



Research Paper

Design-logic alignment in digital transformation: A qualitative meta-analysis of Kodak

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ABSTRACT

Why does an incumbent like Kodak, despite investing early in digital technology, still fail to create and capture value? We argue that Kodak's fate exemplifies a canonical paradox of digital transformation (DT) because its organisational identity, strategy, and technology imperatives were not aligned. While research in information systems, strategy, and organisation theory has long emphasised these three imperatives independently, we lack a DT-specific synthesis that explains how they become aligned or drift into misalignment. To address this gap, we reframe DT as a Design-Logic Alignment (DLA) problem. Based on a comprehensive review of DT research, we first develop a DLA framework that conceptualises DT as an ongoing process of aligning technology, strategy, and identity. We then identify a set of causal mechanisms that account for when and how such alignment or misalignment occurs and consolidate them in a summary table as a mid-range theoretical lens on DT. Finally, we apply the DLA framework in a qualitative meta-analysis of the extensive literature on Kodak, tracing distinct transformation modes, entry points across the three imperatives, and how the mechanisms manifest across episodes of its trajectory. Together, these contributions offer an integrated, multi-imperative process analysis and a more actionable diagnostic for understanding and managing DT success or failure.

Introduction

Why does an incumbent that invests early in digital technology still fail to create and capture value? Kodak's fate has become the canonical yet instructive paradox of digital transformation (DT). It developed digital technologies (e.g., early sensors, digital cameras, Photo CD); it experimented with new business models (e.g., Ofoto/Kodak Gallery and later the inkjet pivot); and it framed itself primarily as a physical asset company with an emphasis on photographic film and printing. These activities show that Kodak considered three DT imperatives simultaneously: which *technologies* to develop, which *strategies to serve*, and how to project a clear *identity* to relevant stakeholders. By imperatives we mean *the domains of concern that demand leadership focus and resource allocation during specific phases of a company's evolution*. Imperatives are interlocking and shifting, as the company moves through different stages

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of digital maturity, engaging with a different set of technological standards and practices, as well as a set of ecosystem actors that grow around those standards and depend on them. Historical evidence shows that Kodak's imperatives became misaligned over time, leading to its collapse.

Research on DT has highlighted the importance of the three imperatives of strategy, technology and identity, yet often places sole emphasis on one of them. This provides an explanation for why studies viewing the same case can reach different explanations. IS research, for example, has emphasized the role of layered, modular architectures and boundary resources in shaping the recombination of modular technological components and accelerating innovation (Hanseth and Lyytinen, 2010; Henfridsson and Bygstad, 2013; Tilson et al., 2010; Tiwana et al., 2010; Yoo et al., 2010). Strategy research has traced how business model choices direct digital effort across products and services, platform markets, and data network effects (Bharadwaj et al., 2013; Hagi and Wright, 2020; Iansiti and Lakhani, 2020; Jacobides et al., 2018; Van Alstyne et al., 2016). Finally, organizational research shows how framing the category and market domain within which an organization can differentiate itself helps signal to relevant stakeholders what is "central, distinctive, and enduring" about the organization (Albert and Whetten, 1985; Dremel et al., 2017; Gioia et al., 2000; Ravasi and Schultz, 2006; Tripsas, 2009).

Alignment among these imperatives has long been emphasized across the literature. IS research on strategic alignment argues that technology and business design must co-evolve and that misalignment is costly because it fragments investments and slows execution (Benbya et al., 2019; Gerow et al., 2014). Henderson and Venkatraman (1999) align business and IT along two axes: strategic fit between external and internal arrangements, and functional integration between business and technology. We will return to this influential framing in Section 4, as it has organized the alignment literature ever since. Strategy work highlights alignment of interdependent choices and partners in ecosystems, where value depends on fitting a firm's choices to those of complementors and to a shared architecture of roles and bottlenecks (Adner, 2017). Identity scholarship shows how leaders manage identity-strategy alignment to legitimate change, translating new directions into credible category claims that employees and external audiences accept (Ravasi and Phillips, 2011). Related managerial work also notes that operating models, decision rights, and metrics must be aligned with the target digital logic for benefits to materialize (Ross et al., 2019; Weill and Woerner, 2018). These dyadic accounts are largely static and cross-sectional. They identify a misalignment state but do not explain the process by which misalignment across all three imperatives simultaneously compounds, propagates, and resists resolution over time.

Hess and Graf (2026) have recently connected this literature to work on IS/IT-enabled organizational transformation (ITOT) (Besson and Rowe, 2012), showing that digital change alternates between relatively stable phases and open phases in which a firm's deep structure, including its business model, IT architecture and organisational identity, is opened to question. They also observe that an open phase need not move all of these together, and it is the consequences of that unevenness that concern us here. Recent reviews likewise find that IS accounts of DT rely on linear or weakly specified process models (Wiener et al., 2025).

We know all three imperatives matter for DT, but what we do not know is *how* misalignment between them can produce negative outcomes such as high visible digital activity, but with negligible change in architecture. We also do not know through what mechanisms resolving one dyadic misalignment is re-absorbed by the remaining frictions. This is not a question that existing alignment frameworks can answer because it requires a three-way configurational account of the dynamic process. We reframe DT as a design-logic alignment (DLA) problem. In doing so, we first build on our cross-disciplinary synthesis of DT literature through which we surface the three dominant imperatives (technology, strategy, identity). We then focus on the process by which these imperatives align or not. Our key objective is to theorize the DT paradox as a problem of DLA: despite intense investments in digital technologies, firms may fail to achieve their key objectives if they do not align the three imperatives.

Empirically, we revisit the infamous Kodak case as a series of bounded episodes, triangulating archival materials already used in the literature. For each episode, we examine how architectural choices interfaced with the emerging ecosystem, how the company strategically positioned itself vis à vis its competitors, and how senior leaders framed the firm's identity in the marketplace. This allows us to identify which imperative was the primary entry point for transformation in a given period, and which mechanisms were most active, helping us theorize why Kodak made particular choices regarding its DT. We observe four analytical transformation modes that recur in the historical record: (a) contained integration (digital in place), (b) parallel build (a separate digital unit), (c) sandboxed piloting (isolated experiments), and (d) legacy continuity (incremental change under the dominant logic). Organizations may occupy these modes for a period and shift as technology configurations, strategic adaptations, and identity frames change. In Kodak, we trace such modes and shifts over time, without assuming a linear stage model.

Specifically, we demonstrate that Kodak's challenges were not due to a single factor but to a cascade of misalignments across different imperatives. Unlike analyses that focus primarily on internal resistance (e.g., Lucas and Goh, 2009), our framework exposes the destructive interplay between imperatives. A deeply entrenched film-first identity steered adjacent strategies (e.g., inkjet) that reinforced the print paradigm, while proprietary, tightly coupled architectures sat at odds with a modular, ecosystem-oriented digital market. This interplay helps explain why substantial digital investment and patenting did not translate into a viable digital business.

We contribute to research on information systems strategy (ISS), and specifically to the alignment tradition within it, in three ways. First, we develop a DLA framework that conceptualises DT as an ongoing process of aligning technology, strategy, and organisational identity. Second, we identify a set of causal mechanisms that explain when and how such alignment (or misalignment) occurs, and we consolidate these mechanisms as a mid-range theoretical lens on DT. Third, by applying the DLA framework to the seminal case of Kodak, we show how different entry points across the three imperatives give rise to distinct transformation modes and how the identified mechanisms manifest across episodes. Our work goes beyond simply adding another alignment construct to the literature, but rather, we specify the conditions under which alignment fails to translate into transformation. Prior alignment research assumes that achieving fit yields performance benefits; our analysis shows that even visible alignment efforts can stall when mechanisms such as key performance indicator (KPI) drift and interface lock-in prevent alignment from traveling across imperatives. This shifts the focus

from alignment as a state to alignment as a blocked or enabled process. Together, these contributions articulate a multi-imperative perspective that demonstrates impact beyond single imperative explanations by offering both a sharper analytic lens for scholars and a more actionable diagnostic for incumbents confronting their own “Kodak moments.” In doing so we speak to two literatures at once. The distinction between DT and ITOT is normally drawn by the intended scope of change, yet an episode launched as transformation may be delivered as incremental adaptation when the three imperatives fail to move together.

Mapping the multiplicity of imperatives in DT

In this section, we unpack our comprehensive review of the literature on DT. Our aim is to make visible the multiplicity of perspectives that scholars emphasize when explaining DT. Rather than cataloguing phenomena or privileging one disciplinary lens, we synthesize recurring imperatives discussed across fields and show how they jointly inform DT theorization. This stance aligns with recent calls to integrate perspectives in IS and adjacent disciplines (Grover and Lyytinen, 2023; Yoo et al., 2024). By doing so, we provide a robust, evidence-based foundation for the multi-imperative framework that will be used later in this paper to offer critical analysis of DT phenomena, such as the widely studied case of Kodak, particularly when compared to influential prior analyses like that of Lucas and Goh (2009).

Method for framework development: A cross-disciplinary review

Because DT sits at the intersection of multiple conversations (Ashrafi et al., 2025; Tarafdar and Davison, 2018), we searched within and between IS for relevant studies. The selection of journals is motivated by extant literature where DT research is intertwined with different scientific streams from IS (Nambisan et al., 2017; Yoo et al., 2010), management (Hinings et al., 2018; Tan et al., 2020), strategy (Andal-Ancion et al., 2003; Foss and Saebi, 2017; Nambisan, 2017) and innovation (Nambisan et al., 2019). Using the query “digital AND (transform OR disrupt*)”, we queried Web of Science and Scopus, screened titles, abstracts and keywords, and supplemented the results with forward and backward citation tracing. After removing duplicates, excluding papers in which DT was merely peripheral, and adding manually identified highly cited studies, the corpus comprised 160 articles. These span flagship journals including *MIS Quarterly*, *Information Systems Research*, *Strategic Management Journal*, *Academy of Management Journal* and *Research Policy*. Full data collection and analysis procedures are provided in Appendix A¹. Our review meets three criteria for comprehensive synthesis (Paré et al., 2015; Webster and Watson, 2002): (1) it spans conceptual traditions within and beyond IS, (2) it balances recency with canonical influence, and (3) it uses structured inclusion and exclusion criteria to reduce bias. These steps ensure our framework reflects breadth of DT theorization and prepare the ground for our subsequent lens on how these imperatives fit or misfit in practice.

Synthesis of the findings: Three imperatives on DT

Building on a cross-disciplinary review of DT research across IS, strategy, entrepreneurship, organization theory, and innovation (e.g., Appio et al., 2021; Cennamo et al., 2020; Kretschmer and Khashabi, 2020; Möhlmann et al., 2021; Nambisan, 2017), we surfaced three recurrent imperatives: *technology* (focusing on technological standards, components and infrastructures), *strategy* (focusing on business models for value creation and capture), and *identity* (placing emphasis on the core, distinctive, and enduring values of an organization). We conceptualize these as sources of alignment or (mis)alignment in a DT initiative. Thus, our aim is to clarify what each imperative brings into view, why it matters for DT, and where its boundaries lie. As defined earlier, imperatives refer to *the domains of concern that demand leadership focus and resource allocation during specific phases of a company's evolution*. Imperatives are not static. Rather, their urgency shifts as a company moves through different stages of digital maturity. Further, imperatives are interlocking. A company cannot successfully implement a platform business model (strategy) if the modular architecture (technology) is broken, and neither will matter if the values of the company around protecting the user experience (identity) do not resonate with the market. Keeping the three imperatives analytically distinct is a staging decision that allows us to build a clear base for the process explanation that follows. In practice, most DT episodes implicate more than one imperative simultaneously.

Technology imperative

The technology imperative explains the role of standards, components and infrastructures in enabling (or constraining) change. IS research highlights layered, modular designs and boundary resources (i.e., standards, application programming interface (API), software development kit (SDK)) that allow capabilities to be recombined and extended across products and organizations (Hanseth and Lyytinen, 2010). It draws on design and modularity principles to argue that components can be recursively decomposed and re-

¹ The three imperatives emerged from a two-stage coding process applied to the full corpus. In the first stage, each article was open-coded for the primary explanatory logic it invoked to account for DT success or failure. This produced a range of first-order themes including architectural choices, business model design, identity narratives, leadership and sensegiving, practices and routines, and dynamic capabilities. In the second stage, we grouped these themes into higher-order clusters based on their shared theoretical origins and explanatory function. Technology, strategy, and identity emerged as the three clusters with consistent, mutually distinct explanatory coverage across the corpus. Other potential dimensions, notably practices/routines and people-level factors such as resistance and change promotion, appeared recurrently but were situated within the higher-level imperatives we identified. For instance, routines operationalize identity and strategy; leadership behaviour enacts the identity imperative. We therefore treat them as dimensions within the three imperatives rather than as independent imperatives.

aggregated, reducing complexity and increasing flexibility through standardized interfaces (Baldwin and Clark, 2000; Hanseth and Lyytinen, 2010; Parnas, 1972; Schilling, 2000). This view makes visible issues that are often hidden in strategy narratives such as interface stability, data interoperability, technical debt, and the costs of coupling new services to legacy cores. Recombination and scale depend on these seemingly mundane design choices; without stable interfaces and modular decomposition, digital initiatives remain edge systems that are expensive to integrate and easy to abandon (Henfridsson and Bygstad, 2013; Henfridsson et al., 2014; Kallinikos et al., 2013).

Recent streams extend the lens to contemporary components such as machine learning services assembled as modular elements within larger IS (Berente et al., 2021; Ge et al., 2021; Jain et al., 2021; Jussupow et al., 2021; Kokkodis, 2021; Malgonde et al., 2020; Sturm et al., 2021), and to distributed ledgers as data/incentive architectures (Beck et al., 2018; Lacity et al., 2019; Lumineau et al., 2021). These streams surface new coordination challenges such as human-machine augmentation, future of work implications, and changing expertise boundaries that tie technology back to identity and organizational roles (Fügener et al., 2021; Lebovitz et al., 2021; van den Broek et al., 2021). Architecture, however, is never purely technical. Openness without governance can create reliability and accountability problems, and best practice modularity may be constrained by regulation, certification, or asset specificity (Baptista et al., 2020; Hurni et al., 2022).

Strategy imperative

The strategy imperative explains how firms create and capture value as they digitize through product/service models, platform orchestration, and data-driven learning, and how those choices are resourced and measured (Baskerville et al., 2019; Bharadwaj et al., 2013). It directs attention to business model design, KPI regimes, capital allocation, pricing and bundling, complementor management, and the time horizons over which payoffs are evaluated. A core assumption is that DT becomes possible through specific business model choices and dynamic capabilities that reconfigure resources as environments shift (Karimi and Walter, 2015; Pavlou and El Sawy, 2011; Singh et al., 2011; Svahn et al., 2017; Tai et al., 2019; Teece, 2007; Warner and Wäger, 2019).

Firms pursue product and service models oriented to supply-side scale (Chanas et al., 2019; Zhu and Furr, 2016), platform models that harness demand-side network effects and ecosystem orchestration (Cennamo and Santaló, 2019; Jacobides et al., 2018; Van Alstyne et al., 2016), or data-aggregation and AI-enhanced models that scale learning and personalization (Bharadwaj et al., 2013; Correani et al., 2020; Gregory et al., 2021; Hagiú and Wright, 2020). Many incumbent failures are not about missing opportunities to invest in new technology, but about trying to make new mechanisms serve old unit economics. A platform or service model cannot flourish under a scorecard that rewards margin preservation and penalizes cannibalization (Iansiti and Lakhani, 2020). Business model redesign is not, however, a matter of implementing new technology. Firms can make extensive technology investments, yet lack the bargaining position to incentivize partners and convince customers to adopt their new business models; asset intensity and regulation can also narrow what is feasible even when leadership signals intent (Hagiú and Wright, 2015; Hess et al., 2016; Khanagha et al., 2020; Nambisan et al., 2019; Paschen et al., 2020; Sambamurthy et al., 2003).

Identity imperative

The identity imperative explains how central, distinctive, and enduring organizational values legitimate or delegitimate particular forms of digital change (Albert and Whetten, 1985; Gioia et al., 2000). It foregrounds the stories firms tell about who they are and what business they are in, and how those stories align with (or stand in the way of) technological and strategic choices. Large, visible shifts (e.g., opening interfaces that enable partners, or flipping KPIs) rarely happen without an identity frame that makes those trade-offs acceptable to employees, boards, and external audiences (Constantinides et al., 2026). Absent such legitimation, organizations exhibit selective enactment or symbolic compliance despite visible investments (Brock and Von Wangenheim, 2019; Dremel et al., 2017; Ravasi and Schultz, 2006; Tripsas, 2009).

Leadership, therefore, plays a sensemaking and authorizing role, reframing identity trajectories, creating new roles such as chief digital officer, and translating digital visions into tangible targets (Baptista et al., 2020; Bernardi and Exworthy, 2020; Gupta and Misangyi, 2018; Mithas et al., 2011; Sousa and Rocha, 2019; Tumbas et al., 2018). In short, identity directs attention to how meaning-making and legitimacy shape the feasibility of transformation and to the institutional barriers that can arise when deeply rooted values meet digital technologies (Ansari and Krop, 2012; Bouchikhi and Kimberly, 2003; Lucas and Goh, 2009; Utesheva et al., 2016; Vial, 2019; Wessel et al., 2021).

To summarize, these three imperatives are co-enacted as organizations move through periods of digital maturity. Keeping them separate here is done for analytical purposes. In the next section we bring them together to theorize how they interact dynamically during transformation.

From Imperatives to the alignment problem

Before proceeding, we clarify our use of the term “logic” in DLA. In the context of design theory, “logic” refers to the underlying design rationale that governs how an organization configures its technology, organizes its strategy, and frames its identity. This is distinct from the neo-institutional definition of competing institutional prescriptions (Faik et al., 2020). DLA examines whether the design rationales within each imperative are mutually coherent; misalignment occurs when these rationales pull in different directions.

Across the literature, a recurring puzzle is not whether firms invest in digital, but why so much visible activity still fails to translate into organizational and business model change. Reviews and executive surveys alike note stalled transformations and partial progress despite heavy investment (e.g., Sebastian et al., 2023; Verhoef et al., 2021). Existing alignment frameworks explain performance differences when alignment is achieved. They are less equipped to explain why alignment efforts repeatedly fail in contexts of

technological discontinuity. In a seminal paper, [Henderson and Venkatraman \(1999\)](#) established that no domain can be managed in isolation and that alignment must be sustained rather than achieved once, and their limit, for our purposes, is that neither axis refers to what the organisation takes itself to be. A firm can therefore satisfy the model in full while its identity renders the resulting position as one it cannot credibly claim, which is close to the condition Kodak occupied across the episodes we analyse.

We frame this as a DLA problem because DLA can address this gap by specifying how alignment attempts are systematically redirected back toward legacy logics through identifiable mechanisms. We introduce DLA as our proposed framework, which synthesises insights from strategic alignment ([Benbya et al., 2019](#); [Gerow et al., 2015](#)), identity-strategy alignment ([Ravasi and Phillips, 2011](#)), and the design rules of building technological systems ([Baldwin and Clark, 2000](#)). The “design” in DLA refers to the choices embedded in a firm’s technology architecture (i.e., the interfaces, modularity decisions, and data practices) that reflect an implicit logic about how value will be created and by whom ([Arthur, 2009](#)). The “logic” refers to the coherence of that design rationale across all three imperatives: whether the architectural design, the strategic value, and the identity frame are mutually reinforcing. It has to be noted that coherence and alignment are not the same thing. Three imperatives can share a rationale that is entirely consistent and entirely obsolete. We therefore define alignment as coherence with respect to a specified design logic, and distinguish coherence around the incumbent logic from coherence around the emerging one. DLA therefore goes beyond conventional alignment frameworks which typically focus on IT-business fit, by insisting that architectural choices carry a design logic that can be compatible or incompatible with strategy and identity. Digital initiatives travel beyond pilots when architecture, strategy and identity re-cohere around the emerging logic, and they stall when the pull of the incumbent logic returns them to it.

Because coherence can form around either logic, the framework has three states rather than a simple opposition between alignment and misalignment. In legacy coherence all three imperatives share the incumbent rationale. Such a firm can be stable and highly profitable while being the least able to move. Nothing inside it registers a problem, and imperatives that already agree will resist any one of them changing. Transitional misalignment begins when an imperative starts to move toward an emerging logic and the others hold. This is the state our mechanisms operate in. It is also where the distinction between a dyadic conflict of one pair and a compound conflict of two or more becomes useful. Only when all three settle around the emerging logic does the firm reach transformative coherence. Digital transformation is then the passage from the first state to the third by way of the second. Transitional misalignment is therefore not a defect but a precondition of change. A firm that never leaves legacy coherence never begins. Failure on this account is not an absence of coherence but a return from transitional misalignment to the state the firm started in, which we call false closure.

One clarification is worth mentioning here. DLA is configurational in theoretical orientation, since outcomes depend on how the three imperatives combine rather than on any one of them ([Furnari et al., 2021](#); [Park et al., 2020](#)). What attention to design logic adds is the content of the combination in the sense that each imperative carries an implicit rationale about how value is created and by whom ([Baiyere et al., 2025](#)). Therefore, a change in one is re-absorbed when the others cannot make sense of it. Following this logic, we conduct a processual qualitative meta-analysis of a single trajectory rather than a set-theoretic comparison across cases, because our question is when and why a combination shifts rather than which combinations are associated with an outcome. [Figure 1](#) illustrates our framework, which we elaborate below.

On the architectural side, IS research shows that the way a firm structures its technology, whether through layered, modular designs with boundary resources such as standards, APIs, and SDKs, or through tightly integrated enterprise and supply chain architectures, shapes what kinds of strategic and organisational change are feasible ([Baldwin and Clark, 2000](#); [Henfridsson and Bygstad, 2013](#); [Strong and Volkoff, 2010](#); [Yoo et al., 2010](#)). Yet many incumbents do not operate modular architectures. Enterprise resource planning (ERP) systems, for instance, embed cross-functional process logic into a single integrated package that delivers operational consistency and real-time visibility, but also imposes structural constraints on how an organisation can change ([Strong and Volkoff, 2010](#)). Misfit between the logic encoded in such systems and the organisation’s evolving requirements can span functionality, data, roles, and control structures, making even incremental adaptation costly ([Strong and Volkoff, 2010](#)). Similarly, vertically integrated manufacturers often build proprietary technology stacks that tightly link product design, production control, and distribution, creating

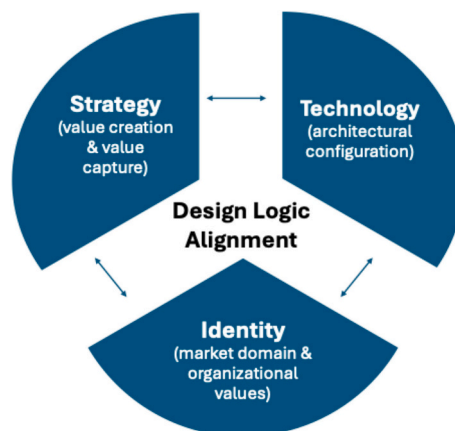


Fig. 1. The design-logic alignment framework

physical-digital interdependencies that constrain which digital initiatives are feasible (Svahn et al., 2017). In supply chain contexts, digitally enabled integration across partner firms yields performance gains, but the shared IT infrastructure and process coupling that enable coordination also create mutual dependencies and governance challenges that are difficult to reconfigure (Rai et al., 2006; Yeow et al., 2018). Digital platform studies add a further configuration in which boundary-resource design and control choices condition who can contribute and how quickly external actors can couple to the platform (De Reuver et al., 2018). Ecosystem research argues that as such configurations scale, complementors self organise into coalitions that can accelerate innovation but also strain integrity unless access rules and governance policies are tuned (Baldwin et al., 2024; Engert et al., 2025). Across all these configurations, whether ERP-centred, supply chain integrated, vertically proprietary, or platform-based, the architectural choices a firm makes encode assumptions about where value will be created and by whom, and those assumptions may or may not be compatible with the firm's strategic direction.

However, misalignments are always lurking. In platform and ecosystem contexts, interfaces and data schemas designed to protect margins or keep complements in-house create structural friction for strategies that require openness and reuse (De Reuver et al., 2018; Tiwana et al., 2010). In enterprise system centred firms, the misalignment often takes a different form. ERP implementations encode standardised process flows and control structures that reflect the logic of the business at the time of deployment. When the strategic context shifts, for example toward digital services, data-driven personalisation, or partner-facing interfaces, the embedded logic resists adaptation because changing one process module cascades across the integrated whole (Strong and Volkoff, 2010). Bygstad (2017) describes this as a tension between heavyweight IT, the stable ERP and infrastructure backbone, and lightweight IT, the agile digital tools and mobile applications that organisations layer on top, arguing that the two must remain loosely coupled if digital innovation is to flourish. In vertically integrated manufacturers, the challenge is compounded by physical-digital interdependencies: production control systems, proprietary sensor networks, and legacy automation are wired into factory floors and supply chains in ways that cannot be reconfigured without disrupting operations (Svahn et al., 2017). When strategy shifts toward servitisation or ecosystem participation, these architectures become constraints because they were designed for end to end product control, not for exposing capabilities to partners or delivering usage-based digital offerings (Kohtamäki et al., 2019). In supply chain settings, shared IT infrastructure and process coupling between partners create relational value but also lock-in, in the sense that reconfiguring interfaces or migrating to new data standards requires coordinated action across firms with different incentives and investment horizons (Rai et al., 2006; Yeow et al., 2018). Because architectural choices shape which strategies can scale and which become bottlenecks across all these configurations, misalignment between architecture and strategy is not unique to any single technology paradigm (Baldwin et al., 2024).

A second misalignment often arises between architecture and identity. When openness is framed as loss of control or brand dilution, firms deliberately narrow external access or delay standardisation, undermining ecosystem growth (Bohnsack et al., 2024; Gawer, 2021). In enterprise system centred and manufacturing firms, the pattern manifests differently but with similar consequences. Organisations whose identity is anchored in operational excellence, product quality, or reliability often treat their integrated architectures as embodiments of those values. ERP customisations, proprietary manufacturing processes, and dedicated supply chain linkages become part of what defines the organisation, so proposals to standardise, open, or modularise them are experienced as threats to what the firm stands for (Soh and Sia, 2004; Svahn et al., 2017). Alignment on this dimension typically looks like architectural configurations, whether modular, selectively integrated, or partner-facing, that support the firm's strategic direction, with explicit governance so that reconfiguration is both technically feasible and strategically acceptable (Constantinides et al., 2026).

On the strategy side, business model choices (i.e., product/service, platform, and data-learning) require distinct performance measures that steer where investments are made (Bharadwaj et al., 2013; Cennamo, 2021; Hagi and Wright, 2020; Jacobides et al., 2018; McIntyre and Srinivasan, 2017; Van Alstyne et al., 2016). In platform contexts, early user adoption and the growth of complements are reliable signals that network effects are strengthening; focusing narrowly on unit margins can mislead managers about platform health, because competitive advantage depends on cross-side participation and complement expansion (Cennamo, 2021; McIntyre and Srinivasan, 2017). In product- or asset-focused firms, analogous tensions arise when digital strategies demand measures centered on customer lifetime value, usage based pricing, or ecosystem engagement, while the incumbent scorecard prioritizes asset utilization, gross margin per unit, or channel volume (Sjödin et al., 2022).

As firms adopt new digital strategies, whether platform-based, data-driven, or digitally enhanced product/service models, they must introduce strategy-relevant measures and faster information flows. Yet legacy architectures, whether modular or tightly integrated, often lack the interfaces, data access, and monitoring capabilities needed to coordinate interdependent activities and resolve bottlenecks, so the strategy outpaces what the architecture can support (Bharadwaj et al., 2013; De Reuver et al., 2018; Jacobides et al., 2018). Another common misalignment is between strategy and identity. When firms plan to transition customers from legacy products to digital alternatives, they often evaluate progress through the narrow lens of short-term legacy financial performance. This perspective makes innovative strategies, such as platform or service-based models, seem excessively risky or inconsistent with the existing brand. Such evaluations lead to hesitation at the precise moment when the organization needs to build commitment to its new direction (Cennamo, 2021; Iansiti and Lakhani, 2020; Navis and Glynn, 2010). To achieve alignment, firms need to revise their strategic performance measures to accommodate their chosen architectural configuration, while tracking customer adoption and employee learning (Ross et al., 2019; Weill and Woerner, 2018). Firms also need to align these strategic performance measures and manage their product and service portfolio while accommodating the identity frames of their business-unit and technology leaders (Ross et al., 2019; Springer et al., 2025; Wessel et al., 2021).

On the identity side, organization research shows that a firm's identity about what business it is in and how things are done, authorizes some changes and blocks others, and leaders use sensegiving to make difficult trade-offs acceptable to employees and external audiences (Albert and Whetten, 1985; Gioia et al., 2000; Ravasi and Schultz, 2006). Organizational identity can enable or

constrain architectural reconfiguration and changes to what the firm measures and rewards, especially when new models require partnering with former rivals, moving customers away from legacy products, or accepting short-term revenue dips (Hanelt et al., 2021; Tripsas, 2009). This applies whether the firm sees itself as a vertically integrated manufacturer, a product innovator, or a platform orchestrator. In each case, the identity frame sets boundaries on what kinds of strategic and architectural change are considered legitimate.

A common misalignment arises between identity and architecture. In platform and ecosystem settings, organizations often narrow or delay shared interfaces, limit third-party access, or adopt standards in principle only, undermining the mechanisms that allow ecosystems to grow (Gawer, 2021; Ravasi and Schultz, 2006; Wessel et al., 2021). In vertically integrated or product-focused firms, we face a completely different pattern. A deeply held identity as a full-stack or end to end provider can prevent the selective modularization or partnering that a digital strategy requires (Svahn et al., 2017). As ecosystems or value chains evolve, coordination and access rules must be adjusted; otherwise rigidities form that push leaders to reconcile the desired degree of openness or integration with what their identity can accept (Engert et al., 2025). Another recurring misalignment sits between identity and strategy. Efforts to change what success means and to lengthen decision time horizons often stall without a credible reframing of what business an organization is in. When the narrative stays anchored in the old business category, change talk outpaces resource movement and updates to what gets tracked and rewarded (Hanelt et al., 2021; Kaplan, 2008; Navis and Glynn, 2010). Alignment can be achieved when a renewed business category follows architectural configurations, new strategic performance regimes and customer migration. Leaders can then back the new frame with visible signals such as renaming units, reframing the firm for analysts, and keeping CEO messaging consistent across cycles, which helps translate the narrative into architectural and strategy moves (Wessel et al., 2021).

DLA is dynamically unfolding over time. In practice, alignment work shows up in different ways. It can involve shifting budgets and talent toward the digital path rather than shielding the legacy business (Baik et al., 2025; Jiang et al., 2025; Oberländer et al., 2021). DLA can also highlight who holds authority to initiate and fund product, data and platform decisions and how performance is defined and reviewed, so services are not judged by legacy margins. Finally, it can also involve reframing a firm's narrative about what business it is in, so relevant stakeholders see the digital path as normal and necessary. Recent studies highlight distinct identity implications across DT pathways (Graf et al., 2023; Hanelt et al., 2021; Wessel et al., 2021), trace identity misalignment (Keilbach et al., 2023), and show that identity can either mobilize change or entrench inertia (Tinjan, 2025; Tripsas, 2009).

Therefore, our proposed approach sees multiple entry points in DT. Technology-led entries typically activate architectural adjustments first; strategy-led entries activate KPI and decision regimes first; identity-led entries activate legitimation first. Subsequent movement depends on how alignment evolves over time. In applying the framework to Kodak, we will read each historical episode with these three entry points in mind: (a) architecture decisions on interfaces, modularity, and data; (b) strategy decisions on value creation and capture; and (c) identity frames around the market domain and organizational values of the firm, to better understand the alignment within the DT process.

A qualitative meta-analysis of the Kodak case literature

The DLA framework provides a mid-range theoretical lens (three imperatives and their dyadic interactions) that we apply to our meta-analysis to start with. We then perform abductive theorizing by reconciling divergent accounts across the Kodak corpus, surfacing the specific mechanisms through which misalignment manifests and compounds across episodes, and constructing a processual analysis of how these mechanisms activate, co-occur, and drive transitions between transformation modes.

Kodak was the dominant leader in the photography and film industry for over a century, pioneering major innovations in cameras (like the \$1 Brownie in 1900, which democratized photography for women and children previously excluded), photographic film, and processing services, among others (Adner, 2021; Randall, 2011). It built a powerful identity around the Kodak moment, associating its brand with American family life through innovative marketing that framed photography as a universal form of communication (Olivier, 2007). Its strategy relied heavily on a highly profitable “razor and blades” model – selling inexpensive cameras like the Brownie to drive ongoing, high-margin sales of film, paper, and chemicals (Randall, 2011) – within a tightly controlled, vertically integrated technology architecture requiring complex manufacturing processes that created high entry barriers (Shih, 2016). While the company was successful in this model for almost a century, it failed to adapt to the challenges and opportunities posed by digital disruption in the photography industry (Kaplan and Henderson, 2005; Tripsas and Gavetti, 2000).

Kodak serves as a classic case (Yin, 2018) for three reasons. First, it is the most extensively documented instance of DT failure in the IS and strategy literature, providing a multi-source corpus of evidence for an in-depth qualitative meta-analysis. Second, its trajectory spans five distinct episodes that capture different transformation entry points and modes, allowing longitudinal tracing of mechanism activation. Third, it functions as a canonical reference point in DT scholarship, so our reanalysis can be directly compared to influential prior accounts (e.g., Lucas and Goh, 2009; Tripsas and Gavetti, 2000). While Kodak is a canonical case, the mechanisms we identify are not unique to this context. They reflect recurring organizational responses to technological discontinuity, suggesting that the value of the case lies not in its uniqueness but in the visibility of these underlying processes. The framework's portability beyond Kodak is demonstrated through the comparative illustrations in Section 4.1. Below we explain the stages in our meta-analysis of Kodak, while integrating the three imperatives within the DLA framework through our cross-disciplinary literature review.

Stages in the meta-analysis

Qualitative meta-analysis is an exploratory approach aimed at reinterpreting and synthesizing primary qualitative case studies to refine existing theories or generate new ones (Habersang et al., 2019). A qualitative meta-analysis treats the rich, contextualized

empirical descriptions within previously published case studies as primary data for a new, theoretically driven re-analysis (Berente et al., 2019). The goal is to achieve a level of understanding that transcends the results of the individual studies. A meta-analysis allows us to reconcile divergent empirical accounts to provide a more robust and comprehensive conclusion (Habersang et al., 2019). Our method follows a structured, four-stage process to ensure a systematic and replicable analysis (Habersang and Reihlen, 2024).

Stage 1. Systematic search and sampling. The first step was to locate all relevant case studies on Kodak's organizational failure in the digital era. We conducted a comprehensive search of academic databases, including Web of Science (WoS), Scopus, and Google Scholar, using a combination of keywords. Given that our research focused specifically on Kodak, our keywords included "Kodak failure," "Kodak" AND "digital transformation," "Kodak" AND "disruptive innovation," "Lucas and Goh" (to find papers that cite this seminal work), "Eastman Kodak" AND "bankruptcy". To ensure comprehensiveness, this keyword search was supplemented by snowballing, which involved a forward and backward citation search of all identified articles to uncover additional relevant studies (Berente et al., 2019).

Stage 2. Manual filtering and selection. After the initial search, we applied rigorous inclusion and exclusion criteria to build a high quality sample for analysis. We included only qualitative case studies or in-depth analyses that focused on Kodak's response to the rise of digital photography. Each included paper had to provide sufficient descriptive detail including quotations, historical context, and accounts of strategic decisions to allow us to code its arguments according to our three imperative framework. This ensured the data were rich enough for reinterpretation. We then excluded articles where Kodak was only mentioned in passing, purely financial analyses lacking qualitative detail, and brief news reports without significant analytical content. We also excluded quantitative studies or literature reviews that did not present new case data. This filtering process ensured that the final sample consisted of comparable and methodologically appropriate studies suitable for a qualitative meta-analysis (Rauch et al., 2014). Because qualitative meta-analysis relies on prior interpretations, a key risk is reproducing dominant narratives in the literature. To mitigate this, we explicitly compared conflicting accounts across sources and coded not only convergent explanations but also points of disagreement. This allowed us to identify mechanisms that persist across divergent interpretations rather than privileging any single narrative. A comprehensive summary of the final sampled literature, detailing the primary contribution of each study and its relevance to our three imperative framework, is provided in Appendix B.

Stage 3. Data analysis via within-case and cross-case analysis. The core of our method lay in the data analysis, which followed an abductive process combining deductive and inductive reasoning. While our initial coding was deductively guided by our *a priori* three imperative framework, the analysis was fundamentally shaped by inductive theme coding. Specifically, we followed the principle of emergence, remaining open to what the data revealed without being constrained by our initial framework, and the principle of constant comparison, where new data from the case was continuously compared with previously analysed data to identify emerging concepts. This iterative process meant our framework was not treated as a rigid set of boxes to be filled. Instead, the most significant insights emerged inductively from this constant comparison. The critical importance of the interplay among the imperatives and the conditions under which a departure is re-absorbed was not a preconceived notion but a finding that emerged directly from the analysis of the case literature.

Accordingly, this stage began with a detailed within-case analysis of each individual Kodak paper (Shen et al., 2024). Our *a priori* coding scheme was deductively derived from our literature review as explained in Section 2, consisting of the Technology, Strategy, and Identity imperatives. We then systematically read each sampled paper and coded the authors' arguments and presented evidence into these three categories. For instance, when analysing the seminal work of Lucas and Goh (2009), we coded their arguments about the company's entrenched manufacturing culture and core rigidities under the *Identity* imperative, while their discussion of the razor and blades business model was coded under the *Strategy* imperative. Following the individual coding, the process moved to a cross-case analysis to identify patterns, similarities, and differences across the entire sample (Habersang et al., 2019; Rauch et al., 2014). This comparative process was facilitated by the use of case-ordered descriptive matrices, which systematically organized and compared the findings from each study.

To ensure the rigor of this synthesis, the data analysis was a collaborative process undertaken by the research team. The coding unit was the text segment, defined as a passage in which an author advances an interpretive claim about Kodak's technology architecture, strategic logic or organisational identity within a specified period. Both authors independently coded five of the twenty sampled studies. They then compared coded segments, discussed divergent readings and agreed a common application of the definitions. The remaining fifteen studies were coded by the first author and reviewed by the second. Any disagreement was brought to the full author team and resolved by returning to the original case evidence and to the definitions established in Section 2, and no coding was retained until all authors concurred. Where a passage supported more than one defensible reading we recorded both and treated the divergence as data, consistent with our aim of reconciling conflicting accounts rather than privileging any single narrative. Alignment and misalignment were coded using a structured four-questions protocol applied to each episode. (a) Does the architectural configuration support or constrain the strategic logic operative in this period? (b) Does the strategic logic reinforce or undermine the identity frame? (c) Does the identity frame legitimate or block the required architectural choices? (d) Which design logic do the imperatives cohere around the incumbent one or the emerging one? Each episode was then coded to one of three states: legacy coherence, where all three imperatives still expressed the film and print rationale; transitional misalignment, where at least one had moved toward a digital rationale while the others held; and transformative coherence, where all three had settled around a digital rationale. Within transitional misalignment we recorded whether one pair or more than one pair was in conflict. The Design-logic state column in Table 2 reports, for each episode, whether the three imperatives were in legacy coherence or transitional misalignment. It also clarifies which dyads were in conflict and which mechanisms produced them. The episode narratives in Section 3.2 supply the supporting evidence. This allowed us to systematically compare where different analyses of Kodak converge and diverge.

Stage 4. Synthesis and theory extension. The final step was to synthesize the results of the cross-case analysis to demonstrate the analytical power of our framework. The goal of this synthesis was not simply to summarize the literature, but to build a new, more holistic theoretical interpretation. It allowed us to extend existing theory by proposing a configurational explanation in which Kodak's failure follows not from any single factor but from how the three imperatives held together around a legacy logic. Following these stages in our meta-analysis, we used our proposed DLA framework to extend beyond the insights of any single study and construct a deeper explanation of the Kodak fall.

Re-examining Kodak's transformation episodes through the DLA lens

Episode 1. Early digital sensing and prototypes (1970s - late 1980s). Kodak's entry into digital was clearly technology-led. Engineers like Steve Sasson invented the world's first digital camera internally as early as 1975 (Shibata et al., 2018). Kodak had navigated several advances in producing camera lenses, colour films, and even instant photo printing in direct competition with Polaroid (Adner and Kapoor, 2010; Ho and Lee, 2015). Kodak's own executives saw the bind early. As Don Strickland put it, "we developed the world's first consumer digital camera, but we could not get approval to launch or sell it" because of fear for the film franchise (Usborne, 2012, para. 13). Although photographic technologies evolved during this episode, the technological architecture remained essentially film-based, with Kodak largely in control of complex supply chains. This control was immensely profitable; for much of the 20th century, Kodak enjoyed gross margins of over 75% on its film sales (Vinokurova and Kapoor, 2023) and commanded a staggering 90% share of the U.S. film market and 85% of the camera market (Gavetti et al., 2004). While Kodak invested significantly in digital R&D throughout the 80s, these efforts were peripheral to the core film business (Shibata et al., 2022) and failed to shift the company's strategic trajectory or identity (Shih, 2016). Strategically, Kodak prioritized its immensely profitable film business (cheap cameras and high-margin film/processing), built on a razor and blades model and protected by high entry barriers due to complex chemical manufacturing (Clemen and Kwit, 2001) and a very tightly coupled architecture to support its print photography business (Clemen and Kwit, 2001; Grant and Baden-Fuller, 2004). Its identity was deeply intertwined with film and print quality. Early digital prototypes were viewed internally as crude, low-quality, and a distant threat, with estimates suggesting 15-20 years before market readiness (Vitton et al., 2014).

Top management focused on near term film profits in response to Fujifilm's growing competition, while downplaying or ignoring disruptive signals such as the 1979 spike in the price of silver (a key film ingredient), which raised viability concerns noted by rival Fujifilm, or Sony's 1981 Mavica announcement (which signalled a shift to semiconductor platforms and modularity) (Tsurumi and Tsurumi, 1999; Vitton et al., 2014). Simultaneous pressures, including intense film competition from Fujifilm, the Polaroid lawsuit, the Disc camera launch, and copier diversification, further diverted focus (Tsurumi and Tsurumi, 1999). This period shows a fierce misalignment in that, while the technological capability existed, strategy and identity remained rigidly anchored in the past, which prevented the necessary commitment to the nascent digital paradigm. Two dyads were therefore misaligned at once, a compound misalignment of the kind set out in Section 2.3, which is harder to resolve than either dyad on its own.

This period is best described as legacy continuity, while sandboxing digital experiments. In design-logic terms, this is transitional misalignment, since the technology imperative moved while strategy and identity held, and it resolved by returning to legacy coherence. Engineers pushed the digital technology forward, but the work stayed inside small teams and did not reach the main product lines. Kodak added digital components, notably CCD image capture and film to digital scanning, yet these remained peripheral and did not change how the company was organised or how it made money. Thus, the product setup still served film, success was still read in film profits, and Kodak still framed itself as a film and print firm. The new mechanisms circled the core rather than changing it. Moving past this point would have required open interfaces that let digital capture plug into mainstream offers, measures that tracked adoption and use rather than only film margins, and a reframed identity that made a digital imaging business feel legitimate.

Episode 2. PhotoCD, Kiosks and the digitization ecosystem (early-mid 1990s). Kodak attempted to bridge the analogue and digital worlds with PhotoCD, a technology initiative aimed at standardizing a capture to scan format (Shibata et al., 2022). The system leveraged Kodak's existing ecosystem by providing partner kits to photo labs, allowing film negatives to be scanned onto digital discs. While representing architectural progress in creating a digital format, the interfaces remained relatively controlled by Kodak, and the system was fundamentally designed to integrate with the existing film processing workflow, not replace it (Gavetti et al., 2004). Strategically, PhotoCD was framed primarily as a way to enhance the value of prints (creating digital negatives) rather than enabling widespread digital sharing or building a new independent digital ecosystem (Gustafsson and Autio, 2011; Kadiyali, 1996).

Thus, Kodak's broader digital strategy during this time often involved leveraging existing relationships with retailers and labs, for example through digital photography kiosks (Koen et al., 2011). This strategy, articulated by CEO George Fisher in the mid-1990s, explicitly assumed people would continue capturing pictures on film, with digital technology primarily serving to scan and print these images via kiosks, rather than replacing the film workflow entirely (Ma and Karri, 2005). However, performance measures remained anchored in print volume and quality, and software complements were treated as ancillary to the core film business (Randall, 2011). Kodak's identity also reinforced this print-centric approach, positioning digital as adding value to the traditional photographic experience by making film easier. Kodak was anchored in a deeply ingrained film-based mindset that viewed digital primarily as a means to enhance or supplement the existing print workflow, rather than replace it (Koen et al., 2011; Lucas and Goh, 2009; Ma and Karri, 2005). Although Kodak was previously successful in riding successive waves of technological disruption, it was now faced with a paradigm shift that was radically different from past disruptions. "This kind of reinvention, where you're faced with a technological discontinuity which has little in common with what you've been doing, you need to radically alter your mindset or worldview and emerge as a completely different company." (Munir, 2012, para. 30). Firms that successfully navigate such discontinuities often reframe their purpose and reconstruct their legitimacy, something Kodak failed to do. Kodak feared that changing its legacy business would lead to a

sharp change in the entire photography industry (Chan et al., 2019).

This resulted in a technically sound product that ultimately failed to create a significant new market or fundamentally alter Kodak's core business model (Lucas and Goh, 2009; Shibata et al., 2018). This episode exemplifies intensive pilot activity without core organizational reconfiguration, characteristic of what Gustafsson and Autio (2011) referred to as "inhibited emergence", where established structures and socio-cognitive constraints prevent a new technological field from fully developing. The learning from this failure likely improved the technical understanding within specific teams but did not translate into broader strategic shifts because success was evaluated against legacy business and film-based metrics, which prevented necessary changes in resource allocation mechanisms (Munir and Phillips, 2005; Tripsas and Gavetti, 2000). The ultimate failure of this strategic approach becomes undeniable when contrasted with the performance of its primary competitor, Fujifilm. As Figure 2 illustrates, while both firms faced an identical technological disruption, Fujifilm was able to adapt its strategy to ensure survival and growth, whereas Kodak's revenues entered a steep and irreversible decline. Fujifilm was successfully defending its home market and expanding globally using strategic innovations like mini-labs, which Kodak was slow to counter (Shibata et al., 2018; Tsurumi and Tsurumi, 1999).

This episode reflects a mode of contained integration. The three imperatives remained in legacy coherence throughout, since PhotoCD extended the print rationale rather than departing from it. Kodak attempted to bring digital components (e.g., PhotoCD scanning, kiosk printing infrastructure) into its core film workflow, but the integration was heavily bounded by the existing business logic. The digital components served the established film-based value chain rather than enabling a new one. While the technology offered new possibilities, the strategy (enhance print capabilities) and identity (film as central to the values of the firm) actively constrained them. Moving forward would have required interfaces designed for digital sharing ecosystems (not just print enhancement), performance measures tracking digital engagement and usage (not just print volume), and a reframed identity that legitimized digital imaging as a primary business, not just an adjunct to film.

Episode 3. The web era with Ofoto and EasyShare (late 1990s to mid-2000s). Kodak's next major push was strategy-led. Faced with the digital shift, Kodak essentially saw two paths. It could pivot the business toward digital capture and services, or it could keep the film core while adding complements around it (Wu et al., 2014). Although managers recognized how fast digital photography was overtaking film, they hesitated to make a full switch because doing so would unsettle a century-old ecosystem of film, processing, and retail partners (Johnson, 2012). Guided by Christensen's disruption logic, Kodak chose a blended route. It kept the film profit engine while introducing simple digital cameras and an online photo service so that digital activity would still lead back to prints rather than replace them (Christensen, 1997; Ho and Chen, 2018). Leaders also expected that slow PC adoption and limited bandwidth would buy them time, so a print-anchored path looked safer (Wu et al., 2014).

Kodak embraced an imaging strategy, acquired the photo-sharing site Ofoto (later Kodak Gallery) in 2001, and invested heavily in EasyShare digital cameras and docks. Kodak's market share in the U.S. rose, so on the surface, the strategy seemed to be working (Ho and Chen, 2018). Technically, Kodak assembled a working stack of capture, transfer, software, and an online gallery. However, underneath the digital push, the core business model and performance measures stayed print-centric, with Ofoto and EasyShare meant to support the old earnings logic rather than to stand on their own as a platform with adoption and engagement targets (Lucas and Goh, 2009; Shih, 2016). To be clear, "Kodak wanted to get into the digital business, but they wanted to do it in their own way, from Rochester and largely with their own people. That meant it wasn't going to work. The difference between their traditional business and digital is so great. The tempo is different. The kind of skills you need are different. Kay [Whitmore, President] and Colby [Chandler] would tell you they wanted change, but they didn't want to force the pain on the organization." (Lucas and Goh, 2009, p. 53). This reflected Kodak's struggle to adapt its highly successful, but now obsolete, razor and blades business model to the new digital reality.

The technology architecture reflected that choice. Kodak published formats and partner materials, but key interfaces tied the user journey back to labs and kiosks, so integration with external software and services remained controlled and often bespoke, which slowed outside contributions (Vinokurova and Kapoor, 2023). The corporate identity reinforced the constraint. Leadership language continued to define Kodak as a company that helped people make better prints, and digital was narrated as an enhancement to the traditional experience rather than a fundamental shift toward software, sharing, and services, reflecting a persistent film-based mindset and a culture of complacency (Gavetti et al., 2004; Munir, 2012). These three threads (i.e., print-first value logic, controlled interfaces, and a print-anchored identity) explain why activity was intense yet change to the core business was limited, despite significant investments. EasyShare and Ofoto produced many experiments and local improvements, but this learning flowed back into review routines that still prized print volumes and margins. Consequently, resource shifts necessary to build digital participation and complements did not follow, and internal conflicts between the legacy film division and the new digital unit persisted (Munir, 2012). This episode sits in a parallel build that remains tied to the legacy logic. It is the clearest case of transitional misalignment in the record, with strategy moving while identity and the interface architecture held. Kodak did produce distinct digital elements, but they ran in parallel to, and largely in service of, the print business rather than forming a new software and services core.

Episode 4. The inkjet pivot (mid-2000s). When Antonio Pérez was appointed as CEO in 2005, Kodak initiated a significant strategy-led pivot, shifting hard into consumer inkjet printing (Shibata et al., 2022). This pivot aimed to leverage Kodak's chemical expertise and manufacturing capabilities, aligning with its historical identity. Pérez sought to disrupt the printer market by innovating the business model with cheaper ink cartridges, hoping households would print more photos, thus rebuilding a familiar razor and blades engine (Koen et al., 2011). This approach exemplifies a common incumbent tendency. Facing disruption, Kodak's architecture, rooted in precedent technologies and procedures, hindered a truly adaptive response, making it harder to alter its fundamental business strategy away from established logics (Lucas and Goh, 2009; Rosenbloom and Christensen, 1994).

More importantly, this strategic pivot exhibited a significant design logic misalignment. It pulled digital investment back toward the familiar print logic just as photo consumption was decisively moving to screens, cloud storage, and social sharing (Anthony, 2016; Shibata et al., 2022). Customers increasingly valued digital camera features including multiple shots, retakes, editing, and easy

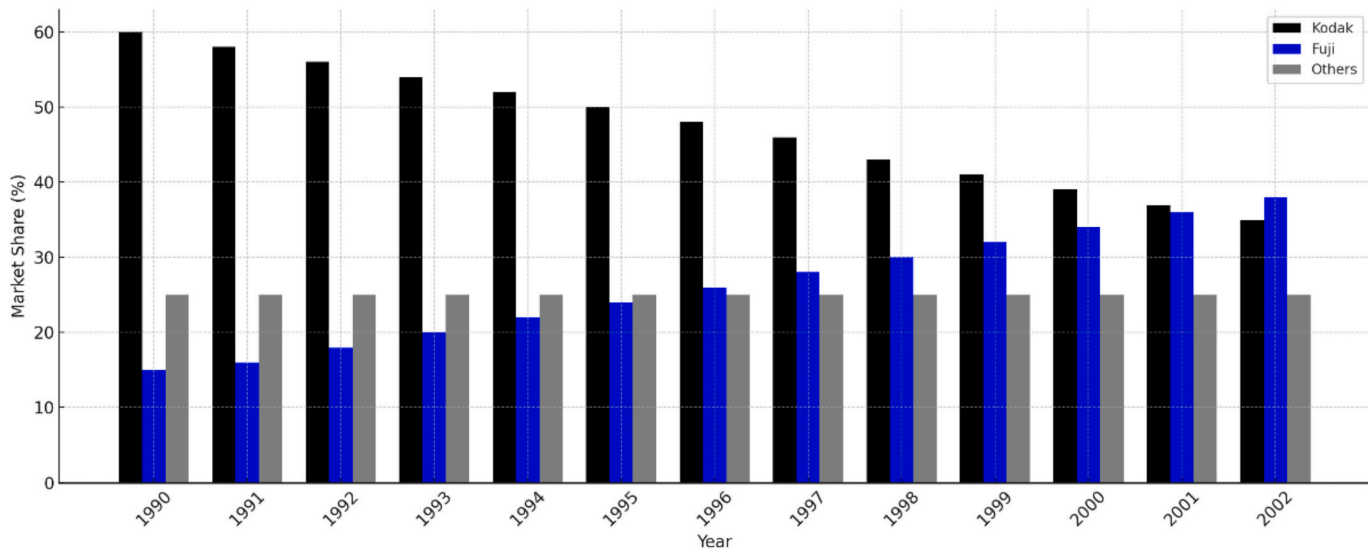


Fig. 2. Worldwide film market share between 1990-2002.

sharing, which print-centric models could not match (Ho and Lee, 2015; Osborne, 2012). The market's technology architecture had already shifted significantly towards modular systems due to the semiconductor platform, allowing new electronics entrants (e.g., Canon, Sony, HP) with different capabilities to rapidly gain ground and offer these valued digital functions (Adner and Kapoor, 2010; Ho and Lee, 2015; Shih, 2016). Kodak was attempting to apply its old business model logic in a market where the fundamental basis of value creation and the competitive landscape had already been altered by this architectural shift.

Strategically, success was still measured in print-related revenues and units, which led Kodak to structure even seemingly adjacent digital moves, like inkjet, to sustain its historic print-focused strategy. This caused Kodak to miss key opportunities, such as the burgeoning demand for online image sharing services which offered cheaper alternatives to prints (Johnson, 2012). The corporate narrative emphasized Kodak's identity in film and print image quality, making the pivot easier to sell internally but harder to embrace a truly service-first, digital model. Kodak's decisions on where to invest money strengthened this backward looking orientation. To fund the high-risk printer push, Kodak exited other businesses, including selling its profitable Health Group in 2007. This reflected a pattern of strategic paralysis, evidenced by decades of unrelated acquisitions and inefficient capital expenditures that destroyed shareholder value while avoiding full commitment to the new digital reality (Vinokurova and Kapoor, 2023). From an ecosystem viewpoint, the market's value drivers had also shifted. Competing on cheaper ink was playing the old game when convenience and networks set the rules (Adner, 2021).

This episode represents legacy continuity with an adjacency move that preserves consumables economics. Strategy and identity cohered around that logic rather than pulling against each other, so the episode is one of legacy coherence re-established, not of misalignment. Kodak attempted to enter an adjacent hardware market by applying existing competencies and a variation of its old consumables based business model, rather than transforming its core logic for the digital age. It was an attempt at business model innovation focused on the revenue model, but it failed to align with the overarching digital shift in user behaviour and technology platforms. Thus, the chosen strategy and leveraged identity focused on physical consumables, while the dominant technology platform and market value proposition had moved decisively online and onto screens. Moving past this point would have required treating software services as the primary business, opening interfaces to partners, and measuring progress by adoption and retention rather than by prints and ink sales.

Episode 5. Smartphones and social platforms (c. 2007–2012). After the iPhone launch in 2007, the centre of attention in consumer imaging decisively shifted to capture on the phone, cloud storage, and social distribution platforms. The widespread use of mobile technologies as well as advances in the development of digital image sensors accelerated that shift. By reducing the size of photo sensing components, a completely new generation of digital camera applications emerged across devices ranging from smartphones and laptops to peripheral cameras (Ho and Lee, 2015). In this instance, digital cameras were built on a product-agnostic architecture, providing an opportunity for firms to recombine and use it across different product hierarchies for different purposes (e.g., from desktop to mobile cameras) (Ho and Lee, 2015). Thus, whereas Kodak had all the digital photography assets, including a series of the latest technological resources, capabilities and patents, the company failed to control the shift to digital cameras (Mamonov and Peterson, 2021). The dominant technology base became a layered, modular stack spanning devices, operating systems (iOS, Android), and web services, enabling software firms and platform owners to push new capture and sharing features rapidly and at scale (Adner, 2021). The strategy and value logic shifted towards participation and network effects, so what mattered was daily use, retention, the growth of complements (apps) around platforms, rather than the old unit margins on film, cameras, or paper (Shih, 2016).

Kodak kept investing, but its major efforts remained close to the print and camera core, misaligned with this new reality (Anthony, 2016). Its remaining consumer digital hardware efforts and support for retail printing did not rewire how decisions were made or what counted as success (Grant, 2016). Adoption, third-party participation, and engagement around Kodak's services were not the primary strategic targets; authority over product and data choices did not shift sufficiently toward the product and platform layer to speed learning and adaptation (Adner, 2021; Lucas and Goh, 2009). Kodak also pursued patent litigation against smartphone makers like Apple and HTC, a defensive strategy seeking licensing revenue rather than building a new competitive advantage (Ricknäs, 2012). Kodak's identity also stayed anchored in image quality and printing, making it hard to treat software services as the main business. By 2012, as the company prepared for Chapter 11 by divesting assets and patents, it was clear its digital initiatives had failed to create a viable engine on the new platforms.

This episode in Kodak's DT represents legacy continuity. All three imperatives still expressed the print rationale, so no transition was attempted and the episode ends in breakdown rather than false closure. While the external technology architecture rewarded open interfaces, developer pull, and rapid iteration, Kodak's internal setup still valued print-oriented outcomes and kept platform decisions tied to legacy structures. The strategy (inkjet focus, patent litigation) was peripheral or defensive, while the identity remained anchored in print and physical products. The pattern is sustained piloting around the edges while the core logic continued, followed by withdrawal and eventually collapse.

To summarize, looking across the five episodes, we observe a set of recurring patterns in how Kodak's technology, strategy, and identity imperatives interacted. In a second-order coding step, we grouped these patterns into a set of causal mechanisms of DLA that recur in different combinations over time. In doing so, we adopt what Cornelissen and Werner (2026) term a "contextual perspective" on causal mechanisms, with a primary focus on identifying causal complexity. This involves establishing the contextually varied conditions and situated mechanisms which, once activated, produce the phenomenon of DLA. Our mechanisms are therefore not merely explanatory or descriptive patterns but operate as causal pathways that shape subsequent decisions. Once activated, they alter resource allocation, attention structures, and legitimacy judgments, thereby increasing the likelihood that future initiatives will reproduce the same misalignment.

The mechanisms are grounded in our abductive theorizing of the case literature and are intended to be analytically portable across cases rather than uniquely tied to Kodak. Importantly, these mechanisms are not merely descriptive labels for misalignment states.

They are active processes: once triggered, each mechanism reproduces the misaligned configuration by channelling resources, attention, and legitimacy back toward the legacy core. They are both symptoms and causes. They manifest misalignment and, in doing so, deepen it. This is why Kodak's misalignment persisted across leadership changes and strategic pivots. The mechanisms were embedded in routines, metrics, and architectural choices that continued operating even when leaders signalled intent to change.

We refer to these mechanisms as *interface lock-in* (architectural choices that tie digital initiatives to legacy cores), *KPI drift* (legacy performance metrics overriding digital logic), *unyielding identity* (the reassertion of a film-first identity that pulls experimentation back toward the core), *category ambiguity* (misfits between Kodak's digital offerings and evolving audience expectations), *asset mismatch* (investments that reinforce legacy assets rather than enable recombination), *delegitimation spillover* (failed initiatives undermining the legitimacy of broader change efforts), and *platform governance rigidity* (inflexible access and coordination rules for ecosystem partners) as defined and illustrated in Table 1. The mechanisms are not interchangeable. They occupy distinct positions in the process. One

Table 1
Causal mechanisms of DLA and illustrations from the Kodak case

Mechanism	Process role	Definition	Illustrative Kodak manifestation
Interface lock-in	Filter, returns the outputs of a departure to the incumbent logic	Architectural choices that embed legacy workflows into digital interfaces, preventing modular recombination and tying digital initiatives structurally to established value chains. The constraint operates at the level of system design and partner coupling.	PhotoCD and kiosk systems were tightly integrated with Kodak's lab infrastructure and proprietary standards, making it difficult for external partners or third-party developers to build novel services on top of them (Episode 2). EasyShare's hardware-software bundle was similarly optimised around Kodak printers and docking stations rather than open platforms (Episode 3).
KPI drift	Background condition, active in every episode; necessary but not differentiating	Legacy performance metrics overriding digital logic and constraining the reallocation of resources to new models.	Digital initiatives such as PhotoCD and Ofoto were evaluated primarily on print volume and short-term profitability rather than user acquisition, engagement, or ecosystem growth, leading managers to deem them underperforming and reorient them back toward the print business (Episodes 2-3).
Unyielding identity	Reframing, renders the contained outcome legitimate	The reassertion of a legacy organisational identity through sensemaking and narrative. Leaders and employees reinterpret new digital initiatives as extensions of the old core, reframing them to preserve existing categories and values rather than enable new ones. The constraint operates at the level of organizational sensemaking and legitimacy.	Early experiments with digital cameras were interpreted as threats to Kodak's film-first identity and reframed as ways to support film sales (Episode 1). Later, imaging strategies and the inkjet pivot were narrated as extensions of Kodak's heritage in high-quality prints, steering digital initiatives back toward consumables (Episodes 3-4).
Category ambiguity	Amplifier, deepens a misalignment already under way but does not initiate one	Misfits between a firm's digital offerings and evolving audience expectations or market categories.	PhotoCD occupied an unclear space between professional archiving, home storage, and consumer viewing, making it hard for customers and partners to know how to use or value it (Episode 2). Ofoto was positioned primarily as an online printing service at a time when consumers increasingly viewed photo-sharing as a social and platform-based activity (Episode 3).
Asset mismatch	Amplifier, deepens a misalignment already under way but does not initiate one	Investments that reinforce legacy assets rather than enable recombination around new digital architectures.	Kodak continued to pour capital into film plants, chemical facilities, and the consumables business while using digital initiatives to protect that asset base (Episodes 1-2). The inkjet pivot repurposed legacy manufacturing and distribution capabilities to sell printers and ink rather than building software, data, or platform capabilities (Episode 4).
Delegitimation spillover	Feedback carrier, transmits the residue of one episode into the next	Failed or stalled initiatives that undermine the perceived legitimacy of broader change efforts.	Limited traction and subsequent repositioning of Ofoto/EasyShare fuelled internal scepticism about consumer-facing digital platforms and strengthened arguments for refocusing on the print core (Episode 3). Later divestments and a turn to patent litigation further eroded confidence in transformative digital bets (Episodes 4-5).
Platform governance rigidity	Filter, returns the outputs of a departure to the incumbent logic	Inflexible access and coordination rules that discourage ecosystem partners and limit network effects.	Kodak maintained tight control over interfaces, pricing, and participation in PhotoCD and kiosk systems, limiting the ability of retailers and software partners to innovate around them (Episode 2). In the EasyShare ecosystem, Kodak's emphasis on driving printer and consumables sales meant that partner arrangements and business terms remained geared toward the print value chain rather than open, multi-sided platforms (Episode 3), and Kodak struggled to adapt to more open smartphone ecosystems (Episode 5).

Table 2

Kodak's transformation episodes through the DLA framework

Episode (timeframe)	Entry point (dominant imperative)	Dominant causal mechanisms*	Design-logic state**	Transformation mode**	Outcome for DT trajectory
1. Early digital sensing and prototypes (1970s–late 1980s)	Technology-led (engineering-driven digital sensing and camera prototypes)	Interface lock-in; KPI drift; Unyielding identity; Asset mismatch	Transitional misalignment, compound, and confined to the R&D periphery. The capability exists, but neither the metrics nor the film-first frame can accommodate it (KPI drift, asset mismatch, unyielding identity). Closes by returning to legacy coherence.	Legacy continuity with sandboxed piloting	Digital R&D advances (e.g., CCD, early cameras), but the core razor-and-blades film model and identity remain intact; mechanisms do not travel beyond pilots.
2. PhotoCD, kiosks and the digitization ecosystem (early–mid 1990s)	Technology-led with strategy overlay (enhance the print business)	Interface lock-in; KPI drift; Category ambiguity; Platform governance rigidity; Asset mismatch	Legacy coherence. Technology and strategy are internally coherent around print and misaligned only with the emerging digital logic (interface lock-in, KPI drift). Identity is not contested, and category ambiguity marks the misfit with the market rather than a conflict among the three.	Contained integration	PhotoCD and kiosks digitize parts of the workflow but are designed to feed the existing print-centric value chain; digital remains a value-added service rather than a new core.
3. Web era with Ofoto and EasyShare (late 1990s–mid 2000s)	Strategy-led (imaging and online services anchored in prints)	Interface lock-in; KPI drift; Unyielding identity; Platform governance rigidity; Delegitimation spillover	Transitional misalignment, compound. Strategy moves toward services while identity holds and interfaces stay tied to labs and kiosks (KPI drift, unyielding identity, platform governance rigidity). A genuine strategic move forward is re-absorbed by metrics, narrative and closed governance.	Parallel build (separate digital unit in service of legacy logic)	Ofoto and EasyShare generate activity and market share but remain subordinated to print economics; failed or stalled initiatives undermine confidence in bolder digital moves.
4. The inkjet pivot (mid-2000s)	Strategy-led adjacency (consumer inkjet as new razor-and-blades)	Asset mismatch; KPI drift; Unyielding identity; Delegitimation spillover	Legacy coherence, re-established through adjacency, and the clearest case of coherence producing rigidity. Strategy and identity are mutually aligned around consumables (KPI drift, unyielding identity) and jointly misaligned with an architecture shifting to screens and services (asset mismatch). The pivot is not a transition, which is why it produced activity without movement.	Legacy continuity (adjacent pivot)	Capital is re-committed to a consumables business just as value creation shifts to screens and services; structural and identity commitments are pulled back toward the old logic.
5. Smartphones and social platforms (c. 2007–2012)	Externally forced technology and strategy shift (platform-centric ecosystems)	Interface lock-in; Platform governance rigidity; Delegitimation spillover; KPI drift	Legacy coherence under external pressure. All three imperatives still express the print rationale while the field rewards openness (interface lock-in, platform governance rigidity, KPI drift). No transition is attempted, and the spillover from Episodes 1 and 3 has left no internal impetus to open one. Therefore, it ends in withdrawal rather than false closure.	Legacy continuity with defensive responses	Kodak retains a print- and camera-oriented core, pursues defensive patent strategies, and fails to build a viable position in smartphone- and platform-based ecosystems, culminating in bankruptcy.

* The mechanisms listed are analytic labels that summarize the more detailed architectural, strategic, and identity patterns described in Section 3.2.

** Design-logic states describe the condition of the three imperatives relative to a design logic. Transformation modes describe how digital activity was organised. The two vary independently, since legacy coherence can accommodate contained integration as readily as legacy continuity.

operates as a background condition, two filter the outputs of a departure, one reframes the result, two amplify a misalignment already under way, and one carries its residue into the next episode. Table 1 assigns each mechanism its role. We also added Table 2 to summarise these mechanisms and link them to specific Kodak episodes.

Synthesizing cross-episode patterns

The episodic analysis in Section 3 reveals that Kodak's failure wasn't due to a single flawed decision or missed opportunity. It followed instead from a design logic that the three imperatives kept reproducing together, and from the two occasions on which one of them moved and the others pulled it back (see Table 2). These tensions consistently undermined the company's significant digital investments and prevented successful transformation.

Technology architecture vs. strategy. Kodak's technology architecture choices repeatedly clashed with the requirements of viable digital strategies. Even when developing digital platforms like PhotoCD or the infrastructure around EasyShare, Kodak designed interfaces and workflows primarily to support or enhance the existing print-centric value chain, rather than enabling open, digital-first ecosystems. PhotoCD was explicitly positioned to bring digital benefits to film users via scanning at labs; this treated digital as an input to the old process. Similarly, EasyShare cameras and docks facilitated image transfer, but the broader ecosystem, including kiosks and online services like Ofoto/Kodak Gallery, heavily emphasized ordering prints. Kodak maintained relatively tight control over interfaces and standards, an approach which hindered the ability of third-party developers to easily build complementary software and services. This architectural control, while intended to maintain quality and protect existing partner relationships (photo labs, retailers), ultimately stifled the network effects and complementor innovation necessary for digital platform strategies to scale. Consequently, customers remained connected to Kodak's controlled (and increasingly irrelevant) printing ecosystem. The strategy needed openness and digital sharing, but the architecture enforced a print-centric, controlled workflow.

Strategy vs. identity. Kodak's strategic decision-making was consistently hampered by its deeply ingrained identity. The company's century-long success was built on the high margins of film and chemical processing. This created a powerful identity as a manufacturing-focused, high quality print company. This identity established cognitive frames and institutionalized metrics that evaluated new digital opportunities primarily through the lens of their impact on the legacy film business. Digital cameras and services, with their initially lower quality and significantly lower margins, were often perceived as threats or distractions rather than the future core. This led to hesitant or blended strategies that failed to fully commit to digital, such as Fisher's simultaneous investment in EasyShare and reinvestment in film for emerging markets. Even Perez's inkjet pivot represented a return to a consumables based model familiar to Kodak's identity, rather than an embrace of the new digital service/ecosystem logic. Resource allocation consistently favoured the established businesses or adjacent moves that felt familiar; this starved potentially transformative digital initiatives that clashed with the dominant identity and its associated financial expectations. The strategy needed bold pivots and cannibalization, but the identity resisted abandoning the profitable past.

Identity vs. technology architecture. Kodak's identity created profound friction with the necessary technology architectures for the digital age. For Kodak, its identity was film, and everything revolved around the chemical-based photographic process. This singular focus on emphasizing craftsmanship, end to end quality control, and proprietary chemical expertise clashed fundamentally with the emerging digital world, which required modularity, faster development cycles, and integration with rapidly evolving electronics like personal computers and software. This identity-architecture misalignment manifested in tangible ways during that period. Kodak tended towards closed or tightly controlled systems by designing digital products like PhotoCD and early digital cameras primarily as ways to feed images back into its established print infrastructure via kiosks and photo labs, rather than enabling open digital sharing or editing workflows independent of print. Decisions often prioritized investments in improving film technology over fully committing resources to digital architectures that might cannibalize the core. Furthermore, the company's structure often isolated digital units, preventing the deep integration and shared learning needed to re-architect the business around digital foundations.

While aiming to protect brand reputation and leverage existing assets, this resistance to fundamentally different digital architectures undermined Kodak's ability to compete effectively as the digital transition accelerated. The identity valued integrated, film-centric control, while the ascendant digital architecture required embracing electronics, software partnerships, and more open development cycles. Kodak cycled through tightly controlled integration, side projects that stayed tied to printing, and slow drift toward irrelevance. It never reached a point where its technology interfaces, success metrics, and corporate story aligned strongly enough for DT to reshape how the organization worked and made money.

Two broader patterns make this clearer. First, Kodak's failure wasn't about lacking innovation or technical vision as the company ran plenty of experiments and saw the digital future coming. The problem was that it couldn't take what it learned from these experiments and change how the organization worked. Anthony (2016) states clearly that Kodak's problem wasn't that it was technologically blind; it was that it was blind to the new business model. Kodak was excellent at making incremental technical improvements (i.e., better image quality, faster processing) but it couldn't translate those small wins into major strategic shifts because the old ways of deciding what mattered and where money went never changed. While Kodak's individual projects generated insights, the company-level mechanisms that should have acted on those insights stayed stuck in place. The existing structures and mental models were too strong, blocking the organization from exploring genuinely new directions (Gavetti et al., 2004). In particular, as Habersang et al. (2019) mentioned, Kodak's middle managers became increasingly resistant to change, and boycotted emerging ideas associated with the implementation of new technologies: "Middle managers at Kodak did not serve the function of filtering ideas that bubble up from lower levels of the organization to determine what to pass on to senior management. Instead, middle managers resisted digital photography for a variety of reasons, a resistance that in the end jeopardized their own jobs." (Habersang et al., 2019, p. 42).

Second, how and when Kodak entered digital markets made a huge difference. Technology-led efforts such as early sensors, digital

cameras, and PhotoCD advanced technically but stalled because *interface lock-in* and *KPI drift* kept them closely coupled to the print core. Architecturally, Kodak built tightly integrated systems around its labs, consumables, and proprietary standards, making it difficult to reconfigure these initiatives as open, platform-based services. Strategically, performance continued to be judged by film-era metrics (i.e., print volume, lab throughput, and consumables margins) so digital projects that did not immediately feed the print business were labelled underperforming. At the same time, *unyielding identity* meant that the dominant film-first understanding of what Kodak was and should be repeatedly reframed digital initiatives as tools to protect or extend the core, rather than as opportunities to imagine new business models or categories.

Strategy-led moves such as Ofoto/EasyShare and the subsequent inkjet push faced a different but related configuration of mechanisms. Ambitious strategies to build online services or home-print ecosystems ran up against *KPI drift* and *asset mismatch*, as digital initiatives were forced to justify themselves through film and print-centric scorecards and were channelled into reinforcing existing consumables and manufacturing assets. When leadership changed or early results disappointed, these efforts generated *delegitimation spillover*, with failures and reversals in one domain undermining internal confidence in bolder digital bets more broadly. A persistent film-first identity, combined with *platform governance rigidity* (e.g., reluctance to relax control over interfaces, pricing, and partner roles), kept Kodak's participation in emerging digital ecosystems partial and defensive. This paralysis extended to the highest levels of governance, as Vinokurova and Kapoor (2023, p.2) note, for nearly thirty years "*the board of directors failed to halt the destruction of shareholder wealth.*" Taken together, this dynamic interplay of entry points, mechanisms, and modes, summarised in Table 2, confirms that understanding DT requires examining the DLA framework, looking at all three imperatives and their interrelationships simultaneously to see where and why misalignments occur and persist.

In contrast, Fujifilm shows what the alternative looks like. Fujifilm opened up its technology where it made sense, changed how it measured success and made decisions to fit new business models, and told a different story about itself that made diversifying into cosmetics and healthcare feel legitimate (Shibata et al., 2022). The company used a middle-up-down approach that let organizational learning stabilize the new direction rather than getting reversed with each leadership change. This alignment helped Fujifilm's digital moves actually transform the organization rather than stalling at the edges (Adner, 2021; Shibata et al., 2022). Kodak's failure was a cascade of misalignments in which its cultural attachment to film, its specific technological commitments, and its inconsistent strategic choices fed off each other destructively for decades.

How misalignment compounds across episodes

Only two of the five episodes are departures from legacy coherence. Episodes 1 and 3 are the periods in which an imperative moved toward a digital rationale while the others held, and they share a recurrent structure with two variants. In both, an entry imperative advances and generates visible activity. That activity is filtered by mechanisms that return its outputs to the print logic. Unyielding identity then reframes the result so that the episode closes without the configuration being questioned, which is why each pivot appeared reasonable at the time. KPI drift is present throughout as a background condition, so it does not distinguish the variants. What differs is the entry point and the filtering that accompanies it.

In the technology-entry variant, instantiated by Episode 1, digital capture advances from within engineering while strategy and identity hold. Interface lock-in keeps its outputs inside the film workflow, and the work stays in small teams without reaching the main product lines. Asset mismatch amplifies the effect, since capital continued to flow into film plants and consumables while the digital work proceeded. In the strategy-entry variant, instantiated by Episode 3, an imaging and services strategy advances far enough to change the product portfolio and raise market share. Interface lock-in again holds the outputs to the print chain, and platform governance rigidity compounds it by limiting what partners can build around the service. Delegitimation spillover then carries the resulting scepticism into later periods, which is the mechanism that most clearly distinguishes this variant from the first. Category ambiguity appears in neither departure. It arises in Episode 2, where it marks a misfit between an offering and the market rather than a conflict among the imperatives. Both variants are primed by identity rather than led by it, since the film-first frame shaped which entry points were available before either initiative began.

Episodes 2, 4 and 5 do not instantiate the structure. No imperative moved toward the emerging logic in those periods, so there was no departure to filter. The same mechanisms remain active in each, but their work is to maintain legacy coherence rather than to contain an attempt to leave it. In Episode 2 the architecture gained digital capability while the print rationale was extended rather than left. In Episode 4 an adjacency re-established coherence around consumables. In Episode 5 no attempt was made at all, and the episode ends in withdrawal. Leaving legacy coherence would have required simultaneous movement on at least two of the three imperatives, and no episode moved all three together, which is why neither departure reached transformative coherence. The sequence also suggests why departures became rarer over time. Each false closure left a record that digital bets do not pay, and that record raised the threshold at which the next departure could open. By the final period, the external logic had shifted decisively and the internal impetus to respond had been spent.

Fig. 3 assembles these features into a process model. The solid path traces what the record shows. An entry imperative advances and generates visible activity. That activity is filtered by the mechanism specific to the variant, while KPI drift operates throughout as a background condition. Unyielding identity then settles the outcome as legitimate. Where a departure is attempted, as in Episodes 1 and 3, it ends in what we term false closure. The deep structure is opened to question and resources are committed, yet the original configuration is restored. Delegitimation spillover then carries the residue forward, raising the threshold at which the next departure can open. The dashed path shows the resolution conditions that would have had to hold for the same departure to reach transformative coherence instead, which we develop in Section 4.1.

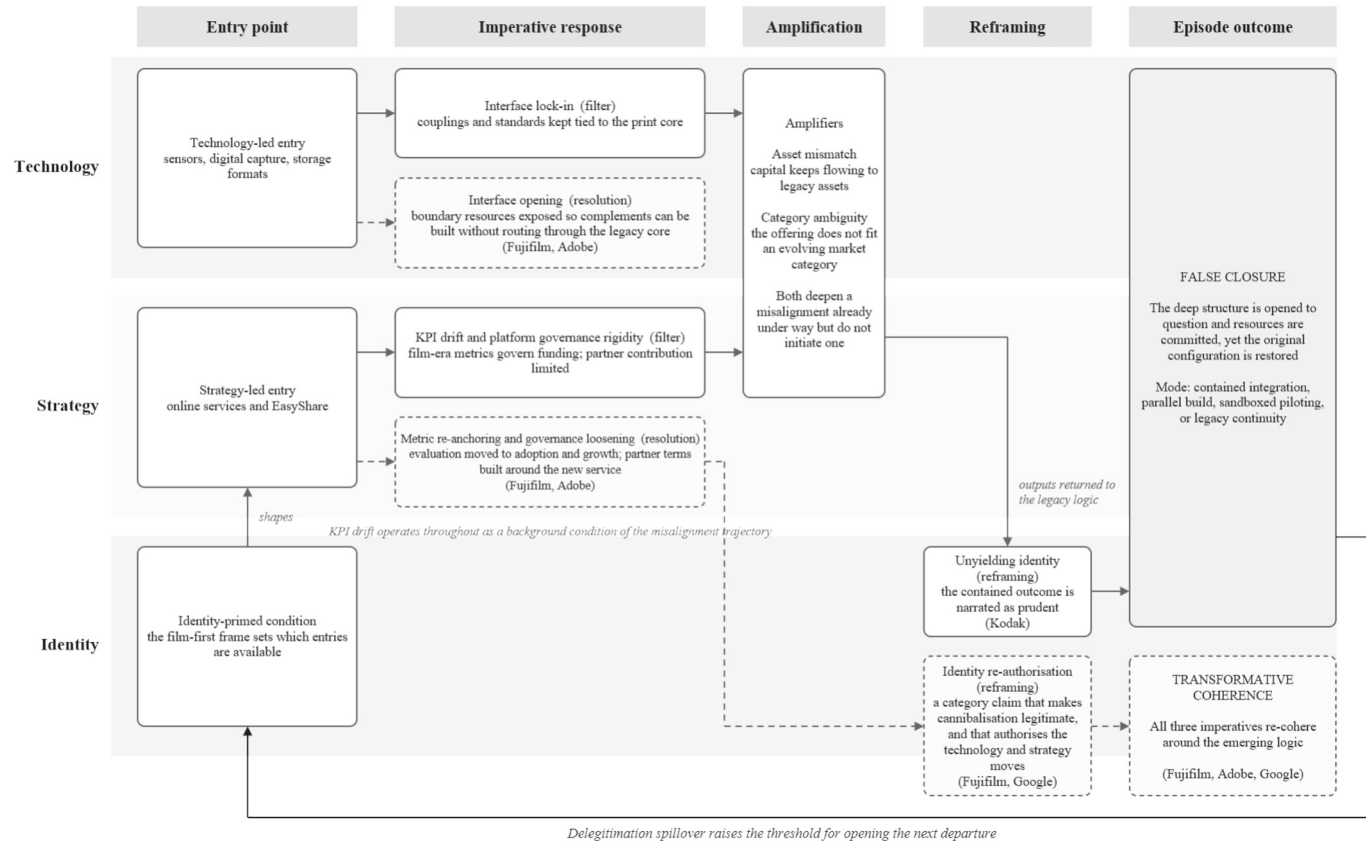


Fig. 3. A process model of design-logic (mis)alignment. Note: The solid path traces the trajectory observed, in which a departure from legacy coherence is filtered and reframed until the original configuration is restored. The dashed path shows the resolution conditions that would have had to hold for the same departure to reach transformative coherence. Dashed boxes and arrows denote conditioning relations rather than steps in the observed sequence.

Discussion and implications

Information systems strategy (ISS) research has long focused on the role and impact of emergent technologies on organizational transformation (Wessel et al., 2021). Traditionally, the field has been preoccupied with how organisations configure their IT investments in relation to their strategic objectives, a challenge known as the alignment problem (Benbya et al., 2019; Gerow et al., 2015; Henderson and Venkatraman, 1999). DT intensifies this problem in two ways. First, it brings organisational identity into the alignment question as a further domain rather than a third axis. Identity conditions both dimensions along which alignment has been assessed, since it governs which external positions a firm can credibly claim and which couplings between business and technology count as legitimate. Second, it makes alignment a dynamic, processual challenge rather than a cross-sectional fit.

As new digital technologies such as AI, blockchain, and the Internet of Things become part of routine organisational work and everyday life (Correani et al., 2020; Hanelt et al., 2021), the IS field must assert its relevance. It can do so by showing how socio-technical perspectives, focused on technology's affordances, institutional embedding, and organisational shaping, offer a distinctive lens that other fields often under theorize. Without such assertion, parallel efforts across other disciplines could potentially marginalize the field's core intellectual focus on the IT artifact (Orlikowski and Iacono, 2001) and its ability to engage in innovative theorizing (Grover and Lyytinen, 2023).

Consequently, the ISS field faces pressure to extend its alignment thinking beyond IT-business fit toward a configurational account of how technology, strategy, and identity must cohere for transformation to succeed (Grover and Lyytinen, 2023; Yoo et al., 2024). In this paper, we address this challenge by developing a DLA framework grounded in a qualitative meta-analysis of Kodak's trajectory. By building previously undetected connections across imperatives, we provide a springboard for innovative theorizing on the frontiers of DT research. This section articulates the theoretical contribution of the DLA framework for ISS scholarship and outlines implications for research and practice.

Theoretical contribution

In contrast to prior work that identifies barriers to transformation, the central contribution of this study is to explain why those barriers persist despite repeated strategic and technological interventions. Explanations for Kodak's failure abound, often focusing on a primary cause. For instance, Lucas and Goh (2009) argue that Kodak's failure stemmed from its entrenched culture; Anthony (2016) emphasizes the flawed business model; and Munir and Phillips (2005) highlight the restrictive meaning of the brand. While each offers valuable insights, these accounts identify what went wrong without fully explaining why it kept going wrong and why successive waves of investment, experimentation, and strategic repositioning failed to dislodge the underlying configuration. Our DLA framework addresses this by shifting the focus from these single cause attributions and reframing DT as a problem of achieving and maintaining alignment across the interacting imperatives of technology, strategy, and identity. It synthesizes these imperatives to explain why and how firms facing the same technological shifts experience radically different outcomes, by focusing on the configurational interdependence and dynamic interplay between the imperatives. In doing so, it contributes to DT research more broadly, including work that stresses digital technologies, organisational mechanisms, and business model change, by placing alignment across the three imperatives at the centre of explanation rather than treating it as a background condition.

First, we develop the DLA framework as a multi-imperative, processual account of DT. Rather than treating technology, strategy, or identity as the primary driver of change, the DLA framework conceptualises DT as an ongoing effort to align these three imperatives around a coherent design logic. Alignment here is not a static fit but a temporally unfolding configuration that can tighten or unravel as technologies mature, markets evolve, and organisational narratives shift. This moves beyond accounts that attribute failure to a single dominant factor (such as technological myopia, poor timing, or cultural inertia) by showing how these factors are themselves shaped by how the imperatives interact. In Kodak's case, DLA reveals that neither early technological investment nor bold strategic announcements nor identity narratives alone were decisive; what mattered was how these elements combined and recombined across episodes. More broadly, the framework offers DT scholars a way to theorise why firms facing similar technological shocks can experience radically different trajectories, by focusing on how technology, strategy, and identity are configured together rather than examined in isolation. It also complements existing DT frameworks that emphasise digital technologies, organisational mechanisms, or business model change by putting alignment across the three imperatives at the centre of explanation instead of treating it as a background condition. Where Hess and Graf (2026) specify when an open phase begins and closes, we identify one way it can close without transformation, as an attempted departure is drawn back toward the legacy configuration. Kodak's episodes ended in false closure: the deep structure was left open to question, and resources were committed, yet the original configuration was restored. This gives the DT/ITOT distinction an outcome dimension alongside its usual ex ante reading, since an episode launched as transformation is delivered as incremental adaptation when the imperatives fail to co-move. It also supplies a negative case for the feedback loop Hess and Graf (2026) describe, since each false closure left behind delegitimation spillover that raised the threshold for opening the next phase.

For ISS scholarship specifically, the DLA framework advances the alignment conversation in three ways. First, it extends the canonical alignment framework (Henderson and Venkatraman, 1999) by incorporating organisational identity into it as a further domain. Identity does not simply sit alongside their two axes; it conditions both (Constantinides et al., 2026). Strategic fit now depends on which external positions a firm can credibly claim, not just its capabilities. Similarly, functional integration relies on legitimate couplings rather than mere technical feasibility. Second, it shifts the alignment problem from a static fit question, namely, are IT and business strategy aligned, to a dynamic configuration question. Which mechanisms activate at different entry points, and what prevents their resolution? This processual reframing speaks directly to recent ISS calls for more dynamic theorising of digital strategy

(Chanas et al., 2019; Yeow et al., 2018). Third, it provides ISS researchers with a mid-range theory vocabulary that can be applied to analyse DT trajectories in other industries and technological contexts, moving ISS alignment research beyond cross-sectional surveys toward longitudinal, configurational accounts.

Recent ISS reviews reinforce the need for such processual theorizing. Wiener et al. (2025) find that most IS studies of DT rely on linear or weakly specified process accounts and call for recursive, conjunctive theorizing that captures how multiple forces interact over time. DLA answers this call as its mechanism-based account traces how technology, strategy, and identity imperatives interact recursively across episodes, producing misalignment patterns that stage-gate or phase models cannot accommodate. Moreover, because Wiener et al. (2025) identify digital strategy alignment as a recognised DT subprocess (drawing on Yeow et al. (2018)), DLA can be read as specifying the mechanisms through which that subprocess unfolds. This moves ISS alignment research from acknowledging the importance of fit to explaining how fit is achieved, eroded, or blocked in practice. Arvidsson et al. (2026) complement this picture by showing that transformation can also be driven by peripheral actors who outflank established governance through modular architectures. DLA's focus on structural misalignment across imperatives suggests that ISS scholarship needs theoretical language that can accommodate different sources of misalignment.

Second, we specify a set of causal mechanisms that explain when and how alignment across the three imperatives is achieved, eroded, or blocked, and we consolidate these mechanisms in a summary table. Rather than treating alignment as a vague or purely normative goal, we show that it can be analysed through recurring mechanisms that link architectures, metrics, and identity narratives. The mechanisms we identify in the Kodak case are defined and illustrated in Table 1 and located across episodes and modes in Table 2. Together, these mechanisms reveal how technology, strategy, and identity are connected in practice rather than only in abstract alignment diagrams. They specify the concrete pathways through which a change in one imperative is either translated into adjustments in the others or instead dissipates. For example, they indicate when technological change is likely to remain peripheral because legacy KPIs dominate resource allocation, when strategic moves are likely to be reinterpreted through existing identity narratives rather than open new categories, or when architectural decisions reproduce legacy control logics and keep digital initiatives tied to established value models.

The mechanisms also clarify how different entry points into transformation shape alignment outcomes. In a technology-led entry, they highlight when promising architectures will be contained at the periphery because KPI drift channels evaluation back to legacy-product margins or because unyielding identity reframes digital initiatives as tools to protect the existing core. In a strategy-led entry, they show how new value propositions or business models can be undermined by asset mismatch and interface lock-in when the underlying stack and partner arrangements are not reconfigured accordingly, or when delegitimation spillover from early setbacks erodes support for further change. In an identity-led entry, such as a new “digital first” or “AI first” narrative, the mechanisms help distinguish symbolic repositioning from substantive transformation by revealing whether strategy redistributes capital and whether the technology imperative develops architectures that make the new narrative credible.

Because each mechanism has a definable role, each also has a resolution condition. It means that we also offer the change that would have had to occur for a departure to survive it. Interface lock-in is resolved by opening boundary resources so that complements can be built without routing through the legacy core. This, in Episode 1, would have meant exposing digital capture to the mainstream product lines rather than holding it inside the film workflow. KPI drift is resolved by re-anchoring evaluation on adoption and ecosystem growth over a horizon long enough for those to register, rather than on print volume and short-term margin. Platform governance rigidity is resolved by access and participation rules set to attract complementors, which in Episode 3 would have meant partner terms built around the online service rather than around driving prints. Unyielding identity is resolved by a category claim that makes cannibalisation legitimate, and delegitimation spillover by holding early setbacks as learning within a protected mandate.

These conditions are not simply the negation of each mechanism. Two features make them a process claim. They are jointly necessary, since opening interfaces while legacy metrics still govern funding produces an architecture no one is rewarded for using. And they are subject to re-absorption, so a condition resolved in isolation is undone by the frictions that remain. This is why Kodak's two departures failed despite substantial investment in each. Alignment travels only when the filters and the background condition move together and reframing follows closely enough to legitimate what they have made possible. So the model specifies not only how a departure is returned to legacy coherence, but what would have had to change for it to reach transformative coherence instead.

In this way, the mechanisms give DLA not only explanatory but causal force in both directions. They specify what blocks alignment and, through their resolution conditions, what would have to change for it to travel. They make alignment and misalignment observable and traceable over time, because researchers and practitioners can see which mechanisms are activated at different points in a transformation and how they combine under different entry modes. They clarify how firms move between transformation modes, for instance from contained experiments to core integration or back to legacy continuity, by showing which mechanisms are being resolved and which remain stuck. They also help distinguish superficial alignment from deeper change. A firm can adopt AI rhetoric or launch a platform strategy, yet if KPI drift, interface lock-in, and unyielding identity remain in place, the underlying configuration still resembles Kodak more than a genuinely transformed organisation. More broadly, the mechanisms provide DT researchers with a shared conceptual path for analysing how the three imperatives become mutually reinforcing or mutually constraining in different cases. Because they are defined at a mid-range level, they can travel across industries, entry modes, and technological waves and can be used to compare trajectories that, on the surface, look quite different. This allows DT research to move beyond catalogues of barriers or success factors and towards cumulative explanations of why some incumbents manage to reconfigure their cores while others, like Kodak, become trapped in patterns of misalignment that persist despite substantial investment in digital technologies.

Third, the DLA framework provides a robust comparative lens that abstracts beyond a single case. Kodak illustrates how legacy coherence reproduces itself. Its entrenched film-based identity shaped strategic choices that prioritized the legacy business. These flawed strategies, in turn, failed to drive the necessary architectural shifts toward openness, reinforcing a closed, print-centric system

instead. Kodak's trajectory is often narrated as a simple case of "missed the digital shift," yet our analysis breaks this story into a sequence of episodes in which different imperatives led at different times. Table 2 maps these episodes onto the DLA process model, showing how technology-led entries (such as early sensors, digital cameras, and PhotoCD), strategy-led entries (such as Ofoto/EasyShare and the consumer inkjet pivot), and identity-oriented attempts at repositioning correspond to distinct transformation modes and specific combinations of mechanisms. Technology-led efforts advanced technically but remained contained or parallel because KPI drift and unyielding identity kept them subordinated to the print core. Strategy-led moves promised new value capture logics but were undercut by asset mismatch, interface lock-in, and delegitimation spillover when architectures and partner arrangements were not reconfigured. Identity never truly led; instead, a persistent film- and print-centred identity, reinforced by platform governance rigidity, repeatedly pulled experimentation back toward legacy categories and value models. This created a vicious cycle where identity hindered strategy, and flawed strategy failed to drive appropriate technology.

In summary, our DLA framework provides a more dynamic and process-oriented understanding than existing frameworks on DT. We move the conversation beyond simply identifying barriers towards understanding the conditions under which an organisation passes from legacy coherence through transitional misalignment to transformative coherence, and the mechanisms that instead return it to where it began. These three contributions position DLA within the context of existing research. Wessel et al. (2021) argue that DT is fundamentally a process of identity change. Our framework builds upon this influential claim rather than replacing it. However, where Wessel et al. (2021) explain what must change, DLA explains why that change so often fails to occur. We argue that identity misalignment compounds with architectural lock-in and strategic metric inertia. Using Kodak as a case study, we show that even when leaders signal identity change, it can be neutralized by KPI drift and interface lock-in. Our approach provides a granular look at how identity entrenchment spreads across imperatives. We also extend the work of Yeow et al. (2018), who view strategizing as a way to resolve misalignments. We demonstrate that strategic resolution alone is insufficient. Without concurrent architectural and identity reconfiguration, any resolved strategy misalignments are simply re-absorbed by other frictions. Consequently, DLA explains why piecemeal alignment produces intense activity but fails to achieve true transformation.

Implications for research

This paper offers several implications for further research. First, further research could draw on multiple imperatives to examine DT in a new empirical setting. Although each of the three dominant imperatives is based on different theoretical origins and assumptions, they each provide insights into different dimensions of DT. Arguably, some theoretical traditions will be hard to reconcile and integrate (e.g., TCE with theories on identity and culture). However, further research can focus on multiple units of analysis, such as the technological architecture, business model(s), and identity of a focal organization and its ecosystem, as opposed to multiple theories. Emphasis should be placed on shared assumptions about the DT phenomenon under study, as opposed to onto-epistemological assumptions that may be contradictory. Such research could employ a variety of research methods, from case studies based on interviews and archival data to panel dataset analyses based on patent and IT investments, as well as simulation experiments. This future research could challenge assumptions about the technological architecture of focal organizations and how these architectures enable an understanding of the DT phenomenon, but also about the role of leadership and culture in steering DT efforts.

Second, some scholars argue that understanding new digital phenomena calls for innovative theorizing that would identify the unique properties of technology in contrast to technologies previously deployed in organizational settings (Grover and Lyytinen, 2023). Although we agree in principle with such a position, we disagree that such innovative theorizing should solely rest on what makes digital unique (Ashrafi et al., 2025). As we have argued throughout this paper, DT is a process that involves technology, as well as business practices and values core to the identity of organizations undertaking such DT. DT is multidimensional. To understand DT and its implications, we contend future work needs to attend to the technology, strategy, and identity dimensions. For example, discussions of blockchain technology as a new DT phenomenon have largely focused on how it distributes information, decentralizes decision making and even how it democratizes centralized institutions, such as monetary systems. Yet, while the technology makes these actions possible, recent events tied to cryptocurrency mining and trading call into question assumptions about the net positive impact of technology. To fully understand the implications of blockchain, our analysis suggests going beyond the technology to consider the strategy and identity imperatives of DT. While a technology-focused perspective would examine how technical issues are tied to blockchain applications, strategy- and identity-focused perspectives would direct attention to the broader impacts of disintermediation on markets or the deregulation of financial markets on economies. By employing the three imperatives, research will be better able to suggest possible positive and negative implications of DT for people, organizations, markets, and economies.

The model also generates three theoretical questions that the Kodak record cannot resolve. The first concerns timing. If false closure represents a return from transitional misalignment to legacy coherence, how long can a departure remain open before cognitive filters reassert themselves? This is an empirical question, and the duration likely depends on how tightly the incumbent logic is held. The second question involves thresholds. Legacy coherence is broken when the filters and the background condition shift together. However, it remains unclear whether this movement must be strictly simultaneous, or simply close enough in time that no single imperative can re-absorb the others. The third question addresses history. If delegitimation spillover raises the threshold for initiating a subsequent phase, a firm's history of failed departures directly conditions its future efforts. This implies that a firm's transformation capacity is path dependent, shaped heavily by what it has already attempted and lost. Each of these questions is tractable using longitudinal data on firms with multiple transformation attempts. Investigating them would serve to rigorously test the model rather than merely extending it.

Third, and following from the above, future studies can question how or why multiple attributes combine into distinct configurations to explain a phenomenon, while also recognizing that complex causal explanations may involve more than one configuration of

attributes leading to the outcome of interest (Furnari et al., 2021). Elements in the three identified imperatives should inform the building of an integrated theory on DT. Such a theory would allow for teasing out the implications of nonlinear interactions of attributes and considering different possible configurations of DT phenomena (Park et al., 2020). Besides, by explicitly modelling the configurations and interplay of the imperatives, such a theory could offer compelling explanations for why firms, even when possessing some elements discussed in prior frameworks (e.g., dynamic capabilities or attempts at cultural change as noted by Lucas and Goh (2009)), still fail if the overall configuration across these three imperatives is unfavourable.

An integrated theory could create opportunities for studying DT phenomena through multi-theoretic lenses, to understand how different technology, strategy and identity elements influence one another. By learning how these factors complement, substitute, or amplify each other, research will be able to offer stronger advice to managers charged with DT. In addition, during the literature review, we found that these three imperatives contained elements that were highly intertwined with implications for decisions in adopting a specific business strategy or technological architecture in relation to underlying leadership or cultural issues. Such an integrated theory would build on the long sociotechnical tradition in IS research to account for both social and technological dynamics, as well as the relationships between the two (Sarker et al., 2019). Our conceptual argument for an integrative, configurational theory of DT stands to advance socio-technical discourse by surfacing effects between key social and technical attributes. Moreover, grounding our contributions in the sociotechnical literature demonstrates consistency with influential precedent thinking while also showing how this research promises to move understanding of DT forward through its multi-imperative approach. As organizational digitization accelerates, the complex interplay between emerging technologies, business strategies, and corporate identities will only intensify. Therefore, an integrated theoretical lens informed by sociotechnical principles provides a vantage point for unravelling these dynamics in impactful new research.

Implications for practice

Our analysis also has implications for managers steering DT in incumbent organisations. First, the DLA processual analysis can be used as a diagnostic template. By mapping current initiatives onto the three imperatives and four modes, managers can identify whether digital efforts are contained, parallel, sandboxed, or still embedded in legacy continuity, and which mechanisms such as KPI drift, interface lock-in, or unyielding identity are preventing movement towards deeper integration. Rather than treating going digital as a monolithic goal, DLA directs attention to specific misalignments in architecture, performance metrics, and identity narratives that can be acted upon.

Second, the framework's power is not only in diagnosing failure modes such as Kodak's, but also in explaining configurations where alignment enables rapid adaptation. For example, recent advances in Gen AI and LLMs and the fact that Google faced an LLM shock to its search franchise can be interpreted through DLA as a case of comparatively high alignment. The technical base was already in place. Having large scale training and serving on TPUs, together with a mature experimentation stack, meant Google could ship and iterate AI features in production (e.g., TPU deployment for deep nets; overlapping A/B infrastructure; Gemini as a multimodal foundation). On the strategy side, Google reframed what good search means for AI surfaces. It piloted the Search Generative Experience in 2023, then rolled out AI Overviews in 2024 with an explicit emphasis on answer helpfulness, reliability, and user satisfaction, and with measurement that looks at engagement with cited sources rather than just raw click yield. Regarding its identity, leadership has been talking about Google as an "AI first" company for many years, and that narrative was renewed around Gemini and AI Overviews, which made it legitimate to prioritize AI answers alongside classic search (Pichai, 2023; Reid, 2024). Together, these moves, including ready infrastructure, updated success metrics for AI experiences, and an AI-first story, let mechanisms travel into visible product and operating changes rather than stalling.

By contrast, BlackBerry's failure when iPhone was rising shows a configuration much closer to Kodak's, where its secure enterprise identity, device-centric strategy, and closed architecture were fatally misaligned with the new app-based ecosystem. Here, interface lock-in, KPI drift around device sales, and unyielding identity anchored in a secure messaging logic made it difficult to embrace a more open, developer-driven model. A different pattern appears in Adobe's 2013 move to Creative Cloud, which aligned a cloud-first architecture with subscription metrics (ARR, subscribers) and a new identity as a services-based creative platform (SEC, 2014). This shows how the three imperatives shifted in concert and differs from Nokia's smartphone struggle, where software stack choices were not matched by partner-friendly interfaces or by a narrative that welcomed outsiders (Lamberg et al., 2021).

Third, the Kodak case illustrates that changing one imperative in isolation is unlikely to be sufficient. Technology-led pushes require concurrent changes in performance metrics and identity if they are to travel beyond pilots; strategy-led pivots must be supported by modular architectures and reframed categories that make cannibalisation legitimate. Fourth, the mechanisms we identify can be tracked as early warning signals: rising reliance on legacy KPIs, tightening interfaces, or repeated instances of unyielding identity may indicate that a nominally ambitious DT programme is, in practice, reinforcing the old logic. Using DLA in this way allows executives and boards to monitor whether digital mechanisms are on a path to structural and business model change or at risk of stalling in familiar Kodak-like patterns. The DLA framework is most applicable in contexts characterized by technological discontinuity and competing value logics. In more stable environments, where technological and strategic trajectories are well understood, traditional alignment frameworks may be sufficient. Future research should therefore examine when DLA adds explanatory power beyond existing alignment models.

Conclusion

Digital transformation continues to confound organisations that invest heavily in digital technologies yet fail to achieve meaningful

change. This paper has argued that such failures are not attributable to any single factor. They follow from the coherence of technology architecture, strategic logic and organisational identity around a logic the market has left behind, and from the mechanisms that return each attempted departure to it. We developed a Design-Logic Alignment framework that reconceptualises DT as a configurational alignment challenge, one in which the design rationale embedded in technological choices must be coherent with how the firm competes and with how it narrates its purpose. Through a qualitative meta-analysis of the extensive Kodak literature, we surfaced different mechanisms through which misalignment manifests, compounds, and resists resolution. These mechanisms and the process logic connecting them reveal why Kodak's decades of digital investment produced intense activity without genuine transformation, and why resolving any single dyadic misalignment was repeatedly re-absorbed by the remaining frictions.

For ISS scholarship, the DLA framework extends the alignment tradition from a cross-sectional question of fit to a processual question of configuration, with organisational identity conditioning both dimensions along which fit has been assessed. It offers researchers a portable diagnostic vocabulary for analysing DT trajectories and practitioners an actionable lens for identifying which mechanisms are preventing their digital investments from translating into organisational change. As AI, blockchain, and other digital technologies continue to reshape organisational strategy, the question of how firms align what they build, how they compete, and who they say they are will only grow in importance. We hope the DLA framework provides a productive starting point for that inquiry.

CRedit authorship contribution statement

Amir Ashrafi: Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Panos Constantinides:** Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Methodology, Formal analysis, Conceptualization. **Jason Bennett Thatcher:** Writing – review & editing, Supervision, Project administration. **Nikolay Mehandjiev:** Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

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