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ARTICLE COMMENTARY

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Theorising forward: positioning deductive elaboration in the Information Systems research repertoire

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ABSTRACT

Theorising plays a foundational role in Information Systems (IS) research. While the field has made important advances through theory borrowing, via adaptation and instantiation, as well as through contextualisation of established frameworks and models, comparatively little attention has been devoted to the elaboration of existing theories through structured, logic-driven approaches. This commentary problematises that imbalance and advances the concept of deductive theory elaboration as a valuable, yet underutilised, form of theorising in behavioural IS research. We define deductive theory elaboration as a process that extends existing theories by introducing conceptual modifications to their constructs, relationships, or boundary conditions prior to empirical testing. We distinguish this approach from related forms of theorising and propose a four-step framework supported by a repertoire of elaboration patterns for both variance and process theories. We also offer practical reporting guidelines to promote transparency and rigour in elaboration-based contributions. Our aim is to encourage more systematic elaboration efforts to enhance the precision, generalisability, and cumulative potential of IS theories, an optimistic vision of how behavioural IS research can evolve to meet the conceptual challenges of a rapidly transforming digital landscape.

KEYWORDS

Theory elaboration; theorising; deductive reasoning; IS behavioural research; reporting guidelines

1. Introduction

Theorising is a central activity in the Information Systems (IS) field, shaping how researchers conceptualise and explain the socio-technical phenomena that define digital and organisational life. Over time, the field has cultivated a diverse theoretical landscape, drawing from reference disciplines while also developing domain-specific frameworks tailored to the distinctive characteristics of digital technologies and their use.

IS scholars have made significant strides in understanding how theories are developed, applied, and evolved. Gregor (2006) offered a foundational classification of theory types—explanatory, predictive, and design-oriented—that helped clarify the purposes and contributions of theoretical work in IS. Rivard (2014, 2020) observed that theory building in IS has increasingly favoured adaptation and empirical extension of existing theories, a tendency that can involve, and in many cases be associated with, inductive reasoning. This emphasis has supported valuable work in theory contextualisation, where reference theories are adapted to fit specific empirical IS settings, as illustrated by Hong et al. (2014), Crossler et al. (2018), and Venkatesh (2025). Complementing these efforts, Hassan et al. (2019) have framed theorising as a discursive, evolving process, while Grover and Lyytinen (2023) and Burton-Jones et al. (2021) have called for more ambitious, imaginative theorising in light of the growing complexity of digital transformation.

Yet, a recurring concern has emerged in IS theorising: the field has become increasingly prone to theoretical proliferation, with researchers often introducing new constructs, combining disparate frameworks or offering heavily contextualised adaptations rather than rigorously engaging with the explanatory adequacy of existing theories. This tendency, while often well-intentioned, can lead to conceptual fragmentation, redundant theorising, and limited cumulative insight (Grover & Lyytinen, 2015; Rivard, 2020).

We contend that deductive theory elaboration offers a disciplined alternative to this state of affairs. Rather than assuming that new phenomena automatically warrant new theory, we argue that scholars should begin by assessing whether existing theories can account for the empirical patterns or conceptual puzzles they encounter. Where such

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theories fall short, not because they are invalid, but because they are incomplete, underspecified, or poorly bounded, deductive elaboration provides a logic-driven[1] pathway to extend and strengthen them. In this way, elaboration becomes not merely a formal possibility, but a necessary activity to enhance the internal coherence, scope, and precision of existing IS theories in light of new technological and organisational realities. While our focus is on the deductive mode, we emphasise that it complements, rather than replaces, other forms of theory elaboration, including inductive and abductive approaches, which together form a richer repertoire for advancing IS theorising.

This commentary seeks to raise interest in deductive theory elaboration by conceptualising it as a structured, generative, and cumulative mode of theorising that refines theoretical constructs, relationships, and boundary conditions before empirical testing. We distinguish this approach from other forms of theorising, including contextualisation, integration, pruning, and problematisation, and position it as a mechanism for strengthening existing IS theories, especially in domains where theoretical foundations already exist but require enrichment to sustain their explanatory power.

Our focus is on behavioural IS theories, which have long served as cornerstones for understanding sociotechnical dynamics, such as those related to technology use. Examples like Adaptive Structuration Theory (AST) (DeSanctis & Poole, 1994) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) have guided decades of research. Yet, as digital innovation continues to reshape the relationships among individuals, organisations, and technologies, these foundational theories must also evolve. Deductive elaboration offers a powerful tool for updating and strengthening them, ensuring their continued relevance and conceptual robustness.

Our contribution is threefold. First, we articulate a clear conceptual foundation for deductive theory elaboration in the IS field, clarifying when and why this mode of theorising is warranted and how it differs from related activities such as contextualisation, pruning, or theory development. This responds to the growing need for more disciplined, cumulative theorising amid the proliferation of digital phenomena (Burton-Jones et al., 2021; Grover & Lyytinen, 2015). Second, we propose a structured methodological framework for deductive elaboration, which includes a set of elaboration foci (detail, gap, divergence), a repertoire of patterns tailored to both variance and process theories, and illustrative IS examples. Third, we offer practical reporting guidelines to help authors, reviewers, and editors better recognise, evaluate, and communicate theory elaboration efforts in a transparent and rigorous manner.

2. Background

2.1. Forms of theorising in IS

Building on the notion that theorising is a discursive practice that unfolds iteratively over time (Hassan et al., 2019), this paper positions theory elaboration as a crucial and ongoing activity in the journey of theorising. Rather than a discrete or complementary activity, theory elaboration plays a vital role in shaping, refining, and reinforcing theoretical frameworks as they develop. We posit that theorising occurs along a continuum that reflects different stages in the development and evolution of theoretical insight. As illustrated in Figure 1, this continuum can be broadly divided into two stages: initiation and enrichment. While the initiation stage is concerned with the origination of theory, often through theory borrowing or *de novo* theorising, the enrichment stage focuses on strengthening, refining, narrowing, or extending existing theories to ensure their ongoing relevance, precision, and explanatory power.

At the initiation stage, theorising typically involves one of three forms: instantiation, adaptation, or blue-ocean theorising. First, *instantiation* applies constructs or frameworks from reference theories to new domains with minimal conceptual alteration, providing initial empirical or conceptual support for the theory's applicability (Oswick et al., 2011). Moeini et al. (2020) provide examples, such as the instantiation of Agency Theory in IS. Agency Theory, as an original theory from economics, is used in IS studies on IT outsourcing and principal-agent dynamics within IT governance. When borrowed with minimal adjustments, the focus remains on the principal-agent relationship and associated concepts (such as incentives and monitoring) without altering the theory to specifically account for the unique properties of IT artefact. For instance, Willcocks et al. (1999) used Agency Theory to examine IT outsourcing practices. This study maintains the core concepts of Agency Theory, such as the principal-agent relationship, incentive alignment, and monitoring, but applies them in the context of IT outsourcing with limited adaptation to the IS-specific nuances.

Second, *adaptation* modifies theories from reference disciplines, such as by adjusting constructs or assumptions, to better align with the characteristics of IS contexts (Grover & Lyytinen, 2015). Moeini et al. (2020) emphasise the importance of recontextualizing borrowed theories to make them more relevant to IS. They propose tactics like specification (focusing on IT-specific characteristics) and distinction (emphasising unique insights that IS research can bring) to

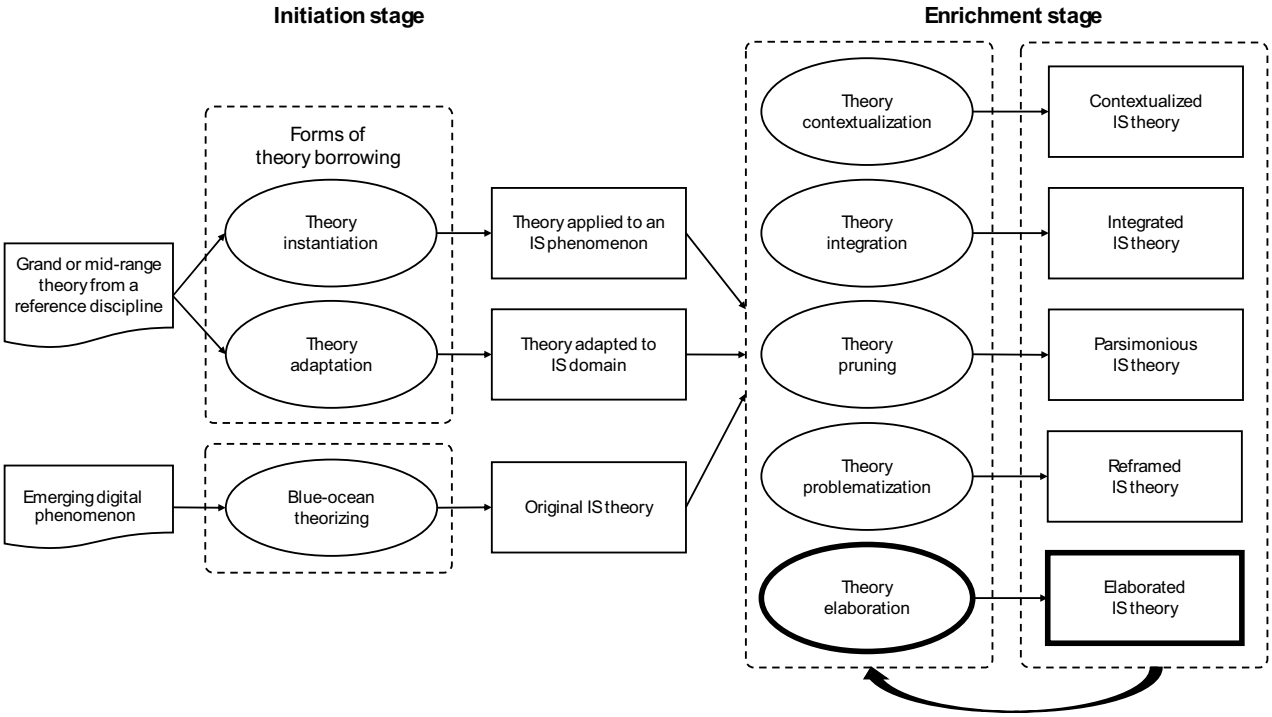


Figure 1. Generic forms of theorizing in IS research.

ensure that borrowed theories are not just transferred but meaningfully adapted to capture the nuances of the IS context. An example of theory adaptation is AST by DeSanctis and Poole (1994). The authors adapted Giddens (1984) Structuration Theory to fit the domain of IS by introducing technology as a core element of social structure, something that structuration theory itself did not emphasise. In AST, the duality of structure is retained, but technology appropriation becomes central, making the theory more relevant to IS.

Third, with pervasive digitalisation introducing complex, fast-evolving phenomena, Grover and Lyytinen (2015, 2023) argue that reliance on traditional, borrowed theories no longer suffices to capture the nuances of these digital phenomena. They suggest that IS research has reached diminishing returns by persistently adapting theories from reference disciplines rather than developing unique, powerful, and novel abstractions. As a solution, they propose a *blue-ocean theorising* approach, which focuses on creating original IS theories specific to digital phenomena. An example of this form of theorising is the CARE Theory of Dignity Amid Personal Data Digitalization by Leidner and Tona (2021). These authors introduce a groundbreaking theory to address the complex interplay between personal data digitalisation and human dignity. Thereby, they effectively create a new conceptual space by distinguishing data digitalisation encounters, responses to dignity disequilibrium, and resulting sociotechnical dynamics.

Once a theory has been instantiated, adapted, or newly developed, scholars may encounter situations in which the theory requires further enhancement to address new empirical phenomena, theoretical gaps, or conceptual limitations. Such needs may emerge when an existing theory lacks explanatory power in novel contexts, when its constructs or relationships are underspecified, or when its boundary conditions are unclear. In these cases, theory enrichment becomes a critical phase of theorising aimed at reinforcing the theory's relevance, precision, and coherence. As summarised in Table 1, this stage could involve several theorising processes that help strengthen, refine, or reposition a theory. These include theory contextualisation, integration, pruning, problematisation, and elaboration. The following paragraphs describe and illustrate the first four of these processes, while theory elaboration, the focus of this commentary, is examined in greater detail in the next section.

First, *theory contextualisation* is a form of theorising that refines and reconfigures established theories to better align with the specific conditions of a new empirical or socio-technical context. Rather than discarding or replacing the core logic of a theory, contextualisation adapts it to reflect the nuances of technology, users, and settings, thereby improving its relevance, explanatory power, and predictive validity in specific domains (Hong et al., 2014; Venkatesh, 2025). This process often involves decomposing abstract constructs into more granular, context-sensitive components, adding or removing constructs, introducing new antecedents or moderators, or tailoring relationships between variables based on contextual insights.

Table 1. Main forms of theorising in the enrichment stage.

Forms of theorizing	Main purpose	Mechanisms	Outcome	Key references	Seminal examples
Contextualization	Tailoring an existing theory to fit a specific context or setting	Modifying, contextualizing, or decomposing constructs to fit a specific environment	Context-sensitive modifications that improve the fit of existing theories in new IS settings	Hong et al. (2014) Venkatesh (2025)	Van der Heijden (2004) Venkatesh et al. (2012)
Integration	Combining or merging multiple theoretical models to build a more comprehensive framework	Synthesizing complementary theories, reconciling inconsistencies, and merging constructs	Unified theoretical models with broader explanatory reach	Grover and Niederman (2021)	Bhattacherjee (2001)
Pruning	Enhancing theoretical parsimony by eliminating redundant or weak constructs	Reducing scope, refining definitions, and simplifying theoretical assumptions	Propose more parsimonious, logically consistent theories	Leavitt et al. (2010)	DeLone and McLean (2003) Venkatesh et al. (2003)
Problematization	Critically rethinking or challenging fundamental assumptions of an existing theory to uncover new theoretical insights	Questioning underlying premises, identifying inconsistencies, and reconstructing theoretical foundations	Theoretical reorientations that challenge prevailing assumptions	Alvesson and Sandberg (2011) Grover and Niederman (2021)	Constantinides et al. (2018) Markus and Rowe (2023)
Elaboration	Enhancing a theory's explanatory depth and precision by refining constructs, relationships, and boundary conditions	Refining existing constructs, introducing new relationships, or restructuring theoretical mechanisms	Strengthened theoretical rigor and improved explanatory power and granularity	Lee et al. (1999) Fisher and Aguinis (2017)	Markus and Silver (2008) Leonardi (2013)

Hong et al. (2014) provide a systematic framework for contextualisation in IS research, distinguishing three main approaches: (1) incorporating context-specific factors as antecedents or dimensions of core constructs, (2) modelling contextual influences as moderators of relationships, and (3) decomposing monolithic constructs into constituent dimensions to enhance contextual precision. These efforts enable researchers to both preserve theoretical coherence and recognise the situatedness of socio-technical phenomena. Building on this work, Venkatesh (2025) argues that rigorous contextualisation offers an important pathway to both theoretical enrichment and practical relevance, especially when IS researchers seek to generate contributions *to* theory, rather than merely applying theory *in* context.

An illustrative example of theory contextualisation in our field is the evolution of the Technology Acceptance Model (TAM), originally designed as a general model of user acceptance. Subsequent studies have contextualised TAM to account for domain-specific influences, such as hedonic motivations in entertainment systems (Van der Heijden, 2004) or trust and privacy in e-commerce platforms (Pavlou & Fygenson, 2006). Similarly, UTAUT has been extended with context-specific constructs like price value, habit, and hedonic motivation to better predict technology use in consumer contexts (Venkatesh et al., 2012). These examples demonstrate how theory contextualisation enables greater specificity and fidelity to real-world complexity, while preserving the theoretical core of established models.

Second, *theory integration* refers to the deliberate combination of two or more theoretical perspectives to produce a more comprehensive or nuanced explanation of a phenomenon. Rather than drawing on a single framework, integration synthesises complementary constructs, assumptions, or mechanisms from different theories to explain complex relationships that a single theory may not fully capture. This form of theorising seeks conceptual synergy and broader explanatory scope, often by resolving inconsistencies between theoretical traditions or by unifying overlapping constructs under a coherent model. As Grover and Niederman (2021) note, theory integration is an important vehicle for knowledge accumulation and innovation, enabling researchers to bridge disciplinary silos and generate insights that transcend traditional boundaries.

A seminal example of theory integration in IS research is Bhattacherjee (2001), who sought to explain users' continued intention to use information technologies. He integrated the core construct of perceived usefulness from the Technology Acceptance Model (TAM) with the expectation-confirmation logic of Expectation-Confirmation Theory (ECT). While TAM was initially developed to explain initial adoption, ECT offered a lens to understand post-adoption satisfaction and continuance behaviours. By combining these theoretical perspectives, Bhattacherjee developed the Expectation-Confirmation Model (ECM) for IS continuance, which captures how users form continued usage intentions based on perceived usefulness, confirmation of expectations, and satisfaction. This integration allowed for a richer and temporally extended understanding of user behaviour, illustrating how theory integration can address limitations in existing models and contribute to knowledge accumulation in the IS domain.

Third, *theory pruning* is a form of theorising that aims to increase parsimony by eliminating redundant constructs, simplifying theoretical assumptions, or narrowing the scope of existing models. As articulated by Leavitt et al. (2010), pruning is aligned with the scientific principle of *strong inference* (Platt, 1964), which emphasises the systematic testing of competing theoretical explanations and the deliberate reduction of complexity in favour of theoretical parsimony. Rather than continuing to tailor theoretical models to increasingly specific contexts, pruning focuses on bounding or even reducing elements of theoretical models to eliminate weak or unsupported propositions, remove overlapping constructs, and sharpen theoretical clarity.

An IS illustration of theory pruning can be found in the revisions made to the DeLone and McLean (1992) IS Success Model. In their 2003 update, the authors responded to critiques regarding conceptual overlaps and ambiguity by simplifying the model's structure, most notably by merging the constructs of individual and organisational impact into a single *net benefits* construct (DeLone & McLean, 2003). This enhanced the model's parsimony without compromising its explanatory power, demonstrating how pruning redundant dimensions can result in a more cohesive and practically useful theoretical framework. Another illustrative case is the development of the UTAUT by Venkatesh et al. (2003). This study exemplifies both theory integration and theory pruning as it integrates constructs from eight prior models of technology adoption, while simultaneously pruning overlapping or empirically weak constructs to retain only the most explanatory ones: performance expectancy, effort expectancy, social influence, and facilitating conditions. Together, these examples show that multiple forms of theorising may operate within a single study, and that theory pruning, even when not explicitly labelled as such, plays a valuable role in advancing parsimony, clarity, and theoretical utility in IS research.

Fourth, *theory problematisation* is a form of theorising that involves critically interrogating the underlying assumptions of existing theories to generate more novel, surprising, and influential theoretical contributions. Rather than refining, contextualising, or extending established constructs, this approach seeks to disrupt dominant ways of thinking and reorient theoretical frameworks, often leading to the emergence of alternative conceptualisations or entirely new problem framings. As articulated by Alvesson and Sandberg (2011), problematisation is a deliberate methodology that encourages researchers to engage reflexively with the assumptions embedded in prevailing theories, including those of one's own theoretical stance. The goal is to "think differently" and develop more interesting and impactful theories by exposing and questioning what is often taken for granted. In the IS context, Grover and Niederman (2021) echo this logic in their call for greater innovation in the field, advocating that truly influential theories often arise from work that challenges established premises.

While relatively rare, theory problematisation has begun to gain traction in the IS literature, particularly in response to the limitations of established paradigms in addressing emerging digital phenomena. One illustrative example is Constantinides et al. (2018), who critique the dominant functionalist and linear assumptions underlying much of the digital innovation literature. They argue that traditional models often view innovation as a controllable and sequential process driven by managerial intent. In contrast, their performative and sociomaterial lens reframes digital innovation as emergent, distributed, and deeply entangled with technological affordances and institutional dynamics. This shift in assumptions leads to a fundamental rethinking of what constitutes innovation, moving from a planned intervention to a situated and unfolding practice.

As discussed above, problematisation is typically associated with the critical questioning of a theory's assumptions, logic, or conceptual coherence (Alvesson & Sandberg, 2011). However, problematisation can also serve as a springboard for constructive theorising, not only identifying limitations in existing frameworks but also proposing revised or alternative conceptual architectures. This mode of theorizing, often referred to as *theory reconstruction*, retains certain foundational elements while reworking others to achieve greater clarity, philosophical consistency, or relevance in light of new phenomena. An illustrative example is provided by Markus and Rowe (2023), who critically reassessed the foundational causal structure framework of Markus and Robey (1988). Rather than discarding the earlier work, they reconstructed it into a more coherent and philosophically grounded model, introducing new dimensions (e.g., causal ontology and causal autonomy) while preserving its original concern with the nature of causality in IS research. Their effort highlights how problematisation can support theory reconstruction by moving beyond critique to offer conceptually rigorous and practically valuable contributions.

Together, the various forms of theorising within the enrichment stage represent a rich and versatile repertoire for advancing IS theory. Importantly, they are not isolated; they are interconnected through an iterative feedback loop (see Figure 1). For example, an integrated model developed in one study may be subsequently contextualised to a specific empirical setting, or a theory that has been pruned for parsimony may later be elaborated to deepen its explanatory power. This feedback dynamic underscores the generative nature of

theorising in IS research, where theoretical contributions evolve not through a fixed sequence of steps, but through ongoing interplay among reinforcement-oriented activities that collectively enhance the coherence, relevance, and utility of IS theories.

2.2. Theory elaboration

Theory elaboration entails building on an existing theory by adding or clarifying constructs, mechanisms, or relationships to increase its explanatory power. Markus and Silver's (2008) work represents a good illustration of theory elaboration. These authors addressed the abovementioned criticisms by refining AST's constructs, especially structural features and spirit, into three more precise components: technical objects, functional affordances, and symbolic expressions. This elaboration improved AST's applicability by providing a more nuanced and practical framework for examining IT effects, especially in studies where the precise ways technology influences organisational behaviours and values are critical.

As further elaboration, Leonardi's (2013) built on Markus and Silver's (2008) reconceptualisation, particularly expanding the concept of affordances. His work emphasised that affordances are not inherent properties of technology but rather relational phenomena emerging from the interaction between users and technology within specific contexts. By doing so, he highlighted that affordances are dynamic—they change as both technology and organisational practices evolve. This elaboration further extends the theory by focusing on the evolving, adaptable nature of affordances, allowing researchers to theorise about technology's impact over time as both IT and user practices change. Figure 2 illustrates this example.

In short, theory elaboration could be particularly valuable when IS researchers aim to enhance an existing theory that is either already adapted or native to IS, making it more robust and applicable to complex or evolving phenomena. In IS, elaboration helps to explain the nuanced, context-sensitive interactions between technology and social practices.

2.3. Theory elaboration versus other forms of theorising

As outlined in Table 1 and Figure 1, theory elaboration is a distinct form of theorising located in the enrichment stage of the theorising journey. For one thing, theory integration merges complementary constructs or perspectives from multiple theories, whereas elaboration typically works within the contours of a single theoretical system to enhance its internal structure. Theory elaboration also differs from pruning, which simplifies a theory by eliminating redundant or empirically unsupported elements. While pruning aims for parsimony, elaboration seeks deeper precision and broader scope. Further, unlike problematisation, which challenges foundational assumptions and reframes theoretical premises (Alvesson & Sandberg, 2011), elaboration is not adversarial in orientation. It assumes a theory's usefulness and aims to reinforce it through clarification, extension, or internal reorganisation.

Among the five theorising forms in the enrichment stage, the distinction between theory elaboration and theory contextualisation warrants particular attention because of their conceptual proximity and shared tactical repertoire. Both involve modifying or extending existing theories, often through the addition of constructs or the reconfiguration of relationships. However, their motivations, orientations, and intended contributions differ in important ways. Theory contextualisation, as articulated by Hong et al. (2014) and more recently by Venkatesh (2025), aims to tailor an existing theory to a specific empirical setting, whether cultural, organisational, or technological, by introducing context-sensitive antecedents, moderators, or construct decompositions. Deductive theory elaboration, in contrast, begins as a pre-empirical, logic-driven refinement designed to strengthen a theory's internal architecture and broaden its explanatory scope so that it can be applied across diverse contexts. Rather than constructing new models from scratch, it challenges researchers to diagnose the limitations of existing theories and pursue disciplined enhancements that maintain theoretical continuity while addressing emerging conceptual or empirical demands. While contextualisation ultimately contributes to theoretical insight, its orientation remains fundamentally empirical; deductive theory elaboration, by contrast, advances cumulative theorising by refining a theory's architecture in a logic-driven way that preserves and extends its generalisability.

Recognising these distinctions allows IS researchers to more clearly assess the contributions of their work

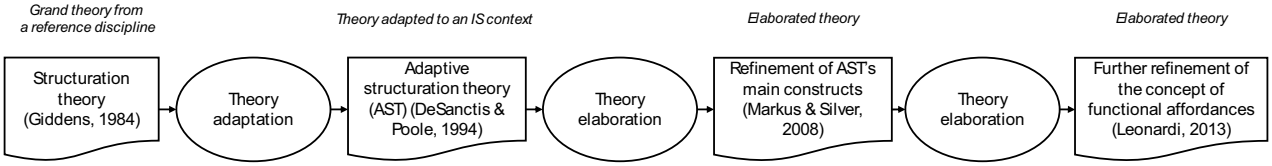


Figure 2. Illustration of the process of theory initiation and iterative enrichment.

and to select theorising strategies that align with their intended theoretical outcomes. In this sense, contextualisation and elaboration are not competing but complementary forms of theorising, each essential to the advancement of robust, adaptable, and contextually meaningful IS theories.

2.4. Theory elaboration and its modes of reasoning

Inspired by the substantial stride in advancing theory elaboration, we suggest providing two clarifications to its conception as a research approach aiming to enhance existing theory by adding or refining constructs or restructuring relationships among them (Fisher & Aguinis, 2017). First, since the arsenal of elaboration strategies, like the imagination of theorists, is not restricted to any particular selection of pragmatic, methodological, or meta-theoretical approaches, we propose to broadly conceive elaboration as research applying patterns aimed at advancing the explanatory power of an original theory. Improvements in explanatory power can be achieved through various paths including scope (Siponen et al., 2024) and generalisability (Busse et al., 2017), logical adequacy and validity (Bacharach, 1989), and completeness (Whetten, 1989). Second, we propose that the introduction of conceptual changes to the original theoretical architecture is mandatory. As such, contrasting across contexts or levels of analysis, while a useful tactic to discover pathways for refining theory, should not be considered sufficient for theory elaboration. This is in line with the understanding that replicating a theory in different contexts constitutes primarily an *empirical contribution*, rather than a *theoretical contribution* (Olbrich et al., 2017). In sum, theory elaboration aims at advancing an existing theory (instantiated, adapted or original) conceptually and empirically, i.e., by applying patterns aimed at improving its explanatory power.

This understanding extends the notion of theory elaboration to include deductive approaches in addition to its historical roots in qualitative-inductive or abductive traditions (Fisher & Aguinis, 2017). We posit that deductive theory elaboration offers a complementary approach to other forms of elaboration. We also believe this approach will prove useful and suited to the IS field, given the prevalence of deductive reasoning in our discipline (Hassan et al., 2018; Levallet et al., 2020) as well as the field's commitment to build cumulative knowledge and develop its indigenous theoretical foundations. Grounding on existing theoretical structures and systematically applying refinement strategies, deductive theory elaboration allows researchers to make significant improvements to IS theories. Beyond the development of ground-breaking theories, the unprecedented complexity of digital phenomena also calls for elaborating existing theories (Burton-Jones et al., 2021). We discuss below our emphasis on deductive reasoning in theory elaboration. We advocate for the complementarity and interplay between reasoning modes and suggest deductive theory elaboration could both promote precision and continuity with respect to existing theoretical basis.

Reasoning in scientific inquiry primarily employs three distinct but complementary modes, which shape the nature of theoretical contributions: deductive, inductive, and abductive reasoning (Locke et al., 2008). It is generally agreed that each mode plays a critical role in formulating, refining, and testing theories, contributing to a more comprehensive understanding of phenomena (Gregor, 2006; Levallet et al., 2020). In IS literature, deductive reasoning commonly involves formulating specific, theoretically grounded hypotheses a priori, and then subjecting them to empirical scrutiny (Gregor, 2006; Siponen & Klaavuniemi, 2020). Deductive reasoning is therefore characterised by its commitment to falsifiable hypotheses, ensuring that researchers specify their theoretical propositions before data collection. The other reasoning modes start with observations and infer explanations either from specific instances of phenomena or empirical anomalies (Sætre & Van de Ven, 2021). Inductive reasoning allows for the generation of new hypotheses and theories based on empirical observations. Researchers initiate the process by analysing data to uncover new patterns or insights and subsequently develop hypotheses and explanations. For its part, abductive reasoning is characterised as a "conjectural mode of inquiry" (Locke et al., 2008), where researchers infer the most plausible explanation from empirical anomalies, which occur when existing theories and models do not explain properly the observed phenomena. This mode hence begins with confronting empirical observations to existing knowledge, then leading researchers to generate alternative explanations and select the most likely one.

Table 2 describes the three modes of reasoning and outlines how they can be applied to and influence theory elaboration approaches. While inductive reasoning can contribute to the elaboration process through the accumulation of empirical evidence that may suggest revising or expanding preexisting theories, and abductive reasoning allows researchers to generate new explanations when anomalous data or unexpected findings occur, deductive reasoning ensures commitment to theoretically grounded explanations and predictions before data collection, ensuring consistency with existing theories and supporting rigorous empirical testing. We believe this interplay of reasoning modes fosters the development of innovative and trustworthy elaborated theories.

Table 2. The different modes of reasoning and their application to theory elaboration.

Mode	Procedure	Application to theory elaboration
Inductive	Collect empirical data → Identify generalizable patterns → Develop theoretical explanations	–Inductive reasoning is particularly suitable to generate new theory (Glaser & Strauss, 1999). It does not require the adoption and cumulative extension of an existing theory[a] –Inductive reasoning contributes to theory elaboration in two ways. First, inductive reasoning may evidence the need to revise and improve existing theories, shedding light on situations where existing theories may no longer suffice (Fisher & Aguinis, 2017). Second, being data-driven, it can connect explanations to observations and eventually shows what is operative (Locke et al., 2008; Sætre & Van de Ven, 2021).
Abductive	Collect empirical data → Generate a set of possible explanations → Select the most plausible explanation	–Abductive reasoning occurs when researchers start with empirical observations of anomalies, i.e., observations that are puzzling or unexpected, then generate alternative possible explanations, and select the most plausible one (Sætre & Van de Ven, 2021). –Abductive reasoning is suitable for using empirical observations to elaborate on an existing theory (Fisher & Aguinis, 2017). This approach allows researchers to generate "hunches" and evaluate new explanations (Sætre & Van de Ven, 2021), rendering the unexplained phenomenon understandable.
Deductive	Develop conjectures, propositions or hypotheses → Collect empirical data → Verify the a-priori conjectures, propositions or hypotheses	–Deductive reasoning involves an a-priori development of conjectures, propositions or hypotheses, ensuring that researchers commit to a single explanation that is theoretically grounded before collecting data. –Deductive reasoning contributes to theory elaboration by involving hypotheses that are falsifiable, specified a-priori and tested empirically. The approach ensures both continuity and precision, being consistent with the base theory and producing robust scientific inquiry indicating "what must be" (Locke et al., 2008).

[a]Prior work has discussed the possibility of using existing theory as a *sensitizing device* in inductive work (Matavire & Brown, 2013). This possibility has been considered suitable to enhance theoretical sensitivity, but it may also interfere with the focus on letting concepts emerge inductively from the data.

3. The process of deductive theory elaboration

Deductive elaboration provides a logic-driven pathway to extend and strengthen existing theories. We use the term *logic-driven* to emphasise that deductive theory elaboration begins with a systematic, pre-empirical reasoning process aimed at diagnosing a theory's conceptual limitations and identifying precise refinements. This process entails tracing the theory's internal architecture, assumptions, and boundary conditions, and deriving targeted modifications that follow directly from theoretical premises rather than from immediate empirical observations. While all forms of theorising employ logical reasoning, the distinctive feature here is that the refinement process is initiated and justified entirely on conceptual grounds before data collection, with the aim of strengthening the theory's coherence, precision, and applicability across diverse contexts. For example, Burton-Jones and Straub's (2006) reconceptualisation of the "system usage" construct began with a conceptual analysis of how the construct had been defined and operationalised in prior research, identifying gaps in validity and explanatory power. Their subsequent refinement into depth, breadth, and appropriateness dimensions was developed through this structured, theory-based reasoning, rather than through the re-interpretation of new empirical anomalies.

As mentioned earlier, there is a lack of guidance on the process of deductive theory elaboration, its possible foci, and its individual steps. As a result, prospective authors face a range of challenges once decided to follow an elaboration approach. The current lack of a process framework suggests that authors' and reviewers' perspectives on theory elaboration may be underdeveloped (cf., Burton-Jones et al., 2021). Such a lack of shared understanding and appreciation of theory elaboration is arguably leading to inconsistent and confusing elaboration practices, with researchers following a variety of approaches on an *ad-hoc* basis. For instance, prior examples of elaboration have created confusions related to clear traceability of the original theory, the distinction between theory and research model, the (re)naming of constructs, and the "reoperationalizing" of constructs, i.e., using the same name but different measures (Larsen & Bong, 2016). We believe it is imperative to address these challenges and offer a more disciplined approach to deductive theory elaboration to support IS behavioural researchers to "stand on the shoulders of giants" in the best traditions of scientific research.

To address this issue, we propose a methodological framework for *deductive theory elaboration*. More precisely, the elaboration process consists of (1) identifying the focus of elaboration based on the need for elaboration to the original theory, (2) applying elaboration patterns to develop the elaborated theory, (3) instantiating a research model, and (4) validating the elaborated theory based on empirical evidence. While we maintain that completing the whole process, including the empirical validation, is necessary to establish an elaborated theory, completing the first two steps may in some cases be considered a sufficient contribution. The overall process is displayed in Figure 3 and explained in the following paragraphs.

In line with deductive approaches, the initial step suggests that elaboration starts with the determination of one or several elaboration foci. This approach complements inductive and abductive approaches to elaboration which primarily rely on data to derive desired modifications (Fisher & Aguinis, 2017; Mueller & Urbach, 2017). Following a deductive approach, original theories may offer several starting points for theory elaboration. A first elaboration focus suggests that

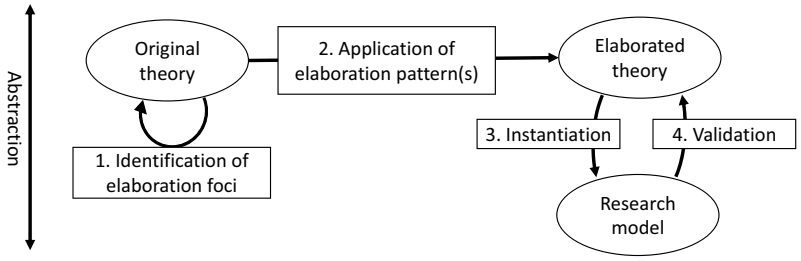


Figure 3. The process of deductive theory elaboration.

original formulations of a theory may be highly abstract, lacking in detail and oftentimes calling upon follow-up research to elaborate on particular hypotheses. Second, an original theory may not offer a complete explanation of a new or puzzling phenomenon, possibly because the authors pursued a selective focus on purpose, because they were not aware of its incompleteness, or because the focal phenomenon evolved over time. As a third option, researchers can focus on generalisability of an existing IS theory. While researchers may identify additional types of enhancements, it is evident that each of these foci warrants a dedicated elaboration through appropriate methods.

Once the elaboration focus is selected, researchers can identify and apply deductive elaboration patterns, as outlined in the following section. We intentionally use the term "deductive elaboration patterns", in place of "elaboration tactics" as used by Fisher and Aguinis (2017), to emphasise structured, systematic approaches for refining or expanding theories through deductive reasoning. The term "patterns" conveys a set of repeatable configurations that guide theory elaboration in a deliberate, pre-empirical manner. By framing these as patterns, we underscore their role in systematically addressing theoretical gaps or extending a theory's scope with intention and rigour, distinguishing them from ad hoc or exploratory activities. As detailed below, these patterns offer focused strategies for refining constructs, relationships, or boundaries, ultimately enhancing a theory's explanatory power, scope, and relevance.

The next step requires researchers to instantiate the abstract theory in their respective empirical setting by deriving measurable constructs, which is a precondition for exposing corresponding hypotheses to empirical scrutiny (Dubin, 1969). In many cases, the instantiation process involves the reuse or formulation of a research model[2] (cf., Crossler et al., 2018). Although theories are often associated with singular research models, distinguishing theory from research model is necessary to clarify decisions the elaboration process entails (cf. Bacharach, 1989; Dubin, 1969). In this regard, it may be particularly instructive to consider how the empirical settings and research designs impose restrictions upon the instantiation of more comprehensive theories (e.g., Dennis et al., 2008; Melville et al., 2004). Many empirical settings, such as experiments and surveys, may limit the number of constructs that vary or that can be manipulated. For instance, very few empirical settings would allow for a complete instantiation and empirical evaluation of the IT business value (ITBV) model (Melville et al., 2004), which would require variation in a range of detailed firm-level variables, as well as variation in macroscopic industry and country-level variables. When excluding invariant (control) variables or incidental processes, researchers must ensure that the main logic of the original theory is retained, including its historical context, as well as its epistemological and ontological assumptions (Crossler et al., 2018). Overall, researchers must ensure that the instantiation is truthful to the original theory (Colquitt & Zapata-Phelan, 2007; Crossler et al., 2018; Larsen & Bong, 2016). It is imperative to reuse established measures whenever possible and prospective authors must be sensitive to the risk that a different instantiation may slightly change the meaning of a construct. Papers introducing unnecessary modifications of measures or failing to consider the underlying logic and assumptions of the original theory are responsible for a great deal of unnecessary confusion in the corpus of literature associated with a theory (Colquitt & Zapata-Phelan, 2007; Larsen & Bong, 2016).

As part of the final step, researchers need to demonstrate how the empirical evidence validates the refined theory. In essence, theoretical contributions must be accompanied by compelling evidence with the inherent aspiration of an expanded theory being to provide higher explanatory power compared to the original formulation. This aligns with stepwise estimation approaches for quantitative data, or qualitative comparative analyses for qualitative studies. In addition, complementary support may be drawn from findings reported in prior empirical research papers or review articles.

4. Deductive elaboration patterns

As mentioned above, in this commentary we focus on three main forms of elaboration foci, namely, detail,

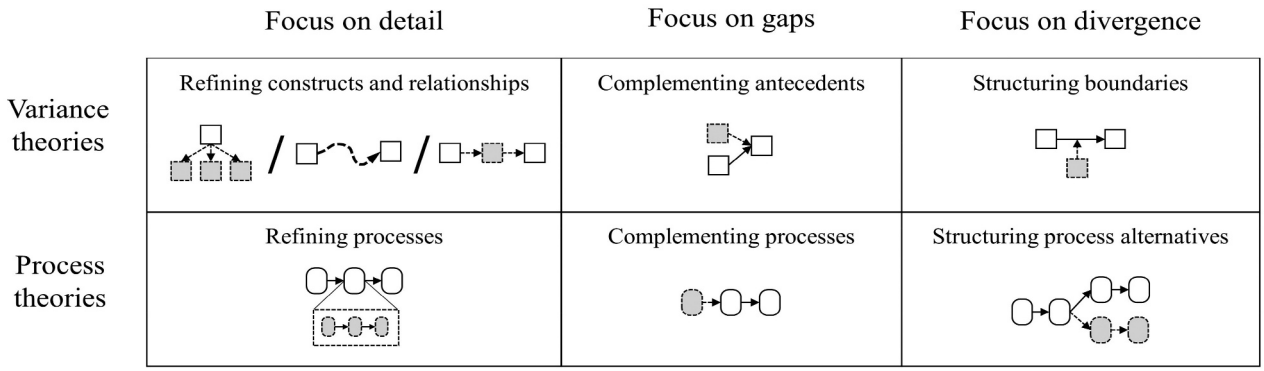


Figure 4. Forms of deductive elaboration patterns.

gaps, and divergence. When focusing on detail, researchers pursue the goal of advancing the empirical adequacy of constructs and relationships, or the richness of processes (Bacharach, 1989; Fisher & Aguinis, 2017; Langley, 1999). When focusing on gaps in the original theoretical explanation, researchers pursue the goal of advancing a theory's completeness (Whetten, 1989). When focusing on divergence within and beyond a theory's original boundaries, researchers pursue the goal of clarifying or extending a theory's range (Busse et al., 2017; Whetten, 1989). We posit that a clear vision of the purpose of the elaboration pursuit is of paramount importance for a well-informed and justified selection and combination of elaboration patterns.

Figure 4 presents an overview of deductive elaboration patterns that prospective authors may consider according to the respective foci[3] and types of theories. As mentioned earlier, our overview is dedicated to a selection of patterns that is deemed relevant for behavioural research. The selection of elaboration patterns is based on prior work published in Management and Organizational Studies (MOS) as well as the fields of Psychology and Information Systems (Colquitt & Zapata-Phelan, 2007; Fisher & Aguinis, 2017; Hong et al., 2014; Lee et al., 1999). We recognise that there may be other ways of refining a theory, and that the intellectual ingenuity of researchers is not restricted to the set of elaboration patterns considered here. By distinguishing deductive elaboration patterns for process and variance theories (Burton-Jones et al., 2015), we suggest that they are applicable to the most common types of behavioural models. For each pattern, we provide one or several illustrative examples, which offer creative and original contributions.

4.1. Elaborating on variance theories

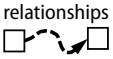
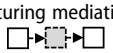
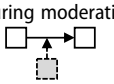
Elaborating on variance theories can be accomplished by three distinct deductive patterns: *refining constructs and relationships* (when focusing on detail), *complementing antecedents* (when focusing on a gap), or *structuring boundaries* (when focusing on divergence). Papers intended to demonstrate increases in the explained variance typically rely on quantitative research approaches. When combining multiple patterns, authors may risk clarity regarding which elaboration pattern was responsible for the improvement in explanatory power. In such cases, stepwise estimation approaches and per-pattern reporting of model estimates are recommended to dissociate the contribution of each individual pattern. The characteristics and foundations of each deductive elaboration pattern are summarised in Table 3.

4.1.1. Detail: Refining constructs and relationships

This pattern proves particularly effective when original constructs lack distinctions crucial to capturing empirical phenomena (Rivard, 2020). The primary objective of restructuring constructs—both conceptually and empirically—is to improve their validity (Bacharach, 1989; Fisher & Aguinis, 2017). Often, the initial formulation of a theory emphasises parsimony to create a streamlined explanation (Whetten, 1989). Consequently, the detailed (re)conceptualisation of constructs is sometimes deferred to future research.

This elaboration pattern becomes particularly useful as evolving IT phenomena alter the relevance of certain construct dimensions (Compeau et al., 2023). Given that established constructs often interact with numerous other constructs (e.g., antecedents, consequents, moderators, or mediators), restructuring them can create new avenues for future research. Further, IT phenomena and the resulting technology-enabled organisational and societal changes have often been studied in IS research using constructs developed in a different IT, user, and organisational environment (Compeau et al., 2023). The pattern of restructuring concepts may also help to mitigate the still existing problem in IT business value research of being too unspecific about the "IT artefact" (Orlikowski & Iacono, 2001). This criticism has been further substantiated in IS research by empirical findings that IT disaggregation is a key issue in explaining business value (Schryen, 2013), that little is known about the performance contributions of different IT assets and

Table 3. Deductive elaboration patterns for variance theories.

Deductive elaboration pattern	Refining constructs and relationships			Complementing antecedents	Structuring boundaries
	Restructuring a construct 	Structing non-linear relationships 	Structuring mediation 	Structuring new constructs and relationships 	Structuring moderation 
Focus	Detail	Detail	Detail	Gaps	Divergence
Primary goal	Depth of theoretical explanations, construct validity	Depth of theoretical explanations, logical and empirical adequacy	Depth of theoretical explanations, logical and empirical adequacy	Completeness of explanatory variables	Generalizability, clarity of boundaries
Object of elaboration	A pre-existing construct	A pre-existing relationship	A pre-existing relationship	The theory as a whole	A pre-existing relationship
IS-specific foci	• Evolving IT phenomena alter the relevance of certain construct dimensions (Compeau et al., 2023) • IS research is too unspecific about the IT artefact (Orlikowski & Iacono, 2001), resulting in a need for IT disaggregation (Aral & Weill, 2007; Bharadwaj et al., 1999; Schryen, 2013)	• Many IS studies assume linear relationships although theoretically based models in related disciplines have been shown to be non-linear (Klein et al., 2009) • Linear relationships do not adequately describe the relationships between indirect measures that IS often deals with (Klein et al., 2009)	• Mediation has proven essential to IS theorising as it supports explaining why and how effects arise in a complex interplay technology, individuals, processes and organisational performance (Peng, 2023) • The impact of digital transformation within and across levels requires theorising about these complex relationships	• Complementing antecedents has been considered necessary in several areas of IS research (e.g., DeLone and McLean (1992, 2003) IS success model) • The increasing use of AI-enabled systems is likely to change explanations of technology acceptance and use	• Moderators play an important role in IS research in explaining differences in complex socio-technical relationships at various levels, including the individual level (e.g., Venkatesh et al., 2003) and the organisational level (e.g., K. K. Hong & Kim, 2002) • Digital transformation, including new IT phenomena and IT-enabled changes, supports IS theorising by structuring moderation to clarify boundaries
Typical approach: Empirical, methodological, and analytical considerations	• Deductive approach and quantitative methods • Establishing discriminant and convergent validity of the reconceptualised construct • If data for the original construct is collected: testing whether the reconceptualised version leads to higher or more consistent effect sizes • Otherwise: comparing effect sizes to prior research	• Deductive approach and quantitative methods • Stepwise analysis considering non-linearity (e.g., curvilinear effects) • Testing whether including non-linear relationships leads to significant improvements in R^2	• Deductive approach and quantitative methods • Path analysis • Testing full vs. partial mediation	• Deductive approach and quantitative methods • Scale development techniques • Establishing discriminant and convergent validity of the new construct • Testing to which degree the new construct contributes to R^2	• Deductive approach and quantitative methods • Capturing (contextual) boundaries in a generalisable construct • Contrasting the research model across (contextual) boundaries • Testing the significance of the moderation effect
Foundations	• Barki (2008) • Colquitt and Zapata-Phelan (2007) • Fisher and Aguinis (2017) • Podsakoff et al. (2016)	• Klein et al. (2009)	• Colquitt and Zapata-Phelan (2007) • Fisher and Aguinis (2017) • Muller et al. (2005)	• Barki (2008) • Colquitt and Zapata-Phelan (2007) • Fisher and Aguinis (2017) • MacKenzie et al. (2011) • Podsakoff et al. (2016)	• Busse et al. (2017) • Carte and Russell (2003) • Colquitt and Zapata-Phelan (2007) • Fisher and Aguinis (2017) • W. Hong et al. (2014)

whether they affect different aspects of firm performance (Aral & Weill, 2007), and that firms benefit unequally from their different IT investments (Bharadwaj et al., 1999).

As briefly mentioned earlier, a compelling example of construct restructuring as a form of theory elaboration can be found in Burton-Jones and Straub (2006), who revisit the widely used construct of system usage in IS research. Noting that the construct had often been treated as a simple, unidimensional measure (e.g., frequency or duration of use), the authors argue that such conceptualisations lacked the nuance necessary to capture the complexities of user interaction with information systems. Through deductive reasoning grounded in prior literature and theory, they propose a more refined conceptualisation of system usage comprising three dimensions: depth, breadth, and appropriateness. This restructuring enhances the construct validity of system usage and allows for more precise theorising about its role in IS outcomes. Importantly, their elaboration does not discard prior work but builds upon it to clarify ambiguities and establish a more robust foundation for future research. As such, the study exemplifies how deductive construct restructuring can enhance the explanatory power and theoretical coherence of core IS constructs.

Refining relationships within a theory can take other forms, such as analysing nonlinear effects or investigating mediated relationships. Although linearity is often a practical assumption, research in related disciplines indicates that many theoretically based models exhibit non-linear relationships (Klein et al., 2009). The assumption of linear relationships can be problematic, particularly when empirical studies reveal that linear models do not adequately describe interactions between two indirect measures. Indirect measures are frequently used in IS research, given that IT operates in socio-technical contexts where researchers rely on observable indicators to infer underlying variables of interest (Klein et al., 2009). In these cases, theory elaboration through structuring non-linear relationships may provide a more accurate representation of complex interactions.

An example of refining relationships through functional form appears in Chau et al. (2020), who, building on previous theoretical findings about IT alignment's impact on firm performance (Chan et al., 1997; Henderson et al., 1992), hypothesise that both positive and negative misalignments with IT detract from performance, resulting in a curvilinear relationship. This enhances the logical adequacy of alignment theories, where previous work suggested that "any degree of misalignment between business and IT degrades performance" (Chau et al., 2020, 1682). The authors' statistical tests, based on polynomial regression and response surface analyses, demonstrate improved empirical adequacy through a significant increase in R^2. Additional analyses explore how the nonlinear effects of alignment interact with facets of IT governance, illustrating that refining the functional form of alignment has systemic implications for related theoretical relationships.

Another approach to refining relationships is examining the role of intervening constructs (i.e., mediators) that transmit effects from antecedent to consequent variables (Aguinis et al., 2017). This corresponds to theorising mechanisms that establish more granular causal links between antecedents and outcomes (Hedström & Swedberg, 1998; Hedström & Ylikoski, 2010). Empirical testing of mediation effects typically involves path analysis, where researchers must address issues of full versus partial or moderated mediation (see Muller et al., 2005, for methodological details). The close relationship between mediation effects and underlying mechanisms enhances theoretical understanding, contributing to empirical and logical adequacy and adding richness to explanations (Bacharach, 1989; Fisher & Aguinis, 2017; Langley, 1999).

In IS research, mediation is often used in theorising to explain complex relationships among technology, individuals, processes, and organisational performance. For example, mediation has been used in prominent IS research areas such as (1) technology acceptance and user behaviour (e.g., TAM (Davis, 1989)), (2) IS success models (e.g., the updated IS success model (DeLone & McLean, 2003), and (3) IT business value models (e.g., Dehning et al., 2007). As new IT phenomena are enablers of digital transformation at the individual, organisational, and societal levels, the resulting complex relationships within and between the various levels make the elaboration pattern of structuring mediation particularly relevant in IS theorising.

An example of structuring mediation is seen in Wu et al. (2015), who explore the influence of (human) IT resources on firm performance as hypothesised in the IT business value model proposed by Melville et al. (2004). Treating IT governance as a human-centric resource, they hypothesise strategic IS alignment as a key mediator. Their model accommodates context-specific elements by adjusting for invariances at the country level and including industry-specific control variables. By empirically testing the mechanisms through which IT governance affects performance, Wu et al. contribute valuable insights into a persistent question in IS research, namely, how IT resources translate into firm performance (Kohli & Grover, 2008). This study opens future research avenues and offers practical insights for placing CIOs on executive committees to strengthen IT governance and IS alignment, thus enhancing performance.

4.1.2. Gap: Complementing antecedents

Complementing antecedents is an effective deductive elaboration pattern when addressing gaps in the original theory. This approach involves either re-conceptualising existing constructs as antecedents or specifying new ones. Through this pattern, researchers can establish hypotheses about the causal influence of these complementary antecedents on the theory's outcomes. New constructs may involve narrower, context-specific variables that increase the explanatory power of a theory, thereby guiding actionable interventions (Tate et al., 2015). Focusing on antecedent gaps in the original theory enables researchers to pursue the goal of improving the theory's completeness (Whetten, 1989). To empirically validate this approach, it is crucial that the addition of new antecedents significantly increases the explained variance of the outcome construct.

In IS research, the rapid emergence of new IT applications and their use in organisations and markets often necessitate revisions to causal relationships by adding new antecedents. An illustrative example is provided by Lu et al. (2005) in their study on the adoption of wireless Internet services via mobile technology. Recognising theoretical limitations in the original TAM, the authors introduced two additional antecedents, Personal Innovativeness in the Domain of Information Technology (PIIT) and Social Influence, to enrich the model's explanatory power. Importantly, their motivation for adding new constructs was not tied to the specific context of mobile technology but rather grounded in a broader theoretical argument: that individual traits and social dynamics play a foundational role in shaping users' beliefs about IT. By systematically integrating these antecedents into TAM, Lu et al. (2005) aimed to improve the theory's completeness and general applicability. This example demonstrates how deductive theory elaboration can refine existing models by identifying theoretically justified antecedent gaps and addressing them through structured conceptual extension, without being driven by local empirical contingencies.

4.1.3. Divergence:Structuring boundaries

Structuring boundaries by adding moderation effects is a deductive elaboration pattern that clarifies how relationships within a theory depend on a third, moderating construct (Aguinis et al., 2017; Carte & Russell, 2003). By contrasting hypotheses across different conditions, researchers can explain variations in effects due to contextual or substantive differences. Moderators help define the boundaries of a theory, enhancing its applicability across contexts by establishing boundary conditions (Bacharach, 1989; Busse et al., 2017).

Like mediators, moderators play a crucial role in IS research by helping to explain complex socio-technical relationships across different levels of analysis. At the individual level, a compelling example is provided by Venkatesh et al. (2012) in their development of the UTAUT2 model. Building on the original UTAUT framework, the authors introduced moderators such as age, gender, and experience to examine how these individual characteristics influence the relationships between core constructs and both behavioural intention and technology use. This theoretical elaboration was driven by the need to understand how the strength of these relationships varies across consumer segments, thereby clarifying the boundary conditions of the model. By systematically incorporating these moderators, the study improves the model's explanatory power and generalisability, demonstrating how deductive theory elaboration can enhance existing theories by specifying conditions under which they do or do not hold, without being tied to a specific empirical setting.

At the organisational level, Hong and Kim (2002) offer a compelling example of deductive theory elaboration through the structuring of theoretical boundaries. In their study on ERP implementation, the authors introduce moderators such as ERP adaptation level, process adaptation level, and organisational resistance to examine how organisational fit influences ERP success. These moderators were not derived inductively from a specific empirical anomaly but were theoretically motivated to address conceptual gaps in understanding the contingencies under which ERP systems deliver value. By logically reasoning that successful ERP implementation depends not only on technical fit but also on the organisation's capacity to adapt, they refined the causal structure of the original model to reflect the role of internal alignment dynamics. This deductive elaboration clarifies the boundary conditions of ERP success, making the theory more robust and generalisable across diverse organisational contexts. Their systematic incorporation of moderation effects enhances the explanatory precision of the model and exemplifies how deductive reasoning can strengthen theoretical frameworks by delineating when and where proposed relationships are most likely to hold.

4.2. Elaborating on process theories

While process theories are most generated through inductive or abductive reasoning, particularly grounded in qualitative data, we contend that these theories can, and often should, be subject to deductive elaboration once they are established. The inductive origins of a theory do not preclude its subsequent refinement via deductive reasoning. Our focus in this commentary is not on how process theories are initially discovered, but rather on how their explanatory

scope, internal coherence, and theoretical completeness can be strengthened through structured, logic-driven elaboration. For example, a process theory developed through grounded theory may identify core phases or mechanisms in organisational change. However, over time, this initial framework might require greater specification of micro-level mechanisms (e.g., sensing and seizing in dynamic capabilities), clearer articulation of feedback loops, or alternative process pathways in response to contextual variance. These forms of elaboration can be pursued deductively, using theoretical reasoning grounded in prior literature, without the need for new inductive data collection.

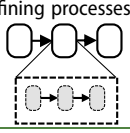
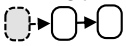
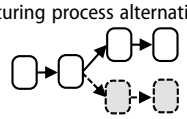
We posit that elaborating on existing process theories can be achieved through three deductive patterns: *refining processes* (focusing on detail), *complementing processes* (addressing a gap), or *structuring process alternatives* (addressing divergence). Each pattern contributes to a deeper understanding of how processes unfold and lead to specific outcomes (Langley, 1999; Ortiz de Guinea & Webster, 2017; Van de Ven & Poole, 1995). The characteristics and foundations of each deductive elaboration pattern are summarised in Table 4.

4.2.1. Detail: Refining processes

Refining processes involves building on macro-level models, typically situated at the organisational level, and drilling down into the underlying processes at the micro-level. This elaboration pattern is particularly valuable for enhancing the richness of a theory (Langley, 1999). In a paper on linking micro-level processes to macro-level models, Kouamé and Langley (2018) describe two key approaches: *progression* and *instantiation*. *Progression* reveals how micro and macro-level processes influence one another over time, whereas *instantiation* demonstrates how micro-level actions generate macro outcomes (Kouamé & Langley, 2018, p. 565). By adopting this approach, researchers can use qualitative, process-focused data to capture the temporal progression of processes or their synchronic interconnectedness. This micro-level elaboration approach enriches theoretical understanding and provides insights that are not only more specific but also of greater managerial relevance.

A first illustration of this elaboration pattern comes from Alter's (2003) Work System Life Cycle (WSLC) model which captures the iterative and ongoing evolution of work systems in organisational contexts. This model comprises four core phases, *operation and maintenance*, *initiation*, *development*, and *implementation*, that represent a cyclical process aimed at adapting work systems over time. These phases outline a structured pathway for planned changes to systems but do not extensively address unplanned or emergent adjustments. The WSLC serves as a foundational model in Work System Theory, which highlights the adaptability and evolution of work systems beyond

Table 4. Deductive elaboration patterns for process theories.

Deductive elaboration pattern	Refining processes 	Complementing processes 	Structuring process alternatives 
Focus	Detail	Gaps	Divergence
Primary goal	Depth of theoretical explanations	Completeness	Generalizability
Object of elaboration	A pre-existing process	The theory as a whole	Pre-existing processes
IS-specific foci	• The advent of digital transformation requires the refinement of existing processes, including automation and decision-making processes, as well as microprocesses for dynamic capabilities (Vial, 2019)	• New IT and applications enable data about products and customers to be collected, stored, and analysed at different stages of the value chain. For example, smart, connected products affect multiple functions, including design, operations, sales, service and IT. Data processing may even represent new, additional activities in processes, such as reconfigured assembly processes in manufacturing (Porter & Heppelmann, 2015)	• The emergence of new IT phenomena and their deployment in organisations and markets may unleash self-reinforcing and diverging feedback loops in various business and communication processes (Akkermans et al., 2021) • A major driver of process change and multiple interfaces in customer service is AI-enabled capabilities, such as chatbots and digital voice assistants (Fernandes & Oliveira, 2021)
Typical approach: Empirical, methodological, and analytical considerations	• Qualitative methods • Analysis of how an original theory operates at the micro level • Demonstrating the implications of micro-level processes for macro-level dynamics or outcomes	• Qualitative methods • Analysis of a previously neglected part of the process • Demonstrating the implications of the new process step on the subsequent dynamics or outcomes (or how the established process affects the new process step)	• Qualitative methods • Analysis focused on characterising the nature of divergence • Demonstrating how processes differ and how they lead to different outcomes
Foundations	• Kouamé and Langley (2018) • Langley (1999)	• Langley (1999) • Van de Ven and Poole (1995)	• Langley (1999) • Van de Ven and Poole (1995)

isolated IT components to encompass broader organisational processes. In Alter's (2006) deductive elaboration, the WSLC's processes were refined to capture greater depth within each phase, particularly emphasising the importance of feedback loops. For example, the *operation and maintenance* phase was detailed to include continuous monitoring and minor adjustments, making it a more active element in the cycle rather than a passive maintenance phase. Feedback mechanisms between each phase were also added, creating a more interconnected model where outcomes from each phase inform subsequent actions. This clarified the dynamic nature of the WSLC, acknowledging that each stage can trigger future rounds of improvement based on its outcomes. By making these changes, Alter increased the original model's descriptive power, allowing it to capture the iterative nature of organisational work systems and their responsiveness to ongoing transformations.

Pelletier and Raymond (2020) provide another compelling example of deductive process elaboration in IS research. Drawing on established theoretical frameworks, strategy-as-practice (SAP) and strategic IT alignment (e.g., Arvidsson & Holmström, 2017; Whittington, 2014), the authors begin with a conceptual model that they logically refine to better account for how dynamic capabilities enable strategic IT alignment within SMEs undergoing digital transformation. Their reasoning is guided not by inductive coding or grounded theory discovery, but by a deductive effort to elaborate existing theories to better explain evolving alignment practices. Specifically, they use theoretical logic to specify how dynamic capabilities—sensing, seizing, and reconfiguring—operate at the micro-level to support alignment goals. This leads to a more fine-grained understanding of how digital transformation embeds real-time, data-driven decision-making into organisational routines, displacing traditional, intuition-based alignment approaches. By elaborating these core processes, Pelletier and Raymond (2020) clarify the specific mechanisms through which dynamic capabilities drive alignment, thereby strengthening the explanatory utility of strategic IT alignment theory in digitally disrupted contexts. In doing so, their study illustrates how deductive process elaboration can refine high-level IS theories to capture more granular, context-sensitive organisational practices.

4.2.2. Gap: Complementing processes

Complementing existing processes is a deductive elaboration pattern used to identify and address gaps in current frameworks, theories, or models—particularly in phases not initially included but that contribute significantly to process outcomes. This pattern is valuable when earlier theories capture only a subset of relevant dynamics or phases, leaving certain aspects underexplored. Such gaps often become apparent when comparing existing theories to comprehensive meta-frameworks, like Van de Ven and Poole's (1995) framework on organisational change and development processes. In several business disciplines, this pattern is especially useful for theories that describe only portions of evolutionary, dialectic, life-cycle, or teleological processes, potentially overlooking preceding or succeeding phases that are essential to a full understanding.

In our field, new IT applications, such as the IoT and AI, enable data collection, storage, and analysis across various stages of the value chain. For instance, smart, connected products impact multiple functions within an organisation, including design, operations, sales, service, and IT (Porter & Heppelmann, 2015). Additionally, data processing introduces new activities within existing processes, such as reconfigured assembly workflows in manufacturing. Software embedded in products or managed via the cloud can now be updated or configured long after the product leaves the factory, whether by a field service technician or even by the customer. Apps can be added, and touchscreen keyboards set for different languages, allowing for ongoing modifications to product design and function even post-delivery (Porter & Heppelmann, 2015).

Gaskin et al. (2014) offer a strong example of the complementing processes pattern of deductive theory elaboration. Building on established sociomateriality frameworks in IS, particularly Orlikowski's (2000) practice-based perspective and Leonardi's (2011) model of sociomaterial routines, the authors begin with a theoretical foundation and systematically identify a conceptual limitation: these existing models do not account for the variability of sociomaterial interactions across different levels of analytical granularity. Rather than deriving new processes inductively, Gaskin et al. (2014) respond through theory-driven elaboration, introducing a multi-level analytical lens they term "zooming in and out". This conceptual refinement allows for the observation of sociomaterial routines from both micro and macro perspectives, thereby extending the explanatory power of the original frameworks.

The authors' approach is distinctly deductive: it builds on prior theory, identifies a gap through logical critique, and proposes an extension that enhances theoretical completeness. By integrating this multi-level analytical capability, they complement existing sociomaterial process models with tools to trace how localised technological interactions scale into broader organisational outcomes over time. Their elaboration enables a more layered and comprehensive understanding of sociotechnical dynamics, enhancing the capacity of IS theory to capture processual

interdependencies in complex environments. As such, their study exemplifies how deductive elaboration, through complementing core processes, can strengthen theoretical frameworks by expanding their conceptual architecture while preserving coherence with original assumptions.

4.2.3. Divergence: Structuring process alternatives

Adopting a process perspective focused on divergence enables researchers to structure alternative sequences or pathways in response to contextual variations (Fisher & Aguinis, 2017). Divergence often arises from critical events or contextual differences across cases or groups, offering varied routes through which processes can unfold. By identifying and structuring these alternative pathways, researchers enhance the generalisability of process theories, particularly those applied to dynamic and evolving phenomena.

The emergence of new IT phenomena and their integration into organisational and market contexts has introduced various process alternatives. A primary driver of these changes in value chains is AI-enabled activities. For example, advancements in AI-powered customer service allow service encounters to incorporate multiple types of interactions, including human-to-human, human-to-technology, and technology-to-technology interfaces (Fernandes & Oliveira, 2021). These multiple interfaces provide alternative options for customer communication, such as AI chatbots and digital voice assistants, expanding beyond traditional methods like email, web forms, and phone interactions. Another example of process divergence can be seen in the use of automated drones for package delivery, a method currently being tested by major companies like Amazon, Google, and DHL. This innovative approach could transform delivery processes by allowing direct-to-doorstep service (Porter & Heppelmann, 2015).

A compelling example of the structuring process alternatives pattern in deductive theory elaboration is offered by Boudreau and Robey (2005) in their extension of Orlikowski's (1992) structurational model of technology. While the original model emphasises the recursive interaction between technology and human agency, it does not specify how different enactment trajectories might unfold under varying organisational conditions. Boudreau and Robey address this theoretical gap through a deductive elaboration of the model, introducing two distinct enactment pathways: assimilation and reinvention. These alternatives were not derived inductively from emerging data, but were logically reasoned from prior theory and applied to the context of ERP implementation to clarify potential divergences in the enactment of technology.

In the assimilation pathway, users adjust their work practices to align with the intended functions of the ERP system, while in the reinvention pathway, users modify the technology itself to fit pre-existing routines and organisational norms. By structuring these alternatives, the authors enhance the conceptual flexibility and explanatory reach of Orlikowski's model, showing that technology enactment is not a singular or uniform process but one that varies according to contextual factors such as organisational culture, user familiarity, and institutional norms. This deductive elaboration deepens our understanding of socio-technical change by articulating theoretically grounded processual alternatives, offering scholars a richer vocabulary to describe how actors engage with enterprise technologies. In doing so, Boudreau and Robey demonstrate how theory elaboration can strengthen an existing framework by systematically specifying under-theorised variation in process outcomes, thereby increasing the generalisability and analytical precision of foundational IS theories.

5. Reporting guidelines

Given that there are no guidelines on how to report this particular form of theorising, prospective authors face a range of challenges pertaining to communicating a deductive theory elaboration paper that clearly contributes beyond the original theory. For instance, there are challenges related to clarifying the theoretical origins compared to the elaborated theory, to the delicate arguments of identifying a non-trivial elaboration focus while maintaining that the basic tenets of the original theory are still valid, as well as possible confusion regarding the criteria for good deductive theory elaboration. As Burton-Jones et al. (2021) put it, "It is important for scholars to understand this link between the old and the new" when "a new line of work [. . .] builds on a prior line but extends it in a new direction" (pp.303–304). To tackle this issue, we propose a series of guidelines on how to report deductive theory elaboration papers, covering key arguments that should be presented in different parts of the paper and offering guidance on clarifying how an elaborated theory goes above and beyond the original one.

Our guidelines mirror the structure of research papers, placing particular emphasis on the importance of presentational clarity and powerful role of pictorial illustrations (e.g., Fisher & Aguinis, 2017; Langley, 1999; Rivard, 2020). Table 5 summarises the key criteria and arguments authors should consider. It is structured according to the common sections of empirical papers (introduction, methods, results, discussion, and conclusion). As the main part, it contains an *elaboration section*, which aligns with the theoretical backbone section common to pure theory papers. While offering specific guidelines, we emphasise that they do not strictly prescribe how deductive theory elaboration should be presented. Rather, our

Table 5. Reporting guidelines for deductive theory elaboration papers.

Section	Key recommendations and criteria	References
(1) Introduction	**Contribution**. Explain the need for elaboration (rationale), defend the elaboration approach, and explain how the elaborated theory goes *beyond* the original one, highlighting the originality of the contribution.	Alvesson and Sandberg (2011), Corley and Gioia (2011), Rivard (2014), Weber (2012)
(2) Elaboration	**Exposition of the original theory**. Summarize the original theory, its core elements, and rationale.	–
	Justification of the elaboration approach. Justify the following arguments: (1) focus of elaboration, (2) selection of elaboration pattern(s), and (3) underlying theoretical rationale.	Fisher and Aguinis (2017), Rivard (2014), Sutton and Staw (1995), Whetten (1989)
	Clarity of presentation. Clarify the original theory, the elaboration pattern(s), and the connection between the conceptual and research models (e.g., by presenting a *theory elaboration figure*).	–
(3) Methods	**Methodological coherence**. Justify the fit between the focus of elaboration (detail, gap, divergence), the instantiation of the research model, and the research design.	–
(4) Results	**Explanatory power**. To validate the theory elaboration, report increases in explanatory power (i.e., explained variance for variance theories and richness for process theories) compared to the original theory.	Fisher and Aguinis (2017), Weber (2012)
(5) Discussion	**Justify the trade-off between elaboration and parsimony**. Justify the elaboration's trade-off between the explanatory power gained and corresponding decreases in parsimony.	Bacharach (1989), Bergh (2003), Weber (2003)
	Implications. Develop a research agenda envisioning how the elaboration trajectory opens up new research opportunities and derive implications for practice.	Tan et al. (2008)

suggestions should be considered as an inspiration, which is to be complemented by the creativity and imagination of prospective authors (cf., Leidner, 2020).

5.1. Introduction section

In the introductory section, the primary goal is to explain how the extended theory or model contributes beyond prior existing knowledge. Several of the abovementioned examples demonstrate how problematisation of the original theory (Alvesson & Sandberg, 2011) and the primary goals with respect to theory can form the fabric of the introduction. For instance, Gaskin et al. (2014) highlight a limitation in existing sociomaterial frameworks, noting that prior models lack the flexibility to study sociomaterial interactions across multiple levels of analysis. By problematising this gap, the authors set up a compelling rationale for their contribution, which introduces a "zooming in and out" methodological approach. This approach enhances sociomaterial theories by enabling researchers to examine routines at both micro and macro levels, thereby refining the analytical power of sociomaterial theory and extending its applicability in dynamic IS contexts.

Similarly, Pelletier and Raymond (2020) identify a critical gap in digital transformation theories, particularly the absence of a micro-level perspective on strategy implementation within SMEs. They argue that existing digital transformation frameworks often overlook the practical, strategy-as-practice perspective needed to understand how digital transformation unfolds on a granular level. This problematisation of digital transformation theory provides a clear foundation for their contribution, which incorporates a strategy-as-practice lens to better capture the enactment of digital strategies in real time. By linking high-level strategic intentions with micro-level practices, their work addresses an underexplored dimension of digital transformation theory, adding valuable depth to its theoretical framework. Going beyond simple adaptation of the original theory, this example shows how theoretical elaboration can enhance originality by bringing novel perspectives and revelatory insights into existing knowledge (Corley & Gioia, 2011).

Prospective authors can benefit from established guidelines (e.g., Grant & Pollock, 2011; Lange & Pfarrer, 2017; Minto, 2009) for structuring their introduction sections. For instance, Lange and Pfarrer's (2017) sequence of archetypal building blocks—common ground, complication, concern, course of action, and contribution—is particularly effective for deductive theory elaboration papers. Alter's (2013) study serves as a practical example by (1) establishing the foundation of WST, (2) identifying the limited applicability of early WST for addressing dynamic, emergent work systems, (3) arguing the necessity of modelling both planned and emergent system changes, (4) outlining his process for refining and restructuring the WSLC model to accommodate contextual factors, and (5) presenting the 2013 WST model as a comprehensive framework.

Authors are also encouraged to underscore early in the manuscript why their contribution is both original, interesting, as well as theoretically relevant (Corley & Gioia, 2011). As noted earlier, Burton-Jones and Straub's (2006) reconceptualisation of the "system usage" construct offers a compelling illustration of deductive theory elaboration. We revisit it here briefly to highlight how their logic-driven refinement, disaggregating system usage into depth, breadth, and appropriateness, exemplifies the restructuring of constructs to enhance conceptual clarity and explanatory power. The authors argue that although system usage is

frequently treated as a dependent variable in IS research, it is often poorly conceptualised and inadequately measured, leading to diminished explanatory power and theoretical fragmentation. By foregrounding this problem, they create a compelling case for refining the construct in a more systematic and theory-driven manner. They emphasise that improving the conceptual clarity and validity of such a foundational construct has broad implications, not only for advancing theoretical rigour in IS but also for enhancing the cumulative nature of research that relies on system usage as a key explanatory element. This kind of framing exemplifies how deductive theory elaboration can contribute meaningfully to both scholarly discourse by addressing underdeveloped aspects of otherwise central constructs in the literature.

When a compelling theoretical argument is absent or is only linked to contextual variables, reader interest may be diluted (cf., Leidner, 2020; Weber, 2003). As demonstrated in Alter (2013), a strong hook can be established by framing the theory elaboration as either counterintuitive (Davis, 1971) or transformational (Bacharach, 1989), addressing areas of controversy or ambiguity. Alter's (2013) expanded WST provides a transformational shift by moving beyond technical artefacts to address the full sociotechnical complexity of work systems, thereby broadening its application.

5.2. Theory elaboration section

To effectively advance knowledge, the theory elaboration section must meet criteria for robust theoretical contribution (e.g., Bacharach, 1989; Corley & Gioia, 2011; Dubin, 1969; Rivard, 2014; Whetten, 1989). Theoretical background sections should open with a concise exposition of the original theory or model. Alter (2013), for instance, meticulously traces the evolution of WST, documenting how each subsequent elaboration addressed limitations of earlier versions, making his contributions accessible to readers unfamiliar with the theory's development.

Authors setting up a theory elaboration must carefully justify three main arguments. First, they should identify the original theory's needs for elaboration, such as WST's initial lack of mechanisms to account for emergent, unplanned system changes. This gap is acknowledged as limiting the theory's applicability in continuously evolving organisational settings. Second, they should substantiate the relevance of selected deductive elaboration pattern(s): refining processes, complementing processes, and structuring process alternatives. Wu et al. (2015) exemplify this in their elaboration on IT governance by refining the role of strategic alignment as a mediator between governance and performance, thus addressing prior model gaps in understanding IT's strategic influence on organisational outcomes. Finally, authors should clearly articulate their theoretical contributions. For instance, Boudreau and Robey (2005) extend Orlikowski's (1992) structurational model by identifying two alternative pathways—assimilation and reinvention—in the enactment of ERP systems. By introducing these divergent pathways, they address the limitation in the original model, which did not account for the varying ways organisational actors engage with and adapt technology based on contextual factors. Their contribution refines the structurational model, enhancing its explanatory power by showing how technology enactment can unfold differently depending on user agency and organisational context. This extension also clarifies the model's application across diverse environments, highlighting the flexibility of technology enactment in complex socio-technical settings. Overall, clarity in presenting theory elaboration can be particularly challenging, especially when one examines examples in the literature. We therefore recommend including a *theory elaboration figure* as a third element as illustrated in Figure 5.[4]

When the three following principles are followed, we believe deductive elaboration figures can be

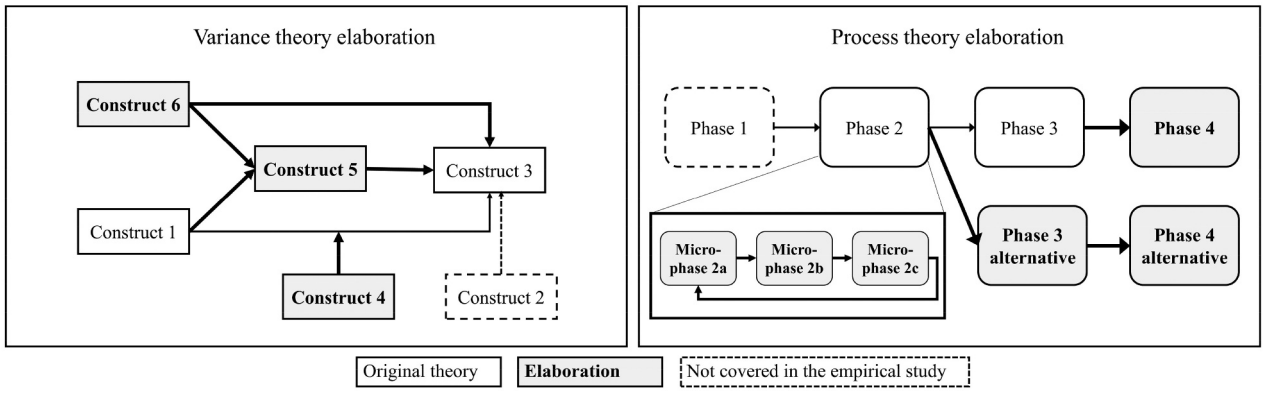


Figure 5. Examples of deductive elaboration figures.

a powerful means to communicate a complex[5] contribution. *Principle 1*: The original theory should be depicted in its entirety. This contributes to a shared understanding and avoids relying on tacit and potentially divergent mental images constructed by readers. Unfortunately, few papers making a contribution to theory elaboration provide a complete depiction of the original theory. Including such a depiction would align with common recommendations that papers should be self-contained. *Principle 2*: The elaboration patterns should be depicted in a different form. This principle supports readers in dissociating the elaborated version from its original pendant and thereby makes the figure's purpose readily apparent (cf., American Psychological Association, 2013, p. 153). It is particularly important when contributions build on an individual theory in a substantial way. *Principle 3*: Constructs and relationships should be annotated as "not part of the empirical study" in case they are not tested. This allows readers to better understand the connection between the refined theory and the original one. Especially for complex baseline models, constructs and corresponding relationships may not be tested when the focus of the study and the analytical procedures do not require it or when the construct is invariant due to the research design and context. In such cases, it is crucial to communicate that particular constructs are simply not part of the empirical study instead of being purposefully deleted (or "pruned") from the original theory (Leavitt et al., 2010; Weber, 2003).

In sum, we believe the abovementioned principles for constructing *deductive elaboration figures* can significantly improve clarity and help readers to understand the "link between the old and the new" (Burton-Jones et al., 2021, p. 304). When the original theory does not lend itself to straightforward depiction, these principles could also be used more broadly as an inspiration for developing a table, depicting the original and elaborated theory side-by-side, or for structuring and crafting the key arguments in textual form.

5.3. Methods section

The methods section needs to clarify the coherence between the elaboration contribution and the research design. Methodological coherence in the context of deductive elaboration pertains to justifying the fit between the focus of theory elaboration (detail, gap, and divergence), the research model, as well as the empirical context of data collection, and the research methods.

Justifying the methodological coherence and allowing readers to assess the validity of methodological choices requires a systematic approach and transparent reporting. For theory elaboration studies, this may be particularly challenging when the empirical context imposes restrictions upon the research models that can be tested and when parts of the original (and elaborated) theory are consequently excluded from the empirical validation. Prospective authors should therefore pay special attention to transparent reporting and methodological justification when the elaborated theory and the empirical research model are not in perfect correspondence.

5.4. Results section

The results section should validate the theory elaboration by demonstrating improved explanatory power. For variance theories, this involves showing that the elaborated constructs lead to a significant increase in the explained variance of dependent variables relative to the original theory. Burton-Jones and Straub (2006) exemplify this by reconceptualising the widely used "system usage" construct, arguing that earlier measures, often based on simple frequency or duration, lacked conceptual rigour and yielded inconsistent findings. Their framework introduces a multidimensional view of system usage that includes not just frequency, but also the depth and appropriateness of usage. Empirical results show that this refined conceptualisation significantly improves the model's ability to explain variance in user performance, thus validating the elaboration. Their study demonstrates how deductive theory elaboration can enhance both the theoretical precision and predictive strength of foundational constructs in IS research.

For process theories, demonstrating explanatory improvement involves providing richer, more nuanced explanations for sequential or emergent processes. Pelletier and Raymond (2020) illustrate this in their elaboration of digital transformation theories by incorporating a *strategy-as-practice* lens to analyse the digital transformation process within SMEs. Traditional digital transformation models often provide a high-level perspective on strategic shifts but lack a detailed account of how these strategies are enacted at the micro-level. By emphasising specific practices through which strategy is carried out in real time, Pelletier and Raymond (2020) reveal how digital transformation unfolds through an interplay of strategic intentions and practical adaptations in SMEs. This elaboration captures the complexity of digital transformation as an emergent, practice-driven process influenced by both organisational context and actor-specific actions. Their refined model thus improves explanatory power by offering a granular view of how strategy is dynamically enacted, extending the theoretical understanding of digital transformation to incorporate the often-unpredictable adaptations that occur in practice.

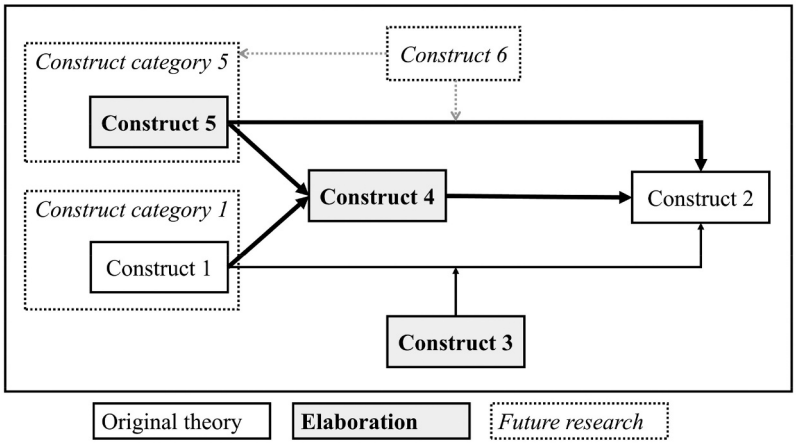


Figure 6. Example of a future research figure.

5.5. Discussion section

The discussion section provides an opportunity to explain the trade-off between additional explanatory power and losses in parsimony, and to discuss implications for future research and practice. At this point, gains in explanatory power need to be defended against decreases in parsimony Weber (2003, 2012). As Whetten and Partington (2002) puts it, "Although the impulse to add value by adding variables may be justified on the grounds that it will produce a more complete conception, failure to discipline this impulse typically yields a hodge-podge conceptualisation that is not practical for any purpose" (p.49). Authors should clearly state whether their work advances the original theory through advancing the completeness, depth, or generalisability of the original theory. This allows for a more nuanced explanation of the benefits offered by the expanded theory. It is by clarifying these nuances that authors can justify their belief that the revised theory is superior to the original theory as well as to competing ones.

After making the case for establishing the elaborated theory as an essential building block in the research landscape, authors have the opportunity to demonstrate the generativity of the expanded theory by outlining how it opens up new theoretical trajectories for future research. Several of the abovementioned theory elaboration papers developed exemplary research agendas, describing detailed and actionable starting points for future research, and encouraging follow-up research to build on it. For instance, Gaskin et al. (2014) research agenda encourages future work to apply the "zooming in and out" method across various sociotechnical systems, proposing specific types of routines and systems that could be analysed using their approach. They suggest both methodological refinements and new empirical contexts, giving concrete pathways for further research in sociomateriality.

In our view, illustrating research opportunities in a pictorial form, as suggested in the schematic *future research figure* (see Figure 6), can be powerful in communicating how the refined theory opens up new paths. If authors succeed in sketching a clear and actionable research agenda, higher degrees of generativity can be achieved, potentially paying off in terms of utility for future research and research impact.

6. Concluding remarks

In this commentary, we aimed at clarifying and illustrating the potential of deductive theory elaboration and encouraging IS researchers to creatively engage in the process. Our key argument is that deductive theory elaboration is an essential component of disciplinary progress because it combines theoretical innovation with cumulative progress. To capture the potential of deductive theory elaboration, it is time to turn a reflective lens on prior research practices.

Deductive theory elaboration is a broad approach and providing specific guidelines requires us to restrict the scope of our work. Some of these limitations may offer fruitful ground for further research. As mentioned earlier, the scope of our work is restricted to IS behavioural theories and we deliberately restricted the selection of patterns to the ones that are well suited to illustrate the three foci (detail, gap, divergence) for variance and process theories. These limitations certainly leave opportunities for research dedicated to other patterns as well as elaboration on other instances of theories (Niederman & March, 2019), including systems theories (Burton-Jones et al., 2015) and hybrid theories (Ortiz de Guinea & Webster, 2017). Further, we restricted our discussion to those cases in which the evidence collected in the theory elaboration paper supports the original theory. While successfully exposing the original theory to empirical refutation can

make a compelling contribution, this is a contribution of a different nature to the ones outlined in this commentary and would need to be presented and justified differently. In this regard, we adopt a positivist perspective without in-depth discussion of how post-positivist perspectives, such as attempted falsification may trigger theoretical improvements (see Brendel et al., 2020; Salovaara & Merikivi, 2015, for initial discussions). In line with the work of theorists, our aspiration is to facilitate strong theoretical work. Since deductive theory elaboration efforts ultimately rely on the ingenuity, insight, and skills of individual authors, adopting our framework and following our guidelines can never be sufficient in itself to make a strong contribution.

Notwithstanding these limitations, our commentary contributes to the ongoing and vibrant discourse on theory in IS and other disciplines. Precisely, we build on extant work of theorists (e.g., Bacharach, 1989; Dubin, 1969; Gregor, 2006) and make three main contributions beyond prior work on theory elaboration (e.g., Fisher & Aguinis, 2017; Lee et al., 1999). First, we address persistent terminological ambiguities in the IS literature by introducing a staged view of theorising that distinguishes between theory initiation and theory enrichment. Within the enrichment stage, we delineate five distinct forms of theorising, each contributing uniquely to the enhancement of existing theories. This framework clarifies where and how theory elaboration fits alongside related forms, extending previous work that has often privileged inductive or abductive approaches. By positioning elaboration as a distinct, structured, and logic-driven form of theorising, our work supports the development of more precise, cumulative, and coherent IS theories, and helps prospective authors better situate their contributions while avoiding further terminological conflation.

Our second contribution is the framework clarifying the process of deductive theory elaboration. In line with the hypothetico-deductive model, this process requires authors to initiate the elaboration process by identifying one or several elaboration foci. Focusing on detail, gap, or divergence, authors work from a pre-specified theoretical rationale to apply and combine corresponding elaboration patterns, as illustrated in our overview (see Figure 3). The resulting elaborated theory is to be validated empirically in the final steps, which involve the instantiation of a requisite research model.

Third, we provide guidelines for reporting contributions to theory elaboration. Prospective authors can refer to our work when structuring the key arguments readers may expect. In particular, we contend that current elaboration practices would benefit from improved clarity regarding a truthful representation of the original theory, dissociation of the deductive elaboration patterns applied, and a clearer link between the elaborated theory and its instantiated research model. Ultimately, successfully describing how the elaborated theory makes a significant contribution above and beyond the original theory, both in terms of theoretical rationale and empirical evidence, will be decisive for publication in top journals. To achieve this, we encourage authors to follow our guidelines on the clarity of presentation and the principles of clearly dissociating the original theory from the elaborated one, which can be achieved effectively by including an elaboration figure.

To ensure that deductive theory elaboration remains a rigorous and theoretically meaningful endeavour, we encourage prospective authors to clearly articulate the motivation underlying their elaboration efforts. This motivation should be firmly grounded in a demonstrable theoretical need, such as limitations in explanatory power, conceptual ambiguity or incompleteness, or the inability of an existing theory to account for novel or evolving digital phenomena. We also urge reviewers and editors to adopt a critical stance in evaluating such contributions, with particular attention to how convincingly authors justify the elaboration focus in light of the theoretical foundations they seek to enhance. By fostering greater scrutiny and clarity at the point of justification, the IS field can avoid superficial or opportunistic theory modification and instead promote elaboration work that contributes to conceptual precision, theoretical coherence, and cumulative knowledge development.

Overall, our emphasis on deductive theory elaboration reflects an optimistic view of the potential for IS behavioural research to adapt and remain relevant amidst ongoing digital transformation. However, as Sarker et al. (2019) remind us, with the increasing ubiquity of digital technologies, there is a risk that IS research may shift towards overly technical or narrowly optimistic perspectives, losing sight of the foundational sociotechnical insights that give the field its depth and critical edge. Here, deductive theory elaboration plays a crucial role as a safeguard. Indeed, by enabling nuanced refinements to existing theories, it helps to prevent the field from drifting towards a purely technical outlook. Deductive theory elaboration encourages the continuous re-integration of human, organisational, and societal dimensions into IS theories, ensuring that both the benefits and potential pitfalls of digitalisation are considered. This balanced approach supports an evolving IS discipline that remains critically engaged, mindful of its dual responsibility to advance technology and to interrogate its broader impacts. Further, Markus and Rowe's (2023) reflections on transformation align with the optimistic/pessimistic duality highlighted by Sarker et al. (2019). As emerging technologies continue to reshape organisational decision-making, IS scholars

must balance the promise of innovation with critical perspectives on potential risks and unintended consequences. Incorporating this duality into theory elaboration can enrich its explanatory power, offering a more nuanced view of IT's socio-technical impact.

Notes

1. By "logic-driven", we refer to a structured, pre-empirical reasoning process aimed at diagnosing and refining a theory's architecture. This is explained in more detail in the section where we describe the deductive theory elaboration process and steps.
2. For simplicity, we focus on research models as the most common instances that are derived from abstract theories and allow for empirical measurement.
3. Please note that this does not imply that the patterns are applicable to a single focus exclusively.
4. When following an inductive approach to theory elaboration, the elaborated theory emerges from the data and corresponding theory elaboration figures should be presented in the results section.
5. With *complex*, we mean containing a variety of constructs and relationships.

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