exposure to some of their shared key communities, specifically social sciences, engineering, design and soft systems. This combination of influences is used powerfully by researchers to ally the structure and solution orientation of an engineering mindset with the user-focused nature of the design research community and the ability of social sciences to address complexity. Soft systems methods complement all three of these broader communities and form a neat intersecting discipline drawing together structure, holism, pragmatism and complexity.

The dominant philosophy of this research is pragmatism, chosen for its focus on outcomes, consequences and problem solving. The engineering design community provided an overarching framework within which to locate this study, specifically, the Design Research Methodology (DRM), chosen for its ability to structure design-led research, though this is a theory-building rather than a tool-building study.

A systems approach was chosen for its ability to provide structure and language to an open-ended study. Study design (in particular, data collection and analysis methods) was influenced by a range of systems and social sciences related approaches. The first is Soft Systems Methodology, which proposes a systematic and systemic approach to complex, messy organisational problems. In particular, its rich picture creation was adopted as a key technique to gain member validation on the emerging analysis. However, the studies do not seek to provide an intervention to solve the problem but instead to develop a theory from which ultimately interventions might be derived. For this reason, elements of Grounded Theory were used to help develop a theoretic contribution. Both methodologies share an iterative, recursive approach involving both inductive and abductive thinking. Contextual inquiry and graphic elicitation were key methods in eliciting the data to support development of a theoretical conceptual framework.

The specific methods used in each of the three studies are explained in more detail at the beginning of each of the three study chapters. In the remainder of this section, these choices are justified in more detail. In chapter 7, the approach in figure 2 is discussed and its value and limitations are reviewed in the context of the existing literature.

3.2.1 The epistemological position of this research is pragmatism

At the highest level, this research is grounded in a pragmatist view of the world, not least because it considers meetings as part of a complex system in which neither a reductionist nor a constructivist approach are useful philosophies to adopt in their entirety (Luhman & Boje, 2001). Rather than debating the nature of truth and reality, the starting point for this research is that life is inherently contextual, emotional and social (Dewey, 1938) and the process for discovery is inquiry. This research focuses on actions and consequences and considers 'what works' as the truth regarding the research questions under investigation (Tashakkori & Teddlie, 2003). It accepts that in an observational, descriptive study of this kind, all narratives are constructed but are not arbitrary.

This study asks more open-ended questions than those posed in the majority of studies of meetings, exploring actions and consequences in relation to each other, and searching for patterns or some kind of order that helps us understand meetings more holistically. Pragmatism's strong problem-solving framework provides a natural home for a study of work-based phenomena; however there are limitations to this approach including lack of precision (Tashakkori & Teddlie, 2003) and a focus on research questions and problems at the expense of philosophical debate and alignment (Glogowska, 2011; McCready, 2010; Onwuegbuzie et al., 2009), which will be discussed at the end of chapter 7.

3.2.2 The study is located within an organising framework: the Design Research Methodology

Approaching meetings as an unsolved complex problem requires a problem-structuring method, suited for complex human settings. One such framework is the Design Research Methodology (DRM), depicted in figure 3, which was chosen to help situate these studies in a wider framework (Chakrabarti & Blessing, 2009).

For many decades, scholars had no unifying or evidence-based method for approaching design research. This framework was established to address that gap. It accommodates a variety of research methods under a common standard of quality, rigour and structure, to direct choices of specific methods and to enable development of a strong argument. The DRM has since been widely adopted and is used here as an overarching structure for the individual studies. The methodology comprises four stages: Research Clarification (RC),

Descriptive Study I (DSI), Prescriptive Study (PS) and Descriptive Study II (PS-II). These stages provide a sequential grouping of activities where, after establishing the case for the study, inquiry (descriptive stages) is alternated with testing of solutions (prescriptive stages).

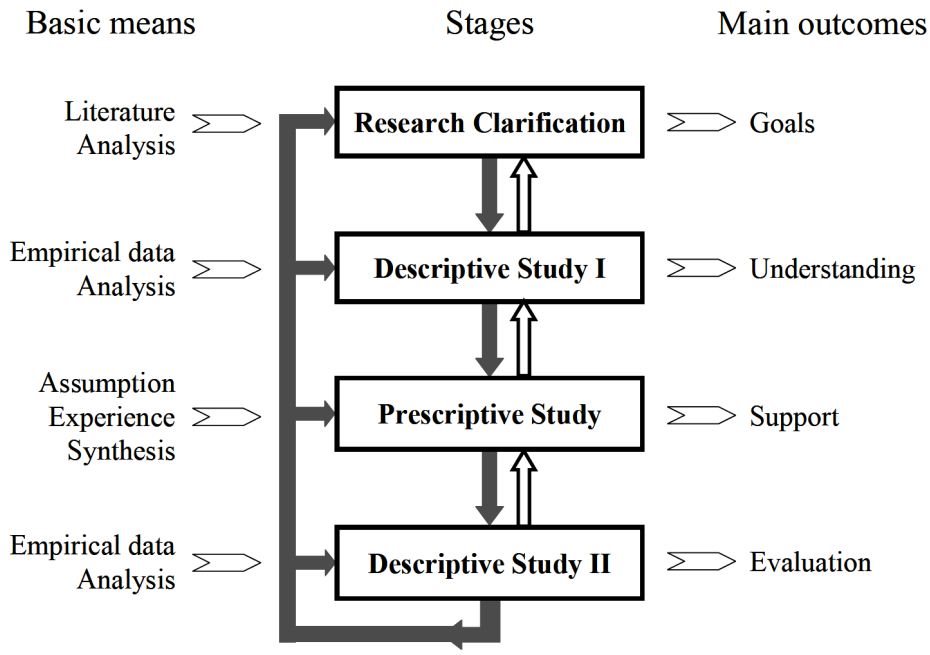


Figure 3: *The Design Research Framework, copyright © 2009, Springer London. Reproduced with permission.*

The DRM itself depicts one complete cycle but a study could include multiple alternations between descriptive and prescriptive stages or could simply focus on single stages, leaving the remaining stages for a future research project. The DRM may not satisfy the most purist of research scholars, but it emerges directly from the design research community as a solution for this type of practical research problem. It accommodates a variety of methods and allowed identification of a perceived deficit which had relevance to a real-world problem and was worthy of sharing with others. The resulting research is a constrained, bounded view of meetings set against a question to which people want to know the answer – specifically, how might meetings be understood more holistically in order to design them more systemically?

Other candidate frameworks and how they relate to the DRM

There are a number of other frameworks for structuring design problems, one of the most common being the Design Council's Double Diamond (figure 4), which comprises two distinct phases - diverging and converging - that expresses the iterative nature of the design process (Design Council, 2007). This model emphasises the early discovery phase, also known as the fuzzy front end (FFE), which involves understanding the nature of the problem to be addressed (Rhea, 2003).

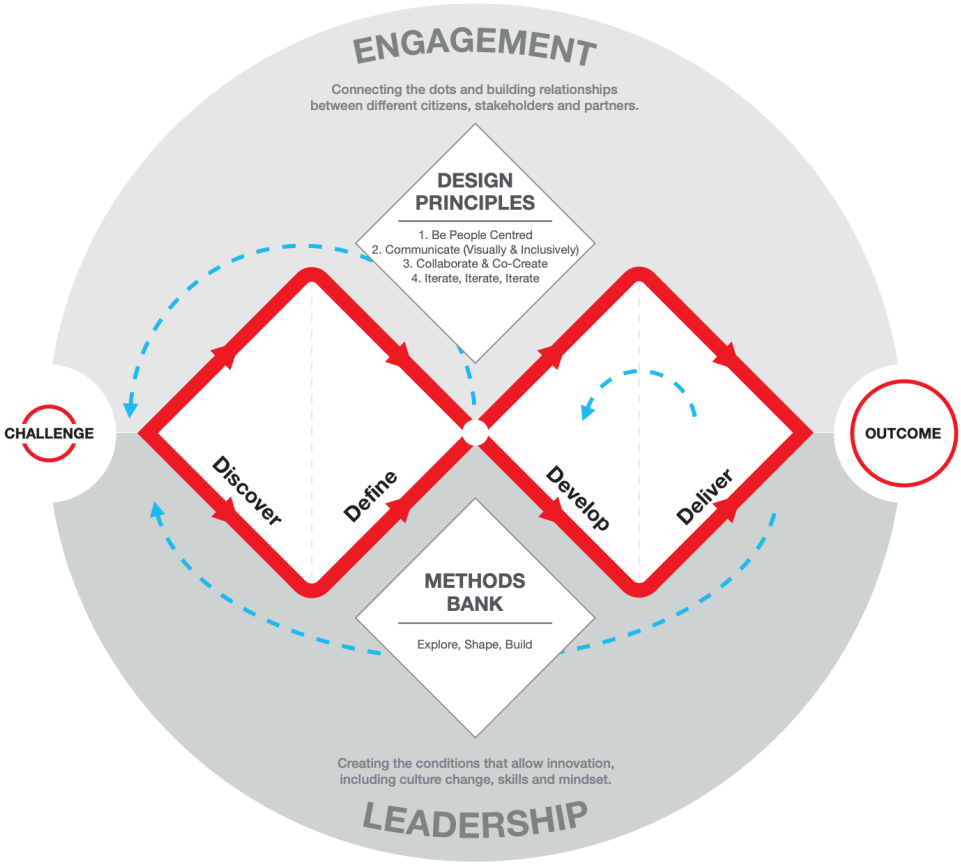


Figure 4: *The Design Council Double Diamond - www.designcouncil.org.uk. Reproduced with permission.*

The Double Diamond shares some common features with the DRM, the most obvious being the structured approach in which it moves through divergent and convergent phases. Both the DRM and the Double Diamond place emphasis on fully exploring the problem space before commencing design of a solution. However, the Double Diamond provides far less detail, structure and guidance than the DRM.

Strategic Options Development and Analysis was another guiding framework considered as a problem-structuring method for this research in which a picture is generated using the natural language of the problem situation to help explore options and ramifications (Ackermann & Eden, 2010). An alternative to both the DRM and Checkland & Scholes' Soft Systems Methodology (1990), was not used for two reasons: its focus on decision-making, which was a step further than this research wished to travel, and the rigidity of its methods.

A further candidate for an overarching framework comes from soft systems researcher, Vickers, who argued for a non-linear framework of system design which he called Appreciative Systems (1968). The use of the word 'appreciation' refers to the mental activity of attaching meaning to communication and is one of the ways humans modify and are modified by the setting (or system). With this view of systems, he proposes a circular alternative to the linear, causal chains characterised by goal-setting and goal-seeking, which systems thinking tends to favour. This non-linear thinking is adopted in this research and the DRM is considered fluid and iterative rather than rigid and analogue.

How the DRM is applied in this study

The DRM was chosen for its ability to host and direct a flexible choice of methods. However, one key challenge in studies of meetings is elusiveness of tangible or complete measurement of success. The full DRM methodology hinges on a clear measure of success and comprises multiple categories and a specific language which applies better to a narrower lens of study. For these reasons, the DRM remains an overarching methodology, but data collection and analysis methods were based on a flexible toolkit, the two largest sources being Soft Systems Methodology and Grounded Theory. The circular nature of Vickers' work (1968) also influences the methodology, since no studies or stages of the research were strictly bolted into place in a sequential order.

This is a qualitative study

Having identified in chapter 2 that meetings are often studied in isolation, qualitative methods were chosen as the most appropriate way to study meeting more holistically. They provide a more naturalistic approach to the world, allow us to convert complexity

into a series of representations and attempt to bring meaning to described experiences (Denzin & Lincoln, 2005).

This research is inherently qualitative, in recognition that the data collection is not a linear, locked down process. Qualitative data collection allows for a systematic, iterative cycle of collecting data, learning and modifying the picture. This includes a cycle of iterating the data collection techniques over time by planning, delivering and reviewing the research and then going back and improving the methods (Deming, 1986).

A qualitative study of this type is limited by both researcher and participant bias. It is further limited by the labour-intensive nature of data collection, difficulties in replicating studies and its lack of suitability for establishing causal links (Denzin & Lincoln, 2005). These limitations are covered in a comprehensive discussion of the overall limitations of this research at the end of chapter 7.

However, it is important to address researcher bias early, as a key limitation to this type of research. For a practitioner-turned researcher, a unique set of personal experiences, an inherited worldview and potentially a political motivation around the research exert influences. These influences are both visible and invisible. The data collected in this research were formed from accounts shared with and, in part, co-created by the researcher (Sharmaz, 2006).

There are two further ways in which the researcher's experiences and motivation might shape both the data created and their interpretation. Firstly, the researcher has more experience of informal meetings within smaller businesses and less experience of highly formal, structured meetings. Secondly, their previous career investment in designing and facilitating meetings, leads to certain perceptions of what works and what does not. The search for more holistic ways to understand meetings and design them systemically drives the motivation for this research. Previous experiences inevitably shape the questions asked and the way answers are interpreted.

Bias is specifically addressed in the method descriptions in each study's chapter, but the overall approach to researcher bias is addressed here. The researcher's voice contributes to every part of these studies. It has value in framing useful questions and shaping the evolving approach to data collection and interpretation. It also facilitates a safe space in which participants are comfortable sharing their thoughts and experiences more deeply

and with greater self-awareness. However, it potentially slants questions based on motivation, missing out other questions entirely and viewing insights through a single lens. For these reasons, the researcher voice is carefully scrutinised but also treated as a valuable interpretive resource, rather than a contaminate to be eliminated (O'Rourke & Pitt, 2007; Speer & Hutchby, 2003).

Care is taken in data collection to define what data are collected, and how they are noted and packaged for analysis. Deploying scepticism and deliberately holding the researcher, as primary adjudicator of what would be considered evidence in this research, open to possible disconfirmation of findings, was particularly important in a theory-building study which crossed over with personal experiences both as a meeting host and attendee but also as a professional problem solver in this space. As all three studies include a degree of interpretivism, the validity focuses on confidence or the degree to which the findings are plausible, relevant and important (Hammersley, 1995).

Three acts of deliberate reflexivity are also used to scrutinise the 'leaps in thinking' made, including a testing of assumptions through observation of a sample of meetings, re-analysis of the raw data by a secondary coder and also by testing ideas and early pictures with participants. All are described in detail in study 2 (chapter 5).

3.2.3 This is a theory-building study

These studies build on each other, culminating in the search for a picture which captures the underpinning systems mechanisms of meetings to aid systemic meeting design.

Drawing on Luhmann's description of systems as constructs of reduced complexity, forming one side of a complexity differential with the environment around them (1995), this study aims to address the complexity of both meetings and the systems of which they are part, through a theoretical construct. Systems are themselves models and an exploration of science reveals a succession of models by which systems have been explored and explained (Meadows, 1957). The case for studying meetings using a systems approach will be made more fully in the next section.

This series of studies is not designed to deliver probabilistic predictability (Cook & Campbell, 1979; Kerlinger & Lee, 2000) but instead to explain processes and sequences of events (DiMaggio, 1995; Mohr, 1982). It's also designed to provide a linguistic hook

for organising the complexity of the empirical world (Bacharach, 1989) and to provide an educational device that can raise consciousness about a specific set of concepts (Brief et al., 1991) about meetings.

Any model-pattern analysis creates possibilities but also limitations, some recognised and some inevitably overlooked (Meadows, 1957). These limitations will be highlighted in study 2 (chapter 5) and discussed fully in chapter 7.

3.2.4 The study uses a systems approach

This research uses a holistic approach to move towards the "scientific exploration of wholes or wholeness" (von Bertalanffy, 1969, p. 30) in meetings. Bertalanffy is, of course, describing a systems approach which helps to structure holistic studies, like this one. Checkland describes a system as an "adaptive whole, which can survive as its environment may change and deliver shocks to it. In such a whole, each functional part will be properly linked to others, and appropriate information will be continuously available to enable adaptation to take place" (Checkland, 2012, p. 466).

A further definition derived from the Cambridge University Engineering department, the Engineering Design Centre, observes that, "A true systems approach then combines consideration of people, systems, design and risk in an ordered and well-executed manner to ensure that improvement is driven by clear and agreed goals, is systematic, holistic and inclusive, is supported by trustworthy evidence and is sustainable" (Clarkson et al., 2017, p. 38). More simply, Laszlo defines systems as "natural wholes with irreducible properties" (Laszlo, 1996, p. 25).

The systems literature is well-developed, shaped and matured by disciplines as diverse as biology, psychology and cybernetics (Mingers & White, 2010) – a claim made only 18 years after Checkland's own description of the discipline as one that could do better and which is intellectually primitive (1992). It is a discipline which has inevitably fragmented and regrouped over the last century.

A systems approach was chosen for several reasons. Firstly, it provided an effective scaffold for an open-ended study, particularly due to its innate ability to capture interdependencies, nested relationships and embedded phenomena. Another candidate approach was a traditional qualitative route, such as ethnography or phenomenology.

Certainly, there are influences of both these options in the study design, but it was decided that a systems approach provided a more structured and problem-based approach which aligned better with the overall pragmatic philosophy and a desire to address real-world problems as directly as possible.

Secondly, Luhmann describes systems analysis as a forced selection; a reduction of complexity to a lower order than found in the environment, capable of being distinguished from the environment. It is this type of reduction in complexity that this research seeks to achieve to signpost how meetings might be designed more systemically. Finally, the researcher's own research community influenced the choice of a systems approach as a way to apply a familiar toolkit to a new problem. Together, these factors led to the adoption of a systems approach with the aim of creating what Argyris calls actionable knowledge (1993) and Ulrich calls critique heuristics (1983).

A systems approach is used in this study to "bring discipline and precision to the management of the dynamic behavior of a system by seeking relations between the external and internal representations of the system", adding credibility to its appeal as an approach (Walden et al., 2015). The authors expand on this, explaining "if the dynamic flow of behavior … could be mapped coherently … the emergent behaviors could be better understood and managed" (2015, p. 6).

In this research, a systems approach widens the boundaries of study to those related systems meeting hosts can reasonably understand and design for. It zooms out to explore these related systems and how they influence and are influenced by a meeting and then zooms back in, foregrounding the meeting again, looking at what this wider viewfinder tells us about underpinning mechanisms that meetings designers should consider. However, it does not address macro influences such as national culture or demographic or economic trends, nor does it seek to fundamentally address problems in the related systems it identifies (though this could be a valuable future study). It simply addresses how the situated nature of meetings in wider systems can help us improve the understanding of a meeting, such that they can be more systemically designed. There is also no attempt to define a super system, nor to tie up the relationship between meetings and the wider context neatly, answering all questions in one picture.

Meetings: systems or part of systems or both?

When deploying systems thinking, Chen (1975) raises the important question of how researchers identify when they are dealing with the whole problem rather than part of it. Before specifying what is under consideration as a system and whether a meeting is an individual system in its own right, it's important to note that in systems thinking, all systems are mental constructs and none exist in the real world. This research considers meetings as situated *within* such wider systems, while also holding open the possibility that considering the meeting as a system can be valid and helpful.

There are many ways to place the picture frame around meetings, each of which reveals different insights and makes different assumptions. The starting point for this research is Ackoff's (1974) conception shifting method of zooming out until a solution appears (or in this case, until new knowledge appears). This is in parallel with Dewey's much earlier work on 'synthesis', the antithesis to reductionist thinking in which the whole is taken apart to describe the impact of the parts on the whole, stripping away context (1938). Both reflect and align with this study's use of a practical, systems-based methodology to address a complex and socially-constructed problem.

A summary of the rationale for using a systems approach

A systems approach provides a powerful language with which to structure this research as it recognises and handles interconnectivity which is a pre-requisite for knowing whether an intervention you design for a system will 'work' or not (Churchman, 1979; Ulrich, 1983). The objective is to use a systems approach to create a more holistic understanding of meetings and to present this knowledge such that it can be tested, developed or used.

Understanding a complex system, however, has limitations and "such complete understanding, however, is reserved for a God" (Jackson, 2006, p. 651). The most challenging part of this research is the sheer breadth of scope requiring a strong systems-based problem structuring method in order to yield meaningful and useful insight. The lack of holistic studies of meetings means that this research needed develop its own methodology. A systems approach is a logical starting point, providing a path and a language with which to engage with this practical challenge.

3.3 Introduction to the three studies in this research

This research is made up of three studies, summarised in figure 5 and described in more detail below.

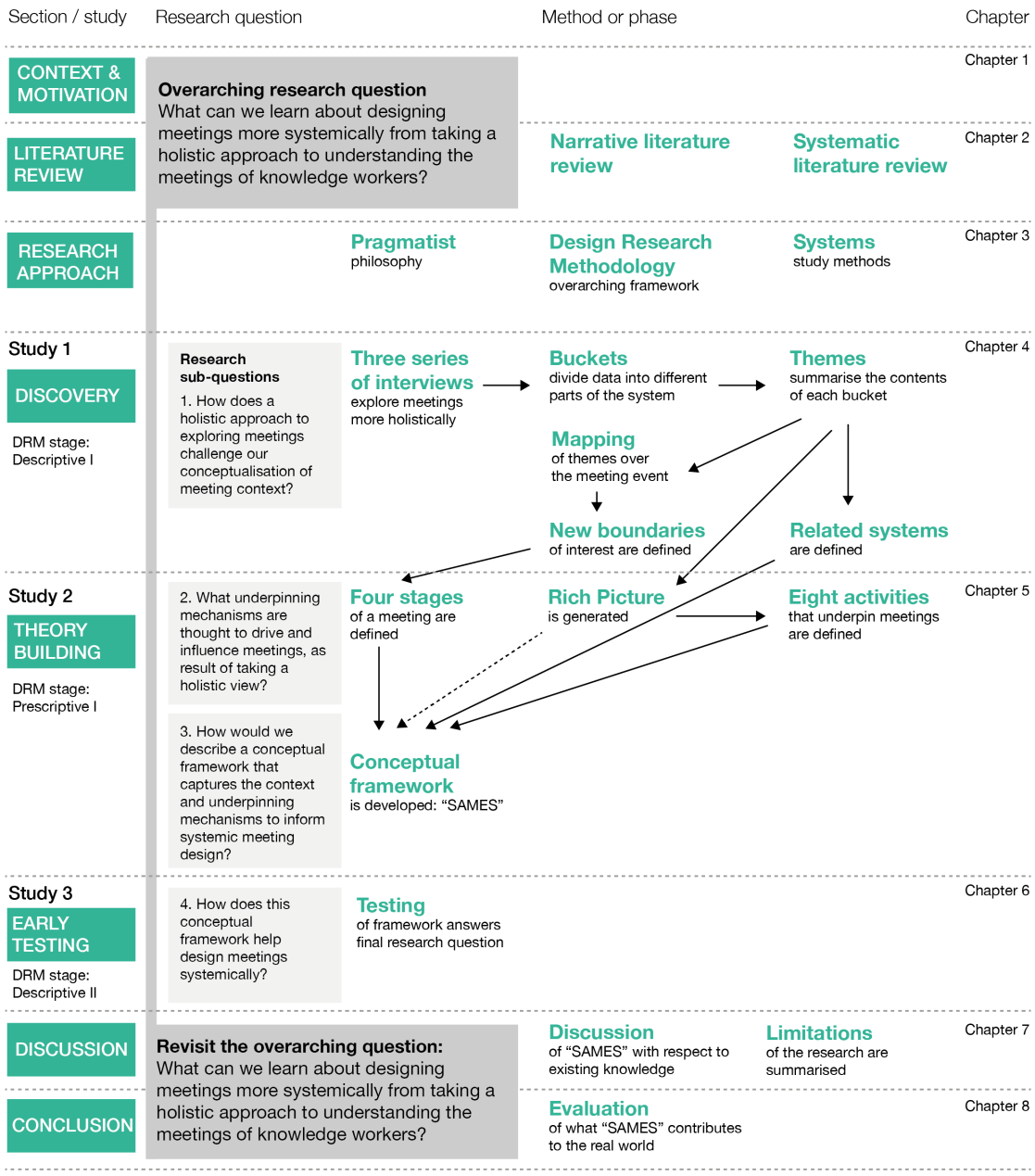


Figure 5: *How the three studies answer the research questions*

Study 1 is an open-ended discovery study situated at the most uncertain stage and forming the Descriptive I phase in the DRM, and addresses the first research sub-question:

1. *How does a holistic approach to exploring meetings challenge the conceptualisation of meeting context?*

In study 1, interviews start by addressing the unit of the meeting and then zoom out further, allowing interviewees to describe as much context as is relevant. This enables evaluation of how far studies of meetings might need to zoom out "until new knowledge and understanding appears" (Dewey, 1938).

Using a systems lexicon (which is defined in the next section), the study groups the inputs, transformations, outputs, constraints and processes of communication of interest that can be observed from the three types of interviews. Interview data are divided into 'buckets' to make comments about the same part of the system accessible together. Study 1 themes comments within each system 'bucket' and maps them onto the current boundary of most studies of meetings. This mapping enables placement of a new, wider boundary of interest, based on the findings from this holistic study. The key related systems of interest and how they contribute are also proposed.

Study 2 shifts into a solution space (Prescriptive I in the DRM). At this point, the research zooms back to the meeting itself and seeks to identify what is happening below the surface of a meeting that help explain the observations in study 1 to address research question 2.

2. *What underpinning mechanisms are thought to drive and influence meetings, as a result of taking a holistic view?*

The underlying mechanisms are mapped visually to propose a plausible, holistic conceptual framework (or model) and address the third research sub-question.

3. *How could a conceptual framework be described that captures the context and underpinning mechanisms to inform systemic meeting design?*

Study 3 assesses ecological validity of the conceptual framework through light trialling of the model in the real world. This study is a Descriptive II study in the DRM and addresses the final research sub-question which seeks to discern how useful the conceptual framework is for enabling meetings to be designed more systemically.

4. *How does this conceptual framework help meeting design be more systemic?*

In view of the fact that the research approach is to explore a new, broader lens on meetings, it seemed most helpful to complete an entire iteration cycle of discovery, conceptual framework (theory) development and early verification in the real world. The alignment of this study with a pragmatist approach directs attention to 'what works'. To determine whether a conceptual framework developed through a holistic, systems approach would 'work' it was necessary not only to test its face validity with members but also to allow the model to make contact with the real world in some way. Study 3, which focuses on early verification, stops short of any form of theory testing or validation but it does provide an early indication not only of whether participants *perceive* the model to be accurate or useful but also whether it is *actually* accurate or useful in the real world.

Choosing to complete a full iteration cycle limits the depth and granularity of the three studies. This limitation was considered a worthwhile trade-off in service of producing as complete a conceptual framework as possible to create a new holistic view, accepting that this conceptual model may need considerable further validation and improvement. The objective was to discover and locate a sufficiently robust conceptual framework to judge how useful a holistic and systems-led approach would be, before attempting to work at more granular detail.

3.3.1 Defining a systems lexicon to use for this research

This research acknowledges that the language of a systems approach can be problematic, with no universally agreed lexicon. In fact, Koestler (1970) makes the case for referring to a 'holon' rather than a 'system' because, according to Checkland (1992), the word system has been conceded "to everyday language where it is now so shop-soiled that we shall never recover it as a useful technical term" (p. 1026). Words such as system, inputs, transformations and outputs can hold different meanings for different research communities and in different research papers.

There are a range of systems lexicons, which overlap but do not neatly map or nest. In his book titled *Organisations*, Litterer (1963) uses the terms holism, goal seeking, inputs and outputs, transformation, entropy, regulation, hierarchy, differentiation and equi-finality. De Greene's book *Systems Psychology* (1970) adopts a different set: components, hierarchy, interactions, emergent properties and boundary.

Others distinguish between language which describes what a system is (form) and what it does (function) such as Crawley, Cameron and Selva's *Systems Architecture* (2016). Gero (1990) makes a similar distinction but between purpose (described as function), attributes (described as behaviour) and structure (described as components and relationships).

In these studies, a simplified lexicon is used to study the core components of meetings as situated in wider systems:

- **System** is used to refer to a layered structure of inter-relationships. **Related systems** are distinguished and make up this layering.
- System **behaviour** is subdivided into **inputs**, **transformations** and **outputs**.
- **Constraints** describe anything that limits or warps the system's behaviour.
- **Processes of communication** are the ways in which positive or negative feedback is communicated through the system.

This list is incomplete and non-exhaustive, but it provides a sufficiently simple lexicon against which a large volume of data can be collected, analysed and interpreted in the time available. This list is defined in more detail, in the first instance of its use in study 1.

3.4 Validity, generalisability and ethics

In this section, the overall approach to validity of data and ethical considerations are explained. Sampling is addressed in each study methods section.

3.4.1 Approach to validity

Defining validity in this type of research is challenging where data are subjective and samples are not statistically representative of a wider population. The three studies are not intended to create any kind of probabilistic predictability (Cook & Campbell, 1979; Kerlinger & Lee, 2000) but instead to offer a possible explanation for sequences of events (DiMaggio, 1995; Mohr, 1982). The resulting conceptual framework is not intended to create an accurate representation of the real world (Bacharach, 1989) but to reduce the complexity of the real world to a shared set of concepts between meeting scholars, which

has the potential to raise consciousness of new and previously under-addressed relationships and processes (Brief et al., 1991).

These studies stop well short of action research, such as studies described by Kurt Lewin (1946) in which the researcher becomes part of both the problem space and the solution space. Even in Soft Systems Methodology, an action research method from which these studies draw inspiration, it's equally possible to use without the researcher entering the problem situation as a participant with shared accountability for solving the problem. To allow the study of many different meetings from different organisations, the researcher remained outside of the direct problem-solving space, whilst acknowledging that their presence was an influence on both how problems are defined and how solutions are considered and chosen.

The repeatability of the study is a central concern in this research, not to check whether the findings are reproduceable, but to provide a sufficiently detailed account that the reader can judge whether the sequence of methods was appropriate and likely to generate reliable findings – in other words, its recoverability. Checkland (1992) explains that a "sharply defined action research methodology, with recoverability of the research story [is] the best available validity criterion, allowing coherent discussion of both the course of the thinking during the research and its results" (p. 469).

For this reason, as detailed and logical an account as possible is provided for each study. However, it is acknowledged that there are stages of interpretation where the researcher made connections and judgments which would not be easy to replicate, however faithfully they are described. As all three studies include a degree of interpretivism, the validity focuses on 'confidence' or the degree to which the findings are plausible, relevant and important (Hammersley, 1995).

3.4.2 Generalisability

It is not the intention of this research to completely and emphatically solve a single identified problem. The problem with meetings is not fully understood. So, the research that follows is seen as a 'nibble' at this bigger problem and one which might encourage future 'nibbles' in the right direction. There is no attempt to claim law-like

generalisability vased on a replicable statistical analysis, but face validity is certainly sought.

3.4.3 Ethics

There are a range of ethical issues to consider regarding the proposed study in order to safeguard participants and their data. It's important that "critical systems researchers […] should ask, as part of their project, who benefits from the knowledge and advice provided?" and that "ethical issues are put firmly on the agenda" (Jackson, 2001, p. 243).

The ethical issues under consideration

As this research was conducted in a naturalised setting which asked interviewees to review their experiences and comment on the behaviour of their peers, there were multiple important ethical considerations to note and manage.

It was not a requirement of any part of the methodology that participants judge or evaluate their colleagues' performance. However, participants sometimes found they strayed into talking about people and personalities. They may have felt concerned about this or worried that their colleagues might discover what they had said.

The methodology did not use the actual content of the meetings of interest, for example, the commercial or technical detail being discussed. However, it was impossible to separate all content meeting data, either when recording or observing the meeting.

A systems-based methodology dictates looking at a system as a whole and Soft Systems Methodology has a preference for complete data, with no important perspectives remaining invisible (Checkland & Scholes, 1990). However, it was important that clear consent was given explicitly and deliberately by each individual and not at team or organisation level and that there was no perceived disadvantage or harm resulting from not participating.

Given the relatively small numbers of participants in a single team, it was impossible to guarantee that one colleague couldn't recognise or guess at the contribution of another. It was also not possible to conceal every detail of an organisation such that no one could guess its identity based on basic parameters, for example size or industry.

Although the process was designed to be completely anonymous, if a participant revealed something during the data collection that was illegal or could lead to harm (to themselves or others), the researcher had a duty of care to share this with others.

Diagrams and models are not neutral. They can be perceived to criticise, stigmatise or trivialise people and things that are important to people. As a form of Foucault's 'technology of representation', they may be seen to encode or impose a power structure (Sheridan, 1980). In turn, this might create new realities, entrench unwanted current realities or create worry or distress among the participants.

Description of measures to ensure the research is conducted ethically

The following measures were undertaken to address the ethical issues above.

A participant information sheet and consent form were provided before the data collection. Consent was provided electronically via email and was personal. The participant information sheet explained the process and the associated identified risks, including emphasising that:

- Consent is entirely voluntary and can be revoked at any time, including during an interview or observation without giving a reason
- All data will be anonymised and project content redacted, making individual contributions confidential as far as possible
- Participants can request their data be deleted at any time
- The study does not require the participants to share any sensitive information about projects or colleagues and is not seeking to elicit value judgments.

No personal data was shared or stored in services located outside the EEA. The Data Protection Act was fully consulted together with the additional guidance offered to university staff on information compliance. Data was stored in Google Drive where only the researcher had password access, with scheduled deletion of all data five years after the completion of the thesis.

The organisation names, individual names and meeting names were represented in all written and spoken material by codes e.g., P1.4, with the only link to real names held in one password protected online spreadsheet. As most of the interviews and observation

took place on participating company premises or via video call, the Health and Safety responsibilities were low. Local safety procedures were noted and observed. Given that some ethical problems might only emerge after the research had started (Fraser, 2007), ethical considerations were revisited periodically during the studies.

3.5 Summary of research approach

Meetings are a three-stranded unsolved problem in which valuable organisational resources are consumed on events that scholars agree are important to an organisation's success, but which fall short of participants expectations in terms of process, outcomes and perceived value of time spent.

The literature review made the case for plurality of meetings study methods and framed a more holistic study that treats meetings as complex, embedded events. A lack of theoretical contributions in meeting science to date was noted and a study was established aiming to address these gaps, in search of a breakthrough in understanding what mechanisms underpin meetings and aid systemic meeting design.

The research paradigm chosen was a pragmatist approach and a hierarchy of complementary methodologies was selected that was appropriate for handling complexity, provided a balance of structure and flexibility and encouraged iteration and adaption as more was learnt through the research. The overarching framework is the Design Research Methodology, used to anchor the three studies in an established, phasic approach and techniques were inspired by Soft Systems Methodology and Grounded Theory. Detailed methods will be explained in each upcoming study chapter.

4 Study 1: Exploring meetings holistically

Study 1 is the discovery phase of this research in which meetings are explored holistically through a zoomed-out lens in service of designing them more systemically. Study 1 is a 'discovery' phase in which the first research sub-question is addressed. Specifically, this chapter captures data inputs, transformations, outputs, constraints and processes of communication via in-depth interviews, inviting participants to consider meetings as embedded in wider systems. It themes these data and uses these insights to explore the context surrounding meetings, proposing new boundaries of interest and a list of related systems.

In study 2 (chapter 5), the findings of study 1 are used to develop a theory on the stages and underpinning mechanisms of a meeting when viewed as embedded in wider systems. This theory is then pictured in a conceptual framework. In reality, studies 1 and 2 did not occur in isolation from each other and instead overlapped and communicated in both directions. Although they are treated in the narrative as distinct, each with its own chapter to emphasise the divergent nature of study 1 followed by the convergent nature of study 2, their interdependence is important and is acknowledged where appropriate across both chapters 4 (study 1) and 5 (study 2).

A reminder of how study 1 contributes to answering the overall research question and provides the building blocks for development of the conceptual framework created in study 2 and trialling study 3 is below in figure 6, the visual summary of this research.

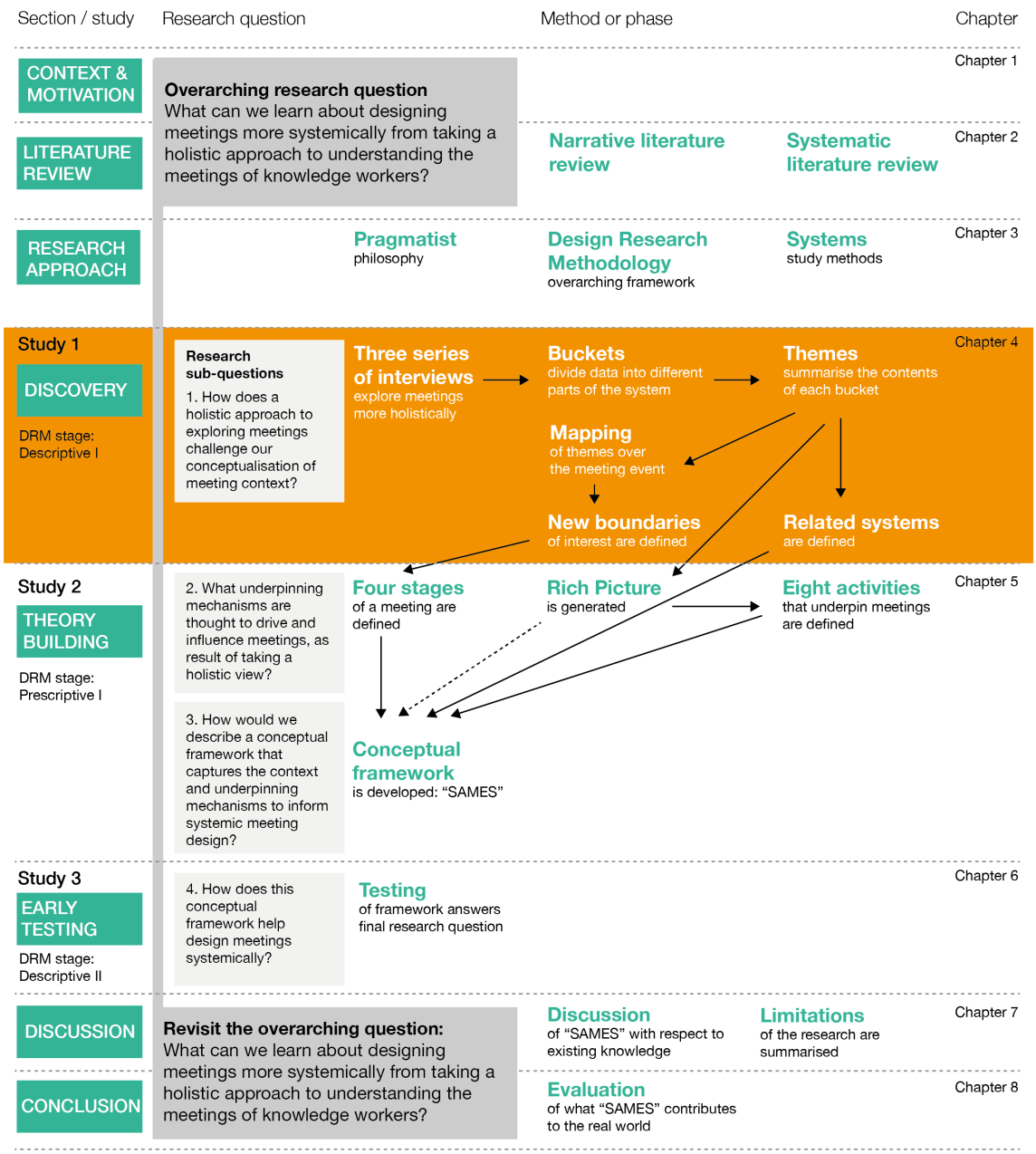


Figure 6: *Summary of how study 1 answers sub-question 1 and relates to the rest of the research*

4.1.1 Early informal pilot studies

Before beginning the three studies, a series of informal scoping studies were conducted at the stage when there were many possible candidate research methods.

The pilot studies were designed to meet the following objectives:

- Test candidate methods of data collection
- Test the idea of extending the boundary of study
- Explore the extent of the perceived participation burden on teams and individuals
- Evaluate potential biases, for example the impact of a researcher observing a meeting
- Gain personal experience of key elements of the methodology, reflect on capability as a researcher and identify improvements
- Test the assumption that organisations that express interest in participating are able to commit to participation in practice.

Two data collection techniques were trialled: interviews and observation. Reflection notes were also made, to trial the process of self-inquiry on interpretation and bias. The focus of the data collection was exploring meeting experiences through an informal systems lens and their relationship to events and processes outside the meeting. The pilot study was limited in scope to three teams from separate organisations, each providing access to observe a single meeting and allowing interviews to take place before and after.

Interviews were not structured using any kind of systems language or methods but simply sought to take a more holistic view, through questions which encouraged interviewees to reflect on issues wider than the meeting itself. Data collected during the interviews were open ended, aiming to probe what events and processes might be of interest and how easy they might be to observe or for interviewees to articulate. The interview guide is included in Appendix 2 and the interviews were transcribed and then analysed for high level themes.

Three meetings were observed, but not recorded, and both observational and reflexive notes were captured. Observational notes included recording:

- Mentions, direct or indirect, to wider systems
- Mentions related to inputs, transformations and outputs
- Mentions related to constraints and processes of communication

Reflexive note taking included revisiting the observational notes and responding to the following questions:

- What assumptions and worldviews did the researcher bring to this interview and observation?
- In what ways did the researcher contribute to the data created?
- How might another researcher, who was not present, interpret these data?

The findings of the first pilot study, including how this contributed to the design of study 1, are as follows.

Interview data were found to be useful and provide rich early insights into the nature of meetings as embedded in wider systems. However, it became clear that the interview guide was too general and too short, creating scattered data, and that a more structured format, using tools such as prompts, might elicit more useful responses.

Observation also yielded interesting data though, due to the large volume of data generated, designing a repeatable method for collecting comparable data proved challenging. It was decided that observation would be used as an early stage check of any theory against the real world, rather than a primary data source in its own right.

Active reflexivity conducted post-interview and post-observation provided mixed insights. Extensive care had been taken to neutralise the researcher's impact on the data collected, other than to provide a safe space in which interviewees could share their experiences honestly. Reflexivity revealed researcher contribution to data through the use of follow-up questions beyond the initial interview questions, driven largely by curiosity at this early, open stage of the research. Although this provided some interesting insights which were helpful at the pilot stage, sticking to the interview guide was noted as an improvement for study 1.

Part of the technique for creating a safe space in interviews was to use active listening techniques to encourage interviewees to feel their experiences were valid and valuable. Empathy was used in all interviews, but self-reflection exposed that sometimes the researcher was somewhat colluding with the interviewee's characterisation of heroes or villains in their responses, thereby 'joining the story' and potentially shaping the direction it took. Accepting that these internal narratives are a common human response, great care

was taken in the study 1 interviews to actively refrain from 'joining the story'. At the analysis stage two helpful routes were taken. Firstly, once statements were separated from their interview transcript and some time had passed, it was often hard to recall the interview they were part of, providing a more neutral lens through which to code the data. A second helpful route was to re-examine each interview script, again after some time had passed, and reconsider the narrative that emerged. For study 1, it was decided that simple reflection notes would be made after each interview with any earlier reflections on the interviewee's narrative versus the researcher's own. These data were incorporated into the analysis phase and used to 'hear' the researcher's voice in the findings, enabling choices about how to interpret each narrative.

The pilot confirmed that widening the boundary of study yielded many interesting themes and threads relating to external influences on each meeting, and early pointers towards the significant related systems in which meetings might be embedded. However, the findings indicated that if a picture of the system was to be drawn, the interviews might need to be more structured as participants mostly think of meetings in isolated units. This influenced the design of the study 1 semi-structured interviews.

4.2 Study 1 methods

Drawing from the literature review in chapter 2, the limitations in the meeting science literature that the methods in this study were designed to address include narrow boundaries of study, a lack of methodological diversity (and, specifically, methods suited to holism and addressing complexity) and few pictures or theories to consolidate knowledge. The overarching structure used to scaffold these studies is the Design Research Methodology (DRM). Within each DRM stage, a flexible range of methods inspired by Soft Systems Methodology and Grounded Theory were used to elicit novel and practical insights.

Three overlapping types of in-depth interviews were chosen as the core method to provide this set of previously unrecorded narrative accounts. Interviews serve both a practical and human-centred approach but also enable the elicitation of a much richer, deeper narrative account that appears to be missing in the body of literature to date. They directly address the lack of methodological diversity in studies of meetings by probing underlying issues and exploring inter-relationships between factors.

In this section, the rationale for the choice of methods is discussed including a summary of the trade-offs accepted.

4.2.1 The research questions

As a reminder, the research questions under consideration are as follows.

The overarching research question

> *What can be learnt about designing meetings systemically from taking a holistic approach to understanding the meetings of knowledge workers?*

Research sub-question 1

> *How does a holistic approach to exploring meetings challenge the conceptualisation of meeting context?*

This first sub-question focuses study 1 on the extent to which a holistic approach addresses some of the limitations discovered in the literature. A systems toolkit contributes rigour to this divergent discovery phase. It is important to note that structuring the problem through a systems approach means deliberately introducing constructs which do not exist in reality, in this case using a system lexicon to collect and organise data.

The following study is designed to answer research question 1 and to create data which help answer sub-questions 2 and 3 in the next chapter.

4.2.2 How attempts to gain access to participants shaped study 1 methods

The original study 1 design focused at team/project level, interviewing all team members in order to examine the role of meetings in achieving their team objectives**,** comparing their differing experiences and mental models of the same meetings and adding researcher meeting observations to the data set for additional comparison. The study would cover three teams in different organisations, each of which would be studied over a period of time.

However, after multiple failed attempts to engage with organisations, it became clear that it was difficult to gain agreement from individuals and organisations to allow this type of study to take place. Although organisations were keen to take part, they could not find a

team and a series of meetings they were happy to submit for recording and observation, highlighting the sensitive nature of the study.

This led to a transition of the discovery phase to stand-alone interviews with individual knowledge workers, which were much easier to secure. The loss of richer data about a small number of teams and the chance to compare the mental models of participants of the same meeting was considered an acceptable trade off against the gain of multiple interviews with individuals from a wider range of organisations. A set of structured and semi-structured elicitation techniques were used in these interviews to capture multiple snapshots of individuals' experiences and to address complexity and interdependence.

A questionnaire-based study was ruled out, given that this study was specifically seeking to provide an alternative account to this dominant method in meeting science. Whilst replicating one or more of the self-report questionnaires in correlational studies of meetings *in addition to* in-depth interviews might have provided a useful comparison between findings, this would have taken the study in a different direction and consumed resources on a method comparison study rather than a theory-building study. This could be a possible route for a future study.

Focus groups were discarded as an option, as a group discussion seemed unlikely to elicit the depth of reflection required. It also made it more difficult for participants to reflect fully and speak honestly about colleagues and potentially encouraged overly negative or even overly positive opinions.

One final approach that was considered but discarded was to have another interviewer conduct all the interviews so data were analysed data blind. Although this offered an appealing way to minimise researcher bias, it also minimised the opportunity for the researcher's experience to guide the questions asked and to learn from the real experience of being present in the interview. Instead, chapter 5 explains how another researcher performed their own blind analysis on the original interview data, providing a second interpretation of the data.

The shift to individual interviews represented a significant move away from the original longitudinal case study approach and the resulting limitations are discussed in full in chapter 7.

4.2.3 Data collection methods

Study 1 fits into the Descriptive I stage in the DRM and takes inspiration from some of the early steps in Soft Systems Methodology, specifically expressing the problem and formulating definitions. The discovery phase was an open exploration through different types of interviews, constrained only by the use of the lexicon of a systems approach to shape the questioning. In one set of interviews, the systems lexicon is explicitly used to collect data. In the remaining interviews, it is not mentioned and only used at the data analysis stage.

In this section, the methods and findings are described in more detail in a logical sequence, indicating how the study progressed as data were collected and analysed.

The case for using interviews and implications for bias

Semi-structured interviews were conducted and analysed cyclically, with outputs of early interviews used to inform later interviews though constant comparison, catalysing new types of interviews through theoretical sampling. The rationale for adopting interviews as the core method in this study was to seek deep knowledge and understanding, going beyond what might be visible on the surface, exploring the contextual boundaries of each person's perception and capturing multiple views on the same event (Johnson & Rowlands, 2014). Traditionally viewed as a straight forward and unidimensional view of collecting data, interviews are increasingly seen as more interactionally sensitive and constructive with implications for design, delivery and analysis (Gubrium et al., 2012). The interviewee is no longer seen merely as a repository of data at which the interviewer directs questions. Two main implications of this shift in perspective should be acknowledged and utilised. The first is the relationship between the experiences of the interviewer and those of the interviewee and the second is the availability of richer and more layered data.

This study recognises the interwoven nature of interviewer and interviewees in the creation of data. The experiences of the interviewer prior to conducting this study, as described in the Foreword, shape not only the design of the study but also the way in which the interview design is implemented in each instance, how questions are framed, the reception of the interviewee's responses and what is considered worthy of follow up.

The interviewee's view on what the interview is designed to achieve and the interviewer's perspective is further shaped during the interview based on cues provided by the interviewer, impacting their responses and whether they choose to comply and pacify or to shock, surprise or contradict. Similarly, most interviewees are familiar with interviews like these, conducted by researchers, and actively seek to inquire and interrogate during the interview to better contribute to and even shape the narrative being created. Although the interviewer's intention is to empower the interviewee to tell their own story (Mishler, 1986), nevertheless the narrative is a co-construction between the interviewer and the interviewee, yielding an unpredictable and unrepeatable dataset. For this reason, the interview design in this study focused less on attempting to minimise bias introduced by the interviewer by 'standing apart' from the interview. Instead it embraced active subjectivity and its potential for collaboratively assembling accounts of experience (Holstein & Gubrium, 1995) and discerning together the orderly features of the experience (Gubrium et al., 2012).

Interviewee bias is always present to a degree, distorting interviewees' accounts through recency or recall bias in which certain experiences are over-emphasised based on when or how they happened, and acquiescence bias, in which interviewees provide answers they think the researcher is looking for. The three types of interviews were designed to minimise recency and recall bias by selecting meetings in different ways such as the diary study interview where participants were asked to talk about a sample of meetings determined by certain dates in their diary.

Addressing acquiescence bias was important as some interviewees were previously known to the researcher as a practitioner. Great care was taken to assure participants both in the written information and at interview briefings that there were no right or wrong answers and that the search was for the value neutral mechanisms that underpin meetings. The prior relationships between researcher and interviewees, where they existed created a trustful environment for interviewees to share their real experiences and also to reflect more deeply and provide 'messier' answers than they might have with a researcher who did not have any lived experience of what they were describing. As described in chapter 3, simple reflexive notes were kept after each interview to capture the interviewee's narrative versus as distinct from the researcher's and to provide a richer base for interpretation later.

Sampling

Study 1 used a blend of snowball, convenience and theoretical sampling method (Bhattacherjee, 2012) to seek out participants who:

- Considered themselves knowledge workers defined as mainly using and communicating information for a living (Kelloway & Barling, 2000)
- Were happy to be interviewed and consent to these data being used for the study
- Attended project or task-related meetings
- Could be available for interview within the time constraints.

A high-level guess was made at the outset of exactly how many participants were required to participate. Judgments about final participant numbers, and whether reaching saturation was realistic, were made during the study (Glaser & Strauss, 1967).

In total, 18 participants were recruited for study 1 and completed one or more of three types of qualitative interviews as part of this discovery phase. Each participant was allocated a unique identifying code which is used throughout the findings sections to attribute direct quotes e.g. P1.1. In this notation, P denotes participant. The first number refers to the organisation to which the interviewee belongs and the second number codes the individual. So, participants from the same organisation share the first number and are differentiated by the second number. Figure 7 shows that of the 18 participants, eight completed the Systems Mapping Interview but did not complete either of the second two interview types. Of the remaining ten participants, half completed either the Meeting Reflections Interview or the Diary Study Interviews and half completed both. Figure 7 also shows a roughly 50/50 split between larger and smaller organisations and that a range of sectors were represented.

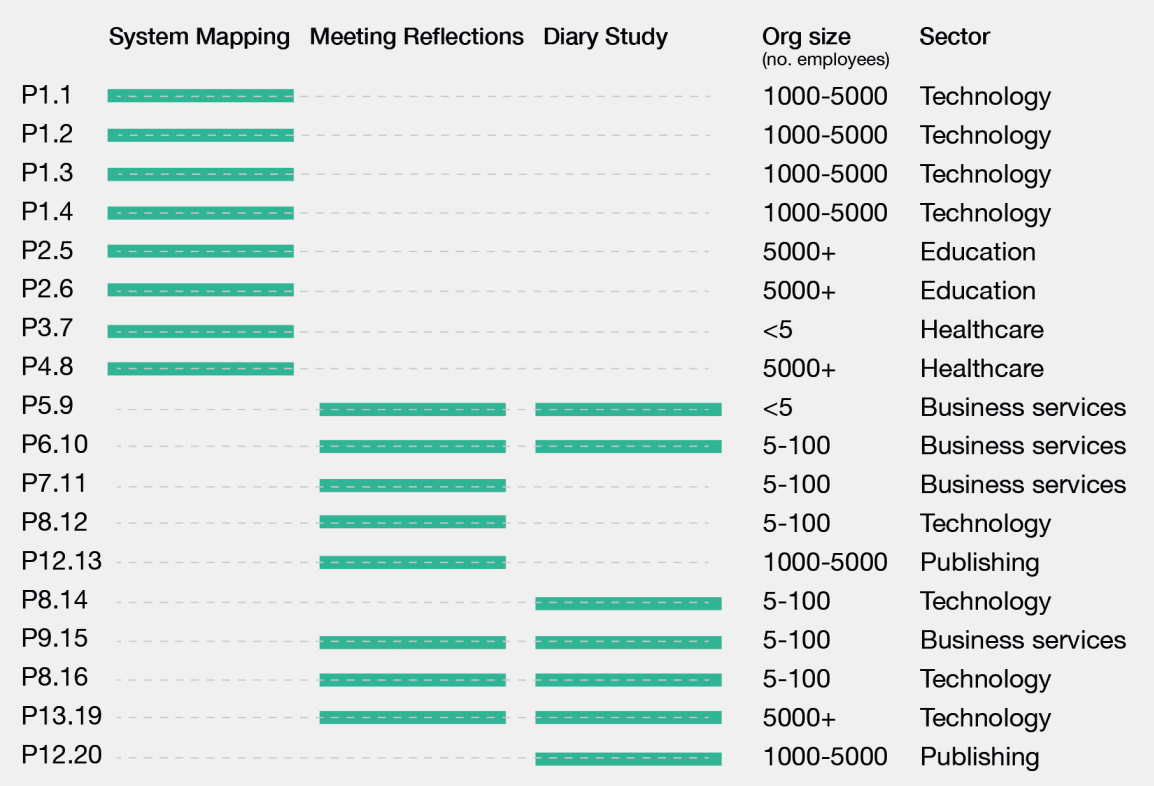


Figure 7: *Distribution of study participants by interview type, organisation size and sector*

The key limitation with the sampling technique was potential for over-representation of a particular type of person or organisation. This could occur by chance or be related to the type of person or organisation willing to take part in this type of study. It could also be introduced by the nature of the researcher's professional network from which the majority of participants were drawn. Figure 7 shows that the 18 participants came from eleven different organisations. Including four from same organisation was not considered an over-representation.

Description of the interview types used

The table below summarises the types of interviews conducted in this study.

Table 4: Summary of study 1 interviews

	Interview type	Techniques used	Data yielded	Number of interviews
1	Systems Mapping interview (90 minutes)	Graphic elicitation Contextual inquiry	Audio recording and transcription to text Pictures drawn by interviewees	8
2	Meeting reflection interviews (30-40 minutes)	Contextual inquiry	Audio recording and transcription to text	8
3	Diary interviews (30-40 minutes)	Visual prompts Contextual inquiry	Audio recording and transcription to text Diary screenshot	7

Three related but distinct types of interviews were designed to explore meetings from multiple angles and generate an overlapping dataset in order to reduce single-source bias (Salas et al., 2018).

The interviews contained many themes and narratives which could have been interesting to a researcher. Inevitably, the researcher attends to a selection of these at the expense of the others. In this study, a conscious choice was made to attend to that which related to a systems approach, specifically boundaries, behaviour, constraints and processes of communication.

The sequence of interviews and a description of each is outlined below and the full interview guides are in Appendix 2.

Systems mapping interviews

First, systems mapping interviews were used to create a picture of the meetings used to support a task, project or piece of work. This interview used graphic elicitation (Bagnoli, 2009; Copeland & Agosto, 2012; Crilly et al., 2006) and graphic facilitation (Crane, 1993) to encourage participants to "visually talk to oneself" (McKim, 1980, p. 12) and potentially trigger previously unconsidered notions (Albarn & Smith, 1977). Participants were asked to choose a current task, project or piece of work and visualise its meetings on

paper, adding layers of inputs, transformations, outputs, boundaries and then zooming out to describe and sketch related systems throughout 90 minutes of discussion and drawing. Throughout each interview, interviewees were asked to talk aloud about recent, real experiences as a form of contextual inquiry (Holtzblatt & Jones, 1993) as they sketched and probed for systems-related insights throughout the 90 minutes.

After completing five of these interviews it became clear that though useful data were being collected, for some, the interview format was not allowing them to share their most valuable experiences and perceptions. The explicit reference to systems was causing problems of understanding, and switching between conceptual levels was challenging for some interviewees, as was drawing a mental model of meetings. The decision was made to complete three more of these longer interviews rather than to continue to saturation and to also recruit participants for two shorter types of interviews, the format of which would be more tangible and accessible. These additional two interview types would be designed to provide a lens on the same areas of interest, but to do so without asking the interviewee to use the systems lexicon.

Meeting reflections interviews

Interviews were conducted with eight participants, using contextual inquiry to anchor data in real discrete experiences (Holtzblatt & Jones, 1993; Podsakoff & Organ, 1986) and to address the difficulty people have describing constructs that are largely invisible or unconscious (Delice et al., 2019). Contextual inquiry was used as part of the first type of interview (Systems Mapping Interview) but formed the complete focus of the two additional interview types. It was chosen for its ability to help people articulate the experience they are having, or have just had (Holtzblatt & Jones, 1993), though without the chance to observe and question them during the meeting itself. Holzblatt and Jones describe how when people are interviewed, they tend to talk in abstractions and summaries which often represent how things should be done or what is commonly accepted rather than what actually happens. They explain how asking people to describe a lived experience is more reliable than asking hypothetical questions (1993). Contextual inquiry provided a simple, repeatable method to capture the narrative approach established as desirable when treating meetings as complex and situated within complex systems. Snowden explains that, “Stories can also convey complex meanings across culture and language barriers, in a way that linguistic statements cannot,” (1999, p. 1) and

Weick agrees that, “People verbalize their interpretations and the processes they use to generate them” (Weick, 1995, p. 8). It also helped the researcher to focus on the interviewee rather than self-listening to their own ideas and solutions (Holtzblatt & Jones, 1993).

Participants were asked to describe two recent meetings, one they considered 'good', the other 'bad', as an entry point to a real-life story. Further probing invited interviewees to delve deeper, exploring a chain of experiences wider than the meeting itself.

Diary study interviews

Eight diary study interviews invited participants to bring and discuss a screenshot of their diary for the last complete working week as a way to sample meetings unbiased by recall. In addition to providing a sample, examining meetings within the diary format provided a different lens on meetings, as situated within the flow of their working week, rather than the flow of a task or piece of work. As before, contextual inquiry sought to uncover processes and experiences which shed light on any wider influences from related systems.

How the decision to stop interviewing was made

As the data collected came from interviews, the unit of data volume was the number of participants. More data could only be gained by interviewing more people. This led to an important early question: how many interviews with how many participants would be needed to have ‘enough’ data?

A best guess was made at the outset of the research design about how many individual participants and how many different teams and meetings would be likely to be needed and this estimate informed the initial outreach and recruitment process. This was thought to be more than twelve. Limited time and resources meant that 25 interviews formed the upper limit that could be completed and also analysed by the researcher.

Ideally, the data would have reached saturation but in this study, where interviews deliberately expanded the field of vision in search of new routes of inquiry, it was not helpful to consider saturation as “the point in coding when … there are mounting instances of the same codes, but no new ones” (Urquhart, 2013, p. 184). The data elicited in these open-ended interviews offered many possible avenues of interest and though

themes emerged early on, it was not realistic to gather data to the point that no new themes emerged (Given, 2016). Instead, it was decided to "combine sampling, data collection and data analysis, rather than treating them as separate stages in a linear process" (Bryman, 2012, p. 18), in line with the iterative, soft systems approach used throughout these studies.

The study could more realistically have sought theoretical saturation, "when the complete range of constructs that make up the theory is fully represented by the data" (Starks & Trinidad, 2007, p. 1375). As the theory was constructed, the threshold became whether there was sufficient data to support and illustrate it. Testing for this support was made possible by the iterative nature of the theory-building process, whereby as the theory was developed, new interviews could be sought. However, as the number of interviews was constrained by time and resources, it cannot be claimed that conditions for any type of saturation were fully met.

4.2.4 Analysis methods

Wolcott describes how "everything has the potential to be data, but nothing *becomes* data without the intervention of a researcher who takes note—and often makes note—of some things to the exclusion of others" (1996, pp. 3-4).

In this study, all interviews were audio-recorded but no videos were created. Recordings were transcribed, word for word, but voice intonation or non-verbal utterances were not included. Sketches made by participants in the semi-structured interviews were photographed. Reflective notes were captured at each stage and logged alongside the interviews.

The stages of the analysis are as follows and described in more detail below.

1. The interview transcripts were coded and grouped into text which referred to six different systems characteristics.
2. The narratives contained in each system characteristic were clustered to form a list of themes for each.
3. The themes were mapped onto the most common boundary of studies of meetings to explore overlap and overspill.

4. The themes were then coded with relevant related systems in order to propose a related system list.

1. Grouping of interview transcript text into systems stage 'buckets'

The first stage of analysis organised the data to make them as accessible as possible, specifically through a systems lens in order to attempt to answer research sub-question 1. The purpose of this stage was to divide the data into 'buckets' derived from the systems lexicon defined in section 3.3.1 and referring to the names of different parts of a system. The purpose was to enable statements relating to similar parts of the system to be read and interpreted together. Scholars of systems use different lexicons to agree on names for these system parts. The decision was made to limit the number of buckets to the fewest that cover the core of most systems lexicons. Buckets were defined as follows:

Inputs – defined as the entity which is changed into an output. Inputs are present in outputs but in a changed state. In this study, they can be concrete, such as a physical object, or abstract, such as an idea or a type of thing.

Transformation – known as 'processes' in the Input-Process-Output (IPO) model developed by McGrath (1964) and refined by Hackman and Morris (1975) or more recently as mediation in groups research (Mathieu et al., 2019). In this study, transformations were defined as changes applied to the input.

Outputs – defined as the entity after its change. Outputs are results and by-products of team activity that are valued by one or more constituencies (Mathieu et al., 2000). In this study, outputs include performance (e.g., quality and quantity) and members' affective reactions (e.g., satisfaction, frustration or commitment).

Constraints – defined as environmental or contextual factors that influence or distort the problem or limit the success of a potential solution.

Processes of communication – defined as monitoring activities to check the system of the meeting is achieving its desired goals, and to stimulate corrective action if not (Checkland, 1981).

This initial categorisation process which transformed long transcripts into accessible data was followed by an interpretative stage of affinity mapping to form themes within each bucket.

2. Affinity mapping using KJ method to establish themes

Having grouped the data and made them accessible in system buckets, themes within each bucket were identified through informal coding via affinity mapping. Affinity mapping is a visual method for processing large amounts of qualitative data by informally grouping and placing in visual relationship to each other themes developed from a qualitative dataset. Often used by groups and teams as a collaborative exercise, in this study, affinity mapping was used by a single researcher as a way to immerse themselves in the data and explore inter-relationships between themes rather than to generate and defend law-like list of independent themes.

In this research, the specific affinity mapping technique used was the KJ Method (Scupin, 1997). Themes which were already well established in the literature were briefly categorised but not explored in detail. Less tangible or more underlying themes which were felt to add to previous knowledge were noted and examined in more detail. At this stage, no consideration was given to the type of comment and whether it overlapped with an existing card. The objective was simply to capture everything relevant in one place and allow exploration of emerging insights, through this process and from the resulting rich picture. Regular deep dives were made into the interview transcripts and audio files from which notable comments had emerged, in search of "what these folks are trying to tell me" (Becker, 1998) before summarising the text on each post-it note.

Cards were arranged and re-arranged into groups to form a coherent set of themes. This whole process was undertaken multiple times during study 1 as more data emerged, until a set of themes emerged that presented a new and plausible picture of the data. This resulted in a rich picture, capturing multiple ideas into a single visual narrative.

This type of analysis was deliberately chosen to create an initial set of findings for its ability to synthesise and make meaning from the data rather than simply categorise them. Its limitations centre on the fact that these initial findings are based on one researcher's interpretation.

3. Establishing new meeting system boundaries

In order to probe the boundaries of interest, the themes were mapped onto the current boundary of correlational studies of meetings, to establish to what extent themes fell within or outside of this boundary and if outside, how far they extended. Two new boundaries were identified and proposed based on this mapping.

4. Proposing a list of related systems

To establish a set of related systems in which meetings are embedded, themes were repeatedly coded with the systems which influenced them, according to interviewee comments, searching for logical patterns and groupings. A choice was made not to create highly abstracted codes that would not be recognisable to interviewees in member testing. It was important that these codes were seen through the eyes of the interviewees as closely as possible, using how *they* described or alluded to the related system – even if they did not have the systems language to express this. In order to be included as a related system, the grouping had to be recognisable and relatively definable, albeit with blurry edges.

4.3 Study 1 findings

Below is a summary of the findings emerging from this initial process of reading, re-reading, note-taking and rich picturing of the comments under each category. This study subscribes to a broad definition of each theme, in order to paint the broadest sketch. This means including intangible, hard-to-describe themes and those which are overlapping or nested without attempting to create a logical structure or hierarchy of concepts at this stage. In this section, the themes identified in the affinity mapping process within each systems category are shared and described.

4.3.1 Inputs

The themes of inputs emerging are as follows. As discussed in the methods section, some themes in each category are already well covered in the literature and therefore will not be discussed in detail. However, each novel theme will be unpacked more fully.

***Table 5**: Themes derived from the data 'buckets' related to inputs*

Themes well covered in literature	**Novel themes**
Content and data	Meeting design
Goals	Personal investment
	Relationship history
	Beliefs and experiences
	Uncertainty

When specifically prompted to list inputs to a particular meeting, the Systems Mapping Interview interviewees, as expected, first described more tangible informational inputs such as an agenda, slides to share on a screen or printed handouts. In the other two types of interview where insights were elicited more obliquely, interviewees shared more specific inputs such as status updates and technical content. These tangible inputs are grouped into a sub-theme of ***content and data***. Content and data can be planned (such as prepared slides or notes jotted down in preparation for responding to known questions) or emergent (such as updates given on the spot or ideas shared spontaneously). There are also content and data which participants are expected to have 'consumed' in advance of the meeting. If they have not done so, other participants quickly feel frustrated while their personal investment of time is used while someone "plays catch up" or has to be "brought up to speed" (P8.11).

A further finding which is already discussed indirectly in the literature is ***goals*** whether these are related to individuals, tasks, teams or organisations. Goals received few direct mentions in any interviews and, when asked, most interviewees find it difficult to summarise the main goal of a meeting, unless it was called to solve a specific problem. The most striking fresh inputs elicited which do not seem to be well covered by the literature include meeting design, personal investment, relationship history, beliefs and experiences and uncertainty.

The way in which a meeting has been conceived, planned and executed is the subject of many accounts in all three types of interviews, particularly the Meeting Reflections and Diary Study interviews. Although the concept of ***meeting design*** is not a formal process

for any of the interviewees, attendees comment on their negative experiences with the observations about absence of design where a meeting “was not thought through” (P1.1), sub-optimal design where an interviewee attended “one of those meetings where we get into the detail which is not always that useful,” (P7.11) or unclear design where an interviewee “didn’t know why I had been invited and what the meeting was intended to achieve” (P8.11).

Comments attributed to meeting design included the purpose of the meeting, the inputs and processes needed to get the right outcomes and what each person is expected to do. Problems with meeting design described by participants relate to lack of design, incorrect design, lack of clarity on the design or multiple conflicting designs at play. Good design receives scant mention by hosts and goes unnoticed by attendees. Attendees (on whom design is imposed) mention poor design regularly. For example, one interview described a meeting they had found unproductive and explained, “[The meeting] needed a clearer picture of success at the beginning” (P9.15).

Almost without exception, interviewees described an input of ***personal investment*** (either theirs or that of others) in their descriptions of meeting experiences. The most mentioned element of this investment is time. Participants describe their time commitment as going beyond the meeting duration itself. Interviewees bundle together a range of additional concepts related to but not limited to the time investment measured in minutes. These concepts include the cost of switching contexts to join a meeting - a concept already well documented (Zijlstra et al., 2012) and used in studies of meetings (Leach et al., 2009).

Comments revealing the relationship between meetings and time include descriptions of context switching where an interviewee “ended up having to stop what I was doing about 20 minutes before, after finishing one task and without enough time to start another” (P8.14), the depletion of a finite amount of daily effort, the opportunity cost of the time taken up by the meeting, “I feel like I spend quite a lot of my working week preparing. I wish I could do what's on my to do list” (P7.11) and the effort and time invested in recovering from negative effect caused by the idea of the meeting, “That half an hour before was wasted with irritation which I had to process, self-manage, share, acknowledge” (P6.10).

Finally, and crucially, personal investment implies two inter-linked requirements. The first is that value is generated for this investment and the second is that the investment is appreciated and negotiated by others. They are interlinked because the value exchange partly hinges on whether the investment has been sought and acknowledged by others. When asked why someone might have wasted one participant's time in a meeting, they reflected, "I believe it's because of selfishness? They don't value other people's time that much." (P8.14) and another expressed that at the time it seemed like, "My time is no less important than yours but you don't see that" (P.6.10).

Meeting attendees' ***relationship history*** with each other is a common input seen in the data. Interviewees were cautious to criticise or show preference for certain colleagues, even in an anonymous interview. However, they did explain how group tensions make their way into meetings and how "there is not a lot you can do about that" (P8.12). Conversely, positive group dynamics also permeate meetings such as one interviewee who explains that they are "a close-knit group of people and it's rare for disagreement to cause a problem or any kind of ill feeling" (P1.3).

Beliefs and experiences as inputs to meetings subtly permeate almost every interview, from beliefs about how a meeting *should be* conducted to accepted experiences of how meetings *are* conducted in this organisation.

However, interviewees showed little or no self-knowledge of the way previous experiences and beliefs might be affecting meetings. Also, no interviewee mentioned either meeting culture or wider organisational culture and there were few oblique references to wider norms.

The concept of ***uncertainty*** as an input into the meeting was raised by many, across all interview types. Some interviewees talked about the role of the meeting in transforming uncertainty into clarity or solidity. For example, one interviewee described how, "I'll go to the meeting with lots of things I'm not sure about in my head and…come out the other side feeling crystal clear" (P5.9). She went on to explain that the purpose of one particular meeting was to restore order to thoughts that had atrophied over a break from a project, explaining that, "After a weekend of doing everything but that work, it's helpful to talk through [the project] with someone else and shoot ideas across. I find that much quicker to get back up to speed than trying to go through all that by myself." Other areas of

uncertainty included shared understanding of key terms and its potential to limit transformation: “We don't have a shared understanding of what [a technical term] is - I only realised that after a long, difficult meeting. We should have defined that at the very start” (P2.5).

4.3.1.1 Transformations

Putting transformations into language proved difficult, both for interviewees and in the interpretation of interviewee comments. Themes created can sound more like outcomes, so in this summary, some overlap into outcomes was accepted if it helped to surface themes of interest. The most striking themes emerging from the data relating to transformations are summarised below, both those which mirror existing findings and those which potentially add new knowledge.

Table 6: Themes derived from the data ‘buckets’ related to transformations

Themes well covered in literature	**Novel themes**
Share, interrogate and interpret information	Reconnect to purpose of team, task or organisation
Decision design and contracting	Build relationships
Plan design and contracting	Develop accountability
	Absorb context

The themes which mirror those already relatively well covered in the literature are ***sharing, interrogation and interpretation of information***, ***decision design and contracting*** and ***plan design and contracting***. The first additional insight the findings from this study can add to each of these is a wide degree of variation in design and enactment of these linked transformations, from formal and structured to the opposite extreme. The second insight this study’s wider viewfinder adds is the degree of social contracting that takes place at each stage, whereby what looks on the surface like a logical discussion of information, implications and options, is in fact a subtle ‘dance’ between attendees. This dance draws down on a range of elements from outside the meeting including individual and team goals, roles, share of resources, workload, conflicts of interest and the desire to be seen as valuable to the team.

This dance is once directly referred to by one interviewee who explained that, “It's a contracting process. It's more psychological than technical in the end” and another who shared that “People don't say, ‘We will do this and we'll do it by X.’ Why not? .... It’s to do with people in the meeting not wanting to step on each other’s toes” (P1.3). Most interviewees had some self-knowledge of the responsivity of meetings. One interviewee explained simply, “I personally prefer to meet face-to-face - not sure why that is. I tend towards that,” (P8.16) whilst another commented about how in one specific meeting, “It was good to be in the room together” (P5.9). Others described the transformation taking place in a little more detail, for example the interviewee who felt, “There's no way I could do those meetings without talking to people. I want to see their face, hear their additional comments,” and that, “Watching how people respond to things in that moment is fascinating in itself” (P8.12). Reversing the concept, one interviewee commented, “It's hard to imagine that the [name] project would have gone better by *not* speaking to each other” (P9.15). This transformation appears to be more than just the additional data gained through body language but points to the fluency and responsivity of this contracting process made possible when all parties are focused on the same dialogue at the same time.

Comments highlight the conflict between the existing themes - which related to the tangible goal-oriented transformations mentioned above where information is shared, decisions are made and actions are planned - and the less tangible novel themes in the second column in Table 6.

Where the focus is on rapid completion of the more tangible tasks, this can be perceived to diminish the interaction such as the statement that, “Everyone's so determined to keep it short and simple that we're missing out on the richness” (P7.11). However, others described how deviating from tangible goals was frustrating: “You are so busy, you haven’t got time for background - you don’t know if it will be useful to you until much later after the meeting” (P13.19). In summary, most accepted that background or tangental communication is important and without it, attendees would be poorer, but were reluctant to use today’s time budget for tomorrow’s possible gain.

The first of the new, less tangible transformation themes is ***reconnection to the purpose of the task, team or organisational purpose*** which was referenced in almost all interviews. This transformation was associated with an increase in motivation and

commitment. Commenting on their experience of this reconnecting transformation, an interviewee explained that a particular meeting was “a reconnection to the project - more personal and invested than a spreadsheet” (P6.10) and that “it's energising and pulls us together as a group, reminds us why we're here, engages people” (P6.10). Transformations of this type occurred in the data both at an individual and team level and whilst it was mostly expressed in its positive form, it did also appear as a negative transformation in which an interviewee reported feeling *less* connected to a project and its purpose after a meeting.

A second, less tangible transformation is one of ***building relationships***. This is similar to the previous theme but concerns the transformation of connections between people rather than between people and the work, though there is some overlap between the two. One interviewee summed up their experience of this transformation in a group where people’s work did not naturally ensure their paths crossed, saying, “It's an opportunity to build relationships where there is little overlap” (P13.19). Another reflected that a project catch-up call was more of a transformation of personal connections than of connection to tasks: “[Our] catch up calls …[are] less focused on progress and more focused on checking in” (P6.10). This experience was echoed by another interviewee who said, “It's a good way for the team to check in with each other - not just check in on the work” (P8.12).

There are a number of instances in the data where the act of meeting is a catalyst for ***developing accountability*** in a group. One interviewee who led meetings explained the difference a particular series of meeting made to her team: “I remember spending quite a lot of my time reminding people to do things and chasing them up. In the meeting, I could directly ask them whether they'd done something and if not, why they hadn't” (P5.9). She described how the public nature of the meeting created feelings which stimulated action *outside* of the meeting and that, “If I was singled out in a meeting for not doing something, I would be embarrassed and go away and do it and then I wouldn't be embarrassed in the next meeting.” Commenting on the nature of this accountability, a meeting attendee described how, “With face-to-face, there's commitment and you have to say something. There is a responsibility to respond and contribute” (P2.6).

The final novel transformation theme uncovered is the ***absorption of the other attendees’ context***. Interviewees noted that additional insights they had gained about other people’s

working styles, their workload, other projects and the wider organisation provided vital clues about how to interact with them both in the meeting and beyond. One interviewer observed that, “The meeting shows you a bit about how they work – like, are they organised?” (P2.6). Some meeting attendees, especially those in smaller, less formal organisations value this additional insight, such as a director of a micro-business who commented, “Why does that matter? Because our business model is based on being more than the sum of our parts - we're different, different experiences, contexts” (P6.10). Another interviewee described how a meeting had given them a space to “interpret situations and individual characters” (P2.6).

4.3.2 Outputs

The themes emerging from this first interpretation of the comments made by interviewees related to outputs of the system of a meeting are as follows, divided into those already clearly present in the literature and those which are less well covered.

Table 7: Themes derived from the data ‘buckets’ related to outputs

Themes well covered in literature	**Novel themes**
Task capture	Decision capture
Discussion capture	Momentum and commitment
	Re-prioritisation of other tasks
	Shared mental model
	Shifts in relationships
	Affect, behaviours and beliefs

Post-meeting, ***task capture*** was the most reported outcome, though not all interviewees mentioned it, particularly those from smaller and less formal organisations. Task lists (most commonly referred to as ‘actions’) received a mixed review over their effectiveness and efficiency. Some interviewees reported the desire to create more structured outputs

from meetings, because “people mis-remember actions” (P1.3), whereas others were making the reverse transition to a *less* structured approach. One interviewee explained how more formal, detailed processes were found to be inefficient, describing how, “Under the previous team leader there used to be a long list of actions. We reviewed them every week - but felt that they took too long. The new team leader wanted to make it simpler and less formal” (P9.15).

Minutes, as ***discussion capture***, were mentioned by only two interviewees as outputs – both in more formal meetings, such as an example where, “The general sec[retary] would take minutes and they would be sent round to all the committee members” (P5.9).

The less tangible outputs described by interviewees, are set out in the section below.

There seems to be a key distinction between tasks and discussions, which are often recorded, and decisions, which usually are not (***decision capture***). Interviewees described a sense of wanting to leave a meeting with answers, for example, one interviewee who described a meeting in which, “We didn't come up with any answers and left with nothing. It was a waste of six to eight people's time” (P1.1). Sometimes, not coming out with any explicit decisions is acceptable, for example, in one small business leader’s view, “Not leaving with clear decisions is not always a problem. Often in a meeting there is no clear agenda or outcome but the conversation allows people to align somehow” (P8.16). However, many interviewees described a frustrating scenario where decisions are implied but not fully made or captured. Later, it becomes clear attendees left the meeting with different views on the outcome and status of these decisions.

Meetings have the potential to generate ***momentum and commitment*** to a course of action by refocusing everyone’s attention and gaining public commitments to decision and task capture. However, this momentum can be lost after the meeting has finished. One interviewee explained that the connection between the actions and the world beyond the meeting was the problem as, “The way we manage our meetings is fundamentally broken because we email out actions” (P1.3). A fifth echoes why this is such a problem, explaining that, “Short term, it’s an energising meeting but we don't capture ideas and turn them into a real thing and long term, that’s frustrating for everyone” (P6.10).

This impetus to achieve actions agreed in the meeting can displace other activities that were unrelated to the meeting, for example, “Whatever your focus was at 9am on Monday, at the end of the … meeting you've got a whole other to do list” (P7.11).

Many interviewees talked about new understanding or a ***shared mental model*** as being an outcome of meetings they described. This can be directly associated with the meeting topic itself, for example this interviewee who explained that if the meeting had not been held, “the people involved wouldn't have had such a clear understanding of what needed fixing” (P1.1).

The understanding might be about related teams or projects, for example, the value of “learning about things going on in other teams that affect you” (P1.2). However, in many interviews, the issue of wastage is raised, given that this indirect knowledge is sometimes unused, or only proved useful later. As this interviewee explained that, “Often I've no interest in how someone's event in Singapore is going but then I might end up running an event for that team and then it's useful” (P13.19). In the interim, that additional information can add to mental clutter or be perceived to have wasted time and attention resource during the meeting.

Shifts in relationships were raised as an output by many interviewees in many different ways. One interviewee listed, “Tangential networking with other people,” (P2.6) as a small and not particularly valuable outcome when pressed to list all possible outputs. Others viewed shifts in relationships as more significant such as this interviewee who explained that a particular series of meetings could create a profound series of linked outputs, the first being deepened relationships and trust. Two interviewees provided a practical explanation of two facets of better relationships as a concept, the first explaining how one outcome was new acquaintances, meaning if they want to find something out in the future, they know whom to ask. The second cited how their meeting enabled them to “build rapport with people who ask tough questions, if you don't respond defensively” (P2.5).

Interviewees also used the language of ***affect, behaviour and beliefs*** to describe outputs.

In terms of affect, outputs ranged from a reduction in “the feeling of anxiety that I can't get information on things that affect me,” (P1.2) to one-word answers conveying positive affect, for example, reassurance, or negative affect, such as, frustration.

Beliefs also featured as outputs including the belief that all parties are now clear (often summarised as ‘clarity’). The impact of clarity on behaviour is almost always positive as in the example of this interviewee who felt, “If we didn't have [that meeting], I would be much less efficient and I would jump from thing to thing to thing but this way I can focus on one or two tasks at a time and feel confident to say 'other stuff can wait'” (P5.9).

Further beliefs as outputs emerged from the interview data in the form of new mental stories about people and situations. Many of these mental stories are negative and are highly memorable after the meeting. Comments voicing thoughts such as, "My time is no less important that yours but you don't see that,” (P6.10) and, “She is wasting my time,” (P6.10) point to beliefs which may or may not be true but evoke strong feelings and may affect future behaviour. Other cognitions voiced by interviewees were more constructive and several interviewees explained that their meeting experiences helped clarify the company culture, such as how combative an approach is acceptable.

A further observation is the uneven distribution of positive outputs of some meetings amongst attendees. This is particularly true of meetings designed to check on project progress. One meeting participant commented that, “The only one who really benefits is the project manager” (P12.13).

4.3.3 Constraints

The themes emerging from this first interpretation of the comments made by interviewees related to what constrained the system of a meeting are as follows.

Table 8: Themes derived from the data ‘buckets’ related to constraints

Themes well covered in literature	**Novel themes**
Clock time	Non-clock time
Technology	Workflow and schedule
	Power

Meetings are clearly constrained by time, the most obvious way being the duration of the planned meetings, requiring choices to be made about range and depth of topics to be covered and share of voice. As evidenced in the section on personal investment, the ***clock time*** of a meeting is not the only way in which time is perceived as a constraint. Meeting attendees are constrained not only by the actual minutes consumed by the meeting but also by ***non-clock time***, such as the time cost of switching in and out of tasks around the meeting and the work they are not doing as the meeting progresses. They also 'hear' future clock and non-clock time pressures during the meeting as actions are discussed which they know will require their future time and attention, further changing and constraining their responses. A clock and non-clock time constraint that emerges strongly in the interviews relates to the time required before the meeting starts, to design, communicate and prepare for it. This time is usually not budgeted for by meeting hosts or attendees and often conflicts with other tasks to which attendees are already committed. When time is inevitably not found for these pre-meeting tasks, this is widely and negatively reported by interviewees.

Surprisingly, ***technology*** is little mentioned as a constraint or issue across interviews, attracting far less attention and emotional content than many of the less tangible, human problem patterns. Where mentioned, technology constraints relate to the challenges of getting audio-visual technology to work at the start of the meeting and holding a single, conversation with equal share of voice in blended meetings where some are attending in person and others are joining via remote video and audio.

Many of the inputs, especially personal investment, seem to be influenced by existing ***workflow and schedule***. A meeting is an (often unwilling) suspension of individual work activities and an entry into an event which is intended to demand all the attention of all attendees for the whole meeting event duration. In this way, meetings have a hard, impermeable shell and breaking in and out of it is difficult, requiring multiple people to reluctantly suspend their previous activity and form a team event. This requires a definite transition to suspend previous activities and effectively enter this demanding team event.

Power is a possible constraint not limited to hierarchical, formal organisations. The most common expression of power as a constraint is dominant or loud voices. One interviewee described a meeting series they participate in which "there are two people who are very strong, challenging and you'd have to be very strong to disagree or raise something they

didn't want to talk about," (P7.11). This can have an impact on the course of the meeting, such as in one meeting where an interviewee's explanation for why "my manager will ask if anyone has any questions and no one will answer" is that, "She's a force to be reckoned with" (P13.19). These comments, both from less formal companies, contrast with the following statement from a meeting participant in a larger and more formal organisation who shared that in one quite large meeting "you can ask questions and people do" (P1.2).

From the descriptions of power and voice, it's clear that informal power can be problematic in certain meetings. By revisiting the transcripts of those who describe dominant, loud or powerful voices, these voices appear to be embedded in other systems, including the system of the individual and specifically their style and preferences, the system of the team in which the meeting is situated and the system of the work being completed for example whether the task is meeting its objectives or not. Interviewee comments show how this can be countered by facilitation and, in particular, expectation and tone-setting at the start of the meeting - how the meeting is opened and framed.

Only one interviewee specifically used the word 'power' (P4.8). Relistening to the interview audio files opened up a little more insight, where tone of voice and emphasis betrayed un-verbalised experiences of power as constraint. Likewise, post-interview reflection notes revealed some descriptions of facial expressions thought to convey meaning beyond the words spoken. In both types of data, the message conveyed was one of powerlessness, where an interviewee alluded to the fact that that the other party held the power.

For one meeting leader, this created some challenging situations where, "It was hard, as I had to work out whether the people with the biggest opinions had the [organisation's] best interests at heart, or their own" and that, "I would be sat there thinking, 'I really need to shut this person up' but I don't know how" (P5.9).

4.3.4 Processes of communication

Defined as those system monitoring activities to check the system of the meeting is achieving its desired goals, and to stimulate corrective action if not, processes of communication are notable by their absence in the interview data.

***Table 9**: Themes derived from the data 'buckets' related to processes of communication*

Themes well covered in literature	Novel themes
Revisit tasks from previous meeting	Absence of meeting goal monitoring
	Absence of meeting feedback mechanisms

Only one process of communication was explicitly mentioned: ***revisiting tasks from the previous meeting***.

Notable was the ***absence of meeting goal monitoring***. Although some interviewees could describe the purpose of a meeting informally, many shared a lack of certainty about meeting purpose as one of their concerns.

There was also an ***absence of feedback mechanisms*** in which meeting attendees or hosts can share their experiences of what was useful or not useful about meetings. Indeed, one of the reasons why people seem to feel frustrated at meetings, whether they host or participate, is the lack of recourse for any negative experiences and a sense that there is no way to improve a problematic meeting. In fact, several interviewees alluded to the fact that it was not easy or necessarily deemed helpful to share their feedback on meeting improvement or their frustrations. One cited the organisational culture, explaining they felt the organisation held meetings for their own sake without any particular focus on outputs.

The lack of processes of communication for the system of a meeting was striking, particularly as many meetings themselves are the processes of communication for the system of work with which they are associated. Given the highly cited input of 'time investment', it is both disappointing and unsurprising that the performance of meetings is seldom checked, nor is corrective action stimulated.

4.4 Proposal of boundaries of interest in studies of meetings

In order to answer research question 1, this section brings together the findings so far to propose new boundaries of interest for consideration in studies of meetings.

Figure 8 shows boundary 1, the boundary around the meeting event, used by 73 of 118 or nearly two thirds of studies of meetings. This boundary is defined simply by the start and end time of the meeting event and is used by over three quarters of correlational studies.

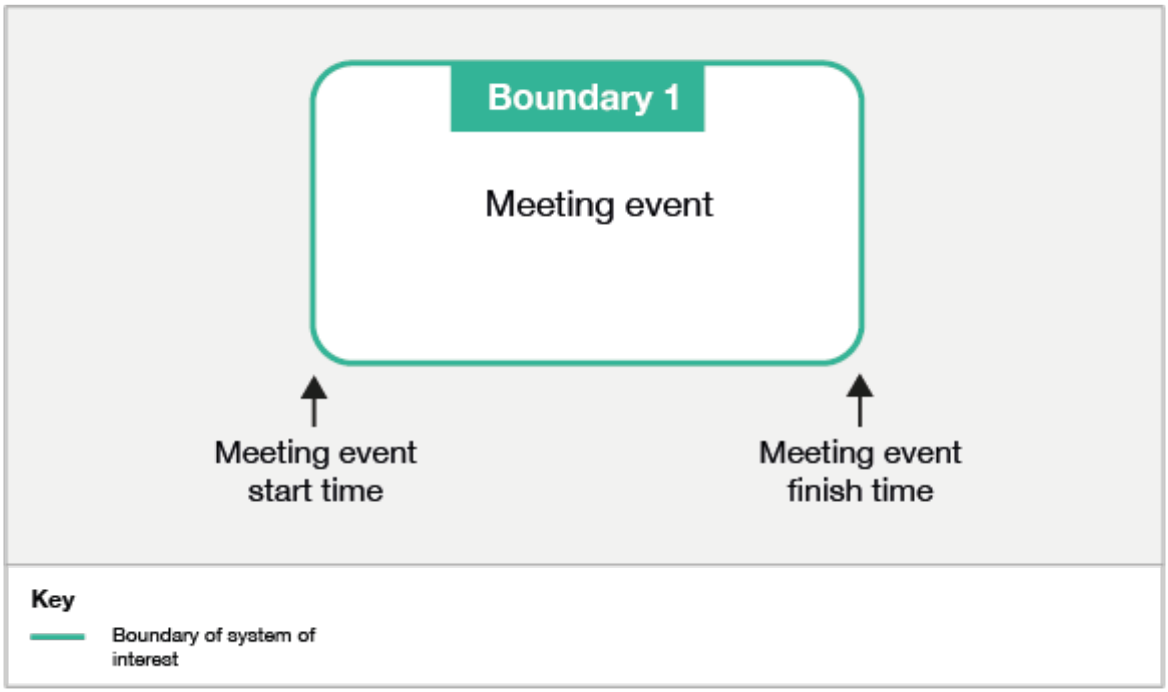


Figure 8: *The boundary of study used in most studies of meetings*

The next, most logical boundary of interest is derived through widening boundary 1 to include activities directly related to the meeting, both before and after.

When specifically asked to draw and explain a boundary around the meeting systems drawing they had created, most participants of the Systems Mapping Interview drew a boundary which was not time-bound but instead encircled the wider collaborative activity involved in initiating, designing, delivering and capturing the value of a meeting (boundary 2), as shown in figure 9. Although the content of the activities contained within the boundary varied from person to person, the sentiment was similar in each interview. Having explored and sketched the inputs, transformations and outputs of each meeting, interviewees tended to draw a boundary around what they perceived to be part of this collaborative activity of which the meeting event was only one part, as shown in figure 9.

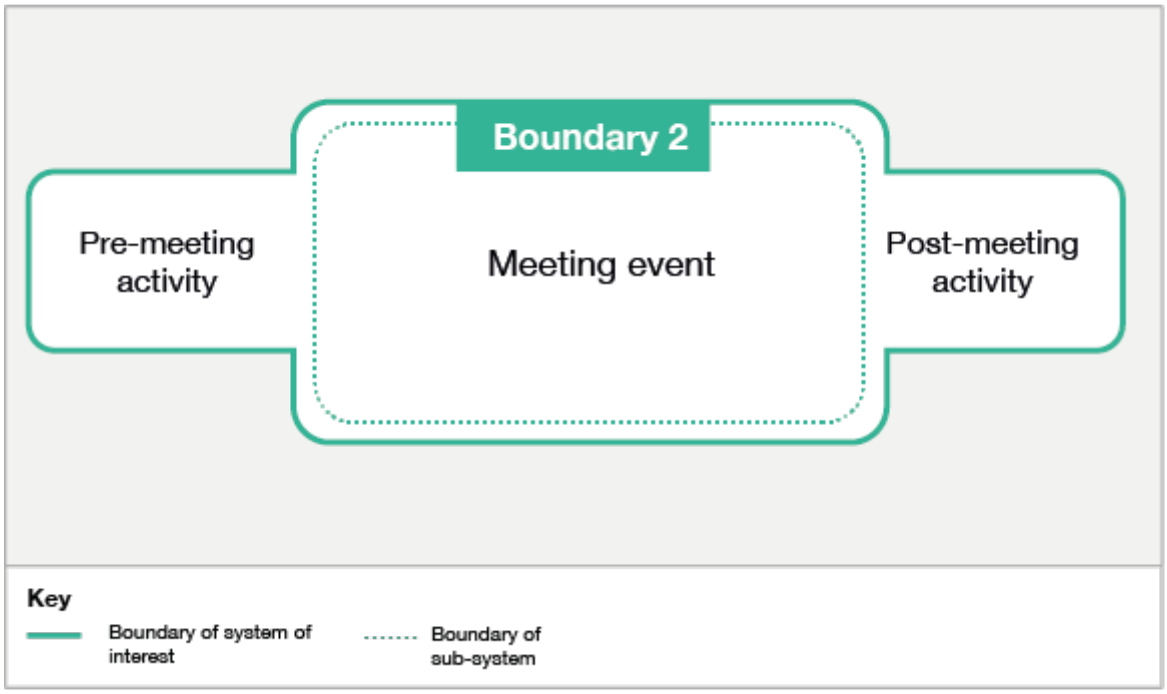


Figure 9: *Creation of boundary 2 to accommodate pre- and post-meeting activity*

Figure 9 shows that when meeting attendees reflect on, discuss and then draw their own boundaries of a meeting, they seem intuitively to include more activities than occurred just at the meeting event. In addition, a study co-authored by the researcher which used the same data observes that, "Interviewee commentary suggests that at least half… [of what is] considered relevant and important to the meeting falls outside [boundary 1]" (Bedingfield & Clarkson, 2020, p. 504).

This is a step towards a more accurate and useful boundary and is different from boundary 1 in that it is not time-bound or event-bound but instead related to the entirety of the collaborative episode. However, this still does not directly address meetings as embedded within wider systems, influencing and influenced by systems beyond the meeting itself.

One way to explore what this wider boundary might look like is to examine the relationship between the themes established within each of the systems elements and boundary 1. If the themes are overlayed on boundary 1, how many fit neatly within it, how many spill over this boundary and by how much? First the themes are mapped onto boundary 1 to establish if there is a case for an even wider boundary (boundary 3) and

then the related systems in which meetings are seen to be embedded are explored and categorised. Figure 10 shows how the themes relate to boundary 1.

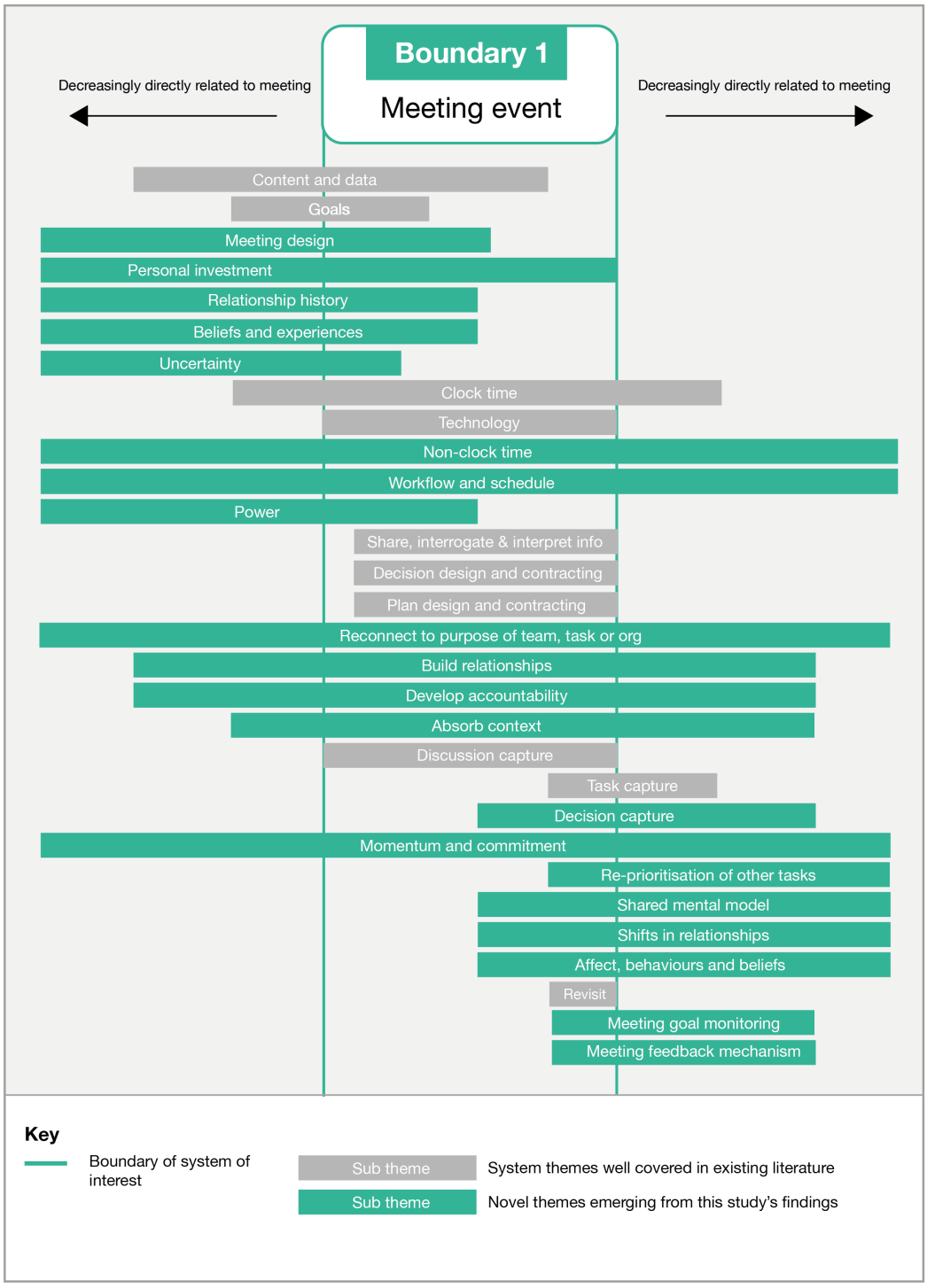


Figure 10: *Overlay of the themes identified on boundary 1*

Figure 10 suggests that many of the themes of interest generated by the affinity mapping process span a boundary wider than the meeting event itself (boundary 1), many reaching wider than direct pre-and post-meeting activities (boundary 2). They are pictured as bars showing reach before and after the meeting event the comments indicated they might have. This is a somewhat crude figure for a number of reasons. It is not possible to pinpoint exactly the start and end points of themes so three levels of proximity to the meeting event itself were chosen, both before and after. They are not intended to be quantitative or measurable and other researchers might have judged the overlay of each theme differently. They simply help to visualise a degree of proximity. Also, the themes themselves are not all exactly the same 'type'. For example, some themes are tangible (such as content and data), some are activities (such as building relationships) and others are intangible (such as uncertainty, momentum and commitment).

Figure 10 highlights that most of the novel themes in green – those themes considered important in this study's interviews but which are less well covered in the existing literature – appear to span a far wider boundary than themes in grey which are already well covered in the literature. As previously described, there is a certain circularity to this statement. By extending the boundary of study more widely and specifically looking outside the meeting event, it is unsurprising that themes emerge which span beyond the meeting event. However, it is notable just how numerous these wider spanning themes appear to be and how far outside the meeting they extend.

The next step was to examine what related systems those themes might be connected to and to explore a wider boundary of interest still – boundary 3.

4.5 Proposal of a list of related systems

Several related systems emerged as fulfilling the criteria set out in the analysis methods section of being interconnected, recognisable and relatively definable (albeit with blurry edges). They were established through grouping the related systems interviewees indicated in their comments. Accepting that there are many different ways to generate categories, the four related systems were identified by further KJ Method affinity mapping and every comment which had been coded as related to a system was found to relate to one of these systems.

The four groupings comprise the system of work (or task), the system of the team, the system of the organisation and the system of the individual. Figure 11 shows how they map to boundary 2, both influencing and being influenced by everything within boundary 2.

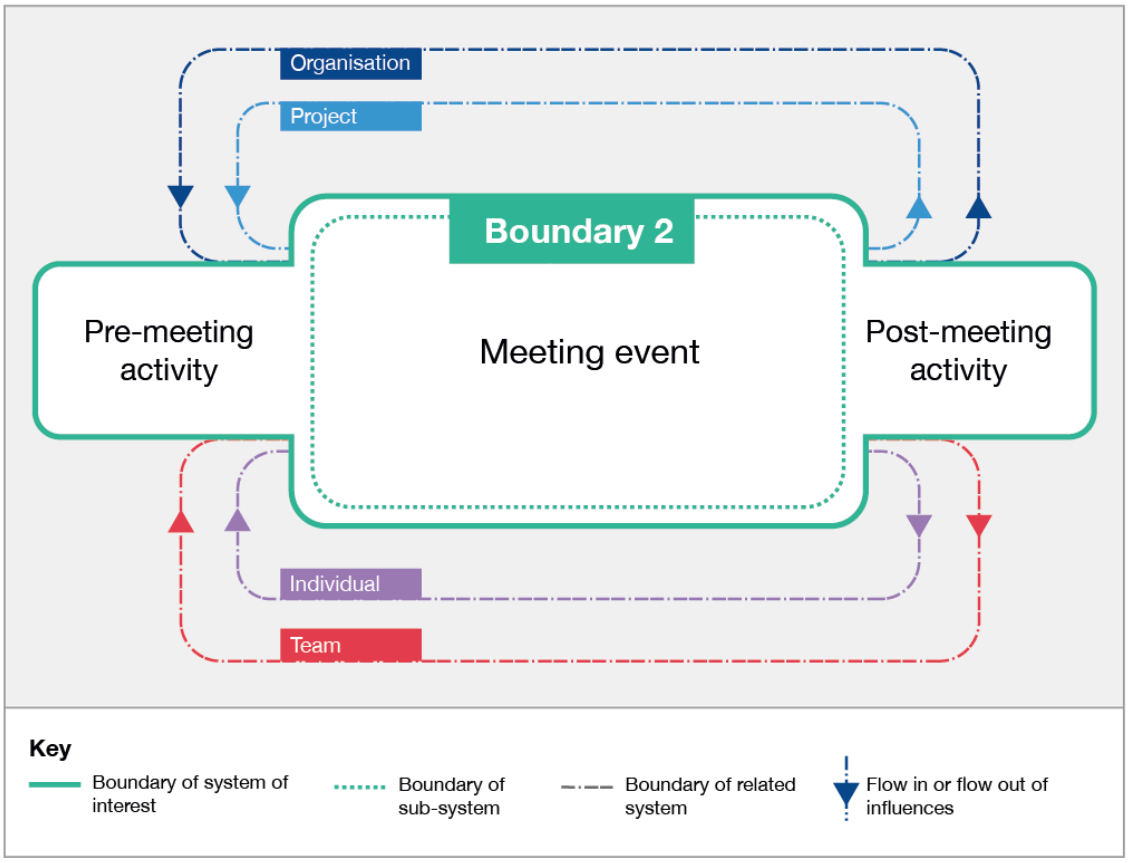


***Figure 11**: How the related systems influence and are influenced by boundary 2*

The system of task refers to the whole of the unit of work of which a meeting is primarily in service. This whole can stretch around an entire organisation, a service delivery or around a single task. In practice, most meetings will focus on a range of nested tasks. In this study, the system of the task refers to the defined organisational work that the meeting is seeking to influence, including projects and ongoing delivery of work.

The system of the team comprises the work groups attending or represented in the meeting. Some meetings studied comprised a single team and in others multiple teams were represented either because the meeting's function was to engage or brief different teams together or because a single task unit engaged multiple teams.

The system of the organisation is considered the widest entity which is influencing day-to-day working life and is still considered by the interviewee to be ‘their organisation’. In practice, determining this unit of organisation is not always obvious. For example, one interviewee described her experiences of work meetings in detail and her perceptions of how they reflected the organisation culture more widely. She worked for the large U.K. operating unit of an even larger global technology company, head-quartered in the United States. In this study, should the organisation be considered as the U.K. operating unit or the global company? In this case, her comments indicated the global company influenced the culture of the U.K. organisation, indicating that the global company was the organisational boundary for the purposes of this study.

The system of the individual captures the whole of each person in the meeting and includes their preferences, styles, experiences, beliefs, behaviours and goals. It acknowledges that an individual can be characterised as complex and themselves embedded in multiple systems (both in and out of work) which shape their lives and moments and render their responses in meetings changeable and unpredictable.

Figure 12 shows how those systems are represented across themes and highlights that, in many cases, themes are connected to multiple related systems.

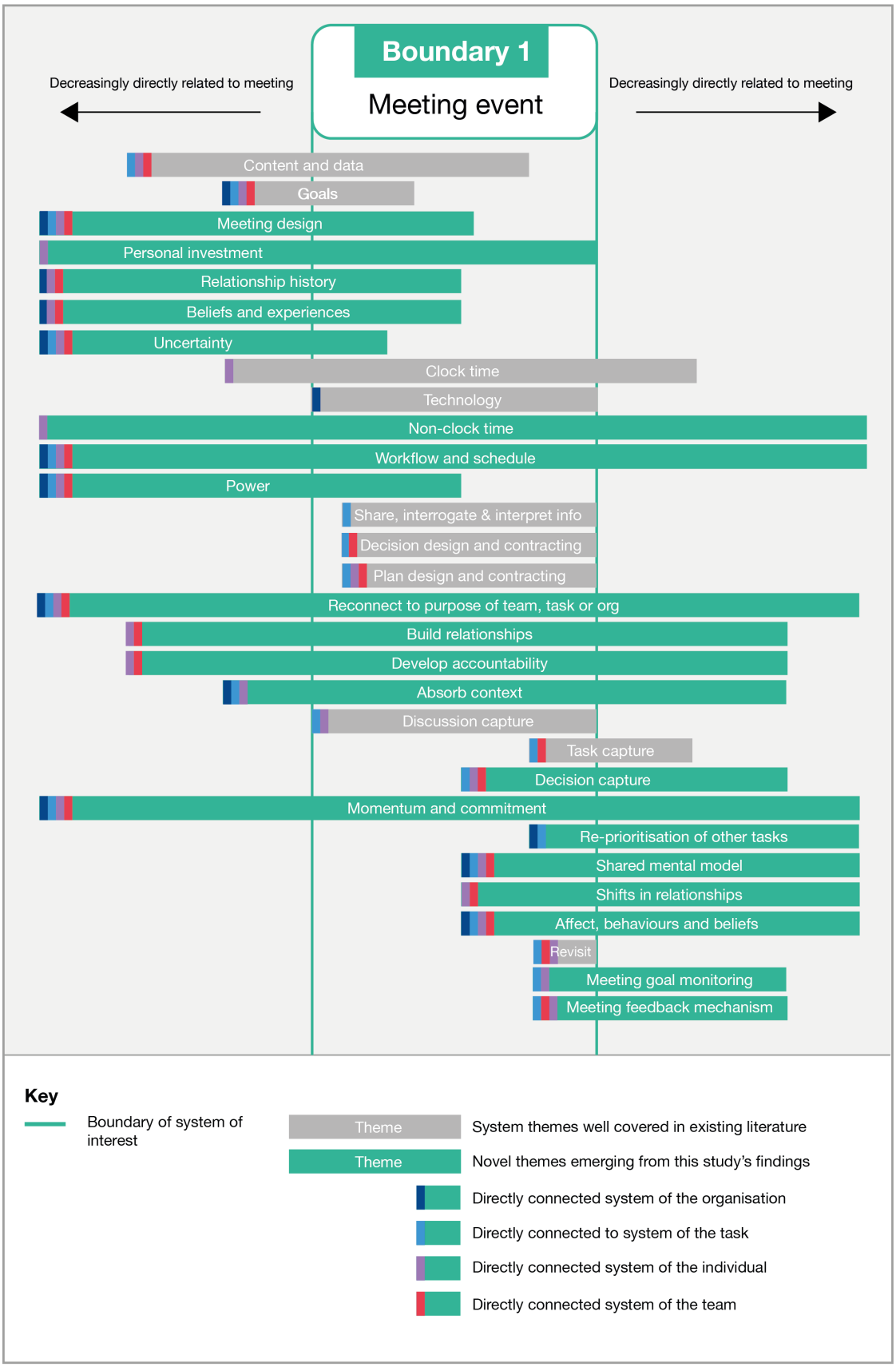


***Figure 12**: The related systems overlayed on the theme mapping*

Using the interview data in which four systems of interest emerge as immediately related, a further boundary stretches around both boundary 2, the collaborative activity and also a portion of the related systems (boundary 3). Figure 13 shows where a new boundary might be drawn, showing how each meeting shapes and is shaped by the four related systems or, alternatively, serves and is served by them. Despite the solid green line, this is not a hard boundary but instead is constructed to show that *part* of each related system is in direct relationship to the meeting. Exactly which part of each system is captured within boundary 3 is impossible to define so the boundary will always be blurry.

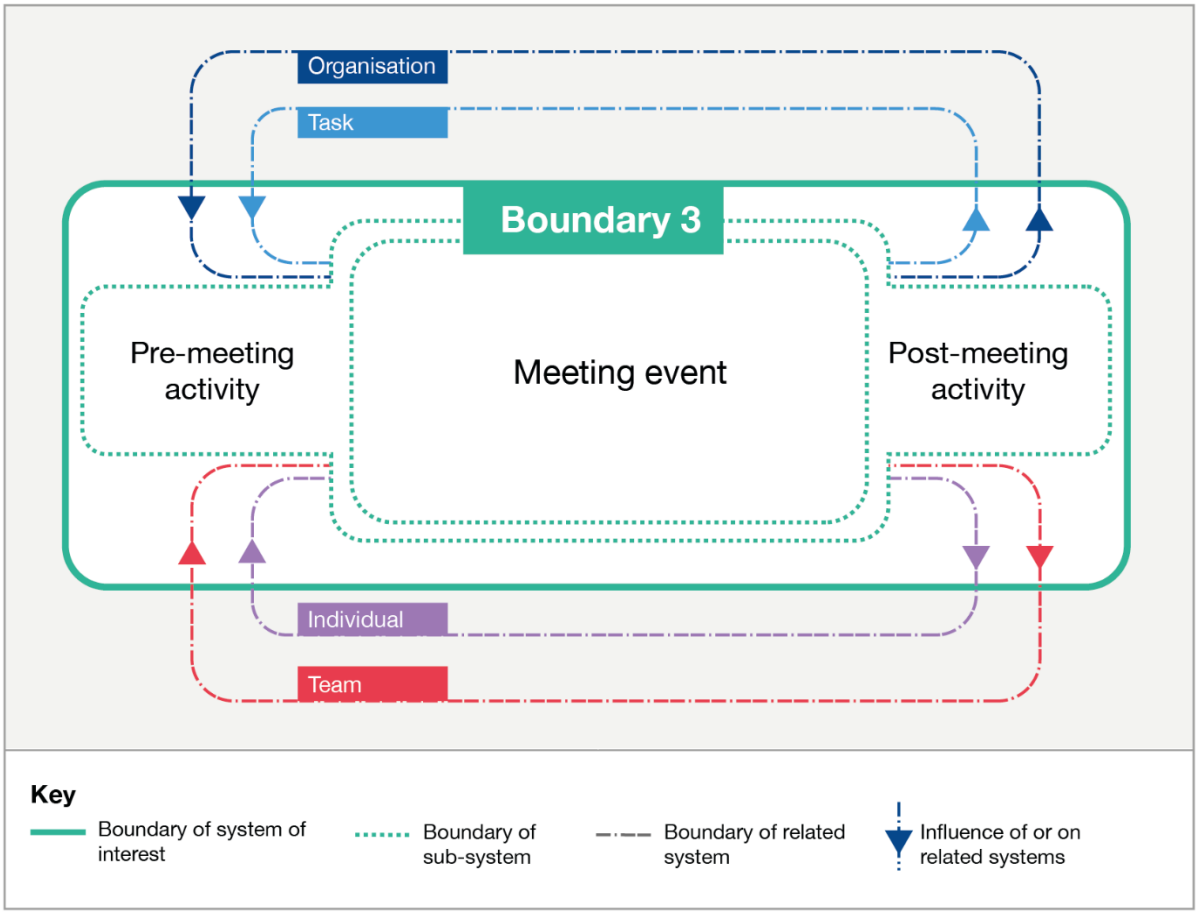


Figure 13**:** *Creation of boundary 3 to accommodate part of each related system*

4.5.1 Additional finding - a notable relationship within boundary 3

The relationship between effort and time put into a meeting by attendees and the value they feel they receive from it stands out as a key driver of meeting experiences, as shown in figure 14. The value exchange is a mental calculation which many interviewees appeared to make, netting off their investment versus gain from each meeting.

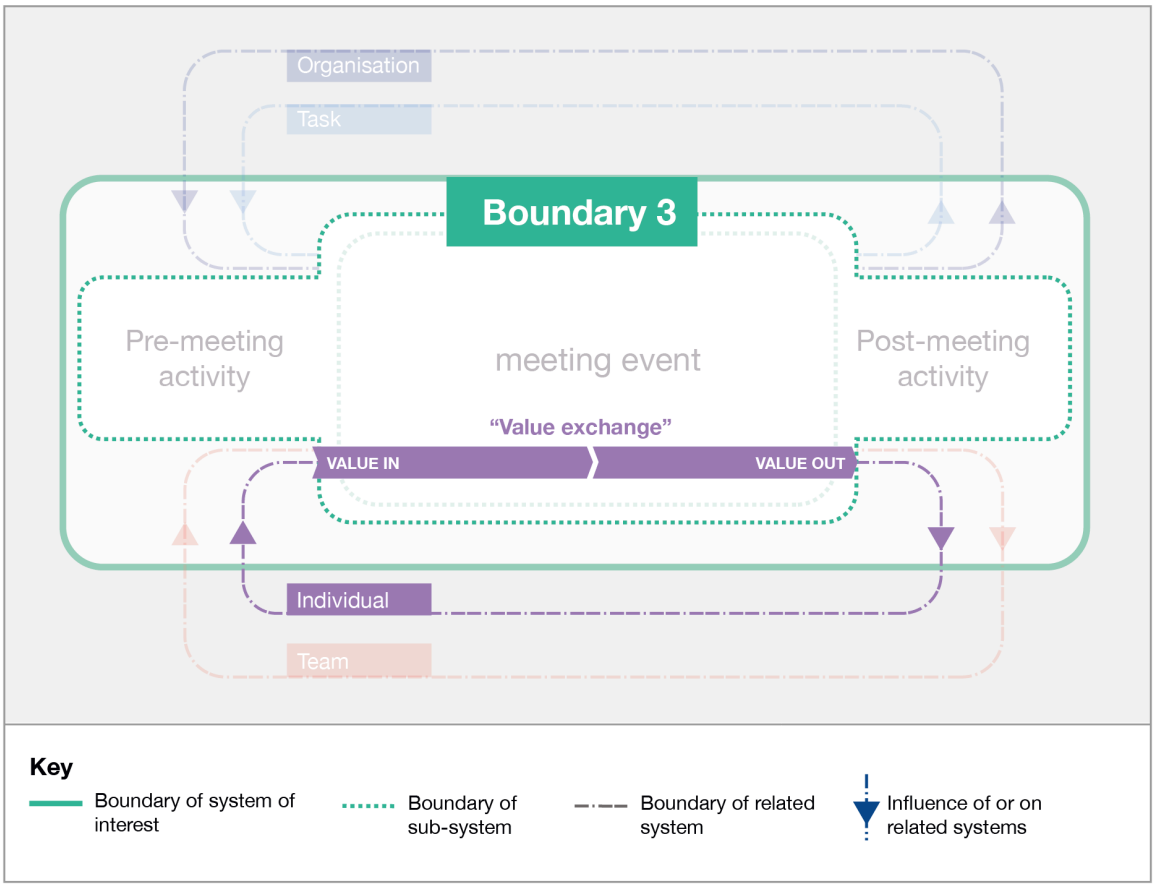


Figure 14: *The value exchange observed in the system of the individual*

This exchange of value emerged in some way in almost every interview and is made up of a complex interaction of factors. For example, the value invested included not just the time spent in the meeting but also the cost of switching attention and the displacement of periods of deep work in which performance is reduced for hours or even days before or after. The investment also places a demand on cognitive load, often perceived as effort by the participant. The value they receive includes task-based value such as information, clarity and decision-making but also value to their status, identity and work satisfaction, together with social benefits. Conversely, the meeting can result in negative value, not simply the opportunity cost of other tasks not completed but also an emotional response

of frustration, boredom or the feeling of being diminished, blocked or devalued. Most interviewees talk about experiencing a negative value exchange in which the time and effort required is not matched by the value they derive and, sometimes accompanied by strong negative emotional experiences. It wasn't possible to discern whether those who put more effort in, got more value from the meeting, simply that participants complete a mental calculation of perceived effort versus perceived outcome.

It seems likely that a similar type of value exchange exists for each of the three other related systems, but the data collected did not permit their discovery.

4.6 Summary of study 1 and implications for study 2

The first study was designed to answer research sub-question 1 which asks how a holistic approach to a study of meetings might challenge the meeting community's concept of meeting context. The findings of 24 overlapping interviews were analysed, generating themes associated with inputs, transformations, outputs, constraints and processes of communication of interest. As a result of examining these themes and overlaying them on the previous meeting boundary, this boundary was redrawn, widening what is considered relevant context in a study of meetings. The findings indicate two further boundaries of interest beyond the meeting event itself. Boundary 2 encompasses activities directly related to the meeting but outside the duration of the meeting event. Boundary 3 attempts to capture all relevant meeting influences from the related systems, categorised as systems related to the organisation, the task, the individual and the team.

The themes were also used to create a categorisation of related systems, considered relevant and worthy of inclusion in a meeting's context: the system of the organisation, task, team and individual. In the next study, these themes will be used to zoom back in to the meeting itself, examining its underlying mechanisms.

The strength of this first discovery study was the collection of data relating to wide meeting context and the analysis of this data in its entirety by one researcher, enabling potentially helpful leaps forward in understanding. This would have been more difficult to do with a more formal coding approach and the outcomes may have been less useful. One major limitation, discussed further in chapter 7, is the potential for researcher bias, where the researcher's own perspectives and experiences influence the data collected and

the meaning derived. For this reason, study 2 adopts a series of reflexive practices, looking for areas of oversight and incorporating alternative perspectives, before developing a theory.

5 Study 2: Development of a theoretic conceptual framework

In this chapter, the divergent nature of study 1, which used a wider search area to explore what could influence meetings, is exchanged for a convergent thinking phase – Prescriptive I in the Design Research Methodology (DRM). The objective of this study is to zoom back into the meeting, using the data collected about its context in study 1 to construct a picture which describes its underlying mechanisms.

Study 2 breaks this process into two parts, as shown in figure 15. First, the study derives the set of underlying mechanisms to answer the second research sub-question:

> *What underpinning mechanisms are thought to drive and influence meetings, as a result of taking a holistic view?*

The study then draws together this knowledge with the insights on boundaries and related systems and mapping those patterns into as clear, coherent, concise and complete a picture as possible, to answer the third sub-question:

> *How could a conceptual framework be described that captures the context and underpinning mechanisms to inform systemic meeting design?*

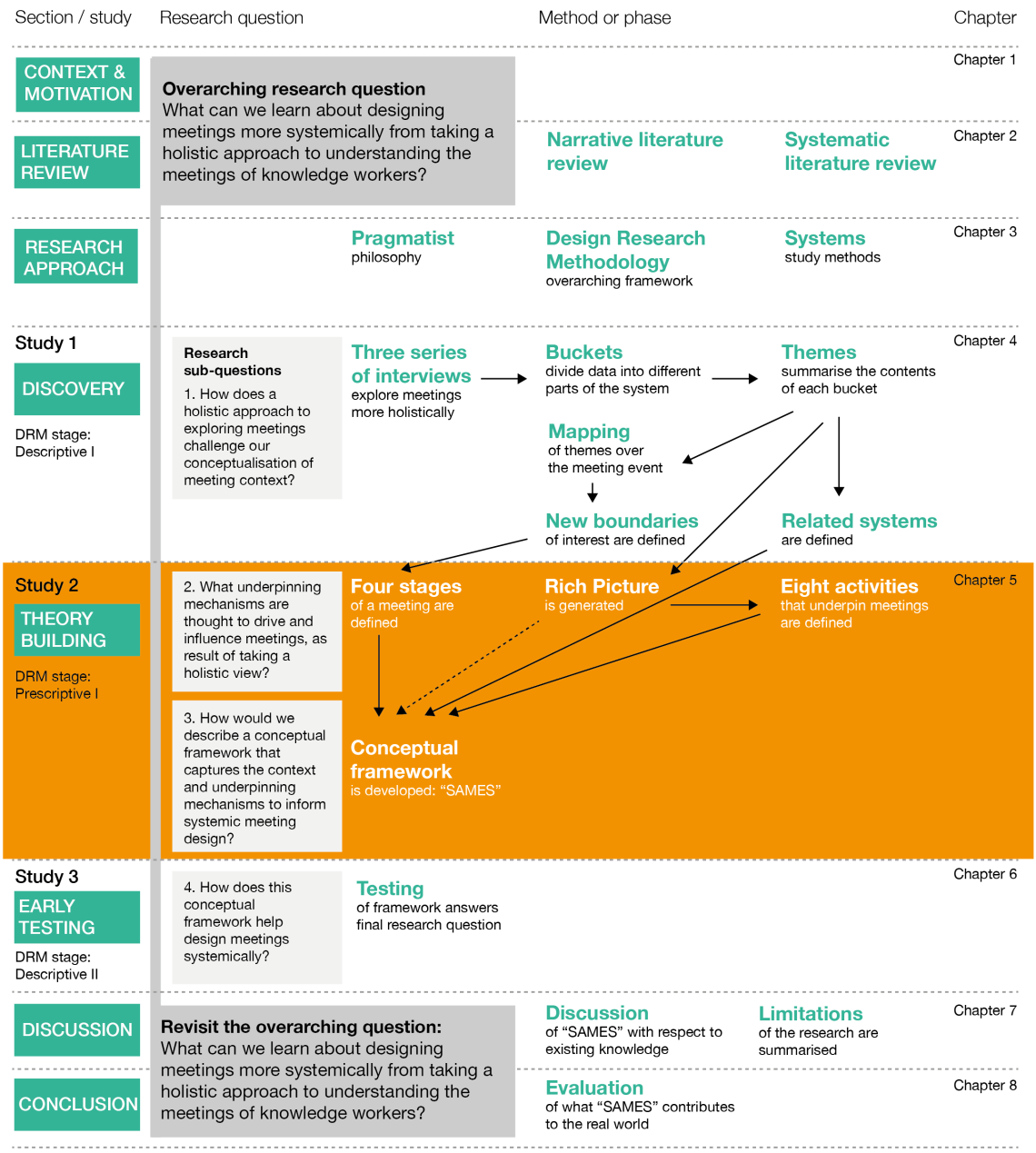


Figure 15: *Summary of how study 2 answers sub-questions 2 and 3 and relates to the rest of the research*

It is important to stress again that studies 1 and 2 were not conducted as independently of each other as figure 15 implies and therefore answers to research questions 2 and 3 were already emergent in study 1.

5.1.1 The rationale for developing a conceptual framework

Abductive reasoning was undertaken to develop the findings and themes established in study 1 was undertaken to help provide the missing holistic but practical narrative highlighted in the literature review. This type of reasoning examines data and suggests the most plausible conclusion, often making new leaps in thinking, but stops short of deduction or completeness (Thagard & Shelley, 1997).

One alternative to theory building would have been to present the data numerically using detailed code counts, cross-tabulating and analysing relationships between themes and interviewee descriptors such as their attitude to meetings and their role complexity. This route was not chosen because of this study's preference for interpreting data holistically in contrast to many studies of meetings to date, as argued at the end of the literature review in section 2.4.1.

Alternatives to a conceptual framework were considered, including developing a metaphor (Morgan, 1986) or adopting a narrative approach such as Mitroff and Kilmann's storytelling (1975) but these were seen as less useful to future researchers than a picture which could summarise multiple meeting stages and activities in one view.

Every study uses abductive reasoning to a degree; for example, the creation of codes is itself a leap in understanding, choosing the interpretation thought to be the most likely explanation or classification of an utterance. This study deliberately leans on abductive reasoning more than many studies of meetings to date and is subject to the limitations of this technique. Abductive reasoning is subject to criticism as a reliable rule of inference, with objections relating to a lack of precision and weak validity when data are stretched beyond classification and into explanation (Peirce, 1932). For this reason, it is not proposed that explanations in this thesis are validated, merely worthy of consideration and further study. Furthermore, the process of creating a conceptual framework was seen as a helpful way to "interrogate perceptions of the real-world and to structure debate about changes which are feasible and desirable" (Jackson, 2001, p. 241).

Abductive explanations are often layered rather than independent (Thagard & Shelley, 1997) and are also not distinct from inductive classifications (Plutynski, 2011). They therefore better reflect the interconnected nature of data elicited through a systems approach.

Thagard and Shelley suggest that the leaps in understanding elicited through abductive reasoning might be better represented visually than sententially (1997) which supports the case for building a conceptual framework to represent the explanations proposed in this study. As discussed in section 2.4.3, meeting science is notable for its absence of pictures or conceptual frameworks. Seeking to create a conceptual framework is a not only a good fit for representing the findings of the methodology used in this research but offers an opportunity to develop a shared language and a sense-making framework which is currently hindering meeting science (Volkema & Niederman, 1995).

5.2 Study 2 methods

This study makes multiple leaps of understanding, firstly seeking to place interviewee experiences into logical and recognisable categories and relationships, inspired by the practice of Grounded Theory (Glaser & Strauss, 1967). At the start of the study, the nature of these categories was not known or pre-determined, beyond the light structure provided by the systems thinking approach. The most relevant and useful themes were derived from the data itself. Secondly, this study makes logical inferences about the simplest and most likely explanation for the patterns in the form of a conceptual framework. It acknowledges that there are many different pictures that could have been drawn, and that this picture emerges from one researcher's interpretation of a set of data, itself co-created by a set of unique interactions between the researcher and the interviewees. Limitations to the specific methods used will be discussed in detail in chapter 7.

In this section, the approach to developing a conceptual framework is explained. Whilst ideally the method would be explained in detail such that it could be replicated, it is acknowledged that the patterns identified were the result of the individual researcher's approach to interpreting the data and that another researcher may have found a different set of concepts.

Guidance from Soft System Methodology says, "We should be trying to deliver findings from that process that are in some sense testable, though not usually with the strength of the tests in empirical natural science … what we should carefully avoid, since they are not testable, is mere ideological statements and commitments" (Checkland, 1992, p.

1029). For this reason, study 2 aims to surface definable, accessible concepts which can be trialled in study 3.

Study 1 zoomed out to consider meetings in context. Study 2 zooms back, seeking to define the underpinning mechanisms, using the context gained through this wider viewfinder.

There are many types of underpinning mechanisms that could have been identified. Two were chosen in this study – the first, an enhancement of the stages of meetings to address the new, wider boundary and the second, a proposed set of activities clusters that influence the course of a meeting.

If study 1 argued that the boundary of study of a meeting should fully extend beyond the clock timings of that meeting event, study 2 seeks to subdivide this wider boundary down into a flow of discrete ***stages*** which address the complexity of the embedded, situated nature of meetings. Describing these stages not only helps us understand meetings more holistically but also breaks down what happens within the new wider boundary and provides a unifying language and framework against which studies and theories can be organised.

To support systemic meeting design, this study breaks out the human ***activities*** at each stage that contribute to the course of a meeting. Participants talked about behaviour in and around meetings at length, describing what people did and did not do, and often what they should and should not have done. These behaviours generated affect and sometimes beliefs, which went on to influence future meetings and the four related systems. These behaviours were, of course, elicited through a wider viewfinder and offer insight into how the related systems influence meetings and how meeting host and attendee behaviour can better take account of that. Examining the clusters of behaviour which seem to influence meetings most and translating these into a set of practical activities offered a way to make a novel contribution to what is already known about stand-alone meeting design elements from correlational studies. Correlational studies provide rules about what is and is not effective in a meeting, for example whether an agenda is correlated with meeting success and if so, whether it should be sent in advance. The activities abstract these rules into principles. For example, if the effectiveness of an agenda is borne out in multiple correlational studies, these data attempt to explain the underlying mechanisms at work. A

clearer understanding of what is happening under the surface, influenced by wider systems, supports more systemic meeting design.

Both mapping the stages and defining the underpinning activities comprised an iterative process, in which a close examination of the data and themes established in study 1 was then translated into sketches of proposed theoretical stages and activities. This was followed by testing of these constructs by revisiting the data, refining the proposals and retesting. In practice this took several months and involved reading and re-reading the transcripts as well as re-listening to the interview audio files and searching for sensemaking constructs which might fit together to mark out stages and form these underpinning mechanisms.

The data drove the journey to the rich picture in section 5.3.2 and the conceptual framework in section 5.4.3. However, that journey was inspired by the desire to create actionable insights and to establish principles rather than 'right/wrong' rules for designing meetings.

5.2.1 Acts of reflexivity

During the theory-building stage, three deliberate acts of reflexivity were used, each designed to enrich thinking and to search for oversights and alternative perspectives. They were chosen as ways to address a key limitation of this study– that a single researcher personally elicited and analysed interview data and then proposed abductive 'leaps in thinking'. These acts of reflexivity did not occur in linear sequence, where interpretation was frozen in time, a process of reflection undertaken, changes made and then the interpretation refrozen. Rather, they happened in parallel, weaving together and helping to shape the overall picture in ways that are hard to unpick.

The first act of reflexivity was ***observation*** of real meetings, during the period where 'leaps in understanding' were crystalising. As the data from study 1 were exclusively sourced second-hand meeting perceptions, it was helpful to enrich this with some first-hand observation of the types of meetings these interviewees were describing and to test out the early sketches of the rich picture in a naturalistic setting. Three meetings, from the same knowledge-based organisation were informally observed. Each time, the most recent copy of the rich picture was used to make observational notes on stages and

activities that appeared to be supported, disconfirmed or missed. These notes were incorporated into the development of the theory and the insights helped shape the final stages and activities list. The main contribution of the observations was to fine tune the language of the rich picture, but also to highlight that the stages and activities took place in a far messier way than interviewee data had suggested. The major limitation to observation as a method was a lack of visibility of what had occurred before the meeting and what would follow it. A second limitation was confirmation bias, making it more likely themes that had already been identified were observed and confirmed.

The second act of reflexivity was the recruitment of a ***secondary coder*** who was provided with the transcript and audio data on which to conduct their own coding process. The two researchers did not follow an identical method of analysis. Both grouped the textual data into the systems lexicon categories. The primary researcher then used the KJ Method to affinity map to develop key themes (Scupin, 1997). The secondary researcher established codes more formally and deliberately and then counted mentions of each code. The more significant differences relate to an additional coding process the secondary researcher was asked to complete. After the initial affinity mapping conducted by the primary researcher, it was clear that the interviews contained a great deal of attitudinal data which appeared to be useful but had not been well captured by the KJ Method. Further reading highlighted that attitudinal factors can often explain the link between inputs and outputs (Marks, Mathieu, & Stephen, 2001). The secondary coder was therefore additionally tasked with capturing insights based on a breakdown of attitudes as affect, behaviour and cognition (Eiser, 1986).

The major contribution of the secondary coding was to highlight the prevalence of emotional content in the interviews and the high ratio of negative-to-positive comments. The secondary coder's reflection notes helped to highlight the wide range of negative affect interviewees report in meetings and showed how deeply connected this affect is to related systems far removed from the meeting being described, in many cases. The secondary coding exercise made the case for using emotional themes which linked the meeting with its related systems much more directly. This contribution was important in driving the 'leaps of understanding' that led to developing the underpinning principles (activities) in the findings section of this chapter.

The objective of this conceptual model was to explore the wider and inter-related influences on meetings and to zoom between "a larger organizational overview and the minutiae of daily life, without losing focus and resolution" (Arman et al., 2012, p. 313). Therefore, the third act of reflexivity comprised ***member validation interviews*** where early sketches were shared and discussed. Six interviews, each lasting 60 minutes, were held with members of the original interview cohort, providing an opportunity to test the acceptability of the rich picture (Bloor, 1978). These interviews started early in the sketching journey which itself started before the study 1 interviews were completed and provide an explicit example of the permeability of studies 1 and 2. Figure 16 shows which of the original 18 participants also completed a member validation interview.

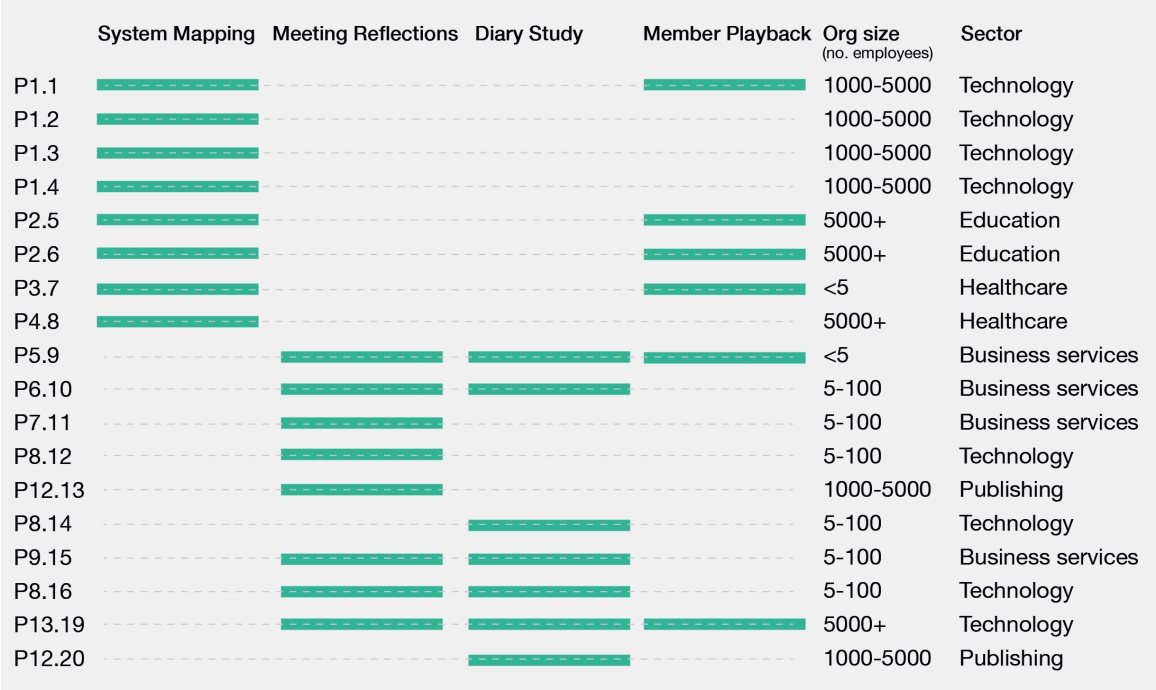


Figure 16: *Distribution of member playback interviews across the original interviewees*

In these interviews, the rich picture was shared in a deliberately sketchy format to ensure interviewees did not feel it was already mature and that they should acquiesce or only comment on minor details. Interviewees were asked to comment on what meaning they derived from it and then discuss the boundaries, systems, stages and activities.

5.3 Study 2 findings

In this section, the underpinning mechanisms established through the methods of analysis described above are shared, first the meeting stages and then the activities.

The search for coherence required a high degree of abductive thinking. The rich picture emerging from the affinity mapping process, together with the acts of reflexivity, were mined for coherence. Appropriate leaps in thinking enabled consideration of the most plausible answer to 'what might be happening here?', in order to develop a set of underpinning mechanisms (Kennedy, 2018).

5.3.1 Establishment of four stages of a meeting

The meeting stages were determined by grouping the inputs, transformations and outputs located within the newly widened boundary of interest, identified in study 1 (chapter 4) as boundary 3, into a new set of distinct phases. As a reminder, this wider boundary includes pre-meeting activity, the meeting event itself and post-meeting activity *and* includes the influences of the four related systems: the organisation, the task, the team and the individuals.

A meeting has three obvious time-defined stages comprising 'before', 'during' and 'after' the meeting event which already appear in some meetings science papers (Dittrich et al., 2011; Mroz, Allen, Verhoeven, & Shuffler, 2018) usually using exactly these labels. However, the interviewee data suggest two updates to this basic breakdown. The first is the identification of an additional stage, thought to be distinct from the others. The second is an updated definition of 'before', 'during' and 'after' stages, reflecting their embedded nature and the wider boundaries established in study 1. The new names and definitions are defined not by time but by activities. All four stages are shown in figure 17 and then discussed below.

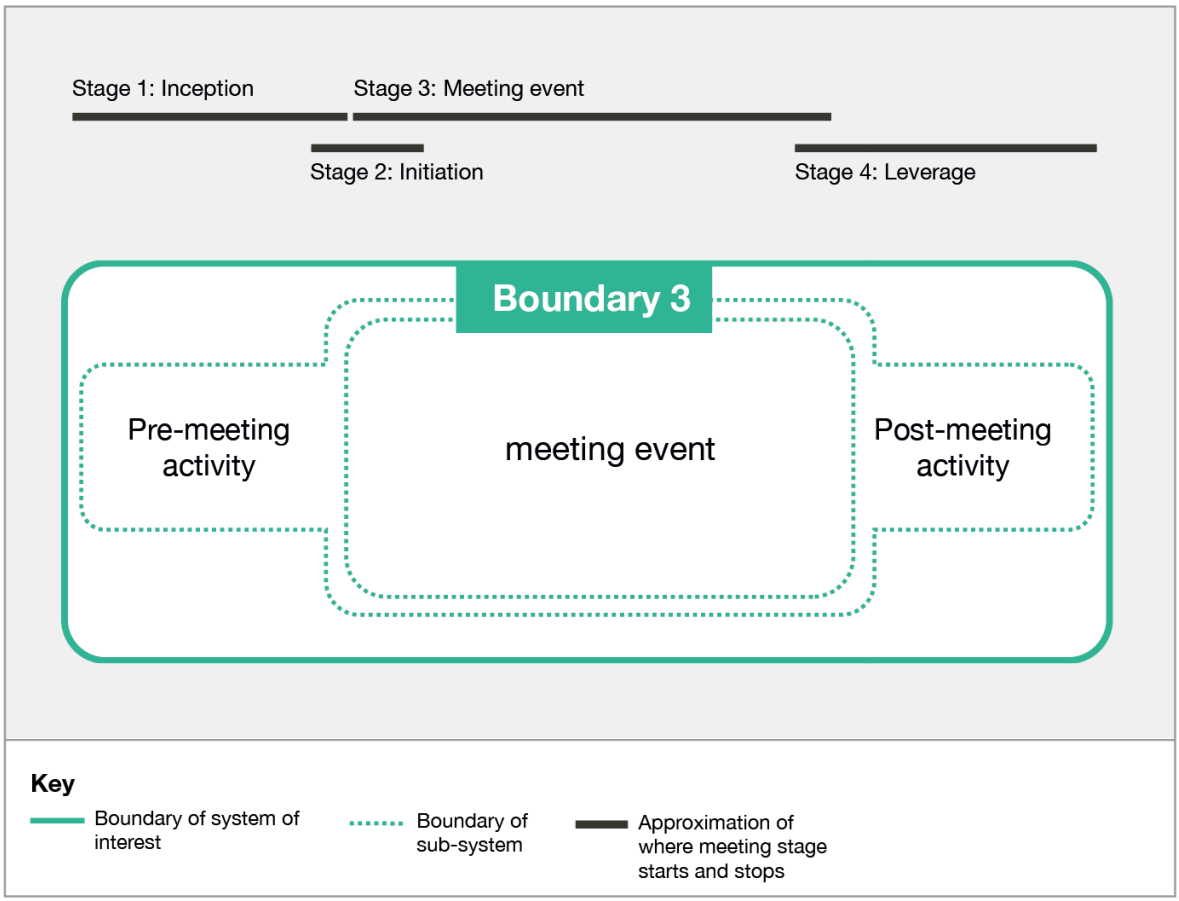


Figure 17: *How the updated stages map to boundary 3*

Identification of a new stage: Initiation

The ***Initiation*** stage is a new, additional proposed stage and emerged from the data as distinct from the pre-meeting phase (described in many studies as 'before') and the meeting event. It comprises the transition from one state to another which the data suggest is particularly important.

An initial pattern can be observed at the start of meetings, at the point where the diverse activities in which attendees are involved before the meeting are suddenly funnelled to a single group activity. This transition has been explored to some extent in variance-based studies, such as the impact of lateness on a meeting's outputs and the role of pre-meeting chat. However, the data in this study suggest the transition goes further than simply assembling the right people in the same location at the same time, and social and relational benefits of informal conversations while this process takes place.

Some interviewees explained that there is a shift in mental state from those activities on which they were focusing before the meeting to the task and tone of the meeting they are entering – a shift which is not always easy to make. In two instances interviewees described this as a welcome interruption but in all other mentions this shift was negative, for example, one interviewee who described how transitioning into a meeting was "always a sacrifice" (P1.6).

Looking at this intangible shift in more detail, it seems to be embedded in some of the other systems described in study 1. Interviewees refer to the system of the individual, both describing themselves and others. Personal preferences are cited as affecting this transition, such as the contrast between those people who generally welcome group interactions during the working day and those who prefer to work on their own and regard a group interaction as a sacrifice.

High individual workload also impacts effective transitioning into a group meeting, increasing friction. Once again, the problem is attributed less to the 'clock time' the meeting takes away from the day and more to the interruption in concentration and the unwelcome additional mental load. Interviewees explain that some days they are involved in detailed work which requires longer periods of unbroken concentration. The working day, week and month has a unique rhythm for each individual and team. Some interviewees explained how a meeting synchronised well with this rhythm or even drove that rhythm within a particular team. However, in many meetings, especially those connecting multiple teams together, the effect is one of dissonance where multiple individual or team rhythms clash together.

Even where interviewees had felt relatively clear on a meeting's purpose and format when invited, they described how clarity had diminished by the time the meeting arrived or that their expectations did not match those of others at the meeting's start. The former issue was sometimes resolved by asking questions of clarity at the start which was sometimes sufficient to restore group clarity but sometimes catalysed a protracted negotiation at the start of the meeting. Sometimes a lack of clarity only emerged during the meeting, resulting in in-meeting negotiation which consumed clock time and created frustration.

This pattern of sometimes problematic state shifting from pre-meeting to meeting activities was evident in the meetings observed as a reflexive practice. Opportunities to create certainty within the group about the meeting's purpose and format were being missed or underused. In many cases, hosts went straight into the content of the meeting, with attendees remaining unclear as to what the meeting is intended to achieve and asking questions throughout to try to establish this.

There are some exceptions where this lack of clarity is perceived as less of a problem, specifically: where there are small numbers of attendees; or the interviewee sharing their experiences works for a informal organisation; or there is a power/benefit asymmetry such that the interviewee stands to benefit simply through airtime with someone senior in the room.

Taken together, it seems that there is a transitional stage which is liminal in nature, during which a meeting has not reached the threshold of task commencement. At this point there are underused opportunities to capture the group's attention, gain its commitment and to generate certainty about the meeting's purpose and how the team will achieve this together in the allotted time.

Interview narratives suggest that this transitional stage is worthy of consideration in its own right. It also appears to be significantly impacted by the previous meeting stage which will be discussed next.

Update to the "Before" stage: Inception

The data in this study present a picture of a pre-meeting stage which is longer, more embedded and more significant than many existing studies of meetings might suggest. Its characteristics will be explored below as will the rationale for proposing a new name for what happens before a meeting as ***Inception***, capturing the entire range of events, from first conception to transition into the meeting.

The Inception stage is where the many examples interviewees described of mismatched or unmet expectations at the meeting event are rooted. There are multiple significant mentions of interviewees entering the meeting with a lack of clarity about the overall purpose of the meeting, what they are expected to bring to the meeting, how they will work together in the meeting and specific goals to be achieved by the end of the meeting.

Interviewees indicated that mismatches usually only emerged *during* the meeting by which time they were more difficult to resolve. Hosts reported that the conception of the meeting is not always fully formed in their own head. Hosts and attendees reflect that these conceptions are rarely explicitly shared pre-meeting.

This is further complicated by the fact that study participants held different beliefs about what a meeting is for and how it should be executed. They also described notably different preferences and styles, including communication, planning and levels of thinking. Where Inception had failed to set common expectations, they were pre-populated by each attendee's own beliefs and preferences.

A lack of planning and preparation by others is in conflict with some attendees' value of fairness. It is a signal that an attendee's time is not seen as valuable or even that they are not respected and valued as a colleague. Lack of information or consultation sends similar problematic messages, for example where technology allows a colleague, in a handful of words, to secure an individual's time without their consultation or agreement, via a meeting invitation.

Crucially, this research establishes that, as each meeting is cradled in four related systems (those of the organisation, task, team and individual), a new meeting does not start as a blank canvas on which the host can simply place a template. It is already pre-shaped and pre-influenced by the individuals, their preferences, expectations, team relationships and experiences as well as by the task stage and the organisational setting. These influences are often conflicting and poorly understood. Interviewees responding as both hosts and as attendees describe the lack of time and capacity available for meeting preparation, limiting consideration of these harder to access influences. The data in this study suggest time saved at this stage is a poor economy with those influences impacting the meeting event, consuming the precious clock-time of multiple individuals, limiting time to complete the work the meeting was intended to achieve and affecting implementation of decisions after the meeting.

The stage of Inception suggests meeting hosts and attendees under-acknowledge the time required to consider and respond to the influences of the four related systems, before a meeting takes place.

Update to the "During" stage: Meeting Event

What most studies refer to as 'the meeting' or occasionally 'during' has been renamed ***Meeting Event*** to define the stage more precisely to the clock time between start and finish. The intention is to specify the physical, synchronous meeting time more precisely within the wider meeting collaborative activity and de-emphasise the word 'meeting' as synonymous simply with the clock time of the meeting itself. This stage overlaps with Initiation which spans the transition into the task phase of the meeting, as shown in figure 17.

Update to the "After" stage: Leverage

The 'after' stage is the least well-covered in the existing meeting science literature but this study's data suggest it is significant and worthy of further study. This study renames this transition out of the meeting as ***Leverage*** in which the outcomes generated in the meeting are translated into tangible value for the related systems in which the meeting is embedded. The name is intended to emphasise the role of this stage in creating actual value from potential (or unleveraged) value generated in the meeting.

By specifically asking interviewees to describe outcomes from meetings, this stage received a new level of scrutiny, revealing blockages which prevent potential value from converting to real value for tasks, teams, individuals and organisations.

This stage overlaps with the end of the Meeting Event stage, as attendees consolidate discussions, decisions and plans. It continues after the meeting as that which has been consolidated is then transitioned back into the related systems in which the meeting is embedded. This stage is usually only lightly considered, for example, the distribution of meeting minutes or the revisiting of tasks in a subsequent meeting. The end of this stage is often blurry and 'fanned out' as many different outcomes of the meeting, both tangible and intangible, make their way into much wider related systems.

Interviewees universally agree that value generated in the meeting is not fully leveraged during this stage. This was also evidenced in the secondary coding process where negative opinions dominated comments about the post-meeting stage. Member validation interviews indicated study participants agreed with this characterisation and said they

valued the term Leverage for its ability to describe and emphasise the translation of meeting outcomes into real value in each related system.

5.3.2 The rich picture

The themes generated in study 1 were used to generate a rich picture in study 2 (figure 18) and then to help describe a set of activities, thought to allow hosts and attendees the most influence on the course of a meeting. As these themes arose from a study using a much wider viewfinder to include related systems, these activities are driven by the influence of the four related systems.

The rich picture is shown in figure 18. Each line represents a relationship expressed by one or more comments in a transcript. Each black label represents a theme derived from KJ Method and was described in more detail in chapter 4. The search was for a coherent set of groups that would add knowledge to the more surface-level predictive findings of many meeting science studies to date, starting to answer questions about why these surface-level findings might be occurring. This coherence was seen as a halfway house in a complex system and an abstracted description of processes and events. Of course, “all models are wrong but some are useful” (Box & Draper, 1987, p. 424).

The rich picture was not created in a single sitting or even in a single month. It was the result of several months of playing with the data to create and iterate concepts, starting after the first ten interviews were completed. It was decided to forgo the more convenient process of completing all data collection and then analysing the data at the same time, in order to gain the maturity of thinking that resulted from multiple iterations, re-processing the data and then using new data to test the emerging rich picture for completeness.

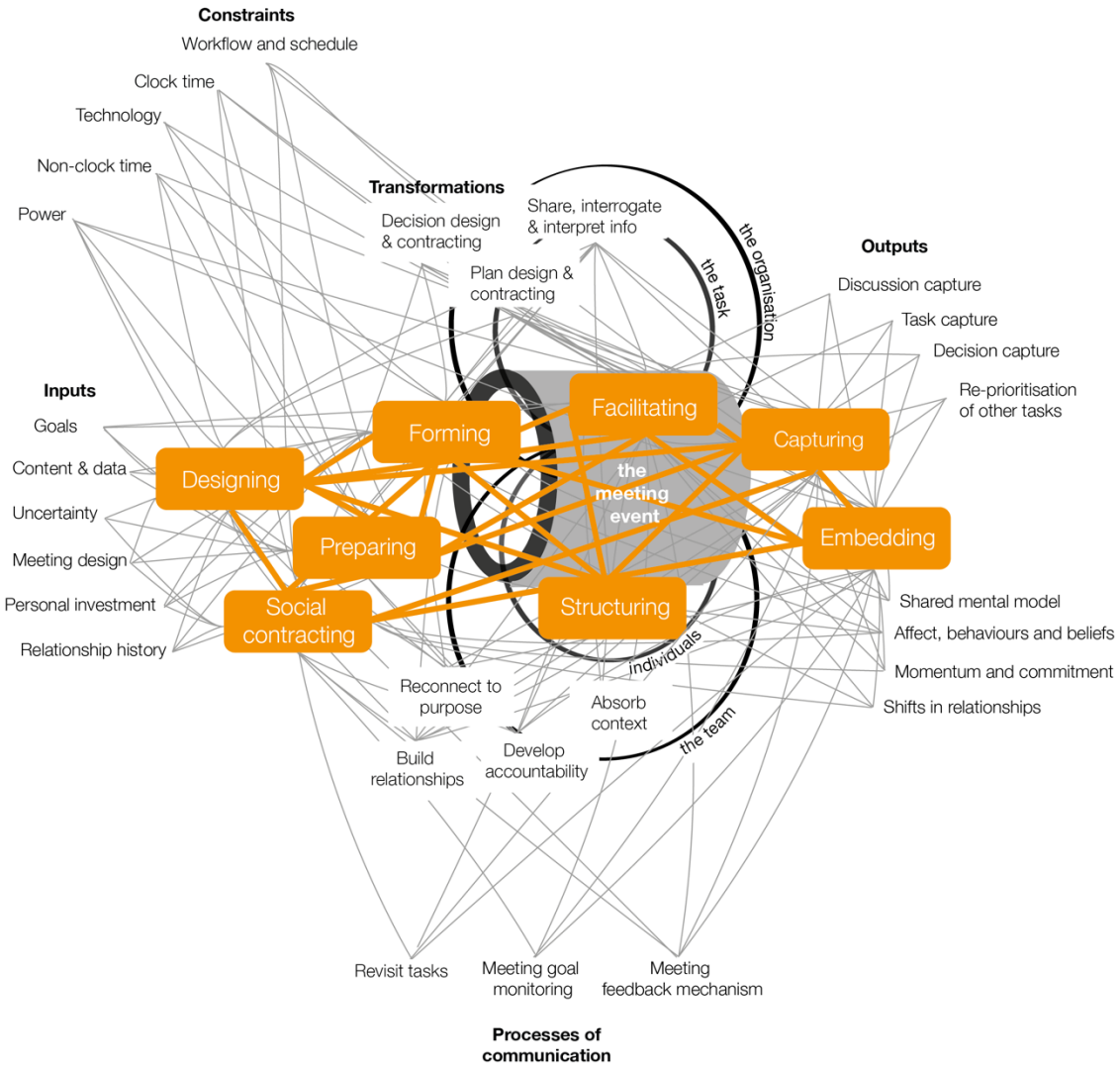


Figure 18: *Rich picture to develop the relationship between the themes derived from study 1 and the activities proposed in study 2.*

The process of creating the rich picture enabled development of eight proposed areas of activity, based on the links to categories established in study 1, which, according to the data, appeared to be important in creating the conditions for a meeting. As the categories from study 1 were derived from related systems in the boundary of study, the activities

are intended to address those wider identified influences. They are also positioned as an abstraction of the types of activities that are commonly researched in studies of meetings such as the use of an agenda. The relationship between the activities in this study and those in the meeting science literature base is explored in chapter 7.

The influence of the three acts of reflexivity (observation, secondary coding and member validation interviews) is integrated throughout the development of the rich picture and the resulting set of activities and contributions are specifically flagged where they influenced the direction of the conceptual framework.

5.3.3 Development of eight activities underpinning a meeting

Each of the eight activities comprises a group of actions and behaviours, undertaken by the host or hosts of the meeting. This type of breakdown was chosen for three reasons. Firstly, the use of activities performed by real people, provided an observable and practical framework. Secondly, they abstract many of the meeting factors explored in other studies of meetings, providing a deeper explanation of what underpins more surface-level factors. Thirdly, they consider and include previously under-explored context by including wider related systems. In short, if meetings are studied as situated and embedded within wider systems and subject to a much broader range of influences, the data suggest these activities create conditions for meeting success.

Creating the meeting concept: Designing

The first activity relates to the conceptualisation of the meeting in one or more individual's heads and the development of that meeting concept. ***Designing*** encompasses a wide range of design related actions, few of which interviewees can point to. However, interviewees clearly describe poor design or lack of design. The lack of discussion of design itself can be in part attributed to some beliefs which emerged particularly strongly in the secondary coder's results. Most interviewees had a fixed view of how meetings should be run – though little agreement was found between interviewees' fixed views. Interviewees did not recognise designing a meeting as a necessary activity, instead believing a meeting should conform to their pre-conceived idea.

It is clear from descriptions of experiences that designing a meeting requires rich situational sensitivity. For example, interviewees express different expectations for a meeting, for reasons that draw together influences from the four related systems. It can be inferred from interviewee comments that following a strict template or a standard set of rules for planning a meeting may not be helpful as judgements are required on many aspects of meeting design. Meetings are part of a delicate ecosystem of related systems which is hard to perceive and requires thoughtful, skilful design.

Gaining trust and commitment: Social Contracting

Interviewees' comments point to a missing interaction, dialogue or negotiation before the meeting. It is this pre-meeting negotiation which sets the tone for the meeting itself and gains the trust and commitment of the attendees. In this study, ***Social Contracting*** refers to the request, negotiation and agreement of time and attention for a meeting, in exchange for outcomes. This activity was originally called simply "contracting" but the member validation interviews helped highlight that on its own this word implied a formal, written contract to most people and the addition of the word *social* clarified that this contracting was largely informal and intangible.

This exchange of value has to appear credible to each participant, to gain their commitment to the participatory behaviours a meeting requires. Meeting attendees are much more willing to accept poor value for their own time if they feel they are making a contribution of benefit to others. However, they only consider this an acceptable 'contract' *if* their contribution is acknowledged and appreciated.

According to interviewees' responses, when Social Contracting is insufficient, it creates multiple problems. Attendees may feel their time has been sequestered without their full permission, generating feelings of frustration and lack of recognition and status. If not achieved in advance, the negotiation may take place during the meeting itself, using valuable time and frustrating attendees. Without a form of Social Contracting, the meeting may fail to make progress on its objectives because of lack of alignment and cooperation. The member validation interviews helped to unpack this idea further, suggesting that the complex, multi-way interaction of a meeting has to be mirrored in the way in which the meeting was conceived, communicated and agreed - the latter setting the tone for the former.

Getting to the start line: Preparing

Both the interviews and the subsequent observation indicated a form of a possible 'start line' that meeting attendees need to cross at the start of the meeting for the planned meeting transformations to take place. Talking about this issue, one interviewee explains the obvious impact of failing to cross this line on the expected transformations for the meeting, "The fact-finding step had been skipped - anyone could have done this but the meeting pre-empted that fact finding so no one had the data they needed to solve the problem" (P1.1).

If the host or a participant has not reached this 'start line', the synchronous nature of most meetings, in which every participant's attention is required from start to finish, means that enabling one or more people to reach this line during the meeting uses everyone's clock time. This is perceived as wasteful and anti-social and, though it conflicts with an important shared value, it happens regularly.

The 'start line' can also simply mean being ready and attentive: "They dial in not ready. They get their head into the game whilst they're on the call." In another case, the interviewee described the problem of failing to cross the start line of knowledge or content, explaining, "I think some people don't have enough time (or haven't allowed enough time) so they're always playing catch up and this is the first time they've thought about the project since the last time they worked on it" (P8.14).

The activity which has been missed is ***Preparing***, an activity with which most meeting attendees appear to be familiar. It comprises the preparation to deliver the meeting design by the meeting host and also the preparation each participant needs to reach this unarticulated start line. The main problem associated with preparation is lack of time available, or dedicated to, completing it. Usually, it is an additional task for which capacity has not been allocated, unlike the meeting event which is scheduled into each participant's diary. For some, the preparation is perceived as too low a priority or is not a task for which they have a preference and this can be compounded by team, individual or organisational norms where it is accepted that certain people do not prepare well for meetings.

Exactly what preparation is expected and what the 'start line' is often unclear. Preparation of physical assets are the best communicated, such a presentation slides or data. Less

tangible preparation, such as a minimum level of knowledge about a task or its progress or an understanding of context, is rarely communicated.

More junior interviewees talked about wanting more clarity and structure to enable them to prepare and be able to contribute confidently. More senior interviewees did not want the burden of preparation and passed off a failure to prepare as a relatively inconsequential mistake: “My contribution needed to be considered. I needed to look through all the materials. My bad! I had plenty of time to do this before the meeting” (P8.16).

However, findings imply that more than clock time is being consumed by failure to prepare. The secondary coder helped to emphasise the emotional cost of effort, energy and damage to trust, connecting Preparing back to Social Contracting where expectations are established.

Managing the transition into a ‘meeting team’: Forming

The activity of ***Forming*** the meeting aligns with the Initiation stage. It involves making the transition from individual activities into a group, focused on a shared task, with one central conversation. In the rich picture this is represented by a napkin ring shape, into which all related systems flow, which resonated with interviewees who later reviewed the rich picture.

Forming is messy and involves multiple, overlapping micro-stages. For example, interviewees describe the process of suspending their previous task, physically joining the meeting, initiating social contact with others – often in a casual and haphazard way - and then forming one single conversation to address the meeting’s purpose. This stage is profoundly influenced by the systems around the meeting and by the previous activities of Designing, Social Contracting and Preparing. It sets the scene for the Meeting Event which follows. It is a second opportunity for Social Contracting to take place or to be reinforced. It is at this point that expectations can be met, missed or reset. The secondary coder highlighted the emotional cost of failing to make this transition successfully. Physical lateness is only one of the ways that Forming can be messy and difficult. It is a multi-stage mental, physical and dialogic transition and is characterised by emergent events.

Observation also shows that Forming happens in many different ways but is rarely managed well and often involves a jerky transition and a delayed start to the body of the meeting.

Shaping the meeting: Facilitating

In the rich picture, a cluster was identified which related to shaping and influencing the course of a meeting. Subsequent consideration of the additional data from the secondary coder led to a re-evaluation of the original interview data and a division of this cluster into two distinct activities: ***Facilitating*** and ***Structuring***.

The former is well addressed in the literature and is the activity of executing the meeting design, guiding what happens in the meeting and seeking to achieve its purpose. It is a dynamic and responsive activity which interfaces between the meeting's design (which is just a concept) and the reality of what emerges in the meeting itself. It requires further Social Contracting to develop and maintain attention and commitment to participatory behaviours during the meeting. The responsibility for Facilitating may be held by one person or a few people or it may be distributed across the whole group. Uncertainty about who is responsible for Facilitating can be a source of frustration, as can the facilitation itself.

The activity of Facilitating involves working with the constraint of time and the influences of power and culture. It involves navigating choices about voice, content, process, behaviour and thinking levels. It may require execution structures (see the next section), whether light or heavy, to maximise the efficiency and effectiveness of multiple contributions.

Shaping the meeting: Structuring

The second part of shaping the meeting relates to specific ways that hosts attempted to organise, constrain or coordinate contributions to a meeting - the activity of ***Structuring***. It is distinct from the more organic facilitation where an individual uses their own utterances to shape the meeting and instead covers the ways in which facilitation is given over to an independent structure, defined as an overt discussion format with a set of

commonly understood rules. The two overlap, as a structure will require a degree of facilitation.

The most commonly mentioned structure was the use of an agenda. Although agendas may be included in meeting invitations, they were not commonly used formally to structure meetings attended or hosted by interviewees of this study. Other meeting structures shared by interviewees or observed included informal 'rounds' where each participant shares an update in turn, using post-it notes to brainstorm individually before sharing and grouping ideas together and allocating them a specific time in the meeting. The three reasons cited for using structures were to use time more efficiently, to equalise share of voice and to deliberately separate out different parts of a discussion or thinking process.

Capturing the value of the meeting: Capturing

Capturing involves making tangible and visible the transformations which have taken place. Although action lists are frequently used in meetings, decisions are less clearly recorded, and interviewees describe how unclear language whereby an idea decision is proposed and negotiated can create confusion. Interviewees describe situations where they do not understand who is responsible for making a final decision and so important decisions are not made. Meeting attendees make and receive gestures and proposals but it is often unclear who has the authority to accept or reject these proposals. Decisions remain part made and attendees leave with differing understandings of what has been agreed. Capturing seeks to make visible all that is of value but is unsaid or unconfirmed and therefore goes beyond the recording of the content of a meeting, such as taking minutes, and includes more than writing an action list.

The secondary coding emphasised the negative affect generated by incomplete or unclear Capturing where meeting attendees leave without a shared mental model. Interviewees also explained that even when they felt they had left with a shared mental model, without effective capture, this could shift and evolve over time, invisibly dismantling the shared picture created in the meeting.

Embedding outcomes: Embedding

In the fourth meeting stage, Leverage, problems were identified with transitioning decisions, actions and value out of the meeting setting and into the individual, team, task and organisational settings. The elements to be transitioned could be tangible (such as a list of actions attendees have agreed to make) or intangible (such as the creation of a new relationship). ***Embedding*** is the activity associated with ensuring that potential value created in the meeting is translated into actual value in the systems in which the meeting is embedded. Interviewees explain that little or no time is allocated for ensuring this transition takes place successfully. The assumption is that what is captured in the meeting will make its way to its intended destination but often the constraints of time, attention and technology prevent this.

One of the challenges is embedding captured value into multiple systems simultaneously. A simple example described by interviewees is action lists. Some captured actions by writing them on a white board during the meeting. Others photographed or typed them up and emailed to all attendees as a reminder after the meeting. However, interviewees explained that this does not address the challenge of embedding these actions into individuals' personal priority and task list, into the team's shared record of agreed tasks, into the task management process for a particular type of project or at an organisational level to allow other similar projects to gain benefit.

The secondary coding highlighted how feelings of frustration or the inevitable failure to leverage and embed what was agreed in the meeting can affect future meetings and relationships as well as reducing the value of the meeting to the task. Capturing and embedding are closely linked, one happening during transition out of the meeting and the other happening back in the related systems at the end of the wider meeting event.

5.4 The conceptual framework

In study 1 (chapter 4) a new wider boundary for meetings was established and four related systems were identified, into which meetings are embedded. In study 2 (this chapter), it was shown how viewing meetings as wider events, situated in broader systems shines a light on a possible four stages and eight activities which together underpin meetings, in answer to research sub-question 2.

A conceptual framework was created to bring coherence to the finding so far, to make the most important connections clear and visually to orientate the reader. This conceptual framework develops and simplifies the rich picture and presents a visual summary of the stages and activities that underpin meetings, such that it can be understood, used and tested by others. The first step is the choice of diagram type that will guide the creation of this conceptual framework.

5.4.1 Diagramming requirements and candidate techniques

The requirements for this model were threefold. Firstly, it had to be suited to expressing data in complex settings. Secondly, it needed to be visually succinct enough to accommodate a holistic picture and incorporate the full range of systems and underpinning structures and to convey the key findings rapidly, without clutter. Finally, any technique needed to be flexible and not overly prescriptive or constraining.

There are many types of models and visual syntax used to express a system and the interactions between the dynamic forces to which it is subject. The requirement in this case is for a non-pictorial conceptual representation. Jun et al. (2009) tested the relative merits of three types of diagrams in a healthcare modelling setting, exploring those that express hierarchies (such as stakeholder diagrams, information diagrams and process content diagrams), those that show sequential linkages between activities and entities (such as flowcharts, swim lane activity diagrams and state transition diagrams) and those that depict flows of information inputs and outputs (such as communication diagrams and data flow diagrams). Each was perceived to have advantages and disadvantages in different settings and the authors' recommendation is to use multiple diagram types to address the complexity of a healthcare system. None of these diagram types were thought to be entirely suitable for the diagram in this study but elements from each were used, the most important being making linkages between activities and showing flows of inputs and outputs.

From complexity science, gigamapping was considered as a possibility (Sevaldson, 2011) but rejected for its visual complexity. Social network analysis was a candidate technique but focuses solely on people (nodes) and the relationships between them (ties, edges or links) (Bishop & Waring, 2012).

5.4.2 Chosen method and its limitations

The chosen method did not follow one specific model creation method or syntax but shares some characteristics with many of these diagram types above. The diagram prioritises visualising the hierarchy of systems, showing the flow of inputs and outputs between then, breaking out distinct stages and expressing the activities that contribute to the central system: the meeting. The method of diagramming traverses all three of Fisher and Hudson's (1997) recommended phases - creativity, connectivity and communication – in this cycle.

The limitations of not fully adopting an existing diagramming type include a potential lack of precision, and ambiguity in what is represented. These limitations were accepted in order to allow the first conceptual framework of its type in meeting science to propose an early theoretical contribution without becoming overly complicated or burdened by the lexicon of one specific method. The diagram consolidates its own lexicon to minimise ambiguity and to enable future researchers to understand it, and then develop and disconfirm it with new findings.

5.4.3 The conceptual framework: Stages and Activities of Meetings Embedded in Systems (SAMES)

Figure 19 shows the final conceptual framework after several months of iteration using data from all interviewee transcripts and testing through observation, the work of a secondary independent coder and, finally, member validation interviews. It has been given the descriptive title of Stages and Activities of Meetings Embedded in Systems (SAMES) simply to make it easy to reference throughout the remainder of this thesis. It visually unifies the four related systems into which meetings are embedded, the new wider boundary (boundary 3) and proposes a theory that there are four stages within this wider meeting boundary and eight activities which influence a meeting's trajectory.

The representation is deliberately simplistic to allow many concepts to sit together in one picture. In this way, it merely lists and arranges these concepts so that they are considered together and as interwoven, serving as a prompt rather than entirely explaining the relationships in visual syntax.

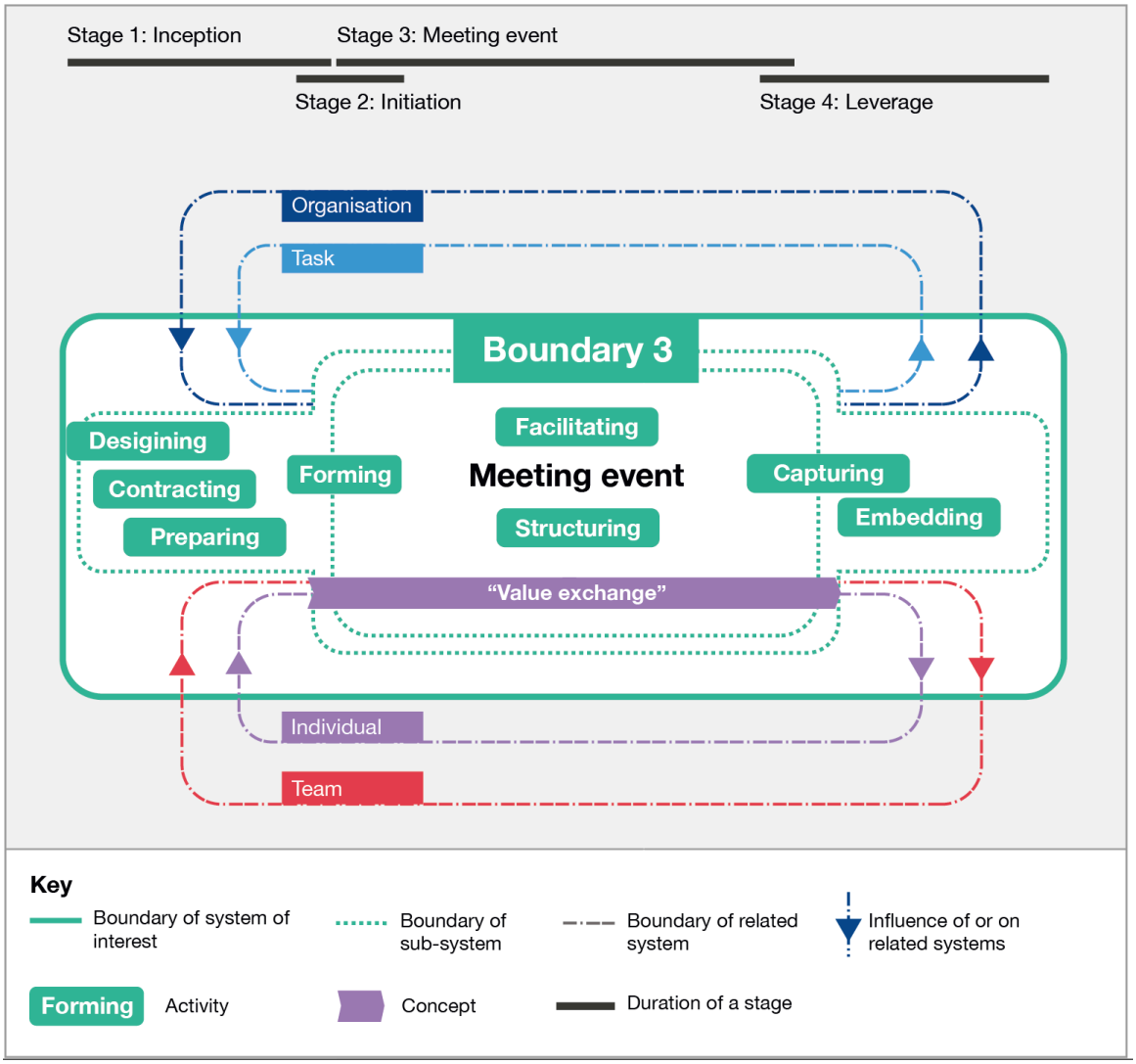


Figure 19: *Introduction to the SAMES conceptual framework*

All diagrams representing conceptual frameworks exaggerate some areas at the expense of others. The best emphasise what is most interesting and help solve problems.

This conceptual framework emphasises the wider boundary and the major system, stage and activity categories. It plays up the idea that they are cyclical, shaping and being shaped by each other. However, it downplays the messy, unpredictable inter-relationships between them and also the fuzzy edges between systems, stages and activities. SAMES presents a single meeting embedded in multiple systems whereas, in reality, meetings exist in relationship to other meetings, many of which will overlap and intertwine (O'Rourke & Duffy, 2012).

It helps to solve the research problem by assembling one perspective on a more complete set of relevant systems, stages and activities in a single picture, allowing a new view of meetings as wide and embedded collaborative activities. The framework takes the input-process-output (IPO) model and refines it, based on the findings of this more holistic study. It focuses on presenting new knowledge rather than simply collating existing knowledge and proposes a set of underpinning mechanisms that help explain what influences meetings which, arguably, has eluded researchers to date.

SAMES is also a springboard for further studies to generate more insights including:

- calculations of value exchange – and comparisons across attendees
- exploration of other types of value exchange focused on the other three related systems
- zooming out further to connect multiple meetings together in a chain
- more detailed exploration of the relationships between meetings and the related systems.

5.5 Summary of study 2 and implications for study 3

Study 2 sought to answer the second and third research sub-questions, specifically examining the underpinning mechanisms emerging from this more holistic exploration of meetings and attempting to capture them in a conceptual framework that will support systemic meeting design.

Taking the data and themes developed in study 1, study 2 transposed them into the mechanisms which drive and influence meetings and shaped all findings of studies 1 and 2 iteratively into one possible systems picture of meetings. This picture included a set of four stages through which a meeting passes, starting earlier before the Meeting Event and ending later after the Meeting Event than most studies of meetings, set within the context of four related systems. Eight meeting activities were crafted by grouping together the meeting-related behaviours considered into likely explanatory activities, based on the experiences and systems descriptions shared by interviewees. These stages and activities were combined to form a conceptual framework, named ‘SAMES’, which places them in relationship to each other and to the Meeting Event.

At this point there were two options for a further study. The first was to focus on one or several stages and activities that were particularly striking and new, and to examine and test them further. Obvious candidates for this treatment would be the Initiation stage or the Designing, Social Contracting or Embedding activities, all of which contribute a new or more nuanced item to what is currently featured in the literature. The second option was to keep the viewfinder wide and to explore systemic meeting design further and verify the overall conceptual framework.

The second option was chosen for a range of reasons. The conceptual framework itself is embryonic and, having initiated a zoomed-out study, it seemed premature to zoom in immediately before exploring and verifying the whole framework further. Furthermore, the original aim of the study was to examine meetings more holistically and to present a systems view of the underpinning mechanisms in a single picture, such that meetings could be designed more systemically. The focus on this picture was on the components thought to inform meeting design, as distinct from a picture of the organisation as a system of communication (such as Duffy & O'Rourke, 2017).

Nevertheless, the new items which have emerged from a wider viewfinder having been less visible in narrower studies of meetings to date, are interesting and form a key part of the contribution these studies make to knowledge. For this reason, they are an important focus in study 3, albeit as part of a more complete picture.

6 Study 3: Early trialling of the conceptual framework

In this final study, the conceptual framework developed in study 2 is offered to meeting hosts and attendees in knowledge organisations, for them to use and develop over eight weeks before reporting back their experiences and findings in a final interview.

This study is designed to address the fourth and final research sub-question which is:

How does this conceptual framework help meeting design be more systemic?

Unlike studies 1 and 2 which overlapped, study 3 is stand-alone and data collection did not begin until the previous two studies were completed.

The final research question above addresses the central questions of a pragmatist research study: does 'it' work and is 'it' useful? The value of the knowledge generated in studies 1 and 2 is judged by the practical consequences of its application (Tashakkori & Teddlie, 2003) and study 3 is an enquiry into these consequences.

Figure 20 is a reminder of the studies to date and the foundation of work study 3 is building on.

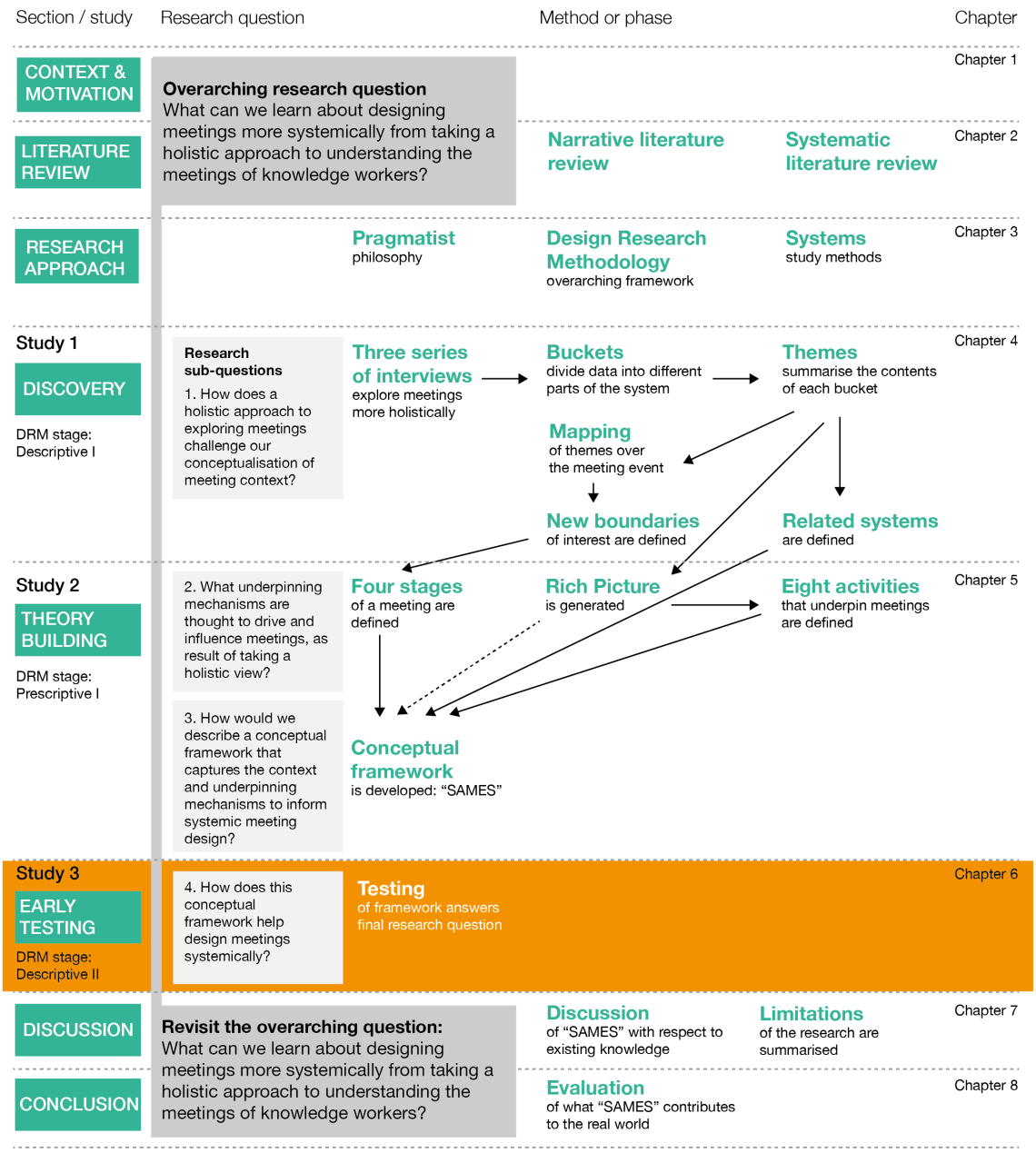


Figure 20: *Summary of how study 3 answers sub-question 4 and relates to the rest of the research*

6.1 Study 3 methods

Study 3 recruited 30 participants who agreed to attend a video meeting to receive a briefing on the conceptual framework and then to use anything from this briefing session that they considered useful during their meetings over the subsequent eight weeks. They were asked to complete a 45-minute interview after eight weeks had passed, whether or not they had used the model in any way.

6.1.1 Sampling method

The sampling method was the same as for study 1, using the researcher's extended professional network to invite people to join the study if they met the criteria of being a knowledge worker who attends meetings as part of their normal working day. No study 3 participants had previously taken part in this research and therefore had not contributed interview data nor seen the rich picture or conceptual framework before.

Of the thirty participants, over half represented organisations with 1000-5000 employees, a third came from organisations with less than 100 employees and the remainder from organisations with between 100-500 employees. Over a third of participants were in publishing (representing a single organisation with high participation in the study), a quarter were from business services or consultancy, a fifth in technology and a sixth in healthcare.

The participants in study 3 were recruited from exactly the same network as the participants of studies 1 and 2. However, those who took part were more likely to host their own meetings and it became clear during the interviews that they were motivated to join the study by a desire to improve the meetings they host, rather than to contribute solely in their capacity as a meeting attendee.

6.1.2 Briefing and model utilisation period

Three identical 30-minute briefing calls were scheduled to provide a choice of times for participants. The second call was also recorded so that participants could re-watch the session at any time. Fifteen participants either attended a briefing call or watched the video in their own time.

The briefing shared a summary of the research process to date and focused on exploring the wider boundaries of a meeting around a Meeting Event, the related systems, the concept of meeting as a value exchange and the four stages and eight activities. At the end, a summary slide was shared which was also made available in a one-page PDF as a desk prompt to keep handy over the eight weeks during which the participants would attempt to use what they had seen.

Although the aim of this research is to support systemic meeting design, this exact term was not used at all with participants. Instead, the briefing emphasised the influence of context and related systems on a meeting, the complex nature of each meeting requiring consideration and thoughtful design and the value of understanding the interlinked underpinning mechanisms at work around meetings.

The briefing included a number of measures designed to minimise bias. In order to reduce acquiescence bias, the conceptual framework was presented as a prototype model with enough solidity to inspire confidence but not so much as to discourage challenge. The name, 'SAMES' (Stages & Activities of Meetings Embedded In Systems) was not used, nor was the term 'systemic meeting design'. The research was also 'findings that have come out of a recent research programme' to de-couple the interviewer from the work being presented, as far as possible.

The Design Research Methodology describes possible types of prescriptive interventions as knowledge, guidelines, checklists, methods or tools (Chakrabarti & Blessing, 2009). The findings were presented in the briefing as knowledge, not as a checklist, method or tool.

After the briefing, the participants received weekly emails, reminding them of the project and resources and highlighting different parts of the conceptual framework in turn. These emails were designed to serve as a prompt and to encourage participation.

6.1.3 Data collection and analysis

Participants were also offered a short post-meeting feedback questionnaire to send to attendees of any meetings they hosted, to provide additional data to support the end-of-study interview. It is unclear whether the questionnaire was offered by study 3 participants to their meeting attendees, however no questionnaires were completed.

Of the 15 participants who attended briefing sessions, all were encouraged to complete interviews at the end of the study, whether or not they had used the knowledge gained from the conceptual framework and whether or not they felt it was correct or valuable. Ten of the original 15 took part in the end of study interview.

During this interview, participants were first asked to describe and explain the conceptual framework, as if to a colleague who had not seen it, to test their recall of the knowledge shared in the briefing. They were then asked to share their reaction to it followed by what they did with it, if anything. Three key questions followed, to find out how useful they perceived the framework to be, how easy it was to implement and whether they felt what they used had improved any part of the collaborative activity of meeting. Only one interviewee had not used the framework at all since the briefing.

Participants were then asked to reflect on the framework and whether any systems, stages or activities were perceived to provide new insight or to be particularly important or interesting. They were also asked to reflect on the framework as a whole and its value as a holistic picture.

Finally, participants were asked what they would need to derive more value from the framework in future and what was blocking them from using that which they perceived to be valuable more fully. The interview guide covered the following areas of enquiry.

1. What did participants understand of the conceptual framework?
2. What elements of knowledge were implemented and how?
3. How useful did they perceive the knowledge they received in the briefing to be?
4. How easy to implement did they perceive the knowledge they received in the briefing to be?
5. How were participants gauging the success of what they implemented?
6. What did participants consider to be new or particularly useful or interesting?
7. How valuable is the holistic conceptual framework?
8. What else would participants need to use the knowledge from the framework more fully?

All interviews were transcribed and analysed. Further insight was sought by listening to each interview audio file as a whole and trying to gain a sense of what meaning each interviewee was conveying through their narrative.

6.1.4 Limitations to the data collection methods

One limitation to this method is that all participants received the same briefing and were invited to work on any aspect of their meetings which meant no comparisons of different

stages of the framework were possible, nor was there a control group. An alternative method could separate participants into groups, each tackling different stages of the meeting, and compare their findings. A further method would have been to create a control group who received a briefing based on the commonly agreed knowledge from meeting science literature about what surface-level factors affect meeting success and to compare the findings of both. The decision to share the whole framework, rather than divide it into sections, seems appropriate given the aim of this study to provide a holistic perspective on meetings. However, with hindsight, a control group would have been useful to separate the benefits experienced by participants of spending time focusing on meetings using existing knowledge from the additional benefits created by the conceptual framework in this study.

A further limitation relates to sampling bias where much of the data is sourced from the same population of people who might have a propensity to experience, rate or describe things in similar ways (Robinson, 2014). Participants from one company already made up a third of initial study 3 recruits and they went on to form 60% of the final ten end-of-study interviews. It is known that this organisation had a specific interest in improving meetings at the time of the study which may partly explain the high sign-up rate. Care was taken in the analysis to check whether any themes seemed to emerge from participants in this company. The over-representation of one company does somewhat limit the findings, however the participants worked in different parts of this large organisation, with no two participants from the same team.

6.2 Study 3 findings

The findings from the interviews will be shared in answer to the eight questions posed in the last section. At the end, a further account will share reflections on any other themes that emerged by evaluating each interviewee's narrative as a whole.

6.2.1 Summary of responses to the eight interview questions

1. What did participants understand of the conceptual framework?

When asked to describe the conceptual framework, as if to a colleague who had never seen it, participants' recall varied widely. One interviewee could describe the conceptual

framework faithfully. Another could not recollect anything at all. Most participants recalled the basic concepts of the framework but could not describe any detail. Most pointed to redefinition of meetings as wider than the Meeting Event and in relationship with other systems. Participants recalled activities much more readily than stages. Participants quickly focused their descriptions on the activities of the framework that had resonated most with them, giving an early indication of what they had found striking and useful. Most mentioned at least two activities and no single activity dominated their recall but Social Contracting was mentioned most frequently, closely followed by Preparing and Structuring. All activities received at least one mention.

Early interview questions established the various frames in which participants had viewed the knowledge gained in the briefing. Some people called it a model, as it was described in the invitation to participate and throughout the briefing. However, four of the ten interviewees indicated that they saw it as expert content or best practice advice, referring to it as ‘your guidance’ or ‘the training’. Three participants also talked about the model as ‘the templates’ or ‘the tool’, further indicating that they perceived it to be more mature and established than had been intended.

When asked to describe SAMES as a complete picture, few had acquired sufficient knowledge to summarise it confidently. However when answering the following questions about how they used the model and what they perceived to be valuable, it became clear they had good knowledge of those elements they found useful. Using the acronym “SAMES” may aid recall and description of the more complete picture.

2. What elements of knowledge were implemented and how?

Of the ten participants who completed the final interview, nine had used the model to implement a change in their meetings and one had not. Those who had made a change deployed it in a wide range of meeting profiles, including formal and informal meetings and meeting sizes of three to 25 people.

Social Contracting was marginally the most mentioned activity by interviewees when asked to describe the framework, but it was the most implemented activity by some way. There were 16 separate mentions of using this activity, with some participants reporting trialling it across multiple meetings. The next most trialled activity had only eight mentions. Interviewees shared a similar understanding of Social Contracting, seeing it as

part of gaining engagement and commitment in advance of the meeting. Some chose to implement Social Contracting by including more content in a group invitation email, for example sharing more detail than they usually would in some of their shorter or more informal emails. Others engaged with attendees individually, either face-to-face or by email, encouraging a two-way discussion about the proposed Meeting Event.

The most trialled activities after Social Contracting included Forming, Structuring, Designing and Facilitating and Capturing, each of which reported between five and eight separate uses across all interviewees. Preparing and Embedding were the least well trialled activities, with three and one mentions, respectively. Where participants had trialled an activity, their understanding varied. Some had accurately captured the scope from the briefing and others had adopted a slightly different meaning. Most notably, Designing and Structuring seemed to be used interchangeably in many interviews, or the explanation of how one was used better matched the other, according to the original definitions in the briefing.

In addition to using specific activities, it was also notable that the concept of meetings as a value exchange was used five times. This concept was actively used as a tool in designing meetings but also for sharing with attendees as part of highlighting their role in the meeting and setting expectations during Social Contracting and Forming activities.

3. How useful did they perceive the knowledge they received in the briefing to be?

Where mentioned, reflections on the knowledge and model were universally favourable, with all ten expressing that they found it useful. However, this may be unsurprising as those who found the content useful are more likely to agree to complete a final interview. This limitation is addressed in the summary of this chapter.

Beyond useful, interviewees also described it as “inspiring” (P25.36), “clear” (P25.35) and as “making intuitive sense” (P26.38). One interviewee said that they knew it was useful because the changes they made “worked” (P29.41) and another explained that it had made their meetings more productive (P25.34).

Qualifications included considering it more useful for certain types of organisations (P27.39) and more useful for longer or more important meetings (P25.32). One participant said they initially found the categorisation of different stages and activities

overwhelming, but that the overall objective - to make meetings more meaningful by fostering engagement and commitment - was one that aligned with theirs (P25.35).

For one participant who had already given thought to their meeting design, it "helped me solidify" and had "given me some language" for some of the approaches they were already using (P29.41). Others talked about how their approach to meetings was now more intentional (P26.38).

Another participant picked two stages to implement but did not find this was successful which they attributed to their own lack of skill and experience, indicating that the model requires judgment to enable value to be derived (P27.39).

4. How easy to implement did they perceive the knowledge they received in the briefing to be?

Although one participant said they felt the model was "very easy" to implement (P25.34), most discussed one or more barriers and challenges to implementation.

Some of the challenges came from the model itself with two participants finding that there was too much to use easily, one explaining that it was "hard to implement everything" (P25.36) and the other that they had felt muddled (P25.35). One participant reported that some of the activities seemed to overlap, a further participant felt that a downside of what they had used was that it had made their meeting overly formal and that they had picked the wrong ideas to implement (P29.41).

However, most of the challenges lay with trying to take their insights from the model successfully into the real world. Resistance was encountered by several participants where they found that what they were implementing challenged power structures, conflicted with how their attendees felt a meeting should be run or suited some attendees more than others.

Another point of agreement amongst some interviewees was that implementing insights from the model yielded variable results, with some describing how getting to the outcomes you want is not easy and that reactions of meeting attendees could be unpredictable.

5. How were participants gauging the success of what they implemented?

Eight of the nine participants who used an element of the model to make a change did not measure the success of their meetings in any structured or planned way at all and had to consider retrospectively how they would judge success of those meetings, during the interview. After the briefing session, all participants were provided with a link to a short five-question meeting feedback survey to share with meeting attendees after the meetings in which they had made a change using the framework, but no meeting attendees completed it.

Of those who had not measured success, the reaction of others was one way in which participants gained insight into the effectiveness of changes they had made to meetings. Three had sought feedback informally from attendees but four reported that attendees gave them feedback, unprompted.

There were twelve reports of more objective success measures. Some focused on completion of tasks within the meeting, such as achieving the main purpose of the meeting, covering all points or completing the same meeting faster. Others pointed to alignment and shared understanding such as all attendees understanding the issues or attendees remembering the decisions after the meeting. A final group of measures related to positive outcomes detected after the meeting such as attendees completing their post meeting actions or achievement of goals agreed in the meeting. Two interviewees measured success through their own subjective opinion and whether they felt a meeting was more effective than it had been prior to using the intervention.

Circling back to the SAMES model itself, there is a contradiction between frustration and other types of negative affect mentioned so frequently in the study 1 interviews and the lack of activity to respond, by iterating a meeting or asking the meeting host to do so. Meetings were problematic but not quite frequently enough to demand change.

6. What is considered new or particularly useful or interesting by participants?

Social contracting was considered most worthy of participants' attention. One interviewee said, "But the one [thing] that stood out was contracting" (P25.35) and another explained that they "really liked the idea of getting buy in for the meeting" (P25.35).

However, interviewees were similarly curious about the concept of meetings as a value exchange and also the system-like approach where meetings are seen to be made up of

interlinked stages and activities, themselves part of a wider set of related systems. Describing the two together, Participant 26.38 explained, “So there's two valuable bits [sic].… thinking of a meeting as a value exchange, particularly thinking of a meeting in terms of it's an activity within a broader relationship of the work. … It's not just another bloody meeting that we've got to go to, but it's a set of activities that are bringing people together with the specific focus.”

All remaining activities were considered particularly new and interesting by at least one participant, other than Designing. As reported earlier in this section, it was clear in several interviews that Designing and Structuring were conflated in some participants’ minds and sometimes the description of Structuring better fit the definition of Designing and vice versa.

7. How valuable is the holistic conceptual framework?

Three of the participants commented specifically and unprompted about the holistic nature of the model they were shown in the briefing session. One participant talked about the value of picture: “I thought it was really good seeing it all split out like that and showing that it's more than just a meeting, there's a bunch of different parts to it” (P25.33). This participant rowed back on the interconnectedness in the picture by adding, “You can just target one of those things to improve your meeting”.

One participant chose and deployed two activities diligently but felt they had focused too much on these, missing out other crucial activities, and that had led to the meeting being worse rather than better. She reflected that she lacked experience in running meetings and that she had misjudged how best to design the meeting using the activities available. This anecdote supports the study’s principle of holism and suggests that singling out individual activities may be less effective than considering the meeting as an integrated whole. It also suggests that there is an element of Designing in all eight activities, making judgments about how to deploy that activity, taking into account the rest of the system.

Although the concept of meetings as a system was more abstract than the nature of the content of most interviews, nevertheless many demonstrated that they did learn and consider valuable the interconnected nature of meetings from the briefing. They share this using more tangible examples such as engaging with the idea of meetings as a value exchange that can be improved or better balanced between attendees.

8. What else would participants need to use the knowledge from the framework more fully?

Interviewees shared many and diverse responses when asked what else they would need to make better and more extensive use of any insights they felt they had gained from the briefing.

The most common response which was mentioned by all ten interviewees is for all their colleagues to receive the same briefing they had received at the beginning of the study. Individual comments built on this, suggesting ways to get "everyone on the same page, knowing what's expected" (P25.35) and "everyone… agreeing …that's how we're trying to run meetings" (P25.32). These included developing a company meeting behaviours or "a set of meeting guidelines" that "everyone is onboard with" (P25.33) or even mandating certain parts of the framework such as sending a clear invitation and completing required preparation work. They described this variously as socialising the ideas and having a shared agreement and commitment to running meetings in a particular way as a business. It was striking that many interviewees said that what they needed to better use the framework was a change in *other* people's behaviour.

As well as wanting others to understand and align with their new understanding, some interviewees also felt the key requirement was deepening their own understanding, skill and experience. Participants explained that their blockers to using the model better were "just knowledge and experience, really" (P29.41) or what needed improving was "my own skills and experience" (P27.39) and asked for help with training, empowerment and practice with more experienced people rather than just being "given a toolkit and told to get on with it" (P26.38).

However, other participants saw themselves as already having the experience and perceiving the model as common sense and these people simply felt they needed more time. This included time to engage with the model as well as time to complete the activities specified in it. When pushed, it was clear that by time, they actually meant more cognitive capacity to switch tasks and devote attention to an additional problem that day. Collaborative overload, as discussed in section 1.2, was evident in many interviews where meeting attendees were struggling to manage the number of team touch points required to progress multiple collaborative pieces of work. One interviewee explained that, "It's a

hundred percent [about] the mental energy, because everyone has 15 minutes, but …you feel like you're trying to juggle many different things" (P25.35).

Toolkits and templates sharply divided opinion with some specifically mentioning that they were against toolkits or "forced agenda templates [which] I find less helpful" (P25.35) and others saying they felt "a templated agenda would be helpful" (P25.34) or that "a very light tool that would allow people to quickly sketch something out" (P26.38) would be most useful.

However, seven of the ten interviewees said that a simple overview was helpful, similar to what they had already received. They valued a range of features of this approach such as its ability to prompt, to split out and clarify the different activities and to provide a simple enquiry prior to a meeting.

6.2.2 Narrative analysis of the transcripts

Briefly considering each transcript as a complete narrative revealed some additional findings.

There appeared to be two types of participant in terms of their perceived expertise and position, relative to the content. Some more expert participants felt the framework was a common-sense prompt with one or two interesting activities (such as Social Contracting) to be used flexibly with their judgment. They perceived problems in meetings broadly as originating from outside their locus of control and suggested that others needed to go through more training in order for company meetings to be improved. They were more likely to be opposed to templates or tools that they would be required to use, seeing these as too constraining.

Other less experienced participants saw the framework as advice to be followed and of higher authority than their own knowledge and experience. They perceived themselves to be responsible for problems in meetings and requested more in-depth training and the chance to practise. Equally, they were more likely to consider a template or tool helpful and to ask for rules or guidelines.

6.3 Summary of study 3

Study 3 was a light, early verification of the conceptual framework in the real world, designed to find out to what extent SAMES can help explain or design better meetings (sub-question 4). The findings indicated that, with some limitations, the framework has face validity and sufficient coherence to conclude that there is value in testing for further validity. As a reminder, study 3 was designed to answer:

How does this conceptual framework help meeting design be more systemic?

There is evidence that the conceptual framework captures a face valid summary of the stages and activities which underpin meetings, at a surface, subjective level. Some promising coherence is established, and, though the methods did not allow further tests of validity, there is sufficient evidence that the conceptual framework is worthy of further exploration. This deeper enquiry would prioritise construct and content validity to explore to what extent the conceptual framework accurately and completely captures the sub-surface-level mechanisms of a meeting. It would also determine the extent to which it can be applied across different types of meetings in different settings.

The conceptual framework shows face validity in understanding meetings more holistically and designing them systemically in four different ways. Firstly, participants found it built awareness of the embedded nature of meetings in important systems and enabled them to consider wider and potentially important factors for the systemic design of meetings. Secondly, it surfaced the underpinning mechanisms, which helped to guide participant choices based on *principles*, rather than proposing a set of 'right/wrong' *rules*. Thirdly this developed participants' knowledge about why a specific intervention may or may not be appropriate and widened the search area for possible design solutions for their meetings. Finally, it highlighted previously unseen or uncategorised stages and activities, such as Social Contracting which was used to improve a meeting with perceived success.

From the wide-open nature of study 1 to the development of a model in study 2 which was trialled in study 3, this research has travelled a considerable distance using a wider viewfinder. In the next chapter, these findings will be compared with what is already known about meetings and the ways in which the three studies have advanced knowledge will be evaluated.

7 Discussion

The overarching research question asks: *What can be learnt about designing meetings more systemically from taking a holistic approach to understanding the meetings of knowledge workers?*

This chapter will evaluate this holistic approach and propose three ways in which study findings contribute knowledge to what is already established in studies of meetings about designing meetings systemically.

7.1 What a holistic approach to understanding meetings has contributed to the systemic design of meetings

Studying meetings using a holistic approach, and considering meetings as embedded in systems, has led to a new conceptual framework, SAMES (Stages & Activities of Meetings Embedded in Systems), which points the way to designing meetings more systemically. The answers generated in this framework are by no means the only answers available. The use of the Design Research Methodology (DRM) helped to provide direction and structure to the series of studies, permitting a divergent discovery phase in study one, then reversing the trajectory to encourage convergence on a theory and finally driving that theory out into the real world for trialling. This holistic approach allowed a huge stride to be made in putting together a theory in the visual format of a conceptual framework which performed well in early, light verification of its usefulness in the real world.

7.2 Contributions attributed to the four research sub-questions

The research sub-questions used to address the main research question were cumulative, designed to build towards a cohesive whole, rather than stand-alone questions to be answered individually. The first two sub-questions demand answers firstly about the systems context in which meetings sit and secondly about the underpinning mechanism of meetings, when viewed in this holistic context. Sub-question 3 goes on to use these building blocks to construct SAMES and sub-question 4 asks whether this framework helps the systemic design of meetings. Table 10 summarises the key findings of studies 1,

2 and 3 and then figure 21 repeats the SAMES conceptual model first presented in figure 19, for easy reference throughout this chapter.

Table 10: How the research sub-questions are addressed by the three contributions

Research sub-question	**Contribution**
Study 1 1. How does a holistic approach to exploring meetings challenge the conceptualisation of meeting context?	Contribution 1: The boundary of interest in studies of meetings is wider than most studies of meetings suggest. Placing the viewfinder wider to include the system of the organisation, the work, the team and the individual, reshapes the understanding of the stages of a meeting which are much wider than the Meeting Event itself. They comprise Inception, Initiation, the Meeting Event and Leverage and emphasise the influence of what is happening in related systems outside the meeting event. SAMES links studies focused on meetings events to studies of meetings as part of organisational communications systems.
Study two 2. What underpinning mechanisms are thought to drive and influence meetings, as result of taking a holistic view? 3. How could a conceptual framework be described that captures the context and underpinning mechanisms	Contribution 2: Whilst there is much insight in the literature about which tactical meeting interventions are perceived as more satisfactory by meeting attendees, there is little understanding of why, or what mechanisms might be driving these. This study's findings show there are eight underpinning activities, spanning the wider boundary of interest that contribute to meeting outcomes: Designing, Social Contracting, Preparing, Forming, Facilitating, Structuring, Capturing, Embedding. The SAMES framework brings together the four

and helps explain how meetings work? **Study three** 4. How does this conceptual framework help meeting design be more systemic?	stages and the eight activities, together with the concept of meetings as a value exchange, to form an abstracted perspective of what other studies of meetings have considered only at surface-level.
	Contribution 3: SAMES highlights important stages and activities which were previously under-emphasised, uncategorised or unseen, for example Social Contracting. Some of the new categories add to or build on ideas developed in previous studies but findings which fall outside the previous boundary of study cast other studies in a new light.

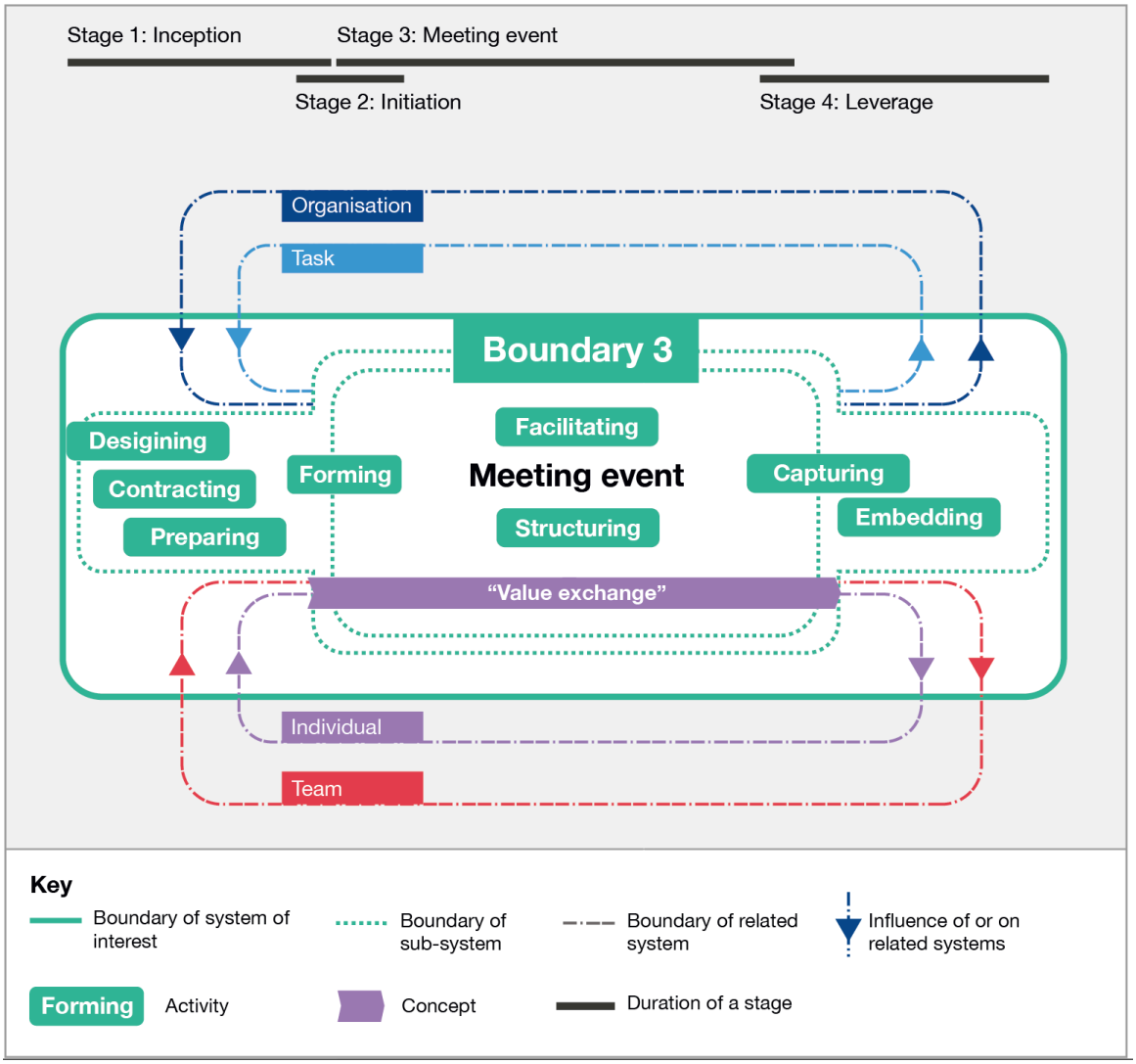


***Figure 21**: The conceptual framework, SAMES, generated in study 2 (identical repeat of Figure 19)*

7.2.1 Contribution 1: The boundary of interest in studies of meetings is widened

The first research sub-question sought to understand how exploring meeting experiences using a holistic view might challenge the current view of meeting context in the literature. The findings suggested two extensions to the boundary of interest in meetings. The literature review had already revealed that two-thirds of meeting studies consider the boundary of study to be the Meeting Event itself. A quarter of existing studies expand this boundary but only to accommodate one further system or domain. There are few papers that study meetings as embedded in multiple interlinked systems, with good reason: doing so is methodologically challenging and time-consuming. There are clear calls for the study of meetings in wider settings (Kauffeld & Lehmann-Willenbrock, 2012; Leach et

al., 2009; Schwartzman, 1989) but few studies respond to that call. Those that do so either accommodate only one additional setting or address the setting at a high level, bringing little practical knowledge back into the realm of the meeting itself. SAMES zooms out to explore the impact of a more complete set of settings (or systems) in which a meeting is embedded and then zooms back in to the meeting level and proposes a set of wider stages and activities which might better represent the impact of those wider systems. The outcome of these studies therefore not only describes the wider systems in which meetings are embedded but also uses the resulting insights to propose a correction to the relatively narrow boundaries cast around studies of meeting interventions.

A comprehensive picture of the wider systems that might impact a group discussion was described by Bales and Strodtbeck, seventy years ago, when they noted that the crucial external factors influencing a meeting comprised personalities, culture, roles and past events (1951). Although these factors are seldom referenced in extant meeting science literature, they bear resemblance to the related systems captured in SAMES. Both sets of factors note differences between individual people, teams and organisations as important, though in Bales and Strodtbeck's set each is narrower (personality, roles and culture) and they are not expressed as interlinked. The authors' fourth factor is past events which could refer to events in any of SAMES's four systems. They do not fully mention the influence of the team or the work the team is progressing in the meeting.

However, clues to wider boundaries and specific systems of interest are plentiful in studies of meeting purpose. It is already well acknowledged that meetings play many and diverse roles within organisations. A meeting's role in "accomplishing goals such as information sharing, decision-making and problem solving" (Leach et al., 2009, p. 65) is well documented, but less obvious roles include acting as organisational memory (Ballard & Gómez, 2005), developing a sense of community (Tracy & Dimock, 2004) and employee socialising (Horan, 2002). A further review study proposed five groups of meeting purpose: coordination, cognitive (sense-making), political, symbolic and social (Dittrich et al., 2011). In addition, the Cambridge Handbook of Meeting Sciences includes a chapter suggesting five theoretical lenses through which meetings can be viewed: stressors, collaboration technology, rituals, sense-making and interventions (C. Scott, Allen, Rogelberg, & Kello, 2015). The different roles, or 'meeting functions'

(Dittrich et al., 2011) point to the reach and relevance of meetings in shaping and being shaped by a range of related systems.

Examining some of the studies included in the last two review papers mentioned – Scott et al. (2015) and Dittrich et al. (2011) – exposes some implied related systems. The coordination function of meetings described by Dittrich and colleagues facilitates agreement of future plans and actions (Clifton, 2009; Huisman, 2001), and it can be inferred that these plans and actions relate to a task which is to be accomplished, and that meetings are called as required by this task and go on to influence its course. Both review papers refer to sense-making, in which individuals reflect together (Grant, 2003), tell each other stories (Taylor & Robichaud, 2007) and gain more collective understanding of the size and significance of problems (Terry, 1987). The phenomena of which the group are making sense appear to be the work and the organisation itself - and perhaps also each other and how the team works. These four phenomena echo the four related systems in SAMES. A further point of agreement between both the Dittrich and colleagues' paper is the symbolic or ritualistic role meetings play in organisational life, the key symbols being power (Black, 1983), rights and responsibilities (Taylor & Robichaud, 2007) and shifts in priority (Schwartzman, 1989). Symbols and rituals are signposts for people, pointing to the relevance of the system of the individual.

Specific related systems have been included within the boundaries of certain studies but only one at a time. For example, previous work into the relationship between meeting satisfaction and employee empowerment explored whether "positive and satisfying meeting experiences may create a lasting impact on the employee that stretches beyond the present meeting" and concluded this was indeed the case (Allen, Lehmann-Willenbrock, & Sands, 2016, p. 2). This study successfully linked meetings with the system of the individuals but was designed to isolate and expose that relationship rather than to establish a holistic picture.

Lehmann-Willenbrock et al. drew the system of the individual into their study of good and bad meeting behaviour (2016). The authors provide one of the clearest pictures of exactly how meetings can impact a range of factors within the system of the individual, related to employee exhaustion and engagement and citizenship behaviour which itself blurs into culture and therefore the system of the organisation. Their study looked at these relationships in one direction (the impact of the meeting on the system of the individual)

whereas the conceptual framework in this study expresses this relationship as bi-directional and sees individuals as both influencing and being influenced by meetings in ways that are hard to separate. A further study, from the same community, looks at the impact of meeting productivity on long term organisational success. By coding the interaction data from taped meetings and using questionnaires to gather organisational success measures at a later point in time, the researchers found that dysfunctional meeting communication such as criticising others, was negatively related to organisational success more than two years after the meeting (Kauffeld & Lehmann-Willenbrock, 2012).

The two studies above do not compete with SAMES, rather they help to quantify and explain one of its relationships, zooming in to one aspect of a larger picture. Like this research, both seek to explore the relationships between meetings and their wider context and both mirror this study's findings which is that the individual and the organisation are both important related systems with which meetings are intertwined. However, together with many other studies that make the same choice, the recent studies above emphasise the practice of carving meeting influences into individual components and studying them in isolation. Whereas the SAMES conceptual framework finds that meetings and the related systems in which they are situated are interwoven and that viewing them together, in relationship to one another, brings insights that are unseen in studies that isolate individual factors. Some of those unseen insights are discussed in more detail in section 7.2.3.

However, in most of these studies, the relationship between the wider system and the meeting itself is unidimensional. Scott et al. (2015) explain that, as with studies of teams and groups, "even fewer studies of work meetings consider the organizational or institutional context in which workplace meetings are typically conducted" (p. 21). Also, "by overlooking how meetings constitute or shape organizational life, many studies of meetings inadvertently reinforce the idea that they are just another process that reflects but does not constitute the [organisation]... rather than key process that actually produces and reproduces organizations" (also p. 21). Most studies that explore meetings in the context of a wider related system are seeking to qualify the impact of the meeting on the system or the impact of the system on the meeting.

So, the literature to date supports the idea of a wider boundary and studies of meeting purpose point indirectly to related systems. Those studies which do widen their

viewfinder to include one additional system, more directly indicate which are relevant related systems though they only point to one in each instance. However, the meeting science community is left unsure about what the more complete set of systems might be and how a wider boundary might be defined. Without a more complete picture, the community is at risk of continuing to see these wider systems in isolation from each other and studying individual relationships in one direction only. SAMES helps further complete this picture, offering a comprehensive set of related systems, held in dynamic inter-relationship with each other and the meeting, and setting a new boundary of study. SAMES does not refute the studies which have created knowledge by isolating individual systems and meetings, but instead adds a new, deeper layer of insight of the study of meetings and emphasises that meetings are embedded in, rather than just linked to, these wider systems.

One study has somewhat connected these dots, using extant literature to draw a similar picture, rather than gathering empirical data in a real-world setting. This paper was nearly overlooked as it is primarily a study of workshops and its lens is on their role in strategy formation. However, the choice of literature by this study includes much of the core meeting science literature and the authors integrate their analysis into a framework which expresses meeting functions and stages, situated within wider influences (Dittrich et al., 2011). For this reason, this paper proved to be an important comparison point, not least because its central integrative framework (seen for the first time after the creation of SAMES) - 'Integrative Framework on Meetings and Strategy Process' (IFMSP) - mirrors the engineering formulation of inputs, transformations and outputs used in this this study. Dittrich et al. organised their literature review by the *antecedents* of a phenomenon, the *processes* describing the phenomenon and the related *outcomes*, an analytical scheme they credit to a number of soft engineering scholars (including Corbin & Strauss, 2012).

It is no surprise therefore that the SAMES and the IFMSP share several characteristics such as their left-to-right chronological sequence, their inputs-processes-outputs (IPO) format and their emphasis on what happens before and after a meeting. After all, Dittrich and colleagues' framework is a study of meetings in service of one strand of organisational life (strategy-making) albeit derived from a review of the existing literature (2011). Like this framework, SAMES recognises individual level and organisational level influences but sees the rather intangible environmental level influences as distributed

across the more tangible systems of the work, the team and the organisation. SAMES also excludes one set of environmental influences mentioned in the IFMSP which lie in national culture. As SAMES was derived from data solely gathered in the UK, it does not rule national culture inside boundary 3.

SAMES adds three important concepts to the IFMSP. Firstly, it strengthens and enriches the influences on meetings, breaking them out into clearer and more logical groups and including missing influences such the system of work and the system of the team. Secondly, it expresses the multi-directional relationship between the systems and meetings. Finally, it zooms back into a specific meeting and breaks out the stages and activities of that meeting that fall within this new wider boundary. This adds detail to the existing knowledge that what happens outside a meeting is influential in determining what happens in a meeting and vice versa. Unlike some of the studies described above which provide a high-level view of the relationships between meetings and the context in which they are situated, the stages and activities in the conceptual framework are located close to the meeting itself. In this way, the data collection viewfinder zooms out wide but the theory creation viewfinder then zooms back in to what is directly connected to each meeting. These stages and activities are the focus of the next two sections.

Finally, SAMES helps to bridge the gap between correlational studies of meeting events and studies of meetings as part of the system of communication (such as Duffy & O'Rourke, 2017) and as part of organisational communication systems more generally such as studies emerging from "Communicative Constitution of Organizations" (Scott et al., 2015; Scott & Myers, 2010). Like Duffy & O'Rourke (2017), SAMES draws these two independent bodies of literature together, establishing new links and making sense of one type of study in the context of the other.

7.2.2 Contribution 2: Eight activities underpin meetings and help abstract previous correlational studies

The second, third and fourth research sub-questions together ask how themes from this wider boundary can inform the underpinning mechanisms at work in meetings, how they might be represented in a holistic picture and how this picture helps us design meetings systemically. The literature review has already established that many studies focus on which observable meeting factors are perceived as better by meeting attendees,

correlating the individual components of a meeting with satisfaction. However, there is little focus on *why* a particular meeting factor might be important and what underpinning mechanisms might be at play. Meeting science has mainly focused on observable events rather than the unobservable structures that cause them (Bhaskar, 1989). Drawing on critical realism, observable events can be attributed to unobservable structures and the world can only be understood if these unobservable structures are understood (Archer, 1998; Lewis, 2000).

Before SAMES, individual observable meeting factors were understood independently of deeper influences and were recently grouped together into clock-based categories of before, during and after a meeting (Mroz et al., 2018). These observable meeting factors which positively correlated with meeting satisfaction included arriving early or on time, following an agenda and keeping meeting size small. However, these correlational studies provide a set of rules, highlighting individual meeting tactics. SAMES provides a set of principle-based activities which encourage nuanced judgments based on an understanding of meetings and their underlying mechanisms more holistically.

In contrast, a number of social science studies arising from disciplines such as anthropology, sociology and studies of discourse expose some of the relationships between meetings and wider influences at a high level, for example, meetings as rituals, social metaphors, and homeostats in organisations (Schwartzman, 1986). The strength of these studies is that they reveal deeper influences and acknowledging their complexity. However, they provide few clues as to how a meeting might be designed systemically in practice, as the viewfinder remains zoomed out.

SAMES seeks to bridge the gap between those deeper zoomed out studies and the studies at tactical surface-level, creating a set of tangible stages and activities that can be used to understand a meeting holistically and design it systemically. Like the zoomed out social science studies, SAMES zooms out to encompass all relevant related systems. Like the correlational studies, it seeks to understand people's lived experiences in search of what might enable more systemic meeting design. Having posed more open questions and elicited qualitative data through wider boundaries, SAMES then zooms back to the meeting level and proposes this set of abstracted stages and activities, in search of 'what works'. These findings put flesh on the bones of the zoomed-out studies that see meetings

as complex events and also helps group and explain the more tactical and surface-level factors linked to meeting satisfaction, as shown in table 11..

Table 11: How activities within SAMES relate to the existing literature

Designing	
Deeper-level studies - principle-based	Who is invited or not changes the course of the meeting (Boden, 1995). Consider physical environment e.g. lighting, space, modality, seating as it affects employee beliefs and behaviours (Weiss & Cropanzano, 1996). Design ways to encourage participation (Bales & Strodtbeck, 1951; Carter et al., 1951). Consider prior relationships and previous events and design a meeting flexibly – avoid rigidity (Alexander, 2017). The quality of the meeting depends on the quality of its planning (Chaney & Lyden, 1997; Seibold, 1979). Pre-visualise the meeting to anticipate how to facilitate and manage potential problems (Seibold, 1979). Managers copy the meetings of other successful managers to obtain competitive advantage (DiMaggio & Powell, 1983). Planning problem solving procedures to suggest to attendees can systematise a group's discussion and decision efforts (Seibold, 1979). Match technology to meeting goals (Allison et al., 2015).
Surface-level studies - rule-based	Avoid long meetings (Leach et al., 2009). Keep meeting size small (Boivie, Bednar, Aguilera, & Andrus, 2016). Scheduling and duration of a meeting influences who can attend (Schwartzman 1989). Smaller meeting size increases engagement which leads to better end-of-the-day task performance (Allen et al., 2020)
SAMES	Emphasises the importance of consciously designing a meeting - an activity which is underplayed in practice. Consolidates the principle-based studies, inviting meeting hosts to consider the full range of related systems in evaluating the requirements of a meeting and to use a range of tailored interventions to best meet those requirements. Counters the idea that rules about meeting design apply universally to all meetings. Provides the concept of designing for a value exchange and focuses design on the people attending.
Social contracting	
Deeper-level studies - principle-based	"Interest and commitment cannot be requisitioned but *can* be facilitated" (Ravn, 2017, p. 6).

	Duffy brings Whitehead's perspective of 'prehensions' (Whitehead, 1928/78) into the realm of meetings, explaining how 'feelings' about entities (such as meetings) influence how those entities come into being (Duffy & O'Rourke, 2017). Expectations resist change and influence what is attended to (Fazio et al., 2000).
Surface-level studies - rule-based	Prepare an agenda that is circulated in advance (Leach et al., 2009). That said, Chaney and Lyden (1997) found agendas received on the day were received with equal satisfaction. Discuss the agenda in advance (Cohen et al., 2011).
SAMES	Develops what is already known about the impact of negotiating roles, content and commitment on the success of the meeting in the principle-based studies and consolidates into a single activity. Suggests an oversight in the rules-based studies which only measure well recognised interventions.
Preparing	
Deeper-level studies - principle-based	No studies found.
Surface-level studies - rule-based	Ensure that technology is working and ready to go prior to the meeting start time (Allison et al., 2015). Come having reviewed the agenda (Cohen et al., 2011).
SAMES	Proposes that both the principle and rule-based studies overlook the (formal or informal) preparation activity which must be completed for many meetings to be successful.
Forming	
Deeper-level studies - principle-based	Negotiating which items should be discussed helps draw all attendees into the discussion (Seibold, 1979). Individuals are combined into a group with a common direction (Alexander, 2017). Have clear, well defined goals (Nixon & Littlepage, 1992). Lateness is less disruptive if you provide a reason (Mroz & Allen, 2017).
Surface-level studies - rule-based	Arrive early (or on time) (Mroz & Allen, 2017). Encourage pre-meeting small talk to reduce uncertainty and enable storytelling (Allen, Lehmann-Willenbrock & Landowski, 2014)
SAMES	Abstracts the viewfinder of the rules-based studies from pre-meeting talk and lateness to an underpinning mechanism of Forming in which trust, commitment and attention is formed (or not).
Facilitating	

Deeper-level studies - principle-based	Organisational norms will impact how meeting attendees behave (Schwartzman, 1989). Skills of individuals can influence direction of meeting (Boden, 1995). Outcomes improve if people are actively encouraged to participate (Malouff et al., 2012). Both process and content interventions improve empathy, depth of evaluation, consensus, learning, decision quality and satisfaction (Miranda & Bostrom, 1999). Using interventions (especially technology) can disrupt the rhythms of social interaction (Mantovani, 1994).
Surface-level studies - rule-based	Avoid unrelated activities and non-participation (Odermatt et al., 2018). Follow an agenda that lays out clear goals and outcomes for the meeting (Leach et al., 2009). Stick strictly to an agenda (Tropman, 1980).
SAMES	Consolidates both principle and rule-based in-meeting knowledge into a single task of facilitating. Supports a principle-based approach, where facilitation is tailored to the meeting setting. Widens the definition of facilitating to include both hosts and attendees.
Capturing	
Deeper-level studies - principle-based	No studies found.
Surface-level studies - rule-based	Send meeting minutes out quickly after a meeting (Cohen et al., 2011).
SAMES	Foregrounds Capturing as an under-researched area.
Embedding	
Deeper-level studies - principle-based	Action planning supports decision implementation (Yukl, 1989). Timely and efficient implementation of actions correlates with goal attainment (Nixon & Littlepage, 1992). Meetings can be a solution that maintains rather than solves problems. (Schwartzman, 1989). Satisfaction with decision and process to reach it influences confidence in the decision and commitment to implementing it (Miranda & Bostrom, 1999).
Surface-level studies - rule-based	Sharing minutes may enhance follow up tasks (Litsikas, 1995).
SAMES	Consolidates findings related to the principle of translating meeting outcomes back into wider systems in other studies and brings them under a single activity. Highlights that there are few rules-based studies of this activity, which is explained in part by the lack of reported activity in real world meetings.

The juxtaposition of the findings of this research with correlational studies in table 11 sheds new light on simple rules such as the finding that meetings should have an agenda (Chaney & Lyden, 1997; Leach et al., 2009; Tropman, 1980). The findings of study 1 indicate that the type of agenda setting that is useful varies by meeting and that an agenda represents multiple underlying mechanisms, if you probe deeper. Study 1 proposes the abstracted principles of Social Contracting with individuals before the meeting about its purpose and form and then spending time Forming the meeting attendees into a functional group with clear and shared expectations at the start of the meeting. These important activities can be achieved in multiple ways, one of which is an agenda.

The findings expressed in SAMES also show that activities are interlinked and in series not parallel which supports the findings of social science studies but challenges the correlational studies of meeting satisfaction which treat influences on meetings as stand-alone. For example Kauffeld and Lehmann-Willenbrock (2012) used micro-level speech patterns as an indicator of meeting effectiveness. Sure enough, meetings where speech patterns focused more on problem solving and action planning were more effective than those that included more speech patterns of complaining or criticising. SAMES seeks to reveal the activities that create the conditions for more of the former and less of the latter – a more systemic approach.

That meetings represent a value exchange for each attendee is a central concept in SAMES and one which particularly resonated with many of those who trialled the framework in their own meetings. This confirms and consolidates several studies touching on this concept. Meetings are acknowledged as both a resource-draining and a resource-supplying activity (Allen et al., 2012). The broader cost of meetings is noted in Scott et al.'s book chapter where the authors describe meetings as stressors (Scott et al., 2015). They go to the heart of this hard-to-resolve competition for resources, explaining that, "Meetings are a mode of interaction that punctuates an imbalance of situational demands and the individual and collective resources needed to manage them" (p. 22).

Briggs, De Vreede and Reinig's measure of meeting success based on an individual's reported perceived net goal attainment (2002) is supported by the way in which interviewees talked explicitly and with little prompting about the value of the time and energy they have invested compared with the outcomes they were expecting. Perceived Net Goal Attainment considers two independent factors – satisfaction with the process

(SP) and satisfaction with the outcome (SO) - and also recognises that meeting attendees will have multiple, sometimes conflicting goals. The findings of the interviews in study 1 shine a light on the many factors that contribute to this mental calculation made by meeting attendees. These include those elements they can easily articulate, like the quantity of time in minutes and hours and the feeling of clarity (or lack of) that they experience and those which they understand only partially, for example the interruption to concentration that a meeting later in the day creates or the commitment to a project or task purpose a great meeting can create which can sustain effort for months, or even years, after that meeting.

The SAMES concept of meetings as a value exchange was furthered by the findings of study 3, in which participants who trialled the model in their working lives suggested that simply understanding this concept can positively impact other activities (such as designing and facilitating), encourage systemic meeting design and influence the outcome of the meeting.

7.2.3 Contribution 3: Previously under-recognised meeting stages and activities are foregrounded

The findings of this research help to answer the second, third and fourth research sub-questions by highlighting previously under-emphasised, uncategorised or unseen stages and activities. Widening the boundary of study elicited findings which supported or challenged what was already known but also highlighted new stages and activities of interest, some of which had previously fallen outside the boundary of interest or failed to be specifically differentiated or defined.

Firstly, considering the stages of a meeting within the new wider boundary, there are two unseen elements suggested in the SAMES framework. Previously, meetings had been divided into clock-based stages, e.g. before, during, after (Dittrich et al., 2011; Mroz et al., 2018). The findings of these studies suggest these three are important conceptual stages where key activities happen, not simply clock-based divisions of time. They also show that Inception starts sooner than studies account for when they state ‘before’ and likewise, Leverage ends later than the term ‘after’ refers to.

The findings also indicate an additional unseen stage. There are individual studies relating to the transition period from pre-meeting to the meeting itself, such as lateness (Lehmann-Willenbrock & Allen, 2020; Mroz & Allen, 2017) and pre-meeting chat (Allen, Lehmann-Willenbrock, et al., 2014; Yoerger et al., 2018) but this research's findings show that there is a range of elements which together constitute a separate stage in their own right - after Inception but before the Meeting Event. This short stage is called Initiation, in which meeting attendees transition from one state to another. It is important because it influences the extent to which people successfully shift into an effective and functional 'meeting team' and is usually poorly designed. Initiation integrates thinking which has already been linked to this transition stage of meetings regarding not just lateness and pre-meeting chat but context switching and liminality.

These findings show that four of the activities in SAMES are important but are under-recognised in extant literature. These are: Designing, Social Contracting, Forming and Embedding.

Designing as a meeting activity is represented in the literature via implicit mention but it is not emphasised, described or explicitly categorised.

For example there are studies which address the importance of planning meetings (Chaney & Lyden, 1997; Seibold, 1979) and specific design elements, such as inviting a diverse range of attendees (Boden, 1995; Horwitz & Horwitz, 2007), matching technology to meeting goals (Allison et al., 2015) and managing overall meeting load (Luong & Rogelberg, 2005). However, SAMES recognises Designing as an important activity in which the wider setting of the meeting and all four related systems are deliberately considered, and the full range of meeting activities are optimised. Designing includes both formal and informal work and it runs counter to the assumption which many of the correlational studies hold that a meeting will be successful if it includes highly rated factors and excludes those that are associated with negative meeting ratings. The activity of Designing is a principle-based rather than rule-based factor and involves sensing and decoding the setting of the meeting and judging how best to optimise it, using one or more of the other activities described in the conceptual framework.

Social Contracting is not recognised as a concept in the literature, though it does include some activities such as the circulation of an agenda before a meeting (Leach et al., 2009).

Social Contracting is distinct from many of the studies which examine pre-meeting communication because it highlights the importance of two-way interaction and the reaching of agreement, rather than one-way communication simply seeking to provide information and clarity about a future event. For example, one study correlates circulation of an agenda in advance with meeting success but this only comprises conveying information in a single direction. Social Contracting recognises that as meetings are value exchanges, participatory meeting behaviour such as preparing, arriving on time and contributing to problem solving and action planning is more likely to occur if attendees feel their time is valued, they have had the opportunity to shape the meeting plan, their contribution is acknowledged and their agreement has been sought.

Forming is an under-emphasised and uncategorised activity in meetings, with scant attention paid to the optimisation of the opening stage of meeting (the Initiation stage). Mroz and Allen (2017) found that attendees were more satisfied with meetings if others arrived on time and Allen, Lehmann-Willenbrock & Landowski (2014) showed that the small talk at the start of a Meeting Event (during the Initiation stage of this study) reduces uncertainty and enables story telling. However, neither of these studies fully express Forming, nor give this early meeting activity the emphasis that the findings of this research indicates it is due.

Embedding is virtually unseen and as such, new to extant literature. There is some recognition that meetings do not create enough value in the projects, teams and organisations they are held to serve (Cohen et al., 2011; Rogelberg et al., 2010). However, as Embedding is not an activity exhibited by many organisations (nor one that is easy to study), it is unsurprising that it has escaped the attention of meeting scholars, or not been considered sufficiently distinct or important. In this way, Embedding is recognised as a problem but without evidence of a solution activity. It is included in SAMES due to the frequency and strength of mentions, but the data show few examples of how to complete the activity successfully.

Designing, Social Contracting, Forming and Embedding all align with systemic meeting design where underlying factors influenced by the systems in which meetings are embedded are accounted for.

7.3 Limitations and future work

Using a holistic approach and attempting to surface and theorise a new set of underpinning mechanisms was a bold choice. It led to a set of research design choices which created new routes through which to speculate about the holistic nature of meetings and create a conceptual framework focused on translating that holistic understanding into systemic meeting design. The following section summarises and reflects on the main limitations affecting the quality of the findings and the studies' ability to answer the research questions.

7.3.1 A broad scope limited detail and reproducibility

The most significant limitation relates to the sheer breadth of scope of this research. Opting to study meetings through a wider boundary constrained the granularity of data which could be collected and processed. A wide range of themes was examined at a relatively high level, creating a potentially large number of overlaps with extant literature but with limited time or detail to examine all of these thoroughly. It also meant that the quality of those themes was potentially reduced as they were sketched from a wide dataset, rather than crafted from a deep dataset, which could reveal more of their properties. These themes are worthy of closer examination to develop them further and validate them as specific typology or set, in a future study. This research accommodated this trade-off, choosing holism over detail but whilst the holistic SAMES framework is useful and valuable, the detail of the rich picture should be considered not fully tested. SAMES is a 'leap in thinking' intended to advance the conversation in a new and useful holistic direction but it cannot claim completeness or reproducibility. It would not be easy to repeat the study and replicate the same findings or use the exact same method of analysis again as it relied on a partly subjective process of researcher interpretation. On balance, this was considered an acceptable trade-off, but it will not satisfy all meeting scholars.

The studies were systematic but not algorithmic. In section 3.4.1, it was explained that the approach to validity in this research centred on 'confidence' or the degree to which the findings are plausible, relevant and important (Hammersley, 1995). However, future work could develop construct validity in the following ways. This open-ended study could be repeated with an independent researcher (or two, if resources permitted), conducting and

analysing interviews from scratch and re-drawing the related systems, boundaries, stages and underpinning activities. This would provide a highly valuable contrasting dataset from which the two (or more) researchers could discuss, compare, enrich and form a more complete picture. Alternatively, a set of studies could be designed to validate each of the eight activities, using some of the correlational techniques in many typical studies of meetings described in this thesis. Analysis could also be used to more accurately associate surface-level, observed factors with underpinning activities – an empirical version of the mapping exercise in section 7.2. This would help answer sub-question 4 more fully, which asks *how* SAMES helps us design meetings systemically.

As previously mentioned in study 3, a future study should include control groups to discern the difference between, for example, using SAMES to improve a meeting, using a rule-based set of principles to improve a meeting or offering no intervention but encouraging participants simply to focus on making improvements to their meeting. This would further the understanding of the contribution of SAMES itself, as distinct from the findings of other studies and from the uplift that might be created simply by attending to improving meetings.

A further obvious route for future studies is to shift the viewfinder from that of the individual to that of the team, work and organisation. This was originally planned as part of this series of studies but accessing organisations who were willing to share data about their teams, projects and wider organisational goals and culture was difficult. The research leant on interviews which viewed meetings through the viewfinder of the individual. The Systems Mapping Interviews intended to help interviewees look through other lenses by asking them to draw inputs and outputs of meetings across all related systems. However, participants did not find this easy to do. For this reason, the individual value exchange is the only one identified. A systems approach would suggest that all related systems have value exchanges and that these are interwoven. Further research could establish the nature of these additional value exchanges and how they interrelate to help build a much more complete picture of how meetings could be designed more systemically to fulfil a range of potentially conflicting goals.

Finally, this research zooms out to address meetings systemically but then zooms back in to the meeting itself to inform changes, using new insights gained from the broader boundaries and perspectives. The next step in adopting a systems approach would be to

build on this study and discern what the study data can tell us about the changes required in the related systems in order to improve the design of effective meetings.

7.3.2 Despite efforts, the results were limited by bias

A further significant limitation relates to the researcher's previous role as practitioner and designer of meeting experiences, whose world view and past experiences will influence the data collected and the way they are interpreted. Two particularly relevant researcher biases in these studies include confirmation bias, where the researcher collects or interprets data which support their hypothesis, and acquiescence bias, where participants share information they think is in support of the research goal, or that which they feel will please the researcher.

Although a number of different interview types were used to develop a richer dataset, the majority of data were nevertheless elicited through one interviewer's conversations with individual meeting attendees. This research embraces the richness that comes from this type of analysis and acknowledges that a degree of interplay between researcher and subject or study area is inherent in all research (Drake, 2010). Many mitigations were used to reduce unhelpful bias that would present an inaccurate set of findings. These include the acts of reflexivity in study 2 in which meetings were observed to trial early findings in the real world, an independent researcher completed a second round of coding of the data and early sketches of the rich picture were shared for validation by previous interviewees. Although these certainly broadened and enriched the picture, nevertheless, the resulting SAMES framework is a picture seen by this particular interviewer, and other researchers may have seen different pictures.

Acquiescence bias was mitigated, firstly by framing the research neutrally as conducted on behalf of a wider community, therefore de-coupling it from the interviewer's own opinions. Secondly, it was confirmed in all participant information and at the start of each interview that there were no pre-conceived ideas about what the data might show and that the study was entirely open-ended. Snowden (2002) notes that, in a complex setting, researchers "allow the interaction of identities to create coherence and meaning" and not only recognise but also "disrupt, reinforce and seed the emergence of patterns" (p. 106). This recognition that patterns in complex settings are not simply there waiting to be uncovered by researchers but are intertwined with exploration attempts and place limits

on any interpretation of these data. Returning to the ideology adopted in these studies, it is not possible to claim that the patterns identified are 'true' but it can be claimed that they are perceived to be useful to the majority of those who trialled them.

The future studies described in section 7.3.1 would minimise the biases described above and would refine SAMES.

7.3.3 Using pragmatism and the DRM somewhat limited validity and generalisability

The pragmatist ideology is uncommon in studies of meetings, though the situation of this study in systems engineering made it a logical choice, especially to help answer research sub-question 4 which concerns how this theory helps design meetings systemically. Its limitations include a lack of precision (Tashakkori & Teddlie, 2003) and a focus on research questions and problems at the expense of philosophical debate and alignment (Glogowska, 2011; McCready, 2010; Onwuegbuzie et al., 2009). This can be addressed by explicitly acknowledging for whom the research is meant to be useful (Johnson & Onwuegbuzie, 2004). In this case, although the research is intended to be *used by* the meeting science community, its value is ultimately judged by the degree to which it can be *used for* impacting the real world of meeting hosts and attendees. The pragmatist approach made it possible to answer the challenging research questions, but it somewhat limits the quality of the findings, which have not had to pass as high a bar as they might in a study dominated by, for example, a positivist stance.

The methodology described in this chapter was chosen for its ability to structure an open-ended study of a complex setting but also to provide sufficient flexibility to allow selection of a specific set of methods that generate immediately useful data. The methodology also encouraged an iterative process where adaptation could take place throughout the studies, as learning made improvements and opportunities visible.

There are a number of limitations with this overall approach, the most obvious being the lack of a well-trodden methodological path to follow. Not only does this series of studies break rank with the most common ways of studying meetings but it also does not strictly follow an established path from another community or field. The DRM was used as an overarching framework but was not adopted in full, rather as a way to create a bounded

view of the problem and allow a careful and systematic blending of methods in pursuit of a solution. The trade-off was considered acceptable as the methods chosen allowed the freedom to see and explore patterns that might not have been possible using a highly structured, linear research process.

The sample was created through a combination of opportunistic and theoretical sampling and therefore it was not possible to establish whether the group of people who contributed to the three studies created representative data about all work-related meetings. Study 1 interviewees represent a relatively even balance across types of organisation and role complexity. For this reason, together with the fact that the research is not designed to claim cause and effect, the sampling is not thought overly to limit the findings. However future researchers should actively consider sampling and recruitment in order to evaluate whether SAMES can claim to apply to all meetings.

It was the open-ended and qualitative nature of the overall research design, together with limitations to the size and representativeness of the sample, which meant that the findings are neither correlationally nor probabilistically predictive. The studies were not designed to establish cause and effect but to discover how the system is disposed to act. It may go in one direction or another, but SAMES helps to convey the mechanisms that contribute to its disposal to act in certain directions.

Every conceptual framework or model comprises symbols, patterns, rules and processes which are thought to correspond to reality in some way (Meadows, 1957). Itself a logicising and sense-making activity (Weick, 1979), a model does not necessarily mirror reality as earlier scholars of models claimed (Pepper, 1942) and tests of truth vary. In this study, one test of truth is its ability to allow researchers to "picture the terrain as we move from the specific to the abstract," and back again (Arman et al., 2012, p. 312). Future researchers might consider adding a control group to the study 3 verification process in service of a stronger test of truth.

The only claims made are that SAMES is a creative and useful start to understanding the underpinning mechanisms in meetings and also a theoretical bridge between the many studies with a narrow viewfinder and the wide viewfinders of ethnographic studies or case studies, abstracting the former and putting flesh on the bones of the latter. This study argues that using an open-ended set of methods, driven by a pragmatist viewpoint was

effective at making large leaps relatively quickly. Next, as well as further exploring these large leaps by asking questions about the construct validity and precision of each component of SAMES, researchers should also examine how to guide principle-based judgement in meeting design. SAMES argues that the eight activities guide systemic design, however they do not dictate exactly what should influence their decisions at each stage. In keeping with the deviation of this study from simple right/wrong rule-based answers, this work should be interpreted through the lens of complexity where cause and effect is assumed to be difficult to discern and agents design for the system conditions that may lead to desirable outcomes.

7.3.4 Additional research sub-questions required to answer the main research question

In this research, that which can be claimed by the findings is limited by the wide breadth of scope of the studies, an unavoidable element of bias and use of a pragmatic philosophy. Therefore, in order to fully answer the *overarching* research question, two new sub-questions are required, as follows.

Additional sub-question 5: Can SAMES be developed to improve its construct validity?

The three limitations described in this section somewhat restrict the degree of construct validity which can be applied to SAMES - the degree to which there is confidence that theoretical attributes of SAMES exist as they are described in the real world. To be sure whether the holistic approach really does enable systemic meeting design, the next question seeks to repeat the study in different ways to develop the theory further and verify its construct validity.

A first step would be to repeat the study in order to confirm or disconfirm the related systems, stages and activities in SAMES. One study would involve another researcher repeating the data collection and analysis stage using the same methods and comparing resulting pictures. Another study would involve exploring and trialling different methods of studying meetings holistically, again, comparing pictures.

A second important study to answer sub-question 5 would be to undertake the original proposed research approach to this study in which a small number of teams are studied through the eyes of more than one team member, over a period of time, collecting data

not just on the experiences of individuals but also on the team, task and even organisational trajectories. This would enrich the understanding of the underpinning mechanisms and in particular their inter-relationships and dynamism over the lifecycle of a project, providing valuable insights not just for meeting science but also for project and team effectiveness.

Using a different type of systems approach, for example following the steps of Soft Systems Methodology faithfully with a series of case study companies or using Strategic Options Development and Analysis (SODA) (Ackermann & Eden, 2010) would enable further comparison of pictures. A further option would be to study meetings holistically, using pure qualitative methods, in search of a grounded theory, instead of using a systems approach. Together these studies would iterate and improve SAMES and raise the bar of construct validity that this framework can claim.

Additional sub-question 6: How does SAMES help design meetings systemically?

The conceptual framework was introduced lightly into the real world, simply by explaining it to some meeting-goers and encouraging them to use anything they felt was helpful. Implementing a more rigorous trialling and testing process will help further complete the answer to the original overarching question about what a holistic approach can tell us about designing meetings systemically. This would be done after SAMES had been shaped and improved by the studies in response to sub-question 5.

7.3.5 Evaluation

Despite these limitations and the future work that is required, this work is still useful in three important ways. Firstly, widening the boundary of interest has made the case for much greater consideration of meeting context in future studies and highlighted previously unseen influences that impact a meeting. Secondly, SAMES represents a major leap forward in surfacing the under-studied mechanisms which underpin meetings, creating fresh knowledge which informs systemic meeting design and a framework which unifies previously unconnected studies. Finally, thanks to widening the viewfinder and asking deeper questions, this research highlights previously under-recognised stages and activities which account for the systems in which a meeting is embedded.

8 Conclusion

The three-stranded problem motivating this research is defined as the significant organisational resources consumed by meetings which are thought to be necessary for organisational success but are poorly rated by attendees.

Meetings are increasingly researched in their own right, but the literature review suggests that studies of meetings are failing to address meetings *in context* and therefore missing knowledge to help crack this three-stranded meeting problem. Meetings are studied through few lenses (nearly half are correlational studies), as stand alone events (nearly two thirds collect data no further than the meeting event itself) and treat meetings as undifferentiated (nearly two thirds consider 'a meeting is a meeting' in their data).

The following research question asks what a more holistic study of meetings might bring to the understanding of this three-stranded challenge and whether a more complete theory of the mechanisms *underpinning* meetings might aid the systemic design of meetings.

> *What can be learnt about designing meetings more systemically from taking a holistic approach to understanding the meetings of knowledge workers?*

A systems approach provided a robust but flexible methodology to carve out this holistic narrative. Three studies were undertaken to answer a breakdown of the main research question as show in Figure 22.

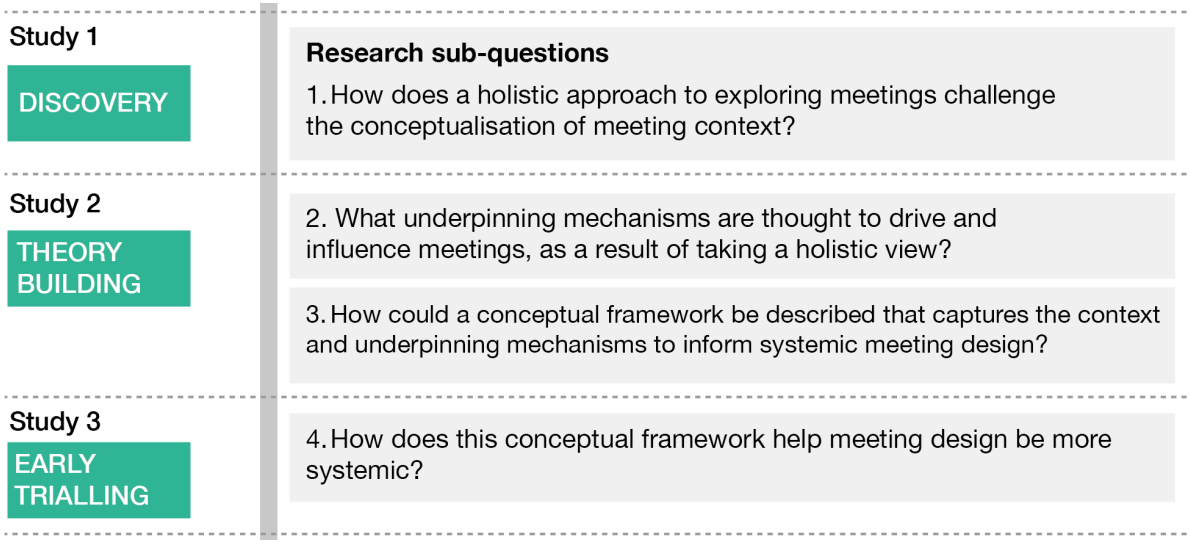


Figure 22: *A summary of the studies and sub research questions*

8.1 What this research has achieved and its impact

By using an overlapping set of interviews designed to explore meeting experiences holistically, a conceptual framework, SAMES (Stages & Activities of Meetings Embedded in Systems) was developed which fills an important gap between *zoomed out* studies of meetings which give us high-level, general ideas about meetings e.g., that they are collaboration rituals, and *zoomed in* studies comparing the effectiveness of individual interventions e.g., that agendas improve meeting satisfaction scores. SAMES redraws the boundary of interest in studies of meetings to partiallys include systems found to relate to meetings (organisation, task, team and individual) in a single picture, presenting meetings as inherently situated events. By theming data elicited within this new wider boundary, SAMES identifies four stages (Inception, Initiation, Meeting Event and Leverage) and eight interlinked activities (Designing, Contracting, Preparing, Forming, Facilitating, Structuring, Capturing and Embedding) that contribute to meeting effectiveness, foregrounding previously unseen or under-emphasised stages and activities (Brief et al., 1991). It goes on to reconcile these underpinning mechanisms with the surface-level mechanisms in the existing literature, creating an integrated framework that helps abstract and help explain correlational studies to date. Finally, SAMES makes contact with the real world, verifying its perceived and potential usefulness in designing meetings systemically.

SAMES' visual picture and pragmatic language offers scholars a way to integrate findings from research on meetings, and in particular helps relate research on meeting events with knowledge of organisations as communication systems. Now there is a conceptual framework which integrates the underpinning mechanisms, there is a pathway for researchers to study meetings more holistically and an integrative picture of systemic meeting design that scholars can test and improve. SAMES also provides a shared language which allows easier comparison of findings derived from different study methods concerning the same concept.

8.2 What is still required to answer the research question?

Chapter 7 discussed the limitations to this research and recommended a series of possible future studies, including two additional research sub-questions (5 and 6), to further complete the answer to the overarching question. In summary, in order to improve the construct validity of the answers this research provides to the *existing* research sub-questions (1-4), each element of SAMES could be further developed and more crisply defined through a robust validation process. The activities form a logical set but it cannot be claimed that they are mutually exclusive and collectively exhaustive. Using other researchers' pictures emerging from different systems methods (or holistic methods unrelated to systems) will help build and validate SAMES. It is also important to flesh out exactly what the evolved SAMES picture contributes to systemic meeting design, how it can be used and what difference it makes in the real world.

These refinements are greatly welcomed but nonetheless, the related systems, stages and activities are designed not as tick lists but to initiate a holistic picture of the *principles* which underpin meetings and how they interlink with the meeting context. SAMES does relay this and is faithful to the data.

8.3 Where next?

The findings of this research support the idea that the three-stranded problem of meetings is not an isolated problem but a systems challenge. Many factors influencing meetings originate in related systems and intertwine with each other, creating unpredictable outcomes. Now this is known, there is a rationale for researching systemic design of meetings further and widening the boundary of factors considered in order to open up the solution space.

SAMES presents a holistic picture of the underpinning mechanisms associated with meetings. Its value is in supporting the systemic design of meetings that may better create the conditions for effective meetings to take place. It places emphasis on holistic condition-creating activities rather than factors which will *determine* a meeting to be successful. It is ready for further testing and refining.

One immediate challenge highlighted in the data is that though SAMES shows that more time and focus is needed to complete the eight actions and influence the course of the meeting, this capacity is not available to meeting-goers. Interviewees were already struggling to cope with the pressure meetings placed on their existing schedule and cognitive load. Collaborative overload - the wider workplace trend highlighted in section 1.2 – was in evidence. Whilst this study argues that using the eight activities helps design meetings systemically, which in turn may boost organisational productivity, employees may argue they simply do not have the capacity to spend more time designing meetings and gain this benefit. For this reason, the long-term motivation is to use SAMES to create a support tool that simplifies the process of completing the eight activities – making it faster and easier to design meetings systemically.

There is an opportunity for scholars of meetings to use SAMES to consolidate existing and future research around a common language and picture. This would accelerate the production of knowledge as different types of studies can better use and build on each other's findings.

If researchers are convinced of the value of studying meetings through a systems lens and become aware of the missed or under-emphasised mechanisms of meetings within these wider boundaries, they are more likely to find ways to design meetings systemically that work in the real world – based on *all* the factors that influence a meeting, not just those within the boundary of the meeting event. Perhaps those many hours you are required to spend in future meetings will fulfill their potential, changing working lives for the better in the process.

9 Appendices

9.1 Appendix 1: Full coding guide for the systematic literature review

Coding category	Codes
Title	Free text response
Authors	Free text response
Year	Free text response
Boundary of study	The meeting only The system of the individual The system of meetings The system of work The cultural system The system of the organisation
Scope of study	During the meeting only Before and during During and after Before, during and after
Degree of differentiation between meeting types in the study	No differentiation Differentiates on quant descriptors Differentiates on meeting purpose Differentiates on meeting quality See each meeting as a unique event
Degree of differentiation by type of organisation or project	No differentiation Some differentiation Clear differentiation
Degree of differentiation by personality type of attendees	No differentiation Some differentiation Clear differentiation
Primary methods of study (list all that apply)	Case study Interviews Survey Discourse analysis Diary study Observation Document analysis Literature review

	Text analysis Longitudinal study
Data type	Qualitative Quantitative Mixed Methods
Data type II	Subjective Objective

9.2 Appendix 2: Interview guides

Pilot interviews

Interview section	Content
Pre-meeting interview	What is the overall goal of the people who go to this meeting? What outcomes are you all trying to achieve? Who are these outcomes for? Who cares if you succeed? Now thinking specifically about this meeting - what is it for? How does it contribute to those outcomes? Whose needs does the meeting serve and in what ways? What's your role in the work? And in the meeting? Where does it fit into the wider flow of work and communication at your organisation? [invite participants to draw it] What were the inputs to the meeting? What happened in the meeting? What were the outputs and what happened to them?

Systems Mapping Interview

Section	Content
Introduction and boundary setting	What task or piece of work could we focus this interview on? Tell me a bit about this work. What is its purpose? Who's involved? How do you communicate? What meetings do you have? *[add these to post it notes]*

Mapping	What is the big goal of this project/team? How clear (out of 10)? What is your role in this goal? How clear (out of 10)? *Looking at this work* Who are the 'payers' (the people who allow the money and time to be spent on this)? Who are the 'customers' (the beneficiaries of the work you are doing)? Who is doing the work? What are the key events/deadlines? Are there any other stakeholders? Any ad hoc meetings to add? Where does this drawing start and stop? *For each meeting:* What is that meeting for? What question does it answer? Whose needs does it meet? How would you define success for this meeting? If you had to explain what this meeting was about to an alien that had just landed from Mars who knew nothing about it, what would you say? *Inputs* What goes into the meeting? What did you think you were supposed to input? What did you expect others to input? *Transformations* What processes are supposed to happen during the meeting? What are people supposed to do / contribute? What is different or changed by the end of the meeting? *Outputs* What are the outputs of the meeting? What was the main thing you thought that meeting achieved? What else did it achieve? Was there anything you thought it should have achieved but did not? *Beyond the meeting* What happened after that meeting? What did that meeting influence or change?

	What is its role in the system you've drawn? What would happen if you didn't have this meeting (for you, for others, short term, long term)?
Annotation	What other systems is this set of meetings part of? What is the relationship between these meetings and these other systems?
Reflection	What is missing in the picture you've drawn? Looking at everything we've done today: • Is there anything that's occurred to you in this interview, that you hadn't thought of before? • Does anything surprise or puzzle you? • Is there anything you thought we would talk about that we haven't? • How do you see some of this being applied?

Meeting Reflections Interview

Section	Questions
Meeting enquiry	Pick a moment in a recent meeting when you experienced some friction, or frustration. Can you describe that moment in detail in the present tense? What would have been in the thought bubble above your head? What is that meeting for? What question does it answer? Whose needs does it meet? How would you define success for this meeting? If you had to explain what this meeting was about to an alien that had just landed from Mars who knew nothing about it, what would you say? *Inputs* What goes into the meeting? What did you think you were supposed to input? What did you expect others to input? *Transformations* What processes are supposed to happen during the meeting? What are people supposed to do / contribute? What is different or changed by the end of the meeting? *Outputs*

	What are the outputs of the meeting? What was the main thing you thought that meeting achieved? What else did it achieve? Was there anything you thought it should have achieved but didn't? *Beyond the meeting* What happened after that meeting? What did that meeting influence or change? What is its role in the system you've drawn? What would happen if you didn't have this meeting (for you, for others, short term, long term)? *[Repeat for this series of questions for a meeting that was truly useful]*

Diary Study Interview

Section	Content
Orientation	Tell me about the week we're discussing. How typical a week was that for you? At a high level talk me through the meetings - do they group together in any way? By task / project / team / client / type?
Meeting enquiry	For each meeting: What is that meeting for? What question does it answer? Whose needs does it meet? How would you define success for this meeting? *Inputs* What goes into the meeting? What did you think you were supposed to input? What did you expect others to input? *Transformations* What processes are supposed to happen during the meeting? What are people supposed to do / contribute? What is different or changed by the end of the meeting? *Outputs* What are the outputs of the meeting?

	What was the main thing you thought that meeting achieved? What else did it achieve? Was there anything you thought it should have achieved but didn't? *Beyond the meeting* What happened after that meeting? What did that meeting influence or change? What is its role in the system you've drawn? What would happen if you didn't have this meeting (for you, for others, short term, long term)? How did that meeting affect your day, your week and other work you were doing?

Model Trialling Interview

Section	Content
Model recall and understanding	Thinking about the model - if you were to explain it to someone who hasn't seen it before, what would you say? After the briefing, what was your reaction to the concepts, specifically - a new wider view on meetings and the four stages and eight steps? What did you take from it?
What was trialled	What did you do with what you had seen? How did you go about changing a meeting? How did you introduce it?
Perception of value	How useful was the model?
Ease of trialling	How easy or difficult was it to do something with it?
Success of trialling	How did you know if it had worked?
New and useful	What do you think is the most important or useful stage? What did you find new?
Value of model	As a holistic picture of meetings, how useful do you find this knowledge?
What next?	What would you need to effectively use these concepts to improve a meeting, do you think? And which would be the most important? What is blocking you using this more fully? What do you need from the wider org/team? In your dream scenario, what would happen?

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