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Challenges of Organisational Management in the Digital Era

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Abstract:

Purpose: *To explain the organisational and managerial challenges created by digital transformation and identify the conditions under which technological investment produces sustainable value.*
Design/Methodology/Approach: *This conceptual article uses a purposive, transparent synthesis of peer-reviewed research across digital strategy, dynamic capabilities, organisational design, human–AI collaboration, governance and performance measurement. It compares rival theoretical explanations and derives a five-dimensional, mechanism-based framework with four testable propositions. It does not claim a systematic review or empirical validation.*
Findings: *Digital investment is expected to affect performance indirectly through coordinated managerial mechanisms rather than through technology acquisition alone. Strategic problem definition activates resource allocation; decision-right clarity reduces coordination losses; human competence enables informed intervention; data governance improves information reliability; and adaptive financial control sustains experimentation. Complementarity among these mechanisms is proposed to matter most under high interdependence and uncertainty.*
Practical Implications: *Managers should connect each digital initiative to a defined operational problem, assign decision rights, verify information quality, evaluate full implementation costs and establish explicit opportunities to revise or discontinue projects.*
Originality/Value: *The article advances a conditional orchestration model of digital managerial capability. Its distinctive claim is that alignment, coordination, human judgement, data responsibility and financial learning interact as complements, with identifiable bottlenecks and boundary conditions. Four operationalisable propositions distinguish mediation, moderation and temporal effects.*

Keywords: *Digital transformation, organisational management, managerial capabilities, data governance, organisational resilience, SMEs.*

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1. Introduction

The digital era has changed the conditions under which organisations make decisions, coordinate work and justify their use of resources. Managers can observe customer behaviour almost continuously, communicate across organisational boundaries at negligible marginal cost and obtain algorithmic recommendations for tasks that once required specialist analysis. Yet the availability of information does not settle the managerial question of what ought to be done.

A firm may have more dashboards than ever before and still misunderstand its customers, allocate capital poorly or fail to notice an emerging operational problem. The central challenge is therefore not simply technological adoption. It is the design of an organisation capable of converting digital possibilities into reliable decisions, responsible conduct and durable economic value.

This distinction matters because digital transformation is frequently described through the language of inevitability. Software vendors promise frictionless processes; consultants advocate new operating models; employees encounter automation as a change to the substance of their jobs. Such developments are important, but they do not follow a single trajectory. The same technology can simplify a process in one enterprise and complicate it in another.

Differences in organisational routines, incentives, information quality and managerial judgement help explain why. The resource-based view suggests that valuable capabilities emerge from combinations of resources rather than from the possession of an individual asset (Barney, 1991). Digital tools should consequently be assessed in relation to the work they enable, not merely their technical sophistication.

This article asks not whether digital tools improve management in general, but when and through which organisational mechanisms they do so. Its contribution is a conditional orchestration model that treats digital managerial capability as an interdependent configuration rather than a sum of independent resources.

The model specifies pathways from strategic problem definition to process redesign and performance, identifies governance and skills as potential bottlenecks, and sets out conditions under which decentralised experimentation may outperform centralised control (Vial, 2019; Hanelt *et al.,* 2021; Warner and Wäger, 2019).

Three questions guide the analysis. First, what organisational conditions turn digital investment into a managerial capability? Second, how do digital technologies change coordination, accountability and the distribution of decision rights? Third, which managerial practices allow firms to pursue innovation without undermining financial discipline, employee trust or operational resilience? The article is conceptual. It does not claim to estimate causal effects or to report newly collected

interviews, surveys or firm-level observations. Its contribution lies in bringing together established theoretical perspectives and translating them into an explicit set of managerial relationships that can be examined empirically.

2. Theoretical Foundations of Digital Organisational Change

Digital transformation must be distinguished from digitisation and digitalisation. Digitisation converts analogue information into digital form. Digitalisation uses digital technologies to change particular activities and processes. Digital transformation involves more extensive changes in how an organisation creates value, allocates authority and relates to stakeholders. Verhoef *et al.* (2021) emphasise that the progression between these levels is not automatic.

A company may digitalise invoices without altering its business model; it may also redesign customer access and revenue generation while leaving some internal procedures comparatively conventional. A meaningful analysis therefore begins with the scale and purpose of change rather than with the number of applications installed.

The resource-based view provides a first explanation for uneven outcomes. Information systems can often be purchased by competitors, which limits their capacity to generate persistent advantage on their own. The differentiating element is how firms combine technological infrastructure with proprietary knowledge, employee experience, process discipline and customer understanding (Barney, 1991).

A customer relationship management system, for example, becomes valuable when salespeople record information consistently, managers interpret patterns critically and service teams can act on the resulting insights. Without these complementary routines, the system becomes an expensive repository of inconsistent records. This configuration-oriented view is consistent with capability frameworks that distinguish the timing and interaction of organisational capabilities (Konopik *et al.,* 2022).

Dynamic capabilities add a temporal dimension. Teece (2007) describes the importance of sensing opportunities and threats, seizing promising possibilities and reconfiguring resources as conditions change. These activities are particularly relevant in digital markets, where customer expectations, technological standards and competitive practices can evolve faster than traditional annual planning cycles. Sensing requires more than collecting signals; it requires deciding which signals deserve attention. Seizing requires disciplined investment choices. Reconfiguration requires the difficult work of changing roles, processes and sometimes established sources of organisational power.

A sociotechnical perspective complements these economic theories by treating organisations as interdependent arrangements of people, technologies and practices.

Technology does not operate outside the social context in which it is introduced. A workflow application can improve coordination when responsibilities are explicit, but it can also generate duplicated reporting when formal procedures conflict with everyday practice. Employees may resist a new system because it is poorly designed, because training is inadequate or because its monitoring functions alter their perceived autonomy. Such reactions cannot be understood as mere reluctance to innovate; they often reveal genuine design problems.

Finally, the literature on organisational learning suggests that successful transformation depends on feedback. Crossan, Lane and White (1999) describe organisational learning as a process linking individual intuition, group interpretation, organisational integration and institutionalisation. Their framework shows why feedback must travel beyond the individual manager and become part of shared organisational routines.

This distinction is essential when digital indicators become influential. If customer complaints rise after an automated service change, management may adjust response times while leaving the underlying service model intact. A deeper learning process asks whether the automation changed what customers value in the interaction. Digital management becomes more mature when evidence can challenge managerial assumptions rather than merely confirm them.

3. Methodological Approach

This article develops a purposive integrative conceptual synthesis rather than a systematic review or meta-analysis. Six analytical domains were chosen because they trace the proposed value-creation chain from strategic intent (digital strategy), through organisational execution (capabilities and decision rights), to decision quality (human–AI judgement and information governance) and economic outcomes (financial performance).

This is a theory-driven organising choice, not a claim that these domains exhaust digital transformation. Foundational theories were read alongside reviews and empirical studies for explanatory relevance; EU regulations were considered separately as primary legal sources. No exhaustive search, screening protocol or quantitative evidence aggregation was undertaken.

The synthesis followed four interpretive steps: (1) map recurring managerial problems onto resource-based, dynamic-capability, organisational-design and learning constructs (Barney, 1991; Teece, 2007; Crossan *et al.,* 1999); (2) contrast direct technology-productivity claims with complementary-capability and adaptation accounts (Eller *et al.,* 2020; Verhoef *et al.,* 2021); (3) identify plausible mechanisms, rival explanations and conditions under which each relationship could fail; and (4) formulate propositions with observable variables and temporal ordering. To discipline interpretation, rival accounts were retained rather than reconciled by

assumption, and negative cases were treated as potential falsifiers. This transparency does not eliminate selection bias or make the review reproducible as a systematic search.

The resulting model is a falsifiable theoretical proposal, not an empirical result. Heterogeneous sources play distinct roles: conceptual work defines mechanisms, reviews identify disagreements and empirical studies suggest measurements. Inference is limited by purposive selection, cross-sector variation and possible reciprocal causality (Vial, 2019; Hanelt *et al.,* 2021; Warner and Wäger, 2019).

4. Strategic Alignment and the Problem of Technological Fragmentation

One of the most persistent difficulties in digital management is the separation of technology decisions from organisational strategy. A firm may purchase an analytics platform because competitors use it, introduce a chatbot to appear innovative or migrate to a new enterprise system without specifying which managerial problem the investment should solve.

The result is technological activity without strategic direction. Bharadwaj *et al.* (2013) conceptualise digital business strategy as a fusion of business and information technology strategy, with implications for the scope, scale, speed and sources of value creation. Applied to digital investment, this means that a project should be justified by a clear business problem and an intelligible mechanism through which the proposed technology addresses it.

Strategic alignment is not a demand for rigid planning. On the contrary, digital environments require experimentation and revision. What matters is the ability to distinguish a purposeful experiment from a collection of unrelated purchases.

Managers should specify the process to be changed, the expected organisational benefit, the costs of transition and the evidence that would justify expansion or termination. Such discipline protects scarce capital and helps employees understand why established practices are being reconsidered. It also prevents the accumulation of overlapping systems that each solve a local problem while making the organisation as a whole harder to manage.

Fragmentation often emerges through apparently reasonable departmental choices. Marketing adopts one customer database, sales maintains another, finance uses spreadsheets and operations relies on a separate scheduling platform. Each unit may improve its own efficiency while reducing the consistency of organisational information.

When data definitions differ, senior management cannot confidently compare performance across units. A customer may be counted differently by marketing and finance; a completed order may be defined differently by sales and operations.

The managerial challenge is not only integration of software interfaces but agreement on common concepts, responsibilities and standards. Research on transformation across organisational layers also documents tensions between centralised and decentralised control (Plekhanov *et al.,* 2023).

Strategic coherence also requires recognising trade-offs. A highly standardised platform can improve reporting and reduce maintenance costs, but it may constrain local experimentation. Decentralised tools can respond quickly to specialist needs but increase integration and security burdens.

There is no universally optimal arrangement. Management must determine where standardisation creates shared value and where autonomy supports innovation. The relevant decision criteria include the interdependence of processes, the cost of switching systems, regulatory obligations and the organisation's ability to maintain reliable data.

For SMEs, these trade-offs are unusually consequential. Smaller firms often lack dedicated information technology departments and may rely on external providers for both implementation and maintenance. Dependence on a supplier is not inherently undesirable; it can provide access to capabilities that would otherwise be unaffordable. The problem arises when contractual arrangements, data portability and continuity plans are neglected. A sensible digital strategy therefore considers exit options, knowledge transfer and the organisation's capacity to operate when a vendor changes its service or pricing conditions.

5. Leadership, Competencies and the Changing Nature of Work

Digital transformation changes the work of managers before it changes the formal organisational chart. Leaders are expected to interpret unfamiliar technologies, communicate uncertainty and coordinate decisions that cut across professional boundaries.

Technical expertise is valuable, but it is insufficient. Effective leadership also requires the capacity to formulate a problem, question evidence, recognise the limits of prediction and explain decisions to those affected by them. These are not new responsibilities, yet digital systems increase their visibility and frequency.

The relationship between automation and human judgement deserves particular attention. Raisch and Krakowski (2021) describe a tension between automation, which substitutes technology for certain tasks, and augmentation, which strengthens human capabilities. In practice, organisations frequently pursue both. Routine classification may be automated while exceptional cases are escalated to experienced employees. This division can improve efficiency, but only if the criteria for escalation are understood and the employees receiving exceptions retain sufficient

knowledge to resolve them. Removing routine work may inadvertently remove the opportunities through which less experienced staff learn the underlying process.

Competence development must therefore go beyond short courses on software interfaces. Employees need to understand data provenance, basic analytical reasoning, privacy obligations and the consequences of acting on uncertain recommendations.

Managers additionally require the ability to assess whether a proposed digital solution is economically justified and whether the organisation can maintain it. Training is most effective when attached to actual work processes and reinforced through feedback. A certificate of participation says little about whether an employee can identify a misleading indicator or challenge an inappropriate automated recommendation.

Changes to work also affect trust. Digital systems can make activity more visible, which may improve coordination and accountability. The same visibility can be experienced as surveillance when performance measures are opaque or used without context. An employee handling difficult customer cases may appear less productive than a colleague processing simpler requests. If managers reward the volume of completed tasks without accounting for complexity, employees have incentives to avoid demanding work. The technology has not created the incentive problem, but it can magnify it through frequent and apparently objective measurement.

Employee participation is consequently a substantive element of implementation, not merely a communication exercise. Frontline staff often understand exceptions and informal dependencies that are absent from process diagrams.

Their involvement can reveal where automation would be useful and where it would damage service quality. Participation also helps establish legitimate expectations about monitoring, retraining and responsibility. Organisations that treat staff solely as recipients of technology risk losing precisely the practical knowledge that makes technological investments productive.

Leadership must additionally manage the pace of change. Constant implementation can exhaust employees, disrupt established routines and prevent the organisation from learning whether earlier investments worked.

A staged programme, with clear ownership and deliberate evaluation points, creates room for adjustment. It also reduces the temptation to interpret every implementation difficulty as resistance. Sometimes the appropriate managerial response is additional training; sometimes it is redesign of the process; and sometimes it is to discontinue a tool that does not justify its costs.

6. Data Governance, Analytics and Managerial Judgement

The economic value of digital systems depends heavily on the quality of information entering them. Data governance concerns the rules, roles and practices through which information is defined, maintained, accessed and used. Abraham, Schneider and vom Brocke (2019) present data governance as a coordinated organisational activity rather than a purely technical function. This is important because many data problems originate in everyday decisions: inconsistent classifications, unclear ownership, missing records or incentives to report favourable results. Advanced analytics cannot reliably compensate for a persistent absence of basic information discipline.

A practical governance model should specify who owns important datasets, who can modify them, which definitions are authoritative and how errors are corrected. These responsibilities need not require a large bureaucracy. In a smaller company, a designated manager may oversee customer and financial data with support from an external specialist. What matters is that accountability is explicit. When everyone can change a critical definition and nobody is responsible for reconciling inconsistencies, management gradually loses confidence in its own reports.

Artificial intelligence intensifies these concerns. Predictive systems identify patterns in historical data, but a pattern is not automatically a causal explanation. A sales forecast may perform well under stable conditions and deteriorate when customer behaviour changes. Generative systems can produce fluent accounts of financial or operational developments without reliably distinguishing verified facts from plausible statements.

Managers therefore need validation procedures proportionate to the consequences of a decision. A minor recommendation about document classification requires a different level of scrutiny from a proposal affecting credit, staffing or significant capital expenditure.

Human oversight should be designed as a meaningful decision process. In an experiment on managerial decision making, Haesevoets *et al.* (2021) examine how the distribution of human and machine input affects managers ’acceptance of collaborative decisions; their results concern acceptance and preferences, not a general improvement in decision accuracy.

Xiong *et al.* (2022) review challenges of human–machine collaboration under risk, including communication and the handling of incomplete or changing information. These findings motivate, but do not validate, the present model’s proposal to combine escalation thresholds, documented exceptions and context-sensitive human review.

The goal is not to eliminate uncertainty, which is impossible, but to make uncertainty visible and manageable. Forecasts should be accompanied by assumptions and, where feasible, ranges rather than isolated point estimates. Managers should ask what would have to change for the recommendation to become wrong. They should also compare algorithmic outputs with simple benchmarks. A sophisticated model that cannot outperform a transparent baseline may add complexity without adding managerial value. The capacity to reject an attractive technological solution is itself an indicator of mature governance.

7. Customer Relationships and Digital Value Creation

Digital channels have transformed the relationship between organisations and their customers. Companies can reach geographically dispersed audiences, personalise communication and measure interactions at a level of detail previously unavailable. Yet customer access is not the same as customer value. A growing number of clicks or messages may coexist with falling satisfaction, weaker loyalty or higher service costs. Management must distinguish attention from commitment and short-term conversion from a relationship that remains profitable and trusted over time.

Customer relationship management illustrates the need for organisational integration. Data collected during marketing campaigns can improve service when it is accurate, relevant and accessible to employees who need it. The same data becomes a liability when consent is unclear, records are duplicated or personalisation feels intrusive.

The managerial challenge is to define legitimate purposes for data use and ensure that technology supports a coherent customer experience across departments. Digitalisation should reduce the burden customers bear when interacting with the organisation, not simply shift administrative work from employees to customers.

Platform dependence creates another strategic issue. Digital marketplaces and advertising platforms can expand access to demand, especially for smaller businesses. They can also alter commissions, visibility rules and customer relationships. An organisation that relies on a single intermediary may find its commercial position vulnerable to decisions it cannot influence. Managers should evaluate the contribution of each channel to customer acquisition and retention, including fees, service obligations and the extent to which customer relationships can be maintained independently.

Przychocka and Sikorski (2024) examine the digital transformation of financial operations in small and medium-sized enterprises. Their study is relevant here as a sector-independent discussion of how digital processes may support financial management. It should not be interpreted as evidence about short-term apartment rental operations, customer retention or sector-specific revenue effects.

The connection to customer value proposed in this article is therefore a conceptual inference rather than a finding reported by those authors.

Customer trust is particularly sensitive to the quality of automated interactions. A chatbot that resolves routine questions quickly may be appreciated, but a system that repeatedly prevents access to a human representative can damage the relationship.

Efficiency should therefore be assessed alongside resolution quality, fairness and accessibility. The relevant performance indicators may include repeat purchases, complaint resolution, customer effort and contribution margin, rather than engagement counts alone. Management should also examine whose experience is missing from the available data, because digital channels may underrepresent customers who have difficulty using them.

8. Financial Discipline, Risk and Organisational Resilience

Digital investments are sometimes justified by broad expectations of efficiency rather than by a transparent financial case. Such reasoning is risky because the costs of transformation extend beyond licences and hardware. They include migration, integration, employee training, temporary disruption, security measures, vendor dependence and ongoing maintenance.

Some benefits are likewise indirect: fewer errors, faster coordination or improved decision quality may be economically meaningful without appearing immediately as additional revenue. A credible investment appraisal should therefore identify both cash effects and operational mechanisms.

Financial discipline is especially important when firms face uncertain demand or limited liquidity reserves. Przychocka, Sikorski and Milewski (2024) discuss cash flow management in small and medium-sized enterprises during economic uncertainty. Their work provides a financial-management context, but does not itself establish the profitability of digital transformation. Digital projects compete for funds with routine operations, so managers should assess investment timing, working-capital constraints and the full cost of adoption before attributing financial gains to technology.

The risk profile of a digital organisation differs from that of a predominantly analogue one. Cyber incidents, data loss, system outages and supplier failures can interrupt operations across several functions at once. Algorithmic errors can also spread rapidly when recommendations are automatically implemented at scale. These exposures require a broader understanding of operational risk.

Bromiley *et al.* (2015) review enterprise risk management as an organisation-wide approach and emphasise the importance of examining how risk practices relate to strategy, governance and performance. Applied to digital transformation, this

suggests that risk assessment should accompany project selection, system design, contracting and routine operation rather than occur only after a failure.

Resilience is not synonymous with maximum redundancy or the elimination of all possible risks. Resources devoted to protection have opportunity costs, and smaller organisations must make difficult choices about what is essential. Managers should identify critical processes, estimate the consequences of interruption and determine practical recovery arrangements. Basic measures such as tested backups, access controls, clear incident responsibilities and alternative communication channels may have considerable value. More sophisticated controls should be evaluated against the organisation's exposure, operational complexity and capacity to sustain them.

A further challenge concerns the interpretation of performance. Digital transformation can increase productivity while temporarily reducing reported profitability because implementation costs are recognised before benefits materialise. Conversely, a project may appear financially attractive because training costs or managerial time are omitted from its evaluation. Managers should distinguish leading indicators of adoption from outcomes that matter to the enterprise. The number of employees using a platform may indicate engagement, but it does not establish that decisions are better or that customers receive improved service.

Balanced evaluation requires multiple time horizons. Short-term measures might include process time, error frequency and service continuity. Medium-term measures could examine employee capability, customer retention and operating margins. Longer-term evaluation should consider adaptability, the ability to launch new services and the resilience of the business model. Not every outcome can be attributed to a single digital project, especially when market conditions are changing. Rather than claiming false precision, management should record assumptions and use comparisons, pilot groups or phased rollouts wherever feasible.

9. Ethics, Regulation and the Boundaries of Managerial Responsibility

Digital management is inseparable from questions of legitimacy. Organisations process information about employees, customers and business partners, and automated systems can influence access to services or employment opportunities.

Decisions may be technically feasible without being fair, proportionate or consistent with the organisation's commitments. Ethical governance begins by asking who benefits from a technological change, who bears its risks and whether affected individuals can obtain a meaningful explanation or remedy when something goes wrong.

Regulatory compliance provides an important minimum standard but cannot substitute for managerial judgement. Research on European data protection

requirements shows that organisational data practices involve important questions of transparency, accountability and the handling of personal information (Tikkinen-Piri, Rohunen and Markkula, 2018).

For artificial intelligence, Floridi *et al.* (2018) develop an ethical framework centred on principles such as beneficence, non-maleficence, autonomy, justice and explicability. These academic frameworks inform responsible management but do not replace legal analysis of binding regulatory obligations. In the European Union, Regulation (EU) 2016/679 (GDPR) establishes requirements for processing personal data, while Regulation (EU) 2024/1689 (AI Act) provides a risk-based regulatory framework for artificial intelligence.

The applicability of particular obligations depends on the organisation's role, the processing activity, the AI system concerned and the relevant implementation dates. The practical task for managers is to identify sensitive uses, assign oversight responsibilities and document proportionate safeguards.

An ethical framework should be operational rather than ceremonial. Policies that declare a commitment to transparency are of limited value if employees cannot identify who authorised a system or how to challenge its output. Effective governance assigns responsibility for procurement, data use, monitoring and incident response. It also creates a route for employees and customers to report harmful outcomes. These mechanisms can reveal weaknesses before they become public controversies or expensive disputes.

Organisations should be particularly cautious when digital systems are used to assess people. Historical data may reflect unequal opportunities or inconsistent managerial practices. An algorithm trained on those records can reproduce patterns that appear statistically regular but are normatively unacceptable.

Human review is necessary, although not automatically sufficient: reviewers can defer excessively to automated recommendations. Training, documentation and periodic assessment should therefore examine the entire decision process, including how people interpret and contest machine outputs.

Responsible management also includes environmental and social considerations. Digital infrastructure consumes energy and equipment, while automation may redistribute employment opportunities and training needs. The appropriate response is neither uncritical celebration nor blanket rejection of technology. Managers should evaluate material impacts and explain how trade-offs are handled.

This is particularly important where an organisation presents digital transformation as part of a broader sustainability or stakeholder strategy. Credibility depends on consistency between public commitments and everyday operational decisions.

10. An Integrative Framework for Managerial Action

We propose the Conditional Digital Capability Orchestration (CDCO) model. Its contribution is not the identification of five familiar capabilities, but three discriminating predictions: (i) complementary capabilities produce bottleneck effects, so isolated excellence may have low marginal value; (ii) the strength of complementarities varies with task interdependence and error costs; and (iii) operational gains may precede, or fail to become, risk-adjusted financial gains.

Strategic clarity defines the problem; coordination allocates decision rights; human competence and information responsibility jointly shape decision quality; adaptive financial control tests net value and feeds results back into strategic revision. Figure 1 distinguishes these mechanisms and their boundary conditions (Bharadwaj *et al.,* 2013; Warner and Wäger, 2019; Yu *et al.,* 2022).

The model makes competing predictions testable. A technology-productivity account expects returns primarily from automation intensity; a resource-based account expects returns from valuable complementary assets; and dynamic-capability theory predicts benefits from adaptation over time. CDCO additionally predicts a negative interaction with the weakest complementary capability, stronger coordination effects under high interdependence, and divergence between immediate process savings and later net returns.

These are proposed extensions, not established empirical findings. Formal governance may be disproportionately valuable when regulatory exposure and error costs are high, but unnecessary overhead in simple workflows (Puranam, 2021; Fügener *et al.,* 2022; Bromiley *et al.,* 2015).

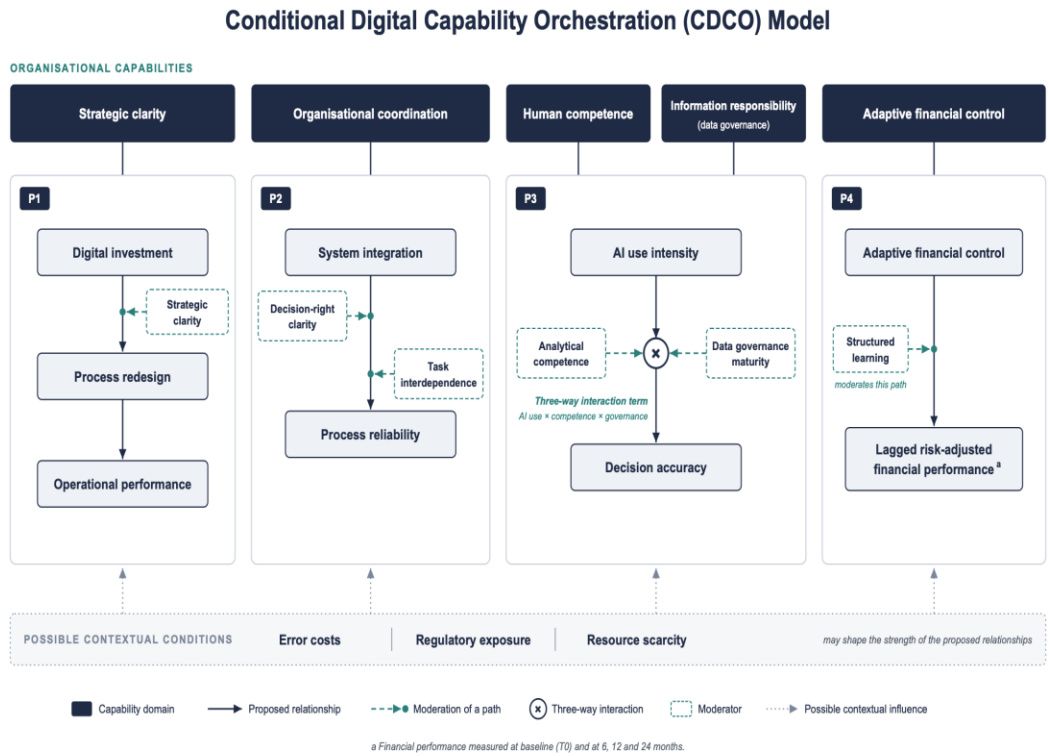
Boundary conditions include process interdependence, data heterogeneity, algorithmic decision frequency, resource scarcity and regulatory exposure. In a small firm with simple workflows, local digitalisation may succeed without extensive central coordination; in an interconnected or highly regulated organisation, fragmented decision rights can nullify tool-level gains. Financial assessment must include integration, training and dependency costs, not merely time saved (Eller *et al.,* 2020; Tikkinen-Piri *et al.,* 2018; Przychocka, Sikorski and Milewski, 2024).

Four testable propositions follow. P1 (mediated alignment): process redesign mediates the relationship between digital investment and risk-adjusted operational performance, with a stronger indirect effect when strategic objectives are explicit.

Measure clarity through documented targets, redesign through workflow audits, and outcomes through cycle time, unit cost and margin. P2 (coordination complementarity): decision-right clarity strengthens the effect of system integration on process reliability, particularly under high task interdependence. Measure integration via interoperability, clarity via validated responsibility scales, and

reliability via errors and rework. P3 (human–data complementarity): the association between AI-assisted decision use and independently assessed decision accuracy is jointly moderated by analytical competence and data-governance maturity.

Figure 1. *Conditional Digital Capability Orchestration (CDCO): mechanisms, outcomes and boundary conditions.*



Source:*Authors' conceptual development.*

Estimate a three-way interaction (AI use × competence × governance), retaining all lower-order terms; the predicted gain is greatest when both moderators are high. Competence may be tested, governance audited, and accuracy scored against blinded expert or realised-outcome benchmarks. P4 (lagged adaptive returns): staged investment reviews and structured learning jointly predict stronger improvement in risk-adjusted financial returns from month 12 to month 24 after adoption, conditional on baseline performance; gains at month 6 may be weaker or negative after implementation costs.

Measure learning through documented review cycles and decisions, and returns through operating margin and total cost of ownership (Puranam, 2021; Fügener *et al.,* 2022; Yu *et al.,* 2022; Przychocka and Sikorski, 2024).

Testing requires separation of predictors, mechanisms and outcomes. P1 calls for longitudinal mediation; P2 for integration × clarity × interdependence terms; P3 for the specified three-way interaction and marginal-effect plots; and P4 for baseline, 6-, 12- and 24-month financial observations, including adoption costs. Sector, size, maturity, volatility and regulatory exposure should be modelled as controls or moderators. System logs and audited accounts can reduce common-method bias (Eller *et al.,* 2020; Yu *et al.,* 2022).

A multi-sector panel supplemented by process-tracing case studies would allow rival accounts to be compared. Where comparable non-adopters exist, difference-in-differences could help estimate effects, subject to parallel-trend and selection assumptions. Null complementarities, persistent direct technology gains under weak governance, or no delayed financial recovery would count against CDCO.

11. Discussion

Three rival accounts generate distinct predictions. Technology-productivity reasoning expects gains from automation intensity; the resource-based view emphasises scarce complements; dynamic-capability theory emphasises adaptation and time (Barney, 1991; Teece, 2007; Warner and Wäger, 2019). CDCO specifies where these explanations diverge: a binding capability bottleneck, stronger coordination effects as interdependence rises, and a possible gap between process savings and net financial returns. Such effects must be tested rather than assumed.

SME research examines associations between resources, digitalisation and performance without establishing a universal causal pathway (Eller *et al.,* 2020; Yu *et al.,* 2022). Human–AI research highlights distinct issues: delegation performance and metaknowledge in classification tasks (Fügener *et al.,* 2022), managerial acceptance of human–machine input (Haesevoets *et al.,* 2021), and collaboration under risk (Xiong *et al.,* 2022).

These studies do not jointly establish CDCO; they support the narrower proposition that role design and task conditions should be explicitly considered. Excessive control may suppress local learning, whereas decentralisation may raise integration costs.

The model links resource bundles, adaptation, decision rights and risk governance without treating them as equivalent (Bharadwaj *et al.,* 2013; Hanelt *et al.,* 2021; Bromiley *et al.,* 2015). Its distinctive implication is that strong isolated capabilities may coexist with weak organisational outcomes, and that the constraining capability can change between implementation and scale-up. Digital transformation should therefore not be treated as a uniform intervention (Reis and Melão, 2023).

Limitations include purposive source selection, untested propositions, sector-specific evidence and reciprocal causality: profitable firms may invest more in governance

rather than prosper because of it. Future work should pre-register rival specifications, examine failed implementations and test temporal ordering. GDPR and the AI Act require separate, provision-specific legal assessment (Regulation (EU) 2016/679; Regulation (EU) 2024/1689).

12. Conclusion

The digital era has expanded the range of tools available to organisations while making managerial coordination more demanding. The challenge is not simply to acquire technology, but to create the organisational conditions under which technology improves decisions, customer value and resilience. Strategy provides direction; employees supply contextual judgement; governance protects the reliability and legitimacy of information; and financial discipline ensures that transformation remains economically sustainable.

For managers, the most useful question is not whether their organisation is sufficiently digital. It is whether a particular digital initiative addresses an important problem, whether people understand and control its consequences and whether the benefits justify the full cost of change. This approach replaces technological enthusiasm with purposeful experimentation. It also recognises that responsible leadership may involve delaying, redesigning or rejecting a system that does not serve the organisation's objectives.

The contribution of this article is the Conditional Digital Capability Orchestration model and four propositions that identify mechanisms, moderators and temporal effects linking digital investment to risk-adjusted organisational outcomes.

Rather than asserting that digitalisation is inherently beneficial, the model specifies when strategic clarity, decision rights, human competence, information responsibility and financial learning are expected to reinforce one another, and when bottlenecks or contextual constraints may interrupt that process. Empirical validation is required before managerial generalisations can be drawn.

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