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Authors	McCarthy, Stephen;Scholta, Hendrik;Hausvik, Geir Inge;Busch, Peter André
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Boundary Spanning and Practical Impact in IS Research: A Bourdieusian Analysis

Stephen McCarthy[1] | Hendrik Scholta[2,3] | Geir Inge Hausvik[4] | Peter André Busch[4]

[1]Department of Business Information Systems, Cork University Business School, University College Cork (UCC), Cork, Ireland | [2]ERCIS, University of Münster, Münster, Germany | [3]Deutsche Universität für Verwaltungswissenschaften Speyer, Speyer, Germany | [4]Department of Information Systems, University of Agder, Kristiansand, Norway

Correspondence: Stephen McCarthy (stephen.mccarthy@ucc.ie)

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ABSTRACT

Information systems (IS) research often seeks to deliver practical impact in addition to the traditional requirement for theoretical contribution. While an admirable goal, it is nevertheless a challenging prospect, as key questions remain around how best to facilitate a relationship between IS academic and practitioner communities. To explore this issue, we analyse multi-case study data from interviews with 24 IS practitioner doctorates, industry contact points, and senior IS academics who sought to create a joint field between academia and practice during their research. Our findings reveal several boundary spanning activities needed to traverse field boundaries and maintain the joint field's existence across the stages of proof-of-concept, proof-of-value, and proof-of-use. Building on insights from the work of Pierre Bourdieu, we further discuss how IS practitioner doctorates operationalised *capital*, *doxa*, and *habitus* to achieve varying degrees of practical impact in their work. Action-oriented recommendations are presented to support practical impact going forward including creolised messages and the mobilisation of capital to change inter-field relationships. By adapting Bourdieu's Theory of Practice to the engaged scholarship discourse in IS, we contribute new insights into how the academia-practice gap might be addressed.

1 | Introduction

The relevance and impact of information systems (IS) research hinge on the demonstration of value to key stakeholder communities (Davison 2022). From an academic standpoint, this can be evidenced through research publications as scholars build on established discourses in literature and put forward theoretical contributions to the IS field. In addition to this, several IS research projects seek to demonstrate value to practitioner communities by producing artefacts and knowledge that address problems in industry (Cater-Steel, Toleman, and Rajaeian 2019; Davison et al. 2023; Gregor and Hevner 2013). Design science research (DSR) and action design research (ADR) are particularly well suited for fostering close alignment between IS academia and practice as they facilitate the co-creation of outcomes for both stakeholder groups (Österle et al. 2011; Sein et al. 2011). However, practical impact can also be pursued through other methods by communicating action-oriented findings to an academic, professional, and academic-practitioner audience (Straub and Ang 2011).

There are several motivations for promoting alignment between IS academia and practice. First, as an applied research field, alignment between IS academia and practice is important from the perspective of legitimacy, as close ties to industry can ensure that theory-building is grounded in real-world contexts

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(Baskerville et al. 2023; Klein and Rowe 2008; Mathiassen and Sandberg 2013; Moeini, Rahrovani, and Chan 2019). Academic-practitioner collaborations seek to address the dual objectives of both problem-solving in a practical context and theoretical contributions (Hodgkinson and Rousseau 2009; Sein et al. 2011). This requires IS researchers to direct equal focus towards variables (theoretical concepts) and narratives (practitioner language) when communicating with academics and practitioners (Ramiller and Pentland 2009). Second, from a resource perspective, alignment is desirable for accessing novel technologies, winning financial support from industry, and promoting research student employability through graduate job opportunities (Gill and Bhattacherjee 2009; Hodgkinson and Rousseau 2009; Pan and Pee 2020).

Despite these motivations, alignment between academia and practice is notoriously difficult to achieve, with many scholars alleging a significant 'gap' between the two domains (Moeini, Rahrovani, and Chan 2019; Wainwright et al. 2018). Academia and practice have been described as autonomous and self-referential fields, which makes communication and collaboration between the two problematic, if not impossible (Hodgkinson and Rousseau 2009; Marabelli and Vaast 2020). Arguments have also been made that a gap between academia and practice is necessary for the effective functioning of each field (Barrett and Oborn 2018; Kieser and Leiner 2009). Proponents of this view have asserted that cognitive and emotional distance is required for academics to produce scientific knowledge through critical reflection (Bansal et al. 2012; Kieser and Leiner 2009).

Nevertheless, considering the emphasis on theoretical and practical contributions within the IS field, further investigations are warranted into how the gap between academia and practice might be reduced (Mueller 2021; Te'eni, Seidel, and Brocke 2017). In particular, further research is needed to understand how academics and practitioners can work together to pursue practical impact beyond a 'fire and wait' approach of producing communications in the hope that practitioners will react (Liang, Hirschheim, and Chen 2023). Despite this, there remains a lacuna of empirical studies on how to navigate the boundaries between theoretical and applied knowledge (Davison 2022; Davison et al. 2023). This moves beyond prior debates around rigour versus relevance which questioned whether practical contributions entail a sacrifice in academic standards. In line with more recent IS discourse which dismisses such trade-offs (e.g., Hirschheim 2019), we shift attention towards how deep engagement between academia and practice can lead to high-impact knowledge contributions that would not be possible without the involvement of both communities (Barrett and Oborn 2018; Nunamaker Jr et al. 2017). This can occur through multiple pathways such as executive education, industry-facing research centres, and teaching cases (Marabelli and Vaast 2020). Real-world examples of this include the collaboration between Audi, BMW, and the Technical University of Munich, which produced both novel automotive mobile services platforms, such as an Avatar-based Virtual Co-driver System (Niederman et al. 2015), as well as academic publications in AIS Senior Scholar Premier Journals (Weiss et al. 2023). Other examples include IS research projects in local communities where academic-practitioner partnerships supported small and medium enterprises in their digital innovation efforts (Chan and Farrington 2018) and large-scale university-industry consortium networks for technology transfer and design knowledge accumulation across diverse stakeholder groups (Legner, Pentek, and Otto 2020; Nunamaker Jr et al. 2017; Österle and Otto 2010).

Motivated by ongoing debates in the IS literature around engaged scholarship (Mathiassen 2017; Van de Ven 2018), clinical IS research (Baskerville et al. 2023), and the relationship between academia and practice (Moeini, Rahrovani, and Chan 2019; Wainwright et al. 2018), our study explores the unique role of IS practitioner doctorates in closing the academia-practice gap. IS practitioner doctorates refer to agents with professional experience and research qualifications (PhDs) who seek to span the fields of academia and practice, often in collaboration with industry (Baskerville et al. 2023; Klein and Rowe 2008; Mathiassen and Sandberg 2013). Using the theoretical lens of boundary spanning (Bourdieu 1977), we seek to advance our understanding of cases in which practical impact is pursued through the creation of *joint fields*. According to Straub and Ang (2011), this requires IS researchers to address perceived gaps in (1) relevance (investigation of problems that align with practitioner needs), (2) knowledge transfer (communication with practitioner audiences), as well (3) motivation (practitioners' interest in academia).

To accomplish this, we investigate the following research question: *How does practical impact emerge from IS practitioner doctorate research?* Our research draws on findings from a multi-case study of 10 research projects involving IS practitioner doctorates, industry contact points, and senior IS academics who achieved varying degrees of practical impact in their work (see Appendix B). Following Nunamaker Jr et al. (2015), we explore practical contributions across the proof-of-concept, proof-of-value, and proof-of-use stages.

Our research makes three contributions of interest to IS academics and practitioners. First, we reveal several activities that IS practitioner doctorates engage in when spanning the boundaries of the academia and practice fields. This includes symbolic discourse with stakeholders to demystify research, exchanging knowledge in arenas native to practitioners, and adapting the research design to accommodate sporadic industry changes. Building on Bourdieu's (1977) Theory of Practice, we further discuss how the environmental forces of *capital*, *doxa*, and *habitus* shaped IS practitioner doctorates' efforts to align cross-field logics (rules of the game) through boundary spanning. We also present recommendations on how IS practitioner doctorates and other stakeholders can realise practical impact in the future, for instance by evaluating the desired target state of the joint field, navigating inter-organisational norms, and clarifying incentives for practical engagements.

The remainder of the article is structured as follows: Section 2 provides a background to our paper based on a review of literature on the alleged gap between IS academia and practice, the role of IS practitioner doctorates, and our theoretical lenses of boundary spanning and the Theory of Practice. Section 3 introduces the research design of our multi-case study which involved a thematic analysis of 24 semi-structured interviews. Section 4 presents the findings from the study regarding the activities and factors that influence the realisation of practical

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impact. Section 5 discusses the findings as relevant to academics and practitioners before Section 6 brings the article to a close.

2 | Theoretical Background

2.1 | The Alleged Gap Between Academia and Practice in Information Systems

Bibliometric studies on the gap between IS academia and practice have delivered mixed and often contradictory evidence.

Moeini, Rahrovani, and Chan's (2019) analysis of 109 articles published in MIS *Quarterly, Information Systems Research, Journal of Management Information Systems, Journal of Strategic Information Systems*, and *Journal of Information Technology* found that while IS strategy research has been successful in selecting relevant topics, the delivery of knowledge products that align with end users' needs is less evident. This is partly due to the predominant focus on descriptive theories in the IS and management fields, compared to prescriptive theorising that aims to deliver action-oriented solutions to complex problems in practice (Hanisch 2024). Hernandez and Haack (2023) support this assertion with empirical evidence that most research published in top-tier management journals fails to provide actionable guidance to organisations. Similarly, Lee et al.'s (2021) horizontal analysis of relevance in IS research finds that around 60% of hypotheses focus on the confirmative testing of axiomatic theories rather than the visionary goals of practitioners.

While academic-practitioner collaborations are de-facto evidence of mutual informing (Gill and Bhattacherjee 2009; Marabelli and Vaast 2020), the drop off in practitioner engagement with journals such as MIS Quarterly has also been observed following the decision taken by the Society for Information Management in 1995 to terminate its subscription for members who are primarily senior IT executives, CIOs, and consultants (Galletta et al. 2019). Others have referenced the low attendance of practitioners at conferences such as the International Conference on Information Systems (Galletta et al. 2019; Klein and Rowe 2008; Rosemann and Vessey 2008) and the limited practitioner readership of IS journals (Moeini, Rahrovani, and Chan 2019; Wainwright et al. 2018).

Nevertheless, evidence has also been presented that argues against a gap between academia and practice (e.g., Baskerville and Myers 2009; Marabelli and Vaast 2020; Straub and Ang 2011). Based on an analysis of literature from selected academic, professional, and academic-practitioner journals, Straub and Ang (2011) assert that IS scholars satisfy the alignment criteria of topic relevance by consistently investigating practitioner challenges. The authors are less assertive on claims of knowledge transference due to the lack of empirical studies in this area. A study by Marabelli and Vaast (2020), however, suggests that practical impact goes beyond academic papers and is achieved through other means such as executive education, creating industry-facing research centres, and writing teaching cases. Similarly, Baskerville and Myers (2009) assert that academic research is relevant to practitioner interests, based on bibliometric evidence that both domains are characterised by the emergence of distinct 'fashions'—topics which garner increased attention at specific points in time. Baskerville and Myers (2009) even suggest that academia often leads practice in investigating certain fashions despite time lags in publishing. Practitioner engagement is also highly valued in European countries such as Germany, as reflected in the high rate of academia and industry collaborations (Gill and Bhattacherjee 2009; Hirschheim 2019) and the emergence of dedicated models for researcher-practitioner alliances (Legner, Pentek, and Otto 2020; Österle and Otto 2010).

The effective involvement of practitioner audiences in IS research remains a central academic discourse in the IS field. In their seminal article, Rosemann and Vessey (2008) recommend that IS academics employ applicability checks with practitioners to ensure relevancy across three levels: (i) the research process level (decisions around methodology, theoretical background, and the communication of findings), (ii) project governance level (different alliances formed with practitioners as part of a research project), and (iii) institutional level (mechanisms of social order that provide an environment conducive to practice-oriented research). More recently, Liang, Hirschheim, and Chen (2023) adopted an argument analysis lens to guide how academic research findings can be effectively disseminated to practitioner audiences. They differentiate between two approaches to establishing arguments with practitioner readers: *warrant-using*, where researchers propose actions to a problem, and *warrant-establishing*, where researchers prove links between the proposed actions and results. This aims to ensure alignment between the researcher's intentions and the audience's expectations, beyond comprehension alone (Liang, Hirschheim, and Chen 2023).

Nunamaker Jr et al. (2015) provide further insights for bridging the academia-practice gap by delineating between three stages of practical impact. The *proof-of-concept* stage first establishes whether outcomes are actionable based on a theoretical or scholarly understanding of problems faced in practice. While the outcomes are not yet stable enough for use in the real world, it represents an initial step in exploring the problem space. *Proof-of-value* then seeks to measure the efficacy of outcomes to real-world problems in practice. Metrics such as productivity, cost-effectiveness, and user satisfaction are evaluated, with new theoretical logic used to explain observations (Pan and Pee 2020). *Proof-of-use* represents the 'last research mile' that generates a community of practice, often in support of a partner organisation. Here, theories and solutions have been tested in the real world and are applied without the support of researchers. This could be demonstrated through evidence of adoption (e.g., sales, partnerships, licences) as well as attention (e.g., downloads, citations, and media coverage) (Nunamaker Jr et al. 2017; Pan and Pee 2020).

Discourse on engaged IS scholarship has, to date, focused on literature reviews and bibliometric analyses of academic, professional, and academic-practitioner journals (Hernandez and Haack 2023; Lee et al. 2021; Moeini, Rahrovani, and Chan 2019; Straub and Ang 2011) or commentaries and opinion pieces, which sometimes discuss anecdotal and unreferenced data (Hanisch 2024; Hirschheim 2019; Lee 1999; Pan and Pee 2020; Straub and Ang 2011). Notwithstanding the

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value of these contributions, empirical evidence from the field is, in contrast, relatively scarce, albeit for a few seminal examples from Mathiassen and Sandberg (2013) and Marabelli and Vaast (2020). In light of this, scholars have called for more empirical evidence to understand potential gaps (Lee 1999; Wainwright et al. 2018) as a more immediate step to addressing IS scholars' call for relevance in IS research (Te'eni, Seidel, and Brocke 2017). In particular, the role of different agents in bridging the academia-practice gap has yet to be investigated empirically. Next, we turn our attention to IS practitioner doctorates to act as transitional agents between academia and practice.

2.2 | IS Practitioner Doctorates

One means suggested for bridging the gap between academia and practice is the development of IS practitioner doctorates that emphasise an industry focus in research (Hirschheim 2019; Klein and Rowe 2008; Mathiassen and Sandberg 2013). IS practitioner doctorates are agents with professional experience and research qualifications who seek to address practical problems using academic research methods (Baskerville et al. 2023; Hardwicke, Mahlberg, and Riemer 2018). IS practitioner doctorates typically collaborate with academic representatives and industry contact points who guide decisions around the research direction and/or monitor the progress and quality of deliverables (Mathiassen and Sandberg 2013). For instance, collaboration projects and industry placements can support the development of practitioner-researchers by creating a conduit between the two fields (Baskerville et al. 2023; Klein and Rowe 2008; Mathiassen and Sandberg 2013).

Emerging research suggests that IS practitioner doctorates are uniquely placed to strengthen network ties between academia and practice. Practitioner researchers have been identified as key agents for transferring knowledge between academia and industry and are, in turn, an essential part of the knowledge economy (Baskerville et al. 2023; Mathiassen and Sandberg 2013). They are also proposed to act as translators who can address differences in language and cognitive orientation by generating both theoretical and practical contributions (Kitagawa 2014; Klein and Rowe 2008; Mathiassen and Sandberg 2013; Thune 2009). The professional experience and contacts of IS practitioner doctorates can enable them to acquire data through their network and financial stipends through industry contributions (Borrell-Damian et al. 2010; Kitagawa 2014).

However, despite the uniqueness of their position, empirical studies on practitioner researchers have been limited to date (Burmeister 2015; Klein and Rowe 2008; Mathiassen and Sandberg 2013). The experiences of IS practitioner doctorates in particular have received scant attention, with any findings from the related fields of management and organisational studies often subsumed under the category of business doctorates (Burmeister 2015; Hirschheim and Klein 2012). Given the potentially important role that IS practitioner doctorates can play in bridging gaps between academia and practice in IS, further research is needed to understand the process and outcomes of their interactions. We next draw on the theoretical lens of boundary spanning and Bourdieu's (1977) Theory of Practice to better understand how the divide between academic and practitioner groups can be bridged.

2.3 | Boundary Spanning and the Theory of Practice

Boundary spanning refers to where agents from a specific field (in our case, IS academia) engage with agents from a separate and distinct field (in our case, IS practitioners in industry) to pursue shared work outcomes (Abbott et al. 2013; Kaplan, Milde, and Cowan 2017; Levina and Vaast 2006). Fields refer to a structured social space wherein agents seek to advance their position through a patterned set of practices (Chudzikowski and Mayrhofer 2011; Emirbayer and Johnson 2008). Each field is characterised by its own set of rules and shared meanings that govern those within it (Swartz 2008). For instance, medical device regulation directs the activities of developers, analysts, and suppliers in the Health IS field to ensure patient safety is protected.

Practices then emerge as the nexus of activities in a field and change as agents adapt to new situations (Bourdieu 1977; Schatzki 1997). The movement of people, objects, and ideas can lead to a reconfiguration of a field and its boundaries through ongoing negotiation (Chudzikowski and Mayrhofer 2011; Kislov, Hyde, and McDonald 2017; Navarro 2006). Boundary spanning can create a new *joint field* where different groups collaborate in shared work practices (Guo et al. 2014). This requires boundary spanners to act as filters and facilitators of relevant knowledge for different fields through boundary spanning activities (e.g., Van Osch and Steinfield 2016).

Political manoeuvring may be required to maintain the joint field's existence, ensuring all stakeholders are engaged and committed to boundary spanning activities (Kislov, Hyde, and McDonald 2017; Levina and Vaast 2005; Van Osch and Steinfield 2016). This can take the form of accommodating diverse interests, negotiating meanings, and building trust between different groups in the joint field (Kaplan, Milde, and Cowan 2017; Levina and Vaast 2006). Boundary spanners may also develop locally useful artefacts for transmitting knowledge across organisational structures.

The agential role of a boundary spanner can be assigned apriori or emerge over time through interactions with other agents (Levina and Vaast 2005; Lindgren, Andersson, and Henfridsson 2008). Designated boundary spanners are those with pre-assigned responsibility for facilitating knowledge transfer and reducing distances between fields. In contrast, boundary spanners in practice refer to agents without assigned responsibilities who navigate knowledge boundaries and cultivate closer relationships between different groups (Levina and Vaast 2005).

While prior research has focused on the spanning of internal boundaries (e.g., departments) within a single organisation, less attention has been directed towards boundary spanning across settings or fields of knowledge (Guo et al. 2014; Lindgren, Andersson, and Henfridsson 2008; Van Osch and Steinfield 2016). Some exceptions are Abbott et al. (2013) who

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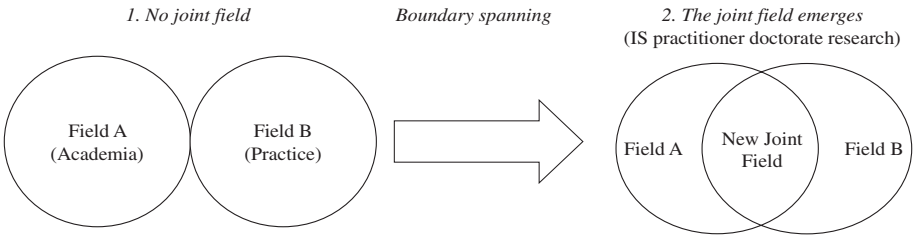


FIGURE 1 | Boundary spanning and the emergence of a joint field.

discuss the role of transnational intermediaries as designated boundary spanners in global sourcing arrangements. Kislov, Hyde, and McDonald's (2017) study of boundary spanning finds that the legitimisation of boundary spanning agents across fields requires access to and mobilisation of different resources.

Literature has also primarily focused on the boundary spanning efforts of high-status agents such as managers in a single organisation (Levina and Vaast 2005; Lissillour and Sahut 2021). Our understanding of boundary spanning by low-status agents, however, remains nascent. Kaplan, Milde, and Cowan (2017) nevertheless suggest that doctoral candidates are uniquely placed to act as effective boundary spanners, given the lower opportunity cost they face in bridging divides across practitioner and academic communities and their willingness to undertake this work.

Our research focuses on how IS practitioner doctorates can span the boundaries between academia ('Field 1'—A in Figure 1) and practice ('Field 2'—B in Figure 1) to create a joint field (in our case, IS practitioner doctorate research). The field of academia refers to a community of IS professors and academic researchers who engage in the scholarly pursuit of knowledge creation and theoretical contribution within the discipline (Moeini, Rahrovani, and Chan 2019). Academia is characterised by its focus on intellectual inquiry and the dissemination of knowledge through journal publications, conferences, and third-level education (Liang, Hirschheim, and Chen 2023; Pan and Pee 2020). The field of practice, meanwhile, centres on a community of practitioners who apply their knowledge, skills, and expertise to real-world contexts (Davison et al. 2023). The primary aim of practice is to achieve specific objectives within a professional setting such as companies, governments, and non-governmental organisations (Marabelli and Vaast 2020; Moeini, Rahrovani, and Chan 2019). Field boundaries are then defined as where these logics cease to have effects (cf. Bourdieu 1977).

Each field represents an arena with its own logic of practice that influences how agents select and generate actions across scenarios (DiMaggio 1979; Walther 2014). The academic field is differentiated by its emphasis on critical thinking/academic freedom, the certification of skills (e.g., degrees), and public outreach, while the practice field is differentiated by its focus on the commercialisation of products/services and profit maximisation in industry or the public service mandate in governmental organisations (Leydesdorff and Meyer 2006). Academia and practice also share certain commonalities or interfaces which highlight the importance of collaboration, including the practice of problem-solving, innovation, and specialisation within a certain area of expertise (Barrett and Oborn 2018). For instance, academia is responsible for educating future professionals which practice will later employ (Gill and Bhattacherjee 2009), while the research produced by academia can also inform practice change, and vice versa, to deliver value for both fields (Pan and Pee 2020).

The positions of agents are central to how fields are conceptualised and analysed (Chudzikowski and Mayrhofer 2011). For instance, fields have been defined as a network of positions where agents mobilise different resources to conserve or subvert the positions of others (Swartz 2008). In turn, fields can become arenas of conflict as agents engage in power struggles for capital (Emirbayer and Johnson 2008; Scott 2008). Of specific interest to our study are the positions of industry contact points in the field of practice, IS academic supervisors in the field of academia, and IS practitioner doctorates who engage in boundary spanning efforts between the two fields. We investigate how IS practitioner doctorates navigate positional conflicts, overcoming status differences across fields and competing demands from their dual involvement in academia and practice.

The left side of Figure 1 depicts an interface where academia and practice engage in knowledge transfer while remaining autonomous. The right side, in contrast, focuses on the emergence of a joint field where academia and practice develop deeper engagements through the co-production of theoretical and practical knowledge. While academics and practitioners can interact without the presence of a joint field, boundary spanning is necessary to traverse and reconfigure field boundaries in the pursuit of shared work outcomes (Kislov, Hyde, and McDonald 2017; Levina and Vaast 2005; Van Osch and Steinfield 2016). We also recognise that boundary spanning positions may not be permanent, as legitimacy is subject to change over time (Kislov, Hyde, and McDonald 2017).

To better understand how a joint field evolves and the dynamics of its emergence, we next draw on concepts from Pierre Bourdieu's (1977, 1990) Theory of Practice, which outlines how agents interact, pursue objectives and fight for positions of dominance through action. According to Bourdieu (1977, 1990), a field is comprised of three negotiated constructs that govern actions within it: *capital*, *doxa*, and *habitus*.

Capital refers to the resources which can be converted and exchanged by agents to accumulate power within a specific field (cf. Bourdieu 1977; Emirbayer and Johnson 2008). Possession of a high volume of relevant capital allows agents to exert influence over practices, either by conserving their existing position or subverting those of other agents (Navarro 2006; Swartz 2008; Wacquant 2018). In this way, the unequal distribution of capital

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defines a field's structure and can also be decisive in the formation of a joint field (Kislov, Hyde, and McDonald 2017). Bourdieu (1986) distinguishes between four forms of capital, as outlined in Table 1. Each form may be attributed a different weight depending on the field under investigation and the embedded agents within it (Bourdieu 1990; Emirbayer and Johnson 2008). A resource becomes capital only when it is used to gain or maintain power (Navarro 2006). However, it should also be noted that capital assets are closely interlinked and can be converted from one form to another (Bourdieu 1977). For instance, cultural capital from an MBA degree can be converted to symbolic capital when applying for a managerial position in industry but holds little relevance in other fields such as art or poetry (Chudzikowski and Mayrhofer 2011).

The symbolic term refers to socially recognised systems of meaning, such as symbols and signs that shape agents' vision of the world (Wacquant 2018). This is closely tied to the idea of legitimacy, which confers recognition and validation of influence from other agents in the field (Emirbayer and Johnson 2008; Kislov, Hyde, and McDonald 2017). Legitimacy can be derived from the acknowledgement of certain practices, knowledge, or positions as authoritative and valuable. Symbolic capital also confers a form of legitimacy that enables agents to wield power and shape social hierarchies or distinctions in a field (Bourdieu 1990).

Doxa is a set of norms, values, or beliefs which favour the reproduction of practices over social change (Bourdieu 1977). This can centre on taken-for-granted truths or widely held orthodoxies which shape what practices can feasibly be undertaken in different situations (sense of limits) (Berard and Meeker 2019; Bourdieu 1977; Ellway and Walsham 2015). Doxa can emerge from the tacit beliefs of a field (e.g., profession, organisation) or the position that the agent holds, which shapes the boundaries or limits of action (Bourdieu 1977). For instance, doxa might centre on favoured approaches to work activities where management empowers agents to develop creative responses to technological change. Doxa ensures that agents act under social conventions by reflecting values beyond dispute (Bourdieu 1977; Ellway and Walsham 2015). It can also lead to certain possibilities for action being overlooked due to limits in agents' awareness (Berard and Meeker 2019; Wacquant 2018).

Habitus is the system of dispositions which guide an agent's course of action in the field (Bourdieu 1977). It forms part of an agent's schemata of perception, thinking, and acting that shape all verbal and practical expressions (Bourdieu 1977; Ellway and Walsham 2015; Wacquant 2018). The habitus is mostly unconscious and provides agents with an intuitive 'feel for the game' that enables them to engage in regulated improvisation within the bounds of a field's norms (Bourdieu 1977). For instance, it can shape how agents evaluate different positions as more desirable than others, drawing their attention towards a certain outcome or behaviour within the broader social space (Emirbayer and Johnson 2008; Scott 2008). The habitus is also shaped by the network of roles and relationships that an agent is embedded in, such as the field of a profession (e.g., career ambitions) and organisation (e.g., departmental objectives), as well as their past experiences and positions in other fields (Bourdieu 1990; Wacquant 2018). An agent's habitus is also subject to change such as when agents enter new fields or encounter situations with high levels of uncertainty (Emirbayer and Johnson 2008).

In summary, Bourdieu's (1977) Theory of Practice asserts that the central concepts of *capital*, *doxa*, and *habitus* influence an agent's judgements and behaviours according to the rules of the game and what is perceived to be important to the field. This shapes agents' beliefs about the opportunities and limits of action which are learned and validated through experience.

The next section provides an overview of our research design for investigating the activities and factors which affected changes at the periphery and core of a field by agents, as well as the rearrangement of field boundaries over time.

TABLE 1 | Forms of capital (after Bourdieu 1986).

Capital	Description	Examples
Cultural	Cultural capital can take two forms: institutionalised and objectivised. Institutionalised cultural capital is embodied as a certificate of competence from a recognised institution. This is incorporated as an agent's persistent dispositions which are non-transferable. Objectivised cultural capital is embodied as transferable material objects that the agent possesses.	Academic qualifications, data analysis skills, and journal papers.
Social	An agent's network of social relationships and acquaintances can provide access to other forms of capital and resources. Social capital can be conferred through a delegated title or membership in a group, class, or organisation.	Connections with research networks and industry bodies.
Economic	An agent's monetary assets or material resources can be converted into other forms, including cultural, social, or symbolic capital. For instance, monetary assets could be institutionalised as property rights and vice versa.	Research grant from a funding body or industry partner.
Symbolic	Symbolic capital centres on internal and external recognition of an agent's achievements as socially legitimate. The rules of a field shape what combination of cultural, social, and economic capital is recognised as valid by other agents.	Academic or industry awards, status as a topic expert.

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3 | Research Design

We draw on multi-case study (Yin 2018) data from the IS department of a European university (hereafter referred to as 'ISU'). Our unit of analysis centred on 10 PhD research projects involving IS practitioner doctorates, their senior IS academic supervisors, and industry contact points. All IS practitioner doctorates were affiliated with 'ISU' and the industry contact points, and senior IS academics had all collaborated with one or more of the IS practitioner doctorates in our multi-case study (see Appendix A for contextual background).

3.1 | Data Collection

Data from semi-structured interviews, participant observations, and documents was collected between January 2020 and September 2023. We first conducted 24 semi-structured interviews (Myers and Newman 2007) with IS practitioner doctorates (PR), industry contact points (IND), and senior IS academics (ACA). A purposeful sampling approach (Seidman 2006) was chosen to select professionally and academically qualified IS practitioner doctorates who (i) were currently working in industry or had prior industry experience, (ii) were a member of a professional body, and (iii) were registered as a full-time or part-time PhD candidate during the research project. Data collection centred on each IS practitioner doctorate's PhD research project, rather than any work carried out after graduation. We also interviewed senior IS academics in the department and industry contact points who were involved in the research projects of IS practitioner doctorates and shaped the boundary spanning efforts. Instead of considering IS practitioner doctorates as boundary spanners by default, the authors engaged in ongoing discussion around the extent to which they engaged in boundary spanning activities (see Appendix B). Data collection ceased once theoretical saturation was reached and no additional codes were identified from the interviews with IS practitioner doctorates and their academic/industry collaborators. Our approach to data collection and data analysis is further detailed in Appendix C. The study was approved by the local research ethics committee (Log number 2020-009).

Interviews each lasted between 45 and 90 min and were scheduled at a time and location that was convenient for participants. Before the interview, participants were asked for their permission to record the interview for transcription and further analysis. The interview protocols (see Appendix D) were informed by a review of the alleged gap between IS academia and practice, engaged scholarship, and the theoretical constructs outlined in section 2.3. The interviews sought to gain insights into participants' perspectives on the factors influencing practical impact in IS research, and how a joint field was supported through different boundary spanning activities. This included questions about the opportunities and challenges of boundary spanning that were encountered in each case study. Respondents were also asked questions on the topic, method, and content of their IS research as well as their dissemination activities with practitioners. We also asked participants to indicate the degree to which they felt their research has achieved different measures of practical impact through boundary spanning efforts. Appendix B indicates that all IS practitioner doctorates had observed practical impact from their boundary spanning efforts. The interviews were transcribed by the authors to create a corpus of data totalling 269 pages and 167 862 words. Table 2 provides an overview of the IS practitioner doctorates in our study.

One of the authors also leveraged their privileged access to a monthly meeting forum between the IS practitioner doctorates, senior academics in ISU, and industry stakeholders. The meeting fora aimed to provide IS practitioner doctorates with an opportunity to share updates from their ongoing projects and receive feedback from senior academics and industry stakeholders on a 'minimum viable paper'. During these sessions, which typically lasted between 2 and 3 h, the lead author engaged in informal conversations as an insider researcher with subjects in the multi-case study. Participant observations were recorded during discussions about the challenges and opportunities of boundary spanning by IS practitioner doctorates. This included observations such as the difficulties of balancing responsibilities as a practitioner and researcher, learning the craft of writing papers, and institutional impediments to progress such as ethical approval.

The lead author had also previously worked on several industry collaboration projects, and supervised part-time IS practitioner doctorates during this timeframe which sensitised him to the key opportunities and challenges faced in practitioner research and the factors which influenced their boundary spanning efforts. Two other members of the author team had also previously worked as practitioners for over 10 years before returning to academia and completing their PhD, which further informed data analysis.

Finally, the author team analysed a corpus of 10 internal documents from ISU, including policies related to practitioner research and the employment-based PhD programme where candidates conduct research as salaried employees of a company. The documents were collected from ISU's institutional repository and then coded to highlight sections relevant to our research question. Document analysis further informed our study by revealing the organisational structures and procedures in ISU for boundary spanning.

3.2 | Data Analysis

An abductive approach (Tavory and Timmermans 2014) to thematic analysis was carried out by all four co-authors to analyse the data (please see Appendix E for a snapshot). This aimed to draw relationships between surprising themes in our data and a relevant theoretical framework (Tavory and Timmermans 2014). The authors iteratively moved back and forth between our data and theoretical framework (the Theory of Practice and boundary spanning), staying open to new and unexpected patterns. Our understanding was iteratively refined by reflecting on how theory helped explain patterns in the data while also allowing for instances where data provided new insights beyond theory.

Each author coded the transcripts using a collaborative data analysis software programme hosted online. Data analysis began in March 2021 with the four authors independently

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TABLE 2 | Overview of IS practitioner doctorates in the study.

ID	Participants' background	Description of IS research
PR1	Full-time IS practitioner doctorate with 20+ years of practical experience in the IT and healthcare IS sector.	Design science research project that sought to create an artefact for enhancing patient–clinician communication during medical appointments.
PR2	Full-time IS practitioner doctorate with 5 years' experience working in an industry-sponsored fintech research lab.	Design science project research aimed to explore the application of blockchain technology for specified use cases in the finance sector.
PR3	Part-time IS practitioner doctorate with 15+ year's practical experience in the IT sector.	Qualitative research project which sought to explore the competencies affecting employee wellbeing in the IT sector.
PR4	Full-time IS practitioner doctorate with 2 years' experience in an industry-sponsored fintech research lab.	Quantitative research project which explored the application of blockchain technology for crowdfunding in the finance sector.
PR5	Part-time IS practitioner doctorate with 20+ years' experience as director of IT in a national hospital.	Case study research project exploring large-scale system implementations in the healthcare sector, and the associated organisational competencies of success and failure.
PR6	Part-time IS practitioner doctorate with 20+ years' experience in a multinational IT networks company.	Qualitative research project exploring the socio-cognitive aspects of digital transformation and IT adoption.
PR7	Part-time IS practitioner doctorate, educator, and associate researcher with 10+ years' experience in IS disaster management.	Design science research project aimed to create design principles for e-learning systems and assessment practices in disaster management settings.
PR8	Part-time IS practitioner doctorate, 25 years of experience as IT director of a multinational data storage company.	Design science research project which aimed to create a canvas for assessing and planning research projects.
PR9	Part-time IS practitioner doctorate with 15+ years' experience as director of enterprise architecture in a multinational human resource software company.	Qualitative research project on the decision-making processes behind enterprise architectural decisions, and the impacts of trade-offs and assumptions.
PR10	Full-time IS practitioner doctorate with 3 years practical experience in a multinational technology company.	Qualitative research project exploring oscillations in decision-making approaches when using IS solutions in dynamic and static environments.

analysing the 10 IS practitioner doctorate interviews before collaboratively agreeing on a coding structure. This process was repeated from August to November 2022 by analysing the remaining 14 interviews with senior IS academics and industry contact points. Thereafter, the authors met weekly over a seven-month timeframe to collectively make sense of the findings through ongoing dialogue and negotiation around the codes (Miles and Huberman 1994). The meetings typically lasted between 2 and 3 h and enabled the authors to question the data and extract potentially relevant themes during each phase of thematic analysis. These interactions in turn helped guide the ongoing analysis with boundary spanning and the Theory of Practice providing a sensitising device (cf. Klein and Myers 1999) for data analysis.

Following the guidelines of Braun and Clarke (2006), phase one began with the co-authors continuously re-reading the 24 interview transcripts and multi-case study data to capture initial ideas. 238 initial codes (see a sample of codes in Figure 2) were generated which identified factors influencing the practical impact achieved by each IS practitioner doctorate research project, as well as associated properties. Phase two centred on searching for relevant themes by collating initial codes into 61 themes (see a sample of second-order codes in Figure 2) through collective reasoning among the four co-authors. Each theme was reviewed and critically appraised by the co-authors to ensure it was representative of coded extracts and the entire data set. Meanwhile, phase three sought to define and name themes, refining core themes to form a storyline around the research (Strauss and Corbin 1990).

The authors sought to iteratively draw relationships between the data and work of Bourdieu (1977) to explain how practical impact emerged in each IS practitioner doctorate research. This centred on a synthesis between our empirical insights and the theoretical concepts of boundary spanning activities, capital (economic, cultural, social, and symbolic), doxa, and habitus. The weekly coder corroboration sessions involved a critical discussion of outcomes from each phase of data analysis to refine the framework. Each author's contribution was exposed to questioning to ensure that codes were consistent with the data, theoretical background, and underlying

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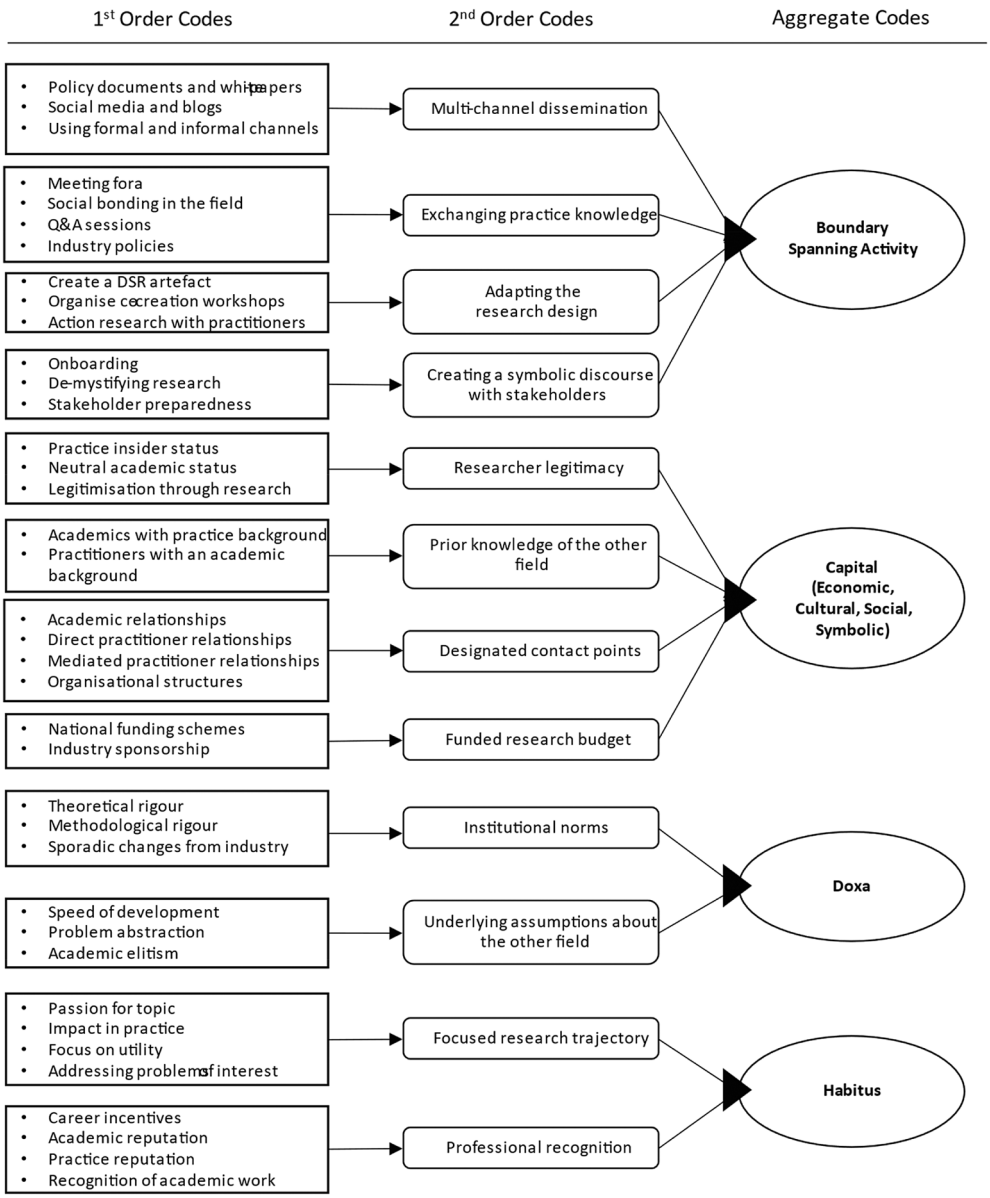


FIGURE 2 | Sample of thematic analysis codes.

research question. The final phase of data analysis involved the co-authors producing a report using extracts from the thematic analysis process to explore the research question detailed in section 1.

Figure 2 presents a sample of codes from our thematic analysis process with further quotes illustrating our approach to thematic analysis provided in Appendix D. To illustrate our coding process, the following excerpt is provided from one of the interviews with explanations on how this mapped to identified themes:

> I would have been in contact with the CEO and he was great. We were communicating all the time because he was actually interested in the research and how he could help me (PR1).

We first coded this excerpt as 'direct practitioner relationships' at level 1 in reference to the need for senior management support and a clear governance structure to facilitate practical impact. This was then grouped with the code 'designated contact points' at level 2 as the interviewee pointed towards organisational structures necessary to support the joint field's emergence. This Level 2 code then falls into the aggregate theme of 'social capital' as defined in Section 2.3.

Documents analysis meanwhile began with the authors reading and rereading relevant documentation, analysing the texts for factors that shaped boundary spanning and IS practitioner doctorate's pursuit of impact. The authors coded relevant policies that acted as key structural supports for IS practitioner doctorates including 'Part-time PhD Registration', 'PhD by Prior Published Work', and 'Recognition of Prior Learning' which allows applicants with considerable industry experience to register for a PhD when they do not meet the academic entry requirements. The description of taught modules in the PhD programme was also analysed including the subjects 'Action

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Design Research', 'Applied Research Design', and the university's wider offering of 'Developing Your Entrepreneurial Mindshift'.

4 | Findings and Analysis

In this section, we reveal how practical impact emerged from IS practitioner doctorates' efforts to establish a joint field. Our findings are structured according to Nunamaker Jr et al.'s (2015) three-stage model of practical impact, identifying the salient concepts and activities operationalised at each (see Tables 3–5). In contrast to Nunamaker Jr et al.'s (2015) focus on the technical feasibility of DSR solutions, we analyse the actionability of research outcomes (cf. Davison et al. 2023) to reflect other methods represented in our cases including ethnographic studies and survey research. Figure 3 denotes how each stage builds on the previous; for instance, 'researcher legitimacy' from the proof-of-concept stage and the 'creolisation of language' at the proof-of-value stage are also operationalised at the proof-of-use stage, in addition to those that are unique to this 'last research mile'. Appendix B outlines the cases relevant to each stage.

4.1 | Proof-of-Concept

The proof-of-concept stage focuses on understanding a problem space of interest to practitioners and establishing whether outcomes are actionable. This can produce research outputs that while based on theoretical explanations and detailed descriptions of a phenomenon, are not demonstrably scalable or stable for use in the real world.

An IS practitioner doctorate's 'academic qualification' provides salient cultural capital at the proof-of-concept stage to signify their impartial status to other agents in the field. Many noted that having a PhD qualification provided them with the research skills necessary at the proof-of-concept stage to develop a detailed understanding of organisational problems: '*The ability to analyse, record, reflect, experiment, all the skills that you would need as a researcher* [...] *to tackle messy problems*' (ACA4). IS practitioner doctorates utilised their knowledge of frameworks and research methodologies to investigate problems that were of key interest to practitioners: '*Theory is a foundation on which we build. It helps us to reflect, test, and think about what may be happening, and get to a shared understanding*' (PR1).

Prior knowledge of the other field provided additional cultural capital when developing detailed descriptions of the problem space. While stakeholders native to either academia or practice were often unaware of within-field dispositions, the IS practitioner doctorate's prior knowledge helped them to navigate differences in the joint field and embed relevancy at the proof-of-concept stage: 'If you're born in the fishbowl, that's all you really know [...] you abide by those rules, sometimes without realising it but someone that's been in industry for 20, 30, 40 years has a wealth of experience and probably even data that they've gathered over that career' (ACA2). The involvement of academics with practical experience also helped IS practitioner doctorates explain how research works to industry contact points: 'I think there is kind of a gap there from industry partners who don't know [...] how research is done [...] My academic supervisor [...] actually gave us kind of training on how to make presentations for industry' (PR4).

The cultural capital associated with IS practitioner doctorates' academic qualifications and prior knowledge of the other field were further converted into symbolic capital as *researcher legitimacy*. This enabled them to wield power as an authoritative figure when validating a proof-of-concept outcome: 'Some people see it as 'the doctor' title and let's face it, it's the gravitas that comes with having that name [...] that underpins what they bring to the table' (ACA6). Other agents recognised that IS practitioner doctorates' use of theoretical explanations and rigorous methods conferred them with an objective voice, while their practical experience enabled them to understand the context

TABLE 3 | Salient constructs for the proof-of-concept stage.

Construct	Category	Description	Finding
Academic qualifications	*Cultural Capital*	IS practitioner doctorates' PhD qualification provides important knowledge and skills in scientific methods.	Research skills supported IS practitioner doctorates in developing an in-depth understanding of problems.
Prior knowledge of the other field	*Cultural Capital*	IS practitioner doctorates' knowledge of the other field supports mutual understanding between fields.	The involvement of academics with practical experience helped explain 'how research works' to industry contacts.
Researcher legitimacy	*Symbolic Capital*	Practitioners tend to perceive the results presented by IS practitioner doctorates as more trustworthy and relevant.	Legitimacy was derived from the symbolic systems of rigour in academic methods and prior industry experience.
Institutional norms	*Doxa*	IS practitioner doctorates adjust to the orthodoxy of methodological rigour in academia and continuous adaption in industry.	IS practitioner doctorates occasionally needed to accommodate impromptu changes and adjust their research objective.

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behind the results. Researcher legitimacy further enabled to assume the position of impartial experts who are highly regarded: 'A friend read my paper and [...] said 'I want to get you in speaking to people [...] as a neutral party'. Employees or leaders can then say: 'Well that's an external view' or they can choose to take it on board if they like the idea' (PR3).

Adjusting to *institutional norms* was also important at the proof-of-concept stage and involved navigating tensions between the orthodoxies of theoretical and methodological rigour in academia and continuous adaptation in practice. This was important at the proof-of-concept stage to ensure that the work was grounded in academic best practices while also being flexible enough to react to sporadic changes in industry over time. IS practitioner doctorates were therefore occasionally 'pragmatic on rigour' and remained open to the changing objectives of their industry contacts. IS practitioner doctorates did applicability checks to embed relevance in their research design and also occasionally 'dressed down for the occasion' so they would not be perceived as theorists who were distant from organisational realities: '[Saying I have] 'X number of years in practice' [...] would have more weight because the practitioner would say 'okay so they've been out in the real world' [...] you find the familiarity or connection that will appeal to the person' (PR3).

4.2 | Proof-of-Value

The proof-of-value stage focuses on measuring an outcome's efficacy in addressing problems and rearranging processes to create value in practice. In contrast to the prior stage, this produces outcomes that are robust to field tests and have been evaluated using metrics and empirical evidence that demonstrate their value.

First, IS practitioner doctorates' access to *designated contacts* provided important social capital for convincing stakeholders of an outcome's value. Respondents felt that access to high-status contacts such as the Chief Executive Officer (CEO) was important in particular for ensuring that research findings on efficacy reached the top echelon of management. The CEO's authority and decisive power to initiate projects in organisations in turn enabled the IS practitioner doctorates to become part of political decisions: 'I'm on the executive meeting every Monday with the CEO [...] I developed a brand-new architecture, stuff we had never done before [...] None of the other execs were too keen on my idea. They thought we probably wouldn't make the date on my estimation. The CEO went for it and said: this is the reason we brought you in, let's do it.' (PR9). IS practitioner doctorates also inherited relationships from industry contacts or academic collaborators when they did not have access to certain agents in

TABLE 4 | Salient Constructs for the Proof-of-Value Stage.

Construct	Category	Description	Finding
Designated contact points	*Social Capital*	Contact points in a partner organisation help facilitate IS practitioner doctorates' access to other networks in the field. This takes the form of direct or mediated relationships.	IS practitioner doctorates that inherited contact points from a designated agent obtained more practically useful outputs for practice.
Exchanging practice knowledge	*Boundary Spanning Activity*	IS practitioner doctorates regularly attend conferences, industry expert panels, and workshops to keep and extend their status as insiders.	IS practitioner doctorates actively acquired new or maintained existing knowledge of the problem domain.
Multi-channel dissemination	*Boundary Spanning Activity*	IS practitioner doctorates use different communication channels to ensure results are accessible for practitioners.	Formal (e.g., policy briefs) and informal channels (e.g., social media) were used to reach practitioners.
Creolisation of language	*Cultural Capital*	IS practitioner doctorates' communication competencies allow them to mix the language of academia and practice.	Sales language helped IS practitioner doctorates convince practitioners and get their message across.
Funded research budget	*Economic Capital*	Monetary resources ensure that IS practitioner doctorates can effectively engage with practice during their research.	IS practitioner doctorates aligned their findings with commercial metrics from industry to ensure relevance secure a budget.
Underlying assumptions about the other field	*Doxa*	Industry is assumed to demand more frequent cycles of value delivery which shapes IS practitioner doctorates' pursuit of impact.	IS practitioner doctorates aligned with the tempo of industry to ensure findings would be available at key organisational milestones.
Adapting the research design	*Boundary Spanning Activity*	IS practitioner doctorates adapt their research design to facilitate practical contributions.	Participatory design, DSR, and the design of artefacts helped validate findings in practice.

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the field. This took the form of mediated relationships which empowered them to get in touch with the right people: '[The industry contact point] didn't know me. The invite through someone I knew, and I think that helped [the research] very much' (PR7). Organisations and practitioners with a history of cooperation with academia often had more effective pre-defined structures to support boundary spanning. In particular, the presence of dedicated research departments within a practice organisation was a key support structure for boundary spanning: 'We were the first cohort of that lab [...] They wanted high-level research on different topics and churn out whatever the lab produces. They had a structured approach [...] where each year would take up on the research done in the previous year' (PR2).

Practice knowledge exchange was an important boundary spanning activity at the proof-of-value stage to ensure stakeholders were clear on the value outcomes for both academia and practice. Practitioner conferences, industry panels, executive education, and stakeholder workshops were important arenas for facilitating ongoing knowledge exchange and an in-depth understanding of the 'practical realities': 'To bridge my current academic stuff with my practice stuff, I get into the open forums at the multinational IT networks company. I'm known as one of these movers or shakers [...] you get a chance to talk about [your research] and more importantly, take questions' (PR6). One senior academic discussed the importance of being present in organisational settings to bond with practitioner communities: 'They spent a year in the field. During the first month, people knew that he was there as a researcher, but then [...] he was invited to birthday parties, he was basically looked at as one of their own, and that's when he really got to understand and really got insights into how the [...] department worked' (ACA4). However, legal policies such as Non-Disclosure Agreements (NDAs) sometimes impeded practice knowledge exchange due to industry contact points' apprehension that sensitive material could be leaked: 'I'm using data that I'd collated as a consultant with over 12 organisations [but] I've had to look for permission. I couldn't alert my immediate bosses, so I did a workaround. I went straight to legal and after about three months of haggling: Does it involve intellectual property? I got approval for my research' (PR6).

Multi-channel dissemination was another important boundary spanning activity which involved the use of both formal and informal channels to communicate proof of value to other agents in the field. Formal dissemination included the sharing of white papers and industry reports in practice-oriented outlets as well as open-access journal publications and conference papers: 'We used the research findings to put a policy brief together [and] got a meeting with the officials of the minister for health, as well as psychologists and diabetes are on the steering group of the clinical program' (IND1). Informal communications such as social media posts, videos, and blogs on platforms such as LinkedIn served as important channels to translate findings on proof-of-value for practitioner audiences. They afforded IS researchers the freedom to craft more provocative content that resonated more with practitioners than more rigour argumentation required for journal publications: 'I engage on LinkedIn. There is probably some promotion to it but I'm really testing ideas. I'm hopefully having the conversations others aren't having, to stay connected with what's happening in people's lives in organizations, with employees, with leaders. Trying to figure out and pick up the stories that they're telling, or the stories that I'm telling that will resonate with them' (ACA2). The combination of formal and informal channels helped traverse field boundaries to reach practitioners in senior positions: 'I met him at a Fintech kind of thing in London once. He's a chief advisor to the central bank [...] I am [connected through] LinkedIn with him' (PR8).

IS practitioner doctorates also adapted their use of language when communicating value. This required *creolisation skills* as a form of cultural capital to mix the vocabularies from academia and practice, producing new terms that are understandable to both audiences: 'I always try and use metaphors, to put [academic terms] into the simplest description [...] using 'living room language' [...] so that people can understand what we're talking about' (PR1). Theoretical concepts from academia were blended with 'operational, implementable, [and] observable' (ACA9) language from practice during stakeholder presentations. The use of sales language was also used to generate a call to action and convince an organisation of the value that could be captured: 'I went to the money man, and I said: 'I need 30 grand to train staff for six months in this practice' [...] And, he gave me the money. I was very persuasive' (PR9). Some IS practitioner doctorates had received dedicated training from their industry sponsor to develop sale pitches for executives. This included the use of relatable anecdotes and emotive storytelling to personalise the message being conveyed, over extensive referencing and data analysis: 'Sometimes I realised that by telling them my stories, it would make them more comfortable telling their stories' (PR1).

To support the ongoing demonstration of value, economic capital in the form of a *funded research budget* was necessary: '[My research] was funded from 5k innovation vouchers and other grants. And it's kind of like if there is money there for that, we'll fund our data. I'm a big believer in getting access to money to do the things you want to do. And it works!' (PR8). Beyond the test of actionability, the proof-of-value stage required convincing practitioners of the benefits of an outcome. Practitioner incentives to engage with academic research were driven primarily by the expected financial impact for the company or funding organisation: 'Sometimes they actually say: We expect to see an impact for such a group, or such a [department], or such a technology. Unless you are doing that, you are not in the game' (PR8). This required aligning topics with metrics that resonate with commercial interests such as sales quotas: 'It's [important to] find the way to their wallet [...] the mighty dollar is governing whether they'll change their business strategy' (PR3).

Underlying assumptions of the other field were also salient for the proof-of-value stage, most notably beliefs around the expected tempo of value delivery. While developing insights from the operational blue-collar concerns of practice was crucial for the first stage, proof-of-value required 'tackling messy problems [...] getting your hands dirty [to] work with all the complexities in it' (ACA4). Many practitioners observed the assumption that industry is characterised by a faster pace of work than academia with a more frequent cycle of deliverables: 'In practice, it takes an extraordinary personal effort to stop and think about what you are doing. There is huge pressure to just keep moving forward. And there is not a lot of opportunity to sit back and say: Well, is

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there a better way?' (PR5). IS practitioner doctorates therefore in the research. Methodological rigour was also embedded by

TABLE 5 | Salient constructs for the proof-of-use stage.

Construct	Category	Description	Finding
Focused research trajectory	*Habitus*	IS practitioner doctorates target specific impacts with a narrow context to ensure relevance for a community of practice.	IS practitioner doctorates developed implementable use cases that addressed the needs of a niche sector to encourage adoption.
Creating a symbolic discourse with stakeholders	*Boundary Spanning Activity*	IS practitioner doctorates use language and symbols to prepare stakeholders for using the outcome without their support in the future.	Onboarding helped sustain stakeholder engagement by incrementally demystifying how IS research works.
Status as a practice disruptor	*Symbolic Capital*	IS practitioner doctorates' status as a practice disruptor helps them win buy-in from a community of practice and encourages adoption.	Industry contacts spoke more openly with a disruptor who has a track record of resolving organisational problems. However, distance was necessary to keep a neutral stance.
Professional recognition	*Habitus*	IS practitioner doctorates face a conflict between the incentive schemes of academia and practice.	The resources required to sustain a community of practice meant that less time was available for publishing.

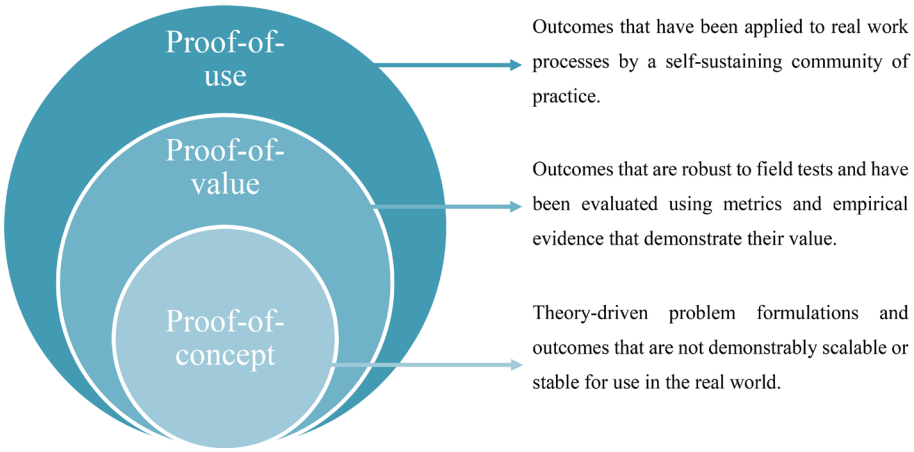


FIGURE 3 | The three-stage model of practical impact.

aligned with the work tempo of industry to ensure that value would be demonstrated at key organisational milestones: 'The fintech company had a quarterly review coming up and they wanted some presentation to be given [...] and then you're doing that kind of sprint of academic work and practical work' (PR2).

IS practitioner doctorates further followed *research design adaption* at the proof-of-value stage to demonstrate timely value to industry contact points. While the prior stage focused mostly on communicating the significance of concepts to practitioners, the proof-of-value stage required more proactive engagement to measure the efficacy of implemented outcomes. This was facilitated by a participatory design approach such as design science or action design research which involved stakeholders throughout all the stages of the research. Moreover, the design artefact provided a tangible research outcome that embedded relevance iteratively presenting the artefact to practitioners for its evaluation: 'We used action design research [...] The IS practitioner doctorate built an artefact, showed it to practitioners, got them to evaluate it, and then iterated again. In the case of the medical one, they actually ran workshops where a lot of students did the training and then they also did another evaluation where they got emergency management practitioners to do the training. So, they had lots of different stakeholders, lots of cohorts from different backgrounds doing this' (ACA7).

4.3 | Proof-of-Use

The Proof-of-Use stage focuses on creating a self-sustaining community of practice around an outcome that is applied to real work processes. Knowledge is codified so practitioners

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can develop their instances of generalised outcomes in the field without the IS practitioner doctorate's support.

IS practitioner doctorates asserted that a *focused research trajectory* is important at the proof-of-use stage to develop implementable use cases for a specific community of practice. In contrast to proof-of-value's broad scope which recognises value in many different forms, the 'last research mile' requires more targeted outcomes for practice to sustain adoption. The ambition for practical impact was therefore quite narrow and centred on a specific area or topic: '[My training program for Personal Protective Equipment] has been used by hundreds of medical students in the local hospital already. So, it is part of their training programme and it is also been used by the fire service in the southwest. They use it as part of their online training' (PR7). The IS practitioner doctorates had a firm idea of the problem that they wanted to solve and understood the pain points that agents encountered in the field. For example, one IS practitioner doctorate saw IS research as a way to develop digital solutions that could help reduce the risk of adverse outcomes from a hereditary health condition in his family. Frustration at the lack of resources in some regions fuelled his ambition to create an appointment checklist for patients with a chronic illness that would influence policymaking and expedite the digital transformation in healthcare: 'A family member died with [this condition], so that was another big motivator. When you also have a condition yourself, there is a very strong motivation to try and solve problems within the area' (PR1).

Our data highlights the importance of *creating a symbolic discourse with stakeholders* at the proof-of-use stage to foster adoption within and across fields. In contrast to the broad focus of multi-channel dissemination at the proof-of-value stage, symbolic discourse aimed to onboard practitioners by providing a step-by-step explanation of how they could apply research outcomes. This was supported by concrete examples that helped demystify IS research: 'He invited stakeholders to an open talk in a district health centre about what he was doing, the aims of the project, and how it potentially had an opportunity to impact the community down the line. And his presentation was really simple, really accessible. He delivered it in the native tongue and English as well' (ACA6). The onboarding ritual was highlighted as a key boundary spanning activity that prepared a community of practice to use the outcomes of research independently in the field without the IS practitioner doctorate's support. It also increased stakeholders' willingness to invest the resources necessary for implementation: 'I have worked with organisations where to me there seemed to be a clear challenge how we were doing things, and how it was impacting on the customers [...] but without helping people understand why it's important, why it'll make a difference to them [...] you'll lose people' (IND3).

IS practitioner doctorates' *status as a practice disruptor* provided symbolic capital needed to win buy-in from a community of practice. Industry contacts were more receptive to engaging with a 'disruptor' who had rigorous evidence from interventions to current organisational problems: 'She did interventions over four months [...] and she was able to improve the product portfolio, observe a reduction in stock levels, [and] increase compliance with the production plans' (ACA1). This active engagement in changing real work processes was a key differentiator from practice insiders at the proof-of-concept stage. However, IS practitioner doctorates also needed to remain vigilant in case prior experiences coloured their research interventions. For instance, there was one respondent whose dual identity as an IS practitioner doctorate and patient sometimes created conflict in their work. To address this, he balanced their subjective reflections from the practice domain with a 'balcony view' that objectively analysed problems from a distance: '[I had to learn how] to distance myself somewhat from it. Rather than looking at something all the time through the eyes of a patient, start to at it more through the eyes of a researcher. In other words: wear your researcher hat. And knowing when to take off the researcher hat and put on the patient hat in terms of empathy' (PR1).

Professional recognition was another salient aspect of IS practitioner doctorates' habitus at the proof-of-use stage and centred on rewards for reaching the 'last research mile'. While incentive structures in the IS field were primarily directed towards publishing in academic journals and conference proceedings, the onboarding of practitioners required a concentrated effort which sometimes came at the expense of time to write papers. As a result, IS practitioner doctorates perceived a trade-off between academic and practical recognition at the proof-of-use stage: 'Is practical impact important? Not at all really for progression in academia, because you're playing to the rules there, which is about how many publications [you have], where you got them published' (ACA2). IS practitioner doctorates also encountered difficulties when trying to deliver outputs that were relevant to both practitioner and academic audiences given the intersectional nature of their work: 'I was talking to one of the editors and [...] one thing I was running up against in my research, especially in IS, was that they said: 'that's too medical, that should go into a medical informatics journal'. Nevertheless, you go to a medical journal [...] And they said: 'oh that should go into an IT or IS journal'. This is the kind of limbo I was existing in' (PR1).

We next present a discussion of our contributions to IS scholarship and practice.

5 | Discussion

In answering our research question *How does practical impact emerge from IS practitioner doctorate research?*, we found that IS practitioner doctorates and other agents operationalised boundary spanning activities, capital, doxa, and habitus (see Tables 3–5) to achieve varying degrees of practical impact in their work. Building on Bourdieu's Theory of Practice, we conceptualise practical impact as a form of power accumulation across the stages of proof of concept, value, and use. We found that the choice of boundary spanning activities is contingent on what stage best aligns with IS practitioner doctorates' habitus and the capital necessary to support their pursuit of practical impact. Boundary spanning is further set against the background of doxa such as institutional norms in academia and practice which shape the perceived 'limits of action'. While proof-of-concept is a relatively low-risk endeavour, as evidenced by the finding that all our cases reached or surpassed this stage, advancing to the proof-of-use stage requires an evaluation

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of inherent trade-offs. The two IS practitioner doctorates that reached the proof-of-use stage in our study, for instance, had to develop a focused research trajectory that sometimes prioritised a self-sustaining community of practice over academic recognition. This centres on positional conflicts from IS practitioner doctorates dual involvement in both fields (Abbott et al. 2013; Lissillour and Sahut 2021) and the competing demands for their capital to pursue interests and wield power over other agents. We present several theoretical and practical contributions to IS scholarship next.

5.1 | Implications for Theory

Our first contribution is to identify salient boundary spanning activities which support the creation of a joint field between IS academia and practice. This represents the first time that boundary spanning has been applied to the context of practical impact in IS research and provides a new lens for theorising the social trajectories and inter-field relationships of agents. Each field is characterised by a dominant logic (rules of the game) and a set of positions which are at stake (Chudzikowski and Mayrhofer 2011; Emirbayer and Johnson 2008). As boundary spanners, IS practitioner doctorates aim to blur inter-field boundaries by aligning practices that were previously separated and challenging the established order through the renegotiation of meanings (Kislov, Hyde, and McDonald 2017; Levina and Vaast 2005). This extends our understanding of practical impact beyond a 'fire and wait' perspective where academics develop communications (e.g., journal papers) in the hope practitioners might see them and respond (Liang, Hirschheim, and Chen 2023).

Our analysis of empirical data from practitioner and academic agents reveals a collection of boundary spanning activities that are used to traverse field boundaries and engage different communities over time. Boundary spanning was most prevalent at the proof-of-value and proof-of-use stages as IS practitioner doctorates deepened their connection with practice through cross-field engagements. For example, exchanging knowledge within arenas native to practitioners and communicating ideas through formal/informal channels (e.g., industry white papers and social media) supported both a 'warrant-using' or 'warrant-establishing' logic (cf. Liang, Hirschheim, and Chen 2023). Our findings suggest that the boundary spanning activity of research design adaption can further support proof-of-value where results are continuously evaluated in collaboration with practitioners. Artefacts developed through DSR and action research methods can also serve as boundary objects that allow agents to negotiate and resolve cross-field differences. This is consistent with Cater-Steel, Toleman, and Rajaeian (2019) who found that all 40 interviewed doctoral candidates undertaking a DSR project in collaboration with industry claimed to have contributed to practice.

Our findings on the contribution of DSR to practical impact are more nuanced, however, suggesting that while DSR can support closer interactions with practitioners, adoption of this method alone does not necessarily lead to practical contribution. This might also be shaped by an IS practitioner doctorate's choice of DSR genre—for instance, a laboratory approach or practice approach—as not all DSR genres are equally connected to practice (Goldkuhl and Sjöström 2018; Iivari 2015; Peffers, Tuunanen, and Niehaves 2018). Additionally, our results show that IS practitioner doctorates can achieve practical impact following research paradigms other than DSR (see Appendix B). The connection to practice might not be inherent to all research activities and IS practitioner doctorates instead need to establish this connection more insistently. In particular, we find that onboarding a community of practice through targeted use cases was crucial at the proof-of-use stage to demystify research and sustain commitment (symbolic discourse).

Our second theoretical contribution is the adaption of concepts from Bourdieu's (1977, 1990) Theory of Practice to analyse the factors which shape IS practical impact. Despite the value a Bourdieusian lens offers for investigating boundary spanning across fields, the framework has primarily been applied to the study of intra-field relationships (Kislov, Hyde, and McDonald 2017). In addition, prior discussions on practical impact have mainly centred on the research process within the academic field, with less attention directed towards institutional misalignments across fields and the broader project governance within the joint field (Rosemann and Vessey 2008). Our research builds on existing discussions but expands the scope of attention to the academic, practice, and joint fields in tandem. We theorise three concepts that shape inter-field relationships and the activities of boundary spanners: *capital*, *doxa*, and *habitus*. This offers a novel perspective of IS practitioner doctorates' positional changes by exploring the environmental forces which shape their interactions across fields (Levina and Vaast 2005).

We first reveal how IS practitioner doctorates' access to diverse forms of *capital* provides them with an essential resource for developing applicative knowledge which is of value to both academia and practice (Kitagawa 2014; Klein and Rowe 2008; Wainwright et al. 2018). Social capital in the form of network ties to designated industry contact points enables IS practitioner doctorates to wield influence when communicating proof-of-value to audiences from different fields. Creolisation serves as another important form of cultural capital that enables the blending of academic and practitioner language. Such competencies are important since they support more empathic interactions with industry contacts, leading to a more informed understanding of real-world problems in practice. The symbolic capital of researcher legitimacy is further converted from IS practitioner doctorates' peripheral positions as native practitioners and impartial academics, providing them with access to insider knowledge and data on organisational problems which might otherwise be difficult to source (Hardwicke, Mahlberg, and Riemer 2018; Thune 2010). Following a Bourdieusian lens, IS practitioner doctorates could be considered part of a 'legitimate class', whose access to prestigious knowledge enables them to wield power and influence the dispositions of other agents in the joint field (as the 'legitimate taste'). This proved invaluable at the proof-of-concept stage in particular for establishing actionability.

Prior literature has focused on boundary spanning by high-status agents within a single organisation (Guo et al. 2014; Levina and Vaast 2005; Lindgren, Andersson, and Henfridsson 2008; Lissillour and Sahut 2021). Our findings, in contrast, provide

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examples of where the boundary spanner possessed legitimacy in one field (e.g., practice) but was a 'newcomer' to another field (e.g., academia) (cf. Kislov, Hyde, and McDonald 2017). This questions the assumption that boundary spanners require high status to succeed in creating a joint field. Our findings also suggest that boundary spanners can *inherit* social capital from other high-status agents such as senior IS academics and industry contact points to increase their legitimacy at the proof-of-value stage. Findings suggest that an agent native to one field can provide conferred status by signalling legitimacy to other agents in that field. This offers new insights into legitimacy in engaged IS scholarship and how status is constructed across multiple fields. Legitimacy can also erode over time and needs to be sustained to maintain commitment from a community of practice (Kislov, Hyde, and McDonald 2017). The IS practitioner doctorate's status as a practice disruptor provided important symbolic capital for sustaining adoption by delivering concrete interventions at the proof-of-use stage.

Our findings also reveal several *doxa* which affect IS practitioner doctorates' ability to deliver practical impact through their research. Chief among these is the tension between the institutional norms of academia and practice (Rosemann and Vessey 2008). Prior literature, for instance, has raised questions about whether industry involvement may compromise the standards and consistency of research by demanding commercial outputs (Borrell-Damian et al. 2010; Roberts 2018; Sharda et al. 2013). While research knowledge needs to be explicit and follow specific codes of representation (Mathiassen and Sandberg 2013), we find that practical impact primarily requires exposure to tacit knowledge deeply embedded in local contexts. Whereas more recent literature has dismissed the tension between rigour and relevance in IS research (cf. Hirschheim 2019), our findings suggest it is still experienced as a dilemma by IS practitioner doctorates at the proof-of-concept stage. While rigour can be useful for building research legitimacy, the orthodoxies of methodological and theoretical stability can impede an IS practitioner doctorate's ability to adapt to sporadic changes in industry over time.

Navigating underlying assumptions within fields was also crucial for the proof-of-value stage to align output tempo with significant milestones in industry. Policies such as confidentiality requirements, contractual arrangements, and Intellectual Property (IP) rights (Baskerville et al. 2023; Borrell-Damian et al. 2010) can impact scholarly productivity by limiting the IS practitioner doctorate's ability to communicate freely and publish any findings perceived to be commercially sensitive (Thune 2009). While prior empirical results on this are mixed (Borrell-Damian et al. 2010; Thune 2009), we nevertheless provide evidence to suggest that industry policies may affect the IS practitioner doctorate's ability to derive practical impact.

Finally, we find that the *habitus* is an important concept for advancing practice and can facilitate impact by motivating IS practitioner doctorates' engagements with the joint field. This is central to IS practitioner doctorates' system of dispositions and shapes how they evaluate different positions as more desirable than others (Bourdieu 1977; Ellway and Walsham 2015; Wacquant 2018). IS practitioner doctorates' focused research trajectory at the proof-of-use stage was often driven by their in-depth or even emotional connection with a real-world problem. This is important for IS as a social science that considers the socio-technical interplay between people, processes/tasks, technology, and data in tandem (Sarker et al. 2019). However, our findings also suggest that an IS practitioner doctorate should temper their emotional involvement to ensure they can separate the research from their own personal situation.

Another pressing issue centres on professional recognition for efforts to sustain engagement in the joint field (Kislov, Hyde, and McDonald 2017; Van Osch and Steinfield 2016). As peripheral agents, IS practitioner doctorates are often pulled between the conflicting habitus in each field (Navarro 2006; Wacquant 2018), which can lead to conflicting demands for their resources. Insights from our proof-of-use cases, for instance, suggest that the effort required to onboard a community of practice can sometimes come at the expense of time for writing and publishing work in academic journals. Our results also indicate that maintaining interest from academic and practitioner communities is an ongoing process that requires cultivation and reinforcement at the proof-of-use stage. Some IS practitioner doctorates indicated a decline in communication with practitioners after the initial collaboration phase due to an initial contact point having been lost (Thune 2009), or increased constraints around the number, availability, or diversity of contacts (Cater-Steel, Toleman, and Rajaeian 2019).

We proceed with a discussion of the practical implications of our study.

5.2 | Implications for IS Practitioner Doctorates

IS practitioner doctorates occupy a unique position in both practice and academia which enables them to play an important role in bridging the gap between the two fields. However, empirical studies in this area to date have been scarce (Mathiassen and Sandberg 2013). Our study takes steps towards addressing this lacuna by revealing how IS practitioner doctorates can support the emergence of a joint field between academia and practice through boundary spanning activities. Our findings suggest that IS practitioner doctorates are well placed to act as designated boundary spanners across the two fields. For instance, IS practitioner doctorates' mobilisation of capital enabled them to explore real-world organisational problems in collaboration with industry contacts to derive both theoretical and practical contributions. The joint field is supported as IS practitioner doctorates navigate knowledge boundaries to create shared objectives and a common language (Abbott et al. 2013; Guo et al. 2014).

The balancing of obligations across fields can be problematic for IS practitioner doctorates as their conflicting roles as practitioner-researchers may create dual responsibilities (Abbott et al. 2013; Lissillour and Sahut 2021). This includes different systems of reporting that may be demanded by academic and industry contacts, which can lead to increased overhead (Borrell-Damian et al. 2010). Our findings challenge the notion that a single boundary spanner can realise practical impact alone (Levina and Vaast 2005) and suggest that the involvement of multiple agents is needed to support boundary spanners in practice. While there are some boundary spanning activities

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TABLE 6 | Action-oriented Recommendations for IS Practitioner Doctorates.

Recommendation	Description	Perspective
Evaluate the desired stage of practical impact for the joint field	IS practitioner doctorates should begin by deciding what stage of impact they want to target (proof of concept, value, or use) and assess the resources required to reach this stage.	The desired target impact (*proof of concept, value, or use*) shapes what practices are considered effective and necessary.
Disseminate creolised messages via multiple channels	IS practitioner doctorates should utilise creolised language and insider knowledge to deliver practical publications such as blogs, webinars, and white papers. DSR and participatory design may support dissemination by engaging with different practice audiences.	*Boundary spanning activities* should balance practice dissemination with contributions to academic discourse.
Accumulate and mobilise capital to change inter-field relationships	IS practitioner doctorates can mobile their network or inherit relationships from their contacts to reach high-status agents in the fields. Research legitimacy also enables them to wield power in the joint field.	Access to *capital* is essential for transversing field boundaries and influencing practices.
Navigate intra-field norms	IS practitioner doctorates should clarify underlying assumptions in practice and academia that will support or hinder their research. The beliefs and norms that are beyond dispute for each field should be accommodated.	*Doxa* can act as an orthodoxical constraint to boundary spanning unless inherent differences in field assumptions are acknowledged.
Clarify incentives for practical contributions	IS practitioner doctorates should seek out compromises between the incentive schema of academia and practice. This can help sustain engagement from different communities of practice by ensuring that their interests are accommodated.	Recognising and negotiating the *habitus* of stakeholders is important for driving action within and across fields.

and factors that the IS practitioner doctorate can influence and control individually at the research process level, a substantial number requires initiatives from other agents at the project governance and institutional levels (cf. Rosemann and Vessey 2008). To influence these, other agents including industry contacts in a practice organisation as well as the wider academic community must undertake action and utilise their capital to support the emergence of a joint field. For instance, we find that industry contact points can confer IS practitioner doctorates with legitimacy during their interactions with the executive board, while senior IS academics play the important role of guiding research activities and publication efforts.

Table 6 points to additional facilitating conditions needed for IS practitioner doctorates to excel in their boundary spanning efforts. The recommendations are based on empirical findings on how IS practitioner doctorates closed the gap between academia and practice during their cross-field engagements. Our findings have implications for IS practitioner doctorate research projects where boundary spanning is a defining feature, and practical impact is a primary aim (cf. Rosemann and Vessey 2008). We assert that this is a desirable course of action for the IS community going forward to strengthen the symbiosis between fields and build new relationships between agents.

5.3 | Limitations and Future Research

There are, nevertheless, limitations inherent in our study which future research can seek to address. First, some of the findings may be specific to the context in which our research was undertaken, an IS department based in the business school of a European university. We nevertheless believe that our study has implications for other collaborative contexts where agents engage across boundaries. We encourage further research on other contexts, such as North and South America, Australia, Asia, Africa, and other parts of Europe. This could provide novel insights into differing perspectives on engaged scholarship across different research systems across the world. Another limitation is that some findings may be specific to the IS practitioner doctorates who participated in industry-sponsored research projects (e.g., PR2, PR4). Our purposeful sampling strategy focused on candidates who sought to create a joint field between academia and practice, which naturally disposed us to interview those with an applied research focus.

Further avenues of research include exploring temporal aspects of boundary spanning since perceptions can change between the short and long term. For instance, our findings include a case of one industry research lab where the joint field later dissolved (see Appendix B). This points to the importance of nurturing and maintaining joint fields across different phases and organisational settings. Institutional Theory and longitudinal studies on institutional work (Lawrence and Suddaby 2006) may provide novel insights in this area. Future research can also build on our findings to further explore the contribution of DSR and boundary objects for practical impact. Alternative theoretical lenses such as Affordances Theory (Markus and Silver 2008) may provide salient opportunities for empirical studies on this topic. Future research can also seek to explore different types or classes of IS practitioner doctorates who have engaged with

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practice through using qualitative, quantitative, and mixed research methods. The relationship between industry involvement in research and scholarly productivity is also worthy of further investigation (Thune 2009). Control Theory (McCarthy et al. 2023; Wiener et al. 2016) may offer a salient lens here to explore the interplay between academic supervisors and industry contact points in IS practitioner doctorate research.

While accreditation bodies such as AACSB have recognised IS practitioner doctorates as a legitimate form of doctoral research (AACSB 2021; Sharda et al. 2013), we believe that more research is needed to investigate the unique competencies of IS practitioner doctorates and their experiences. For instance, some literature suggests that IS practitioner doctorates can more positively view their future career prospects, as the competencies they gain as practitioner-researchers are sometimes looked on favourably in both academia and industry (Borrell-Damian et al. 2010; Roberts 2018; Thune 2010). Findings in this area are mixed, however, with further research required to explore a candidate's career prospects across contexts.

6 | Conclusion

In this paper, we presented a boundary spanning perspective of practical impact in IS research and the role of different agents in creating a joint field. Building on insights from Bourdieu's (1977, 1990) Theory of Practice, our research revealed how IS practitioner doctorates operationalised different activities and constructs to achieve varying degrees of practical impact across the proof-of-concept, proof-of-value, and proof-of-use stages. We further presented a series of recommendations for deriving practical impact in IS practitioner doctorate research going forward. This can support the boundary spanning efforts of IS practitioner doctorates pursuing a practical contribution in collaboration with industry contacts and senior IS academics in the joint field.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix A

Contextual Background

The interviews were conducted with IS practitioner doctorates, their industry contact points, and senior academics in an IS department based in a European university (referred to hereafter as ISU). ISU is situated within a business school that is both AACSB and AMBA certified. It is one of the largest business schools in the country, producing over 4000 graduates annually, many of whom go on to reach the highest echelons of organisations across the world. ISU is also the largest national provider of executive education with links to several global companies. Executive education is housed within a dedicated institute which has been included in the Financial Times Global Rankings for executive education on 18 occasions, including the Customised Executive Education Global Rankings, the Open Executive Education rankings, the European Business School Rankings and the Global Top 50 Providers of Executive Education.

As part of its executive education offering, ISU offers an IS practitioner doctorate programme for candidates with professional experience. This includes an employment-based PhD which can be taken over 4-years (full-time) or 8-years (part-time). In this case, the PhD candidate remains a salaried employee with their employer while being concurrently based in ISU for the duration of the research project. ISU operates a team-based model of collaboration. All IS practitioner doctorates are supervised by two or more experienced and research-active academic or research staff members who are responsible for the overall direction of the research programme. Co-supervisors may also be external to ISU (e.g., another organisation in industry).

Starting with a research proposal and research question, IS practitioner doctorates are expected to make explicit the role and relevance of their practitioner-orientated research. Regular practitioner researcher seminars were also organised by a team of senior IS academics where industry contact points would be invited to engage with IS practitioner doctorates and provide feedback on the design and implementation of their research. In collaboration with these industry contact points, IS practitioner doctorates would then implement chosen methods to identify problems and collect data.

In addition to the IS practitioner doctorates listed in Section 3, the following industry contact points and senior IS academics were interviewed as part of our study.

ID	Participants' background
IND1	IS professional working as a senior research manager in a national innovation hub. Adjunct lecturer at the practitioner research seminars at ISU.
IND2	Psychologist at a public healthcare organisation and academic liaison. Engaged with practitioner research seminars in ISU.
IND3	Senior account director at a global pharmaceutical company. Engaged with practitioner research seminars in ISU.
IND4	Digital advisor and product manager in a public healthcare organisation. Regular contributor to practitioner research seminars in ISU.
ACA1	Professor and Principal Investigator in decision-making and decision support at a national university.
ACA2	Senior Lecturer in IS and digital transformation at a national university. Adjunct lecturer at the institute of executive education and former director in the IT sector.
ACA3	Professor of IS at a national university focused on relational data modelling. Adjunct lecturer at the institute of executive education.
ACA4	Lecturer in IS at a national university specialising in the business value of technology. Adjunct lecturer at the institute of executive education.
ACA5	Lecturer in IS focusing on IS development methodology adoption. Former systems administrator in industry and software developer team lead.
ACA6	Professor and Principal Investigator in health IS at a national university. Focused on ethics in systems analysis and design.
ACA7	Senior Lecturer in IS at a national university. Co-director of a research centre focused on resilience and business continuity.
ACA8	Associate Professor in digitalization at a national university. Former adjunct lecturer at the institute of executive education.
ACA9	Lecturer in IS at a national university specialising in technology innovation, entrepreneurship and strategy. Former consultant in technology transfer.
ACA10	Professor and Principal Investigator of financial technologies at a national university. Adjunct lecturer at the institute of executive education.

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Appendix B

Summary of IS Practitioner Doctorate's Boundary Spanning Efforts

The following appendix presents an overview of the engagements each IS practitioner doctorate undertook with different stakeholder communities in practice. The outcomes, both successful and unsuccessful, from these engagements are also summarised in the table that follows below. The IS practitioner doctorate's identifier, background, and research are presented in Table 2 of the article.

ID	Engagements	Outcomes	Impact
PR1	PR1 worked with the director of a national charity, an advocacy group for chronic illness patients, and practising clinicians in a national public hospital to design a checklist for healthcare appointments.	The checklist and accompanying booklet were sponsored and distributed to thousands of carers and patients across several hospitals in the National Healthcare Service (NHS), United Kingdom. It was later adopted in other healthcare systems across the world such as Israel, Australia, Sweden, and Austria. PR1 was invited to deliver a keynote presentation at an international clinician conference.	Proof of Use (Outcomes adopted by a community of practice)
PR2	PR2 collaborated with senior executives and management in a global fintech company to develop strategic recommendations for blockchain adoption.	The strategic recommendations were approved by the fintech company's c-suite board headquartered in Europe and China. PR2 was later invited to deliver a keynote at an industry conference attended by hundreds of practitioners. They were invited as a guest lecturer on an executive education programme.	Proof of Value (Measurable impact on practice)
PR3	PR3 engaged with several staff in a multinational IT company, and industry contacts in a practitioner seminar series to discuss employee wellbeing in the IT sector.	Research findings were distributed to over 100 employees in the multinational IT company through an internal discussion board. The findings were also discussed at a monthly seminar involving a group of 12 experienced practitioners. PR3 however, remained unsure of the practical impacts achieved from their research.	Proof of Concept (Established actionability)
PR4	PR4 collaborated with senior executives and management in a global fintech company to develop a strategy for crowdfunding.	The findings were presented to the board of the fintech company headquartered in Europe. PR4 however, was unsure of the practical impacts achieved. They were later hired as a data analyst for an IT company based on past research engagements.	Proof of Concept (Established actionability)
PR5	PR5 engaged with internal senior management and middle managers across a public hospital to formulate a new IT strategy.	Research findings helped inform the swift introduction of a new IT system to manage the vaccination of millions of citizens during the COVID-19 pandemic. PR5 also indicated that the research guided his mentorship initiative with new IT staff in the organisation.	Proof of Value (Measurable impact on practice)
PR6	PR6 worked as the global leader of a digital transformation group in a multinational IT networks company.	PR6 presented their research findings and strategic recommendations on digital transformation at quarterly seminars within the company, and dedicated meetings with senior management in the United States. The findings were also incorporated in their consultation with clients.	Proof of Value (Measurable impact on practice)
PR7	PR 7 collaborated with a university hospital and the head of a national fire brigade service as part of a European Union Horizon 2020-funded project on disaster management.	PR7 led the development of an educational course on Personal Protective Equipment use for medical students during the COVID-19 pandemic. They also developed e-learning programmes for the fire brigade service and disseminated findings through workshops with a large group of experts in Europe and Israel.	Proof of Use (Outcomes adopted by a community of practice)
PR8	PR8 collaborated with finance managers and senior academics involved in European Union funding schemes to develop a canvas for guiding proposal creation.	Research findings were delivered through a series of workshops in the United Kingdom with research managers, senior management, and finance officers from multiple research organisations. PR8 also created a consulting service to offer similar workshops to organisations in the future.	Proof of Value (Measurable impact on practice)

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ID	Engagements	Outcomes	Impact
PR9	PR9 engaged with senior management and middle managers in a human resource software company to reformulate their enterprise architecture strategy.	Findings were presented at several board meetings in Europe and the United States to guide enterprise architecture decisions for a major client acquisition. PR9 also disseminated findings through blog posts that went viral on the global discussion board 'Hacker News'. The posts were viewed more than 10 000 times on its first day after publication.	Proof of Value (Measurable impact on practice)
PR10	PR10 developed models for decision-making under dynamic and static conditions in collaboration with senior IS academics and industry contact points.	Research findings were presented at major conferences in academia but PR10 faced difficulties when striving to realise impacts in practice. They were later hired as a business process re-engineer for a multinational IT company where they have since incorporated findings from past research engagements.	Proof of Concept (Established actionability)

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Appendix C

Timeline of Data Collection and Data Analysis

Our research design can be divided longitudinally into two stages, beginning in January 2020 and culminating in September 2023. Data collection and data analysis were interwoven during this time which allowed the authors' collective understanding and theoretical sensitivity to evolve.

Stage 1

Data collection began in January 2020 with the authors reaching out to IS practitioner doctorates based in ISU via email to request an interview. The interview protocols (as presented in Appendix D) had received approval from the institution's research ethics board prior to this. A monthly meeting forum with the IS practitioner doctorates in ISU's Centre for Executive Education was also attended during this time. Participant observations were recorded from the meetings, which also included IS academic supervisors and industry collaborators. The field notes centred on topics such as the challenges of ensuring rigour in practice-oriented research, and the opportunities for leveraging client insights. The meetings took place online due to restrictions during the COVID-19 pandemic and gradually transitioned to in-person meetings as restrictions eased.

This first stage of data gathering lasted for a period of 15 months and in March 2021, the authors began analysing the transcripts from 10 IS practitioner doctorates. The analysis of this data set lasted for 7 months during which time the authors prepared a first complete draft of the manuscript. Following the guidance of Miles and Huberman (1994), theoretical saturation was reached when no new codes were being created from the IS practitioner doctorate interviews.

Stage 2

The second stage of data collection began in January 2022 with the authors contacting senior IS academics who had supervised the IS practitioner doctorates and their industry contact points. An adapted interview protocol (see Appendix D) was used to gather additional insights into each of the 10 IS practitioner doctorate research projects from the perspective of other actors involved. Engagement with the IS practitioner doctorates' monthly meeting continued during this time in ISU's Centre for Executive Education where additional participant observations were recorded from informal conversations with the subjects. Additional topics identified from field notes included 'legal impediments from the IS practitioner's employer', 'personal challenges that curtailed progress', and 'returning to practice to deliver change'.

The second stage of data gathering concluded after 11 months and in December 2022, the authors presented an updated version of the manuscript at the 43rd International Conference on Information Systems in Copenhagen, Denmark. This version centred on the 10 interviews with IS practitioner doctorates. The authors then began coding the interviews with senior IS academics and industry contact points in January 2023 which continued until September 2023. Theoretical saturation was again reached when no new codes were being created from these interviews. Figure C1 presents a high-level timeline of the two stages of data collection and analysis.

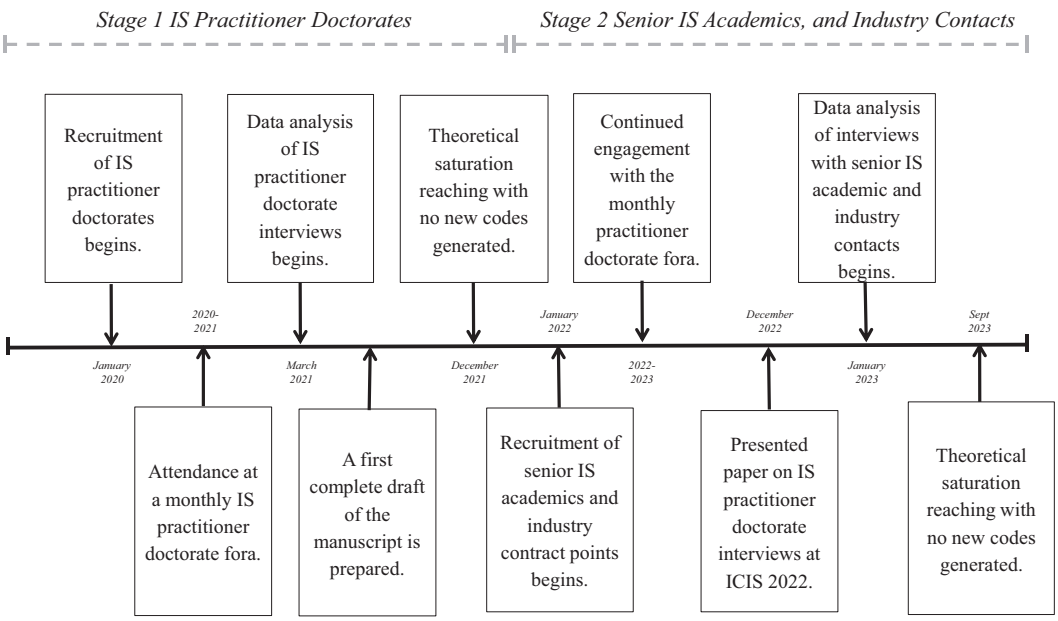


FIGURE C1 | Research timeline.

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Appendix D

Interview Protocols

IS Practitioner Doctorates

Part 1: Topic of IS Research

1. How would you describe your research topic? Why did you choose to undertake research on this topic?
2. Who do you think had the strongest influence in shaping the topic of your research?
3. Did you talk with practitioners about the goal of your research? What were their thoughts?

Part 2: Method of IS Research

4. What method did you adopt in your research?
5. Was a rigorous research design more important than practical relevance? Who defined this?
6. Did you complete a thorough literature review as part of your research?

Part 3: Content of IS Research

7. Did your research present recommendations or implications for practice?
8. Did you present any examples from practice in your research?
9. Do you think the results of your research are implementable in an organisation?
10. Did a product emerge from your research? For example, Design science artefacts.
11. Did you pay attention to precisely defining terms of your research?
12. Did you use the same terminology as practitioners? Did you align your terminology to research, practice, or both? Are the terms in your research still modern and relevant?

Part 4: Dissemination of IS Research

13. Did you create specific pieces of dissemination for practitioners, or was the research the only form of dissemination?
14. How long did it take to publish disseminations from the research? E.g., publications, presentations, patents.
15. How would describe the practical impact associated with your research?
16. Was the practical impact of your research rewarded? How was this rewarded?
17. Did you think about how to produce practically impactful results?
18. Did you encounter any challenges when trying to create practical impact from your research? What would you say are some of the lessons you learned?
19. What is your vision for your research going forward in terms of practical impact?

Part 5: Practitioner Engagement

20. Did you have practical experience prior to starting your research? If yes, did you use your contacts from practice during your research?
21. How many industry contact points did you have access to? (before starting research and during research) How would you describe the diversity of these contact points?
22. Did practitioners show interest in your project?
23. How would describe the role of practice/practitioners in your research?
24. How did the level of practitioner engagement vary across stages of your research?
25. What (if any) constraints did practitioners place on the publication of findings?
26. Did you read practitioner journals when writing your research?

Industry Contacts

Part 1: Introduction

1. What is your background? What is your current role in this organisation?
2. How did you start to get involved in research? Why did you choose to undertake research?
3. What has been your experience of engaging with academia and reading academic papers?
4. Would you see any differences between how academics and practitioners perceive the practical impact of research?
5. What is the attitude of practitioners whom you spoke towards academia? Do you think academics and practitioners have different impressions of what research can do?
6. In your opinion, what are some of the opportunities and challenges that academics and practitioners face when working together?
7. Do you think IS research asks trivial topics for practice?

Part 2: Research engagement

8. Have you presented research findings to practitioners? Did you present any examples from your own research?
9. What are your thoughts on action design research and the creation of artefacts?
10. Do you think the results from academics are too specific or too abstract for implementation in an organisation?
11. What's your perspective on the similarities or differences between the language used by researchers and practitioners? Are the terms in research still modern and relevant?
12. What has been your experience of academic writing?

Part 3: Dissemination

13. What would be common sources of misunderstanding when communicating with practice / disseminating results to practitioners?
14. Are there specific pieces of dissemination that are most effective for practitioners? If yes, what was this piece of dissemination for practitioners?
15. What (if any) constraints would practitioners place on the publication of findings?

Part 4: Practical impact

16. How do you think researchers can produce practically impactful results?
17. What challenges do you think would be encountered when trying to create practical impact? What would you say are some of the lessons you learned in terms of deriving practical impact?
18. How would describe the impact research has had on practice?
19. What is your vision for your research going forward in terms of practical impact? Would you have liked to have more impact/influence on practice?
20. How do you think researchers can balance rigour and practical relevance?

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Senior IS Academics

Part 1: Collaboration with practitioners

1. Can you give an overview of your experience as a collaborator with IS practitioner researchers to date?
2. What are some of the research areas that you specialise in?
3. What research topics have you engaged in over the last 5-10 years? Why did you choose to undertake research on these topics?
4. How long have you been collaborating with practitioners?
5. Who do you think had the strongest influence in shaping the topic of the research?
6. Do you talk with practitioners about your research projects?

Part 2: Method

7. What methods were adopted in the research projects you supervised?
8. Is a rigorous research design more important than practical relevance?

Part 3: Dissemination

9. Would you say it is important for researchers to present recommendations or implications for practice?
10. Do you think the results of research are implementable in organisations?
11. Did a product emerge from the research?
12. Was attention directed towards precisely defining terms of the research you supervised?
13. Would you recommend adopting the same terminology as practitioners?

Part 4: Practical impact

14. How would you describe the practical impact associated with research projects you've supervised?
15. Do you think practical impact is rewarded in research?
16. What challenges have you encountered when trying to create practical impact from research?
17. Did you have practical experience prior to supervising these projects?
18. Did practitioners show interest in the projects?
19. How did the level of practitioner engagement vary across stages of the research?
20. What (if any) constraints did practitioners place on the publication of findings?
21. Did you mediate communication with practitioner contact points?

Part 5: Perceptions of researchers and practitioners

22. Do you think IS research asks trivial topics for practice?
23. How would you describe practitioners' attitudes towards academia? Do you think academics and practitioners have different impressions of what research can do?
24. In your opinion, what are some of the challenges that academics and practitioners face when working together?

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Appendix E

Illustrative Quotes From the Thematic Analysis Process

The following appendix presents further quotes illustrating the thematic analysis process undertaken by the authors.

Illustrative quote	First order	Second order	Aggregate
'I've also tried to communicate that to my teammates, specifically around say presentation of information and how when you're making a decision intuitively it's often your subconscious. So that could be quite important because people would scan an image or scan a business dashboard to take onboard that information almost instantaneously.' (PR4)	Onboarding to demystify IS research	Creating a symbolic discourse with stakeholders	Boundary spanning activity
'And in looking at that, an artefact [...] was created and then it was put into being through instantiations for evaluation. And in that regard, there were different practitioners involved in its development and evaluation.' (PR7)	Practitioner co-creation	Adapting the research design	Boundary spanning activity
'We did an experiment, where we did roleplay in a workshop. We had an Excel spreadsheet, and we had a tablet and an iPhone, and we started to do this roleplaying with a clinician who was in the design team. And he was getting frustrated by the attempts of the patient to input data. Surely what was a roleplay of a medical appointment. Technology was interfering with the communication process' (PR1).	Action research (engagement)	Adapting the research design	Boundary Spanning Activity
'The title of that paper was kind of like: [something about value]. And if you give that to any practitioner, they get the idea. Whereas from an academic perspective, one of the things that we discussed recently is: What do we mean by value? I don't think a practitioner would ever really dig into value and use vs. value and exchange and all these different nuances of every single term being defined.' (PR2)	Crafting a catchy paper title	Multi-channel dissemination	Boundary spanning activity
'[we] got someone involved with us who gave us kind of training on presentations for, essentially for industry. At how to make your presentations interesting. [the recommendation] was to not be reading everything from the slides or you know kind of try to make it personal in a way that you bring up stories or that everyone. Common stories that everyone would have gone through.' (PR4)	Use storytelling techniques	Creolisation of language	Capital (cultural)
'I think the ability to do research and the ability to be entertaining are two circles [...] the ability to actually take the knowledge, turn it into bite-sized pieces that people can understand and give it to people in a way that they can really relate to, that's a very different skill' (PR9)	Communication competencies	Creolisation of language	Capital (cultural)
'I suppose receptiveness is quite important sometimes. It's also who says it. If that person has the authority to be able to bring the changes in from the research. I think it's not about bringing in new stuff, it's about consolidating what you have and stopping doing things that are no longer relevant.' (IND1)	Organisational structures	Designated contact point	Capital (social)

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Illustrative quote	First order	Second order	Aggregate
'I found that approaching people that I knew first was easiest from a couple of perspectives. Number one: I knew them, I was comfortable approaching them in the first place and as with anything else when you do it repeatedly, you kind of get into a bit of a rhythm, and how to approach it to best effect. But [ACA2] was teaching me about laddering when you're speaking to people, asking them if they could recommend someone else.' (IND3)	Inheritance through cross-field networks	Designated contact point	Capital (social)
'We did an insider case study just to get that base-level evaluation of how things were before the artefact was implemented. So almost like ground zero. But once we did that, the interesting thing that came up was, adverse events looking at reliability and what we did is we looked at maybe other types of scenarios with that in mind. [Existing research] didn't cover it'. (ACA4)	Reputation	Status as a practice disruptor	Capital (symbolic)
'Based upon recent experience, the tangible benefits for the organisation in terms of maybe Intellectual Property (IP) that can be much more real [...] if you're looking for what I would say immediate organisational impact from the point of view of commercialization, [then] maybe IP.' (ACA2)	Practice incentives	Professional recognition	Habitus
'The practical side for me [is] how I got into this: how I can make better decisions and how I can help others in industry make better decisions around architecture. It absolutely has come from practice, yeah. It absolutely is practice. And I've lots and lots of experience of seeing good decisions and seeing bad decisions and seeing decisions made on a whim and seeing things that have had a terrible impact and seeing decisions that were maybe, ostensibly maybe, poorly structured decisions turned out to be great decisions'. (PR9)	Passion for topic	Focused research trajectory	Habitus
'I was going to look for utility. Usefulness was going to be absolutely critical to everything I did. I was nearly always sanity checking it against how relevant is it for industry? Does it make sense in industry? Can it be used in industry? How can I communicate it to industry? So that was my own PhD.' (ACA2)	Focus on utility	Focused research trajectory	Habitus

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