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Reconciling Competing Conceptions of Responsible Digital Innovation through a Meta-Narrative Review across Business Ethics, Information Systems, Technology Management, and Sustainability Research

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Abstract

Responsible digital innovation has developed through several intellectual traditions that use overlapping terminology while assigning responsibility to different actors, processes, and outcomes. This meta-narrative review examines how business ethics, information systems, technology management, and sustainability research have conceptualized responsible digital innovation and where their accounts converge, conflict, or remain incommensurable. An iterative search conducted on 3 October 2026 identified 85 records through six search routes. After deduplication and screening, 36 substantive evidence units were included in the meta-narrative synthesis, while four additional sources supported review methodology. Evidence was mapped according to responsibility locus, focal object, governance mechanism, evaluative criterion, temporal orientation, level of analysis, and stated boundary conditions. Four distinct narratives emerged. Business ethics emphasized legitimacy, duties, moral accountability, and governance; information systems emphasized digitally mediated organizing, design, and distributed responsibility; technology management emphasized responsible innovation processes and organizational capabilities; and sustainability research emphasized environmental, social, resilience, and stakeholder consequences. Convergence was strongest around accountability, anticipation, stakeholder consideration, and the need to address downstream consequences. More persistent disagreement concerned who should bear responsibility, how responsible conduct should be governed, what counts as successful innovation, and whether responsibility should be evaluated primarily through process, institutional legitimacy, organizational capability, or societal outcomes. The review therefore supports a plural, translation-oriented conception of responsible digital innovation in which disciplinary differences are made explicit rather than prematurely unified.

Keywords Responsible digital innovation, Responsible artificial intelligence, Responsible innovation, Meta-narrative review, Corporate digital responsibility, Digital sustainability

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Introduction

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Digital innovation has generated a parallel expansion in concepts intended to govern its social, ethical, organizational, and environmental consequences. Corporate digital responsibility has been formulated as a set of shared values and norms guiding organizational creation and use of digital technologies and data [1]. Responsible innovation developed from a broader concern with the governance of innovation in relation to sustainable development and societal consequences [2]. Information-systems scholarship has subsequently described digital responsibility as a multilevel phenomenon distributed across individuals, organizations, technological arrangements, and wider institutional environments [3]. These formulations overlap, yet they assign different meanings to responsibility and different standards for deciding whether an innovation is responsible.

Recent research has therefore produced a dense conceptual field rather than a single cumulative theory. Some work concentrates on the responsibilities of firms developing or deploying digital technologies; other streams emphasize participatory innovation processes, responsible artificial intelligence, institutional governance, or ecological consequences. The differences are consequential because a practice that appears satisfactory under one conception may remain deficient under another. Transparency may satisfy a design requirement while leaving distributive impacts unresolved; stakeholder consultation may improve process legitimacy while providing little evidence about environmental consequences; and regulatory compliance may coexist with weak organizational capacities for reflexive adaptation.

The present review addresses this problem through a meta-narrative design. Its distinctive concern is the relationship among four intellectual traditions—business ethics, information systems, technology management, and sustainability research—and the historical development of their competing conceptions of responsible digital innovation. This scope differs from neighboring inquiries focused on private platform authority, explainable AI in business judgment, responsibility for sustainability claims, corporate AI assurance, or the organizational authority of AI recommendations. The analytical object here is the cross-disciplinary construction of responsibility itself: how traditions define it, what evidence they recognize, where translation across traditions is possible, and where differences remain normatively or methodologically resistant to reconciliation.

Responsible Digital Innovation as a Contested Cross-Disciplinary Construct

The field’s conceptual diversity is visible in the distinct objects selected for measurement and evaluation. Responsible innovation has been operationalized as a multidimensional organizational construct, demonstrating that responsibility can be translated into measurable innovation-related practices without establishing that one measurement model exhausts the concept [4]. Information-systems reviews of corporate digital responsibility identify recurring organizational activities relating to data, technology, stakeholders, governance, and digital conduct, while also showing that the CDR literature has developed its own vocabulary and analytical emphases [5]. Sustainability research introduces another distinction: corporate digital responsibility and digital sustainability increasingly intersect, yet the two bodies of work retain different focal concerns and do not collapse into a single literature [6].

The same plurality appears when responsibility is moved from the firm level to specific intervention settings. Work on responsible digital interventions with vulnerable groups adapts responsible-research-and-innovation ideas through anticipation, reflexivity, engagement, action, and sustainability considerations, illustrating how established RI principles can be translated into digital settings without losing contextual sensitivity [7]. By contrast, research on AI services shows that judgments of corporate digital responsibility can depend on whether governance is assigned to firms or public authorities and on institutional conditions affecting trust in the regulator [8]. Responsibility therefore concerns more than the presence of ethical principles. It also depends on who possesses authority, what level of analysis is being evaluated, what consequences are considered relevant, and how legitimacy is established.

For this review, responsible digital innovation is used as an analytical umbrella rather than a claim that the underlying literatures already share a common definition. The term denotes scholarly attempts to connect digital innovation with

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obligations concerning its design, governance, implementation, societal consequences, institutional legitimacy, and environmental or social durability. The review treats differences among these dimensions as evidence to be interpreted rather than conceptual noise to be removed.

Meta-Narrative Review Methodology

Meta-narrative review is suited to fields in which different research traditions have approached a broadly related phenomenon using different questions, assumptions, concepts, and standards of evidence. Methodological appraisal of meta-narrative synthesis emphasizes the need for explicit interpretive reasoning, transparency, and reflexivity when heterogeneous conceptual frameworks are compared [9]. Published meta-narrative research likewise demonstrates that distinct traditions can be mapped and compared without assuming that they will converge on one explanatory vocabulary [10]. The method was therefore used here to reconstruct the major intellectual storylines through which responsibility has been attached to digital innovation.

Planning and Scope

The review question asked how business ethics, information systems, technology management, and sustainability research conceptualize responsible digital innovation, how those conceptions developed between 2017 and 2026, and which elements can be translated across traditions without erasing theoretically meaningful differences. Planning followed the iterative logic characteristic of meta-narrative reviews, in which relevant traditions are identified and refined as searching and interpretation proceed [11].

Substantive evidence was eligible when a peer-reviewed journal article materially developed, operationalized, evaluated, or critiqued responsible innovation, corporate or digital responsibility, responsible digitalization, responsible AI governance or design, or the digital-responsibility–sustainability nexus. Eligible work had to provide sufficient relevance to organizations, innovation systems, digital platforms, service ecosystems, or institutional governance. Methodological sources used solely to design and report the review were tracked separately from substantive evidence units. Journal quartile was not used as an evidence-eligibility criterion.

Iterative Search Strategy

Searching was executed on 3 October 2026 through six complementary scholarly search routes. The search design combined concept-led searches for the four anticipated traditions with a dedicated meta-narrative-method search and citation/author chaining. This combination reflects evidence that robust scholarly searching benefits from iterative scoping, keyword development, and supplementary citation-based routes rather than dependence on a single retrieval pathway [12].

The six search families captured 85 records before deduplication: business ethics/corporate digital responsibility, 13; information systems/responsible AI, 17; technology management, 13; sustainability, 12; meta-narrative methodology, 16; and citation/author chaining, 14. Twelve duplicate, version, or mirror records were removed, leaving 73 unique records for screening. Twenty-nine were excluded during title/abstract screening, leaving 44 for article-level assessment. Four further records were excluded after closer eligibility assessment. The resulting set contained 36 substantive evidence units. Four additional methodological articles supported review execution and were retained separately, producing the 40-reference bibliography.

The selection logic preserves the distinction between the review evidence and the publication reference allocation.

Table 1 presents the analytical distinctions discussed here.

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Table 1. Executed search, selection, and classification logic for the meta-narrative review

Review operation	Article-specific decision rule	Executed information	Role in meta-narrative interpretation
Business-ethics search family	Capture work framing digital innovation through duties, legitimacy, moral accountability, corporate responsibility, or institutional governance	13 records captured	Candidate reservoir for the business-ethics narrative
Information-systems search family	Capture work on CDR, digital responsibility, responsible AI governance, digital design, platforms, and infrastructures	17 records captured	Candidate reservoir for digitally mediated organizing and governance
Technology-management search family	Capture responsible-innovation work emphasizing innovation processes, commercialization, organizational capability, and implementation	13 records captured	Candidate reservoir for innovation-process and capability narratives
Sustainability search family	Capture work linking digitalization or responsible innovation to environmental, social, resilience, circularity, or stakeholder consequences	12 records captured	Candidate reservoir for sustainability-oriented responsibility
Meta-narrative methodology search	Identify sources supporting tradition mapping, iterative searching, appraisal, comparison, and reflexivity	16 records captured	Methodological reservoir; not automatically counted as substantive evidence
Citation and author chaining	Recover relevant work missed by concept labels and terminology differences	14 records captured	Protects against vocabulary fragmentation across traditions
Deduplication	Match DOI, title, publication version, and obvious mirrors	12 records removed	Prevents repeated evidence units
Title/abstract screening	Retain materially relevant organizational or innovation-responsibility work	29 records excluded	Removes remote, non-substantive, or incompatible material
Article-level assessment	Confirm sufficient contribution to one or more mapped traditions	4 records excluded	Prevents weakly connected records from shaping the narratives
Final evidence classification	Separate substantive evidence from review-method support	36 substantive evidence units; 4 methods/background sources	Preserves the distinction between evidence synthesis and bibliography size

Mapping Research Traditions

Tradition mapping did not rely on journal titles or formal disciplinary labels. Each substantive evidence unit was coded according to the problem it sought to solve, its focal responsibility construct, the actor or level to which responsibility was

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assigned, the governance mechanism emphasized, the criterion used to judge responsible conduct, and its temporal and institutional assumptions. The four narratives emerged from repeated combinations of these features.

Business ethics clustered around legitimacy, duties, governance, moral agency, and the justification of authority. Information systems clustered around digital artifacts, organizational practices, data, infrastructures, human–AI interaction, and distributed governance. Technology management concentrated on responsible innovation as a process, organizational orientation, or capability influencing commercialization and implementation. Sustainability research foregrounded ecological and social consequences, resilience, circularity, stakeholder pressures, reporting, and cross-boundary externalities.

Appraisal within Traditions

A single numerical quality hierarchy would have obscured the epistemic differences among conceptual, qualitative, quantitative, review, and measurement-development studies. Appraisal therefore followed design-sensitive criteria. Conceptual work was assessed for construct clarity, internal coherence, responsibility locus, and explicit limits. Qualitative studies were assessed for contextual specification, actor/process transparency, and interpretive fit. Quantitative studies were examined for construct operationalization, sampling and temporal design, and correspondence between design and causal language. Reviews were assessed for search transparency, definitional clarity, and correspondence between extracted evidence and higher-order synthesis.

Appraisal was consequently used to determine what each source could legitimately support inside its own tradition before cross-tradition comparison began.

Narrative Synthesis and Comparison

Synthesis proceeded through four operations: reconstruction of each tradition's historical storyline; reciprocal translation where constructs carried sufficiently similar meanings; refutational comparison where traditions offered competing accounts; and preservation of incommensurability where reconciliation would require an unresolved normative choice. Evidence was not pooled quantitatively because the units, constructs, dependent variables, and analytical designs were too heterogeneous to support a common effect estimate.

The executed review pathway and the separation between substantive evidence and methodological support are summarized in **Figure 1.**

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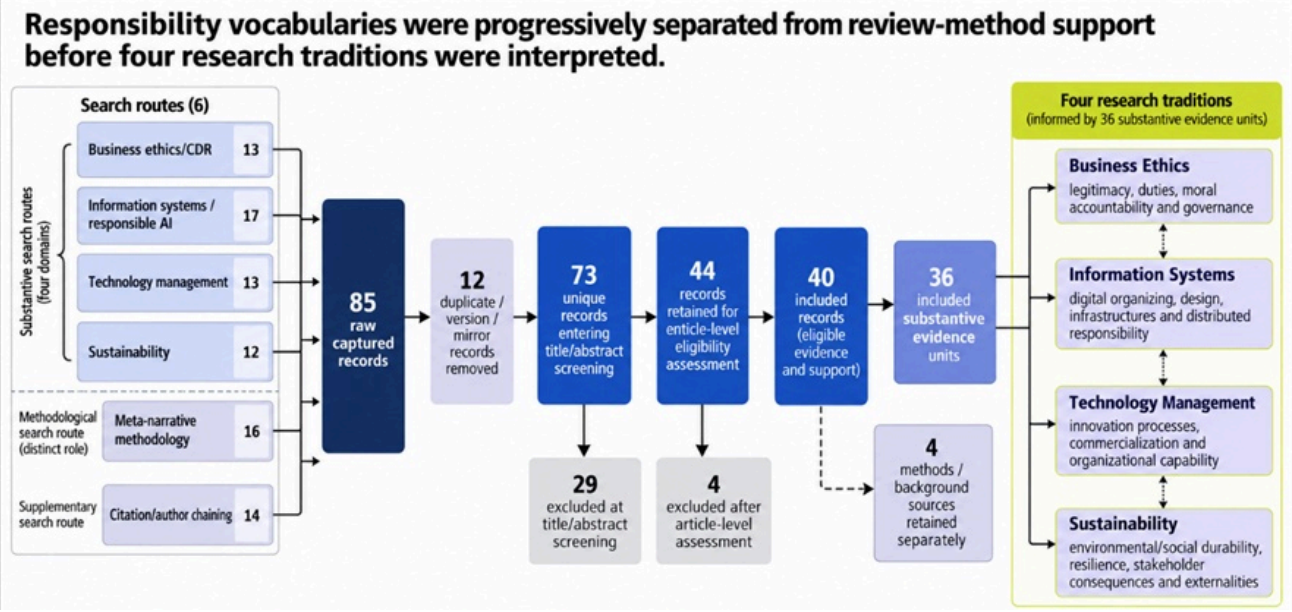

Figure 1. Responsibility vocabularies were progressively separated from review-method support before four research traditions were interpreted

Reflexivity and Peer Review

Interpretive decisions were recorded at three points: tradition assignment, cross-tradition translation, and identification of incommensurability. Where a source plausibly informed more than one narrative, cross-membership was retained in the extraction matrix rather than eliminated to produce cleaner disciplinary boundaries. Rival readings were also recorded when the same evidence could support more than one interpretation—for example, whether institutionalization strengthens responsible practice through formalization or weakens it by narrowing reflexivity.

The review did not equate citation frequency, recency, journal status, or methodological quantification with superior evidentiary authority. Recent empirical work was used to extend or test earlier conceptual claims, while conceptual and critical work remained necessary where the question concerned normative justification, governance legitimacy, or construct boundaries.

Research Traditions

The four mapped traditions differ most clearly in their primary responsibility locus, the problem they regard as requiring governance, and the criterion by which responsible innovation is judged. These differences also generate distinct evidentiary preferences, which helps explain why apparently similar terms have accumulated non-equivalent meanings.

The heterogeneity that matters for synthesis is therefore organized by intellectual function rather than conventional study-design categories.

Table 2 presents the analytical distinctions discussed here.

Table 2. Evidence characteristics that differentiate the four meta-narrative traditions

Meta-narrative	Dominant responsibility	Recurring problem	Typical analytical object	Favored adequacy criterion	Characteristic evidence form in the

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tradition	locus	definition			included set
Business Ethics	Firm, professional actor, corporate governor, regulator, institutional field	Whether digital innovation is legitimate, accountable, fair, and morally governable	Duties, authority, accountability arrangements, stakeholder legitimacy, ethical consequences	Normative justification and defensible governance	Conceptual argument, institutional analysis, mixed-method ethics studies, workplace/professional studies
Information Systems	Individual, development team, organization, platform, digital infrastructure	How responsibility is embedded in digitally mediated organizing and technological practice	Data, systems, AI design, platforms, human–AI interaction, infrastructure	Responsible design, use, governance, and allocation of digital responsibilities	Conceptual frameworks, case studies, grounded theory, governance reviews, empirical digital-transformation studies
Technology Management	Innovation project, organization, commercialization process, innovation ecosystem	How responsible innovation can be organized and sustained during development and commercialization	Innovation process, orientation, capability, commercialization, living-lab implementation	Anticipation, reflexivity, inclusion, responsiveness, adaptive capability	Critical theory, qualitative studies, capability development, psychometric validation
Sustainability	Firm, stakeholder network, supply/ecosystem relation, national infrastructure	Whether digital innovation produces durable environmental and social consequences	Green practices, resilience, circularity, reporting, externalities, corporate digital sustainability	Environmental/social durability and stakeholder consequences	Reviews, structural models, longitudinal panels, measurement studies, cross-national infrastructure analysis

Business Ethics Narrative

The business-ethics narrative begins from the proposition that innovation governance has moral and political content. Corporate governance arrangements influence whether organizations can recognize and respond to the societal consequences of innovation [13]. The emergence of corporate digital responsibility further illustrates how responsibility becomes institutionalized through legitimation work, discourse, organizational practices, and interaction among actors seeking to define acceptable corporate behavior in digital environments [14].

Artificial intelligence has intensified this concern with legitimate governance. Normative analysis of robo-advice proposes external ethical gateways and ratings as possible mechanisms for governing consequential automated services [15]. Mixed-method research with marketing employees places privacy and security among the operational requirements of

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ethical AI development [16]. Workplace studies additionally indicate that AI use can have ethically relevant behavioral consequences under particular psychological and organizational conditions [17]. Research on auditing extends the argument by emphasizing deliberation among expert professionals when AI is introduced into tasks with significant judgment and accountability requirements [18].

Across this narrative, responsibility is therefore closely connected to legitimate authority, moral agency, the defensibility of governance arrangements, and the possibility of contesting decisions. The literature does not supply one agreed institutional solution; it establishes a recurring demand that digital innovation remain accountable to standards that cannot be reduced to technical performance.

Information Systems Narrative

Information-systems research shifts attention toward how responsibility is constituted inside digitally mediated organizing. Corporate digital responsibility is treated as an organizational response to the distinctive ethical and social consequences created by digital technologies [19]. Comparative platform research demonstrates that responsible-innovation principles such as anticipation, reflexivity, inclusion, and responsiveness can be enacted through concrete platform-development practices, while their expression varies with institutional and community conditions [20].

The rapid expansion of responsible-AI research has made governance more structurally explicit. Reviews distinguish structural, relational, and procedural practices for responsible AI governance [21], while grounded-theory work identifies authenticity, control, and transparency as recurrent concerns in responsible AI design [22]. Research on software development shows that responses to value conflicts can differ with developers' moral reasoning [23], and evidence from knowledge work places AI literacy among the capabilities conditioning responsible human–AI interaction [24]. Taken together, these studies relocate responsibility from abstract principles toward the design and use practices through which technological systems become organizationally consequential.

Recent IS research further extends responsibility beyond immediate system design. Digital responsibility and digital transformation can evolve together rather than forming a simple sequence in which ethical governance follows technological change [25]. Cloud-computing research demonstrates an even wider boundary: environmental benefits and burdens can be spatially redistributed among hosting countries, users, providers, and neighboring regions, creating shared responsibilities that exceed the focal organization [26]. The IS narrative consequently evolves from organizational CDR toward a multilevel account involving actors, design decisions, infrastructures, and institutional environments.

Technology Management Narrative

Technology-management research retains the responsible-innovation vocabulary while focusing more strongly on how responsibility enters innovation processes. Critical scholarship has warned that institutionalization can stabilize responsible-innovation practices while also narrowing the reflexivity they were intended to preserve [27]. More recent research reframes responsible-innovation orientation as an organizational capability whose anticipation, reflexivity, inclusion, and responsiveness can shape commercialization of emerging technologies [28].

Implementation studies reinforce the situated character of these capabilities. European healthcare living labs adapt responsible-research-and-innovation practices to operational realities rather than implementing a fixed template [29]. At the societal level, large-scale validation research shows that public perceptions of responsible innovation can be organized around recognizable dimensions such as anticipation, inclusion, reflexivity, and responsiveness [30]. Technology management therefore treats responsibility as something that must be organized during innovation, translated into capabilities and practices, and evaluated by actors beyond the innovating firm.

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Sustainability Narrative

The sustainability narrative evaluates digital innovation through environmental, social, resilience, and stakeholder consequences. Responsible digitalization research links digital technologies with green practices and corporate sustainability orientations [31]. Work with SMEs indicates that data-driven dynamic capabilities can help connect digitalization with responsible innovation under specific organizational and national conditions [32]. Other studies conceptualize responsibility as an ambidextrous organizational problem in which generalized and specialized responsibility orientations coexist [33].

The empirical literature increasingly connects responsible innovation with organizational sustainability performance [34]. Two-wave evidence from manufacturing firms further suggests that circular-economy practices and organizational resilience may represent distinct pathways through which responsible innovation relates to sustainability outcomes [35]. Parallel work on corporate digital responsibility has developed measurement models incorporating ethical, legal, and sustainability dimensions, bringing environmental consequences directly into operational definitions of digital responsibility [36].

The stakeholder dimension remains heterogeneous. Longitudinal evidence on corporate digital responsibility reporting shows that stakeholder groups can exert different forms of pressure and that some relationships are weak or nonsignificant, cautioning against assumptions that stakeholder pressure operates uniformly [37]. Recent longitudinal work on listed firms links corporate AI use with higher levels of corporate digital responsibility under particular organizational and institutional conditions [38]. Scale-development research also identifies a positive relationship between multidimensional CDR evaluations and corporate reputation, although reputational outcomes cannot themselves establish ethical adequacy [39]. Finally, service research extends corporate digital responsibility beyond the focal firm to customers, partners, platforms, and other actors whose interdependence produces shared digital consequences [40].

The relationship between technology-management and sustainability narratives is therefore especially important: both examine organizational action, yet the former gives greater analytical weight to responsible innovation processes and capabilities, whereas the latter more often evaluates the durability and distribution of consequences.

The contrasts generated by these adjacent traditions become more visible when their mechanisms are placed side by side.

Table 3 presents the analytical distinctions discussed here.

Table 3. How technology-management and sustainability narratives assign different functions to responsibility

Article-specific comparison unit	Technology-management interpretation	Sustainability interpretation	Cross-tradition connection	Unresolved analytical tension
Anticipation before innovation commitment	Capability for recognizing emerging societal implications during development and commercialization	Means of identifying environmental and social consequences before they become embedded	Both reject purely retrospective responsibility	Who determines which anticipated consequences deserve priority
Reflexivity during innovation	Organizational capacity to reconsider assumptions, goals, and innovation trajectories	Reassessment of whether innovation remains compatible with sustainability objectives	Reflexivity can connect process quality with long-horizon consequences	High reflexivity does not guarantee agreement about acceptable outcomes

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Inclusion and stakeholder participation	Input into innovation direction and commercialization choices	Mechanism for revealing distributed social, environmental, and stakeholder effects	Participation broadens the information available to decision makers	Participation may remain consultative without redistributing authority
Organizational capability	Ability to repeatedly enact responsible-innovation practices	Capacity supporting greener, more resilient, or circular outcomes	Capabilities can translate principles into sustained routines	Strong capability may still optimize toward a contested definition of sustainability
Performance consequences	Commercialization and implementation remain legitimate objects of responsible-innovation management	Sustainability, resilience, reporting, and reputation become evaluative outcomes	Both traditions increasingly connect responsibility with organizational performance	Performance associations can encourage instrumental rather than normative interpretations of responsibility
Responsibility beyond the focal firm	Innovation ecosystems shape implementation and commercialization	Service ecosystems and digital infrastructures distribute externalities across organizations and jurisdictions	Both challenge exclusively firm-bounded responsibility	Allocation of responsibility becomes difficult when control and consequences are distributed

Historical Development and Turning Points within the Four Narratives

The 2017–2022 literature established the principal normative and institutional vocabularies from which the later debate developed. Responsible innovation was linked to sustainable-development governance and subsequently subjected to critique concerning how institutionalization affects reflexivity [2, 14]. During the same period, corporate governance and corporate digital responsibility gave organizational form to questions that had previously been discussed primarily through broader innovation ethics. Responsible digitalization also began to connect digital transformation with environmental practice, bringing sustainability concerns closer to the digital-responsibility debate.

A second phase became visible during 2023–2024. Digital responsibility was formalized as a multilevel construct, responsible innovation received further psychometric operationalization, and platform research demonstrated how responsibility principles could be translated into concrete digital practices. Reviews of corporate digital responsibility and digital sustainability simultaneously exposed conceptual overlap and continuing fragmentation. Sustainability studies increasingly tested associations among digitalization, organizational capabilities, responsible innovation, and performance outcomes.

The 2025–2026 literature marks a third phase characterized by expansion into responsible-AI governance, professional decision making, workplace consequences, public legitimacy, organizational measurement, longitudinal CDR analysis, and infrastructural externalities. This development does not amount to replacement of older normative accounts. Instead, contemporary research adds design, capability, measurement, and outcome-oriented approaches around an enduring disagreement concerning what responsibility fundamentally requires.

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Areas of Convergence, Contestation, and Incommensurability

Convergence is strongest around the proposition that responsible digital innovation requires deliberate attention to consequences that ordinary innovation-performance criteria may ignore. Anticipation, inclusion, reflexivity, and responsiveness recur across platform practice, organizational capability research, and societal evaluations of responsible innovation [20, 28, 30]. Accountability, stakeholder consideration, and attention to downstream consequences likewise recur across corporate digital responsibility, responsible-AI governance, and sustainability work. These shared elements provide a basis for translation among traditions.

The underlying standards remain less settled. Business ethics frequently asks whether authority and conduct are morally legitimate. Information systems asks how responsibility is embedded in design, use, governance, and infrastructure. Technology management gives substantial attention to whether organizations possess capabilities for responsible innovation processes. Sustainability research evaluates environmental, social, resilience, and stakeholder consequences. Agreement on the desirability of “responsibility” therefore coexists with disagreement over its object and evaluative standard.

A second contest concerns responsibility locus. Some accounts emphasize the corporation; others distribute responsibility among developers, managers, users, regulators, platform partners, stakeholders, and infrastructure providers. Distributed responsibility reflects the reality of digital ecosystems, yet it can also make accountability harder to allocate when control, knowledge, authority, and consequences reside in different actors.

A third contest concerns governance authority. Voluntary corporate commitments, professional deliberation, organizational capabilities, design practices, stakeholder participation, and public regulation all appear as mechanisms of responsible conduct. The evidence does not justify reducing these approaches to substitutes. Their adequacy depends on the problem being governed and on institutional conditions.

The deepest incommensurability concerns what counts as a satisfactory outcome. A procedurally inclusive innovation process can still generate environmentally undesirable effects. An environmentally efficient digital system can still raise unresolved questions about privacy, autonomy, distributive justice, or legitimate authority. Conversely, a governance arrangement that satisfies a strong ethical principle may be difficult to operationalize under real organizational and technological constraints. Reconciliation therefore requires explicit translation among evaluative standards and explicit recognition of cases in which those standards embody substantive normative choices that evidence alone cannot settle.

Integrative Meta-Narrative Framework for Responsible Digital Innovation

The review indicates that responsible digital innovation cannot be reconciled through a single definition without discarding distinctions that matter within the four traditions. A more defensible synthesis begins by separating five questions that are frequently compressed into the word *responsibility*: what object is being governed, who bears responsibility, according to what evaluative criterion, through which governance mechanism, and across what temporal and institutional horizon. Corporate digital responsibility principally clarifies organizational obligations associated with digital technologies [1]. Multilevel digital-responsibility research complicates firm-centered accounts by locating obligations across actors and organizational levels [3]. Responsible-AI governance further shows that responsibility can be instantiated through structural, relational, and procedural arrangements rather than through principles alone [21].

The synthesis therefore treats cross-disciplinary integration as translation rather than equivalence. Translation is possible where traditions address similar underlying problems using different conceptual vocabularies. Technology-management accounts of anticipation and responsiveness, for example, can be related to information-systems accounts of responsible

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design when both concern how potentially harmful consequences are recognized before technological commitments become difficult to reverse. Sustainability research extends that translation by asking whether the same innovation remains defensible when its environmental or societal consequences are evaluated across longer horizons. Cross-national evidence on cloud infrastructures demonstrates why this extension matters: benefits and environmental burdens may be spatially separated, making responsibility difficult to assess within the boundaries of a single adopting organization [26].

Translation nevertheless has limits. A process may satisfy an inclusion criterion while failing an outcome-based sustainability criterion. An organization may implement transparent AI governance yet leave questions of distributive justice unresolved. Likewise, public acceptance of responsible innovation measures societal judgment rather than demonstrating the substantive adequacy of an innovation process [30]. The framework therefore preserves non-equivalence whenever traditions evaluate different moral objects or invoke standards that cannot be converted into one another without an additional normative judgment.

The review's integrative structure is summarized in **Table 4**. Its analytical unit is not a discipline in isolation, but the translation problem created when two or more traditions evaluate the same digital innovation differently.

Table 4. Translation conditions that determine whether competing conceptions of responsible digital innovation can be integrated without erasing their differences

Translation problem	Business-ethics reading	Information-systems reading	Technology-management reading	Sustainability reading	Cross-disciplinary synthesis status
Who carries responsibility?	Moral agents, firms, professionals, governors, regulators	Users, developers, organizations, platforms, infrastructure actors	Innovation teams, managers, organizations, ecosystem participants	Firms, stakeholder networks, infrastructure providers, affected communities	**Conditionally translatable:** responsibility may be distributed, but practical accountability still requires role specification
What is the governed object?	Conduct, authority, legitimacy, duties and consequences	Data, systems, design choices, digital practices and infrastructures	Innovation processes, commercialization choices and organizational capabilities	Environmental, social, resilience and stakeholder consequences	**Partially translatable:** traditions can describe the same innovation while governing different aspects of it
What makes conduct responsible?	Ethical justification and legitimate governance	Responsible design, use and allocation of digital responsibilities	Anticipation, reflexivity, inclusion, responsiveness and adaptive capability	Durable environmental and social performance and recognition of externalities	**Non-equivalent criteria:** no single criterion substitutes for all others

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Where should governance authority reside?	Firm, professional body, regulator or wider institution	Distributed across technical and organizational governance arrangements	Embedded in innovation routines and managerial capabilities	Distributed among firms, stakeholders, ecosystems and sometimes public institutions	**Context dependent:** authority must correspond to control, knowledge, consequences and possibilities for recourse
When should responsibility be evaluated?	Before, during and after consequential decisions	Throughout design, deployment, use and infrastructural evolution	Across development, commercialization and adaptation	Across longer-term environmental and social consequences	**Translatable through temporal extension:** short-horizon process adequacy cannot establish long-horizon responsibility
What prevents full reconciliation?	Conflicting duties or legitimacy claims	Unequal control, opacity and distributed system effects	Competing innovation objectives and implementation constraints	Conflicting sustainability priorities and distributed externalities	**Incommensurable where the disagreement is normative:** empirical evidence can clarify consequences but cannot decide every value conflict

The table implies that responsible digital innovation should not be represented as a checklist in which fulfillment of several common principles establishes responsibility. Its more defensible unit is a configuration of responsibilities whose adequacy depends on the correspondence among actors, governance authority, technological control, affected interests, and the consequences selected for evaluation.

Discussion

The meta-narrative comparison changes the interpretation of fragmentation in responsible digital innovation. Fragmentation is not simply evidence that the field lacks conceptual maturity. Part of it reflects genuine differences in the questions disciplines are trying to answer. Business ethics asks whether conduct and authority are justifiable; information systems examines how responsibility becomes embedded in digitally mediated organizing; technology management investigates whether responsible conduct can be sustained through innovation processes and organizational capabilities; sustainability research evaluates whether the resulting trajectory remains environmentally and socially defensible.

This distinction explains why conceptual convergence has not produced construct equivalence. Responsible-AI governance can specify organizational arrangements [21], yet those arrangements cannot by themselves determine how environmental burdens distributed through infrastructure should be allocated [26]. Corporate digital responsibility can broaden the firm's ethical agenda, while an ecosystem perspective shows that relevant consequences and control may extend beyond organizational boundaries [40]. A responsible-digital-innovation claim is therefore strongest when it identifies both the responsibility standard being applied and the boundaries within which that standard is informative.

The synthesis also cautions against treating newer empirical operationalizations as replacements for earlier normative accounts. Measurement advances improve construct specification, but measurement necessarily selects dimensions. CDR scales that include ethical, legal, and sustainability components strengthen empirical investigation [36], while reputational studies demonstrate organizational consequences associated with perceived CDR [39]. Neither establishes that responsibility should be defined by what is easiest to measure or by what improves organizational reputation.

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Theoretical and Managerial Implications

The principal theoretical implication is the need to distinguish translation among responsibility constructs from equivalence among them. Research can legitimately connect anticipation, reflexivity, accountable AI design, corporate digital responsibility, and sustainability evaluation when their underlying analytical functions overlap. It should not infer that these constructs become interchangeable merely because they share terms such as responsibility, inclusion, transparency, or stakeholder orientation.

A second implication concerns level of analysis. Digital responsibility is explicitly multilevel [3], while service-ecosystem scholarship extends corporate responsibility into networks of interdependent actors [40]. Theories that place responsibility entirely at the firm level risk attributing accountability to actors that lack practical control while overlooking infrastructures, regulators, platform owners, or partners capable of shaping the relevant outcomes.

For managers, the review favors explicit responsibility allocation over generic commitments to “responsible innovation.” Governance should identify which actors possess decision authority, relevant expertise, information about consequences, and capacity for remediation. Responsible-AI governance research demonstrates the importance of structural and relational arrangements [21], while organizational research on responsible-innovation orientation shows that anticipation, reflexivity, inclusion, and responsiveness can also require durable organizational capability [28]. Responsibility consequently involves both governance design and the capacity to exercise that governance in practice.

Cross-Disciplinary Research Agenda

Future research should first test whether constructs currently treated as adjacent actually demonstrate empirical discriminant validity across disciplinary settings. Existing responsible-innovation, public-perception, and corporate-digital-responsibility scales provide a basis for such comparison, but their dimensions should not be merged before measurement invariance and construct boundaries are evaluated. The growing diversity of operationalizations makes this question increasingly important.

Second, research should examine responsibility across levels and time rather than estimating predominantly contemporaneous firm-level relationships. Longitudinal CDR reporting research shows that different stakeholders do not exert uniform effects [37]. Studies of corporate AI and digital responsibility similarly indicate that institutional and organizational conditions can modify observed relationships [38]. Cross-level designs could determine when responsibilities attributed to organizations are actually constrained by platform governance, infrastructure, regulation, or ecosystem dependence.

Third, empirical designs should directly compare rival responsibility criteria. The same digital innovation could be evaluated simultaneously for procedural inclusion, design accountability, organizational adaptability, environmental effects, and stakeholder distribution. Such designs would reveal whether apparent interdisciplinary convergence persists when traditions are asked to judge the same cases using their own standards rather than conceptually similar terminology.

These unresolved relationships define the synthesis logic shown in **Figure 2.**

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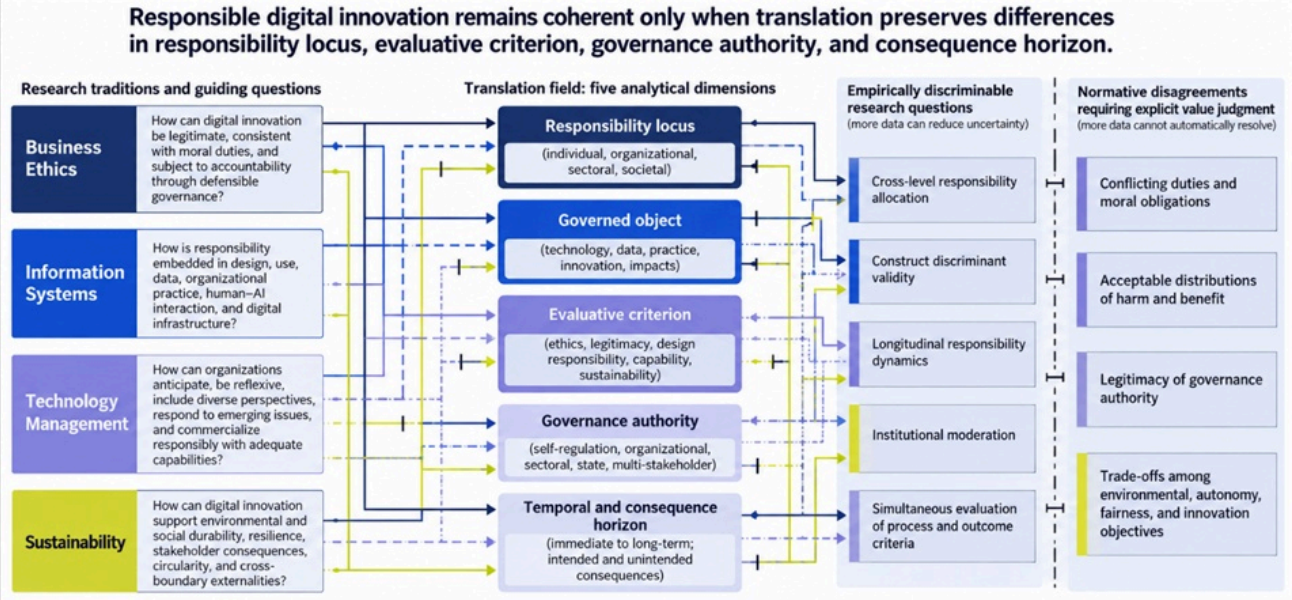

Figure 2. Responsible digital innovation remains coherent only when translation preserves differences in responsibility locus, evaluative criterion, governance authority, and consequence horizon

Limitations

The review has four principal limitations. First, meta-narrative searching is deliberately iterative, and the executed search routes cannot establish exhaustive retrieval of every publication using adjacent terminology. Search-method research itself shows that terminology and retrieval routes materially influence review coverage [12]. Second, tradition assignment is interpretive. Several articles bridge disciplines, and the four narratives should therefore be understood as analytical storylines rather than impermeable disciplinary containers.

Third, the evidence base is methodologically heterogeneous. Conceptual argument, qualitative interpretation, measurement development, longitudinal analysis, and structural modeling support different forms of inference. The review consequently avoids a common quality score and does not infer aggregate causal effects. Fourth, the recent growth of responsible-AI and CDR research means that some contemporary conceptualizations have had less time for independent replication, cross-national validation, and longitudinal testing. These limitations constrain claims of completeness and empirical generality, but they do not remove the observed differences among responsibility loci, evaluative criteria, governance mechanisms, and disciplinary problem definitions.

Conclusion

Responsible digital innovation does not currently constitute a single cross-disciplinary construct with a universally shared definition, governance mechanism, or success criterion. The four reviewed traditions instead describe overlapping but distinguishable responsibility problems. Business ethics foregrounds legitimacy and moral accountability; information systems emphasizes responsibility embedded in digital design, use, and infrastructure; technology management focuses on responsible innovation processes and capabilities; and sustainability research evaluates environmental, social, resilience, and stakeholder consequences.

The strongest synthesis is therefore conditional. These traditions can be reconciled where their concepts perform comparable analytical functions and where the level, actor, and evaluative criterion are made explicit. They should remain distinct where apparent disagreement reflects genuinely different normative standards or responsibility objects.

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Responsible digital innovation becomes analytically stronger when integration preserves these differences rather than treating conceptual convergence as proof of equivalence.

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