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Review Article

Digital Transformation as a Socio-Technical Capability: Implications for Project Management Efficiency in Modern Organizations

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Abstract: Digital transformation is often discussed as a portfolio of technologies, yet project outcomes depend less on tool acquisition than on the organisation's capacity to align technology, work design, governance and human judgement. This review develops a socio-technical account of digital transformation as an organisational capability and examines how that capability shapes project management efficiency. A structured integrative review of research published between 2020 and 2025 was undertaken across project management, information systems, operations, organisational change and digital strategy. The synthesis identifies five mutually dependent capability domains: digital architecture, data and analytical discipline, adaptive delivery routines, participative work design, and transformation governance. These domains improve efficiency through faster information flows, shorter decision cycles, earlier risk detection, reduced coordination loss, reusable knowledge and stronger benefits realisation. However, the evidence also shows that digitisation can increase administrative burden, surveillance concerns, fragmented accountability and false confidence when technology is introduced without process redesign or employee participation. The paper proposes an integrated capability framework in which technical affordances generate value only when they are translated through social mechanisms such as role clarity, psychological safety, cross-functional learning and decision rights. Project efficiency is therefore treated as a multidimensional outcome comprising speed, resource productivity, decision quality, adaptability and sustainable value rather than mere schedule compression. The review concludes with a staged operating model, measurable indicators and a research agenda for testing capability configurations across sectors and levels of digital maturity.

Keywords: Digital Transformation, Socio-Technical Systems, Project Management, Organisational Capability, Project Efficiency, Digital Governance, Organisational Agility.

1. INTRODUCTION

Digital transformation has become a central route through which organisations renew operating models, integrate distributed work and respond to volatile markets. Yet its practical record remains uneven because the term is frequently reduced to cloud migration, automation or the installation of collaborative platforms. Contemporary research instead describes transformation as a strategic and organisational reconfiguration enabled by digital technologies, with consequences for structures, routines, customer interfaces and value creation

(Verhoef *et al*., 2021; Hanelt *et al*., 2021; Plekhanov *et al*., 2023). This distinction matters for project management. Projects are the temporary vehicles through which new platforms, processes and business models are designed, tested and embedded; at the same time, project work itself is being altered by real-time data, virtual collaboration, algorithmic support and increasingly permeable organisational boundaries.

A technology-centred interpretation assumes that better software automatically produces better control. In practice, digital tools can accelerate weak routines as easily as strong ones. A poorly designed workflow becomes a faster source of rework; an inaccurate dashboard spreads error more widely; and a collaboration platform can multiply messages without improving shared understanding. Studies of digital strategy implementation show that value is lost when strategic ambition, operating processes and implementation responsibilities are disconnected (Correani *et al*., 2020). Research on digitalisation also identifies organisational agility, leadership, skills and culture as co-evolving conditions rather than optional complements to technology (Ciampi *et al.,* 2022; Konopik *et al*., 2022). These findings justify treating digital transformation as a socio-technical capability: a repeatable capacity to configure technical and social resources around changing project objectives.

The socio-technical perspective is especially relevant because modern projects are information-intensive and interdependent. Decisions about scope, risk, resources and benefits emerge from interactions between data infrastructures, formal methods, professional expertise, stakeholder expectations and local work practices. The attached reference study demonstrates this logic by separating process-oriented and human-oriented factors while arguing that sustainable project value requires their joint operation (Lima *et al*., 2023). The present review extends that reasoning beyond Lean implementation. It asks how organisations can build a broader transformation capability that improves project efficiency without sacrificing judgement, inclusion, resilience or long-term value.

The study has three objectives. First, it clarifies the conceptual difference between adopting digital tools and possessing a socio-technical transformation capability. Second, it synthesises the mechanisms through which that capability affects planning, execution, coordination, risk management and benefits realisation. Third, it develops an integrated framework and operating model suitable for managers who must translate digital investment into measurable project outcomes. Efficiency is defined here as the reliable conversion of time, attention, information and resources into stakeholder value. This definition includes schedule and cost performance but also decision quality, adaptability, learning and the avoidance of downstream failure.

2. Conceptual Foundation

Digital transformation literature has moved from technology adoption towards capability-based explanations of organisational change. Reviews distinguish digitisation, which converts analogue information into digital form; digitalisation, which uses digital technologies to improve processes; and transformation, which alters organisational arrangements and value logic (Gong and Ribiere, 2021; Kraus *et al*., 2022). A capability perspective focuses on what an organisation can repeatedly accomplish rather than which applications it owns. The relevant question is therefore not whether a project team uses analytics, artificial intelligence or cloud collaboration, but whether it can combine those resources with governance, skills and routines to sense problems, redesign work, act and learn.

Dynamic-capability research reinforces this view. Successful transformation requires sensing changes, seizing opportunities and reconfiguring assets, structures and practices. These activities depend on managerial cognition, cross-functional mobilisation and disciplined change management (Soto Setzke *et al*., 2021; Al-Moaid and Almarhdi, 2024). Organisational capability is consequently distributed. Senior leaders provide direction and resource commitment; portfolio bodies establish priorities and decision rights; project managers translate strategy into delivery systems; specialists create technical solutions; and users supply contextual knowledge needed for adoption. Transformation fails when one layer is advanced while another remains static.

Socio-technical theory adds an important design principle: social and technical subsystems should be jointly optimised rather than independently improved. Digital technology creates affordances such as visibility, traceability, simulation and rapid communication, but these affordances are realised through roles, incentives, trust, skills and patterns of interaction. Recent socio-technical work argues that digital work design must consider the division of labour, autonomy and the changing boundary between human and machine action (Govers and van Amelsvoort, 2023). Similarly, socio-technical risk research shows that efficiency gains can create new dependencies and vulnerabilities unless technical change is assessed together with organisational behaviour and control (Menzefricke *et al*., 2021).

For project management, this means that a capability cannot be represented by a maturity score based only on platform coverage. A digitally capable project organisation can establish a reliable data baseline, make work visible, automate selected transactions, preserve meaningful human review, redesign responsibilities and capture learning across projects. It also knows when not to automate. This selective quality separates capability from enthusiasm. Artificial-intelligence research demonstrates that analytical systems can improve creativity, prediction and performance, yet their value depends on data quality, complementary skills and managerial use (Mikalef and Gupta, 2021; Wamba-Taguimdje *et al*., 2020). The same principle applies to every digital project tool.

3. REVIEW METHODOLOGY

A structured integrative review was selected because the research question spans several mature but partially disconnected fields. The review covered peer-reviewed studies and recognised professional standards published from January 2020 to December 2025. Search concepts combined digital transformation, digital capability, socio-technical systems, project management, project efficiency, organisational agility, digital leadership, analytics, artificial intelligence, change management and project information systems. Sources were considered when they addressed at least one of four relationships: the constitution of digital transformation capability; interaction between technical and organisational factors; effects of digitalisation on project work; or mechanisms connecting digital capability with performance.

Selection proceeded through relevance, methodological clarity and conceptual contribution. Purely technical papers without organisational or project implications were excluded, as were descriptive accounts that treated application deployment as transformation without examining work redesign or outcomes. The final analytical portfolio was organised through thematic coding. Evidence was coded against capability inputs, integration mechanisms, project-management processes, efficiency outcomes, boundary conditions and risks. Rather than ranking technologies, the synthesis sought recurring causal explanations across strategy, information systems, operations and project studies. This approach is consistent with recent reviews that call for multilayered analysis of the organisational core, peripheral relationships and external environment (Hanelt *et al*., 2021; Plekhanov *et al*., 2023).

The method has deliberate limits. It does not estimate a universal effect size because studies operationalise digital transformation and project performance differently. Construction, software, public-sector and manufacturing projects also face distinct regulatory and asset conditions. Accordingly, the results are presented as an explanatory capability framework rather than a deterministic maturity ladder. The framework identifies mechanisms that should be empirically tested in specific contexts, particularly where digital adoption is high but benefits remain uncertain.

4. Digital Transformation as an Integrated Capability

The synthesis identifies five capability domains whose value depends on their configuration. The first is digital architecture: interoperable platforms, secure connectivity, accessible repositories and dependable integration between project, finance, operational and customer systems. Architecture affects efficiency by reducing duplicate entry, reconciliation effort and latency. However, integration is not synonymous with centralisation. Teams need common definitions and interfaces while retaining sufficient flexibility to respond to project-specific uncertainty. Digital architecture therefore includes modularity, access control and ownership of interfaces, not merely a common software suite.

The second domain is data and analytical discipline. Efficient project decisions require timely, traceable and decision-relevant data. This capability includes data ownership, quality rules, metadata, model governance, visualisation and the ability to interpret uncertainty. Analytics should shift attention from retrospective reporting to forward-looking control by identifying emerging schedule pressure, resource conflict and risk concentration. Evidence from analytics-based project environments suggests that value depends on the integration of structural, human and relational capital rather than on dashboards alone (Kudyba and Cruz, 2023). Generative and predictive tools can support planning, but comparative studies caution that plausible output is not equivalent to accountable judgement (Barcaui and Monat, 2023).

The third domain is adaptive delivery routines. Digital work produces value when planning, review and escalation cycles are redesigned around shorter feedback intervals. Hybrid arrangements are often more appropriate than ideological commitment to a single method. Stable infrastructure components may require formal baselines and assurance gates, whereas uncertain user-facing components benefit from iteration, experimentation and frequent validation. The capability lies in matching control intensity to uncertainty, maintaining configuration integrity and enabling decisions at the lowest competent level. Digital transformation therefore changes cadence: it makes evidence available sooner and should permit earlier correction, but only when governance allows teams to act on that evidence.

The fourth domain is participative work design. Employees and users are not passive recipients of systems; they hold tacit knowledge about exceptions, dependencies and the practical consequences of process change. Participation improves requirements, adoption and risk detection, while also protecting dignity and autonomy. Research on workplace readiness emphasises leadership, communication, learning climate and employee involvement as multilevel conditions for digital change (Trenerry *et al.*, 2021). Crisis-induced transformation similarly shows that leadership effectiveness depends on autonomy, cohesion and the management of work-related strain (Bartsch *et al.*, 2021). Participation is thus an efficiency mechanism because it reduces late discovery, workarounds and resistance.

The fifth domain is transformation governance. Governance connects portfolio choices, architecture standards, project controls, risk appetite, benefits ownership and ethical constraints. It clarifies who may approve a model, change a workflow, accept residual risk or retire a legacy process. A central digital role can coordinate transformation, but centralisation must not detach decisions from operational knowledge. Research on organisational forms indicates that successful arrangements vary with digital culture, the role of the technology function and transformation objectives (Erjavec *et al.*, 2024). Governance capability is therefore ambidextrous: it standardises data, security and accountability while allowing local experimentation within explicit boundaries.

Figure 1 represents the five domains as a capability system. Technical assets are placed on the left, social and organisational resources on the right, and integration mechanisms at the centre. Project efficiency appears as an outcome of their interaction rather than as a direct consequence of technology. The feedback path matters because delivery experience changes standards, skills, data definitions and future investment choices. Without this learning loop, organisations accumulate tools but not capability.

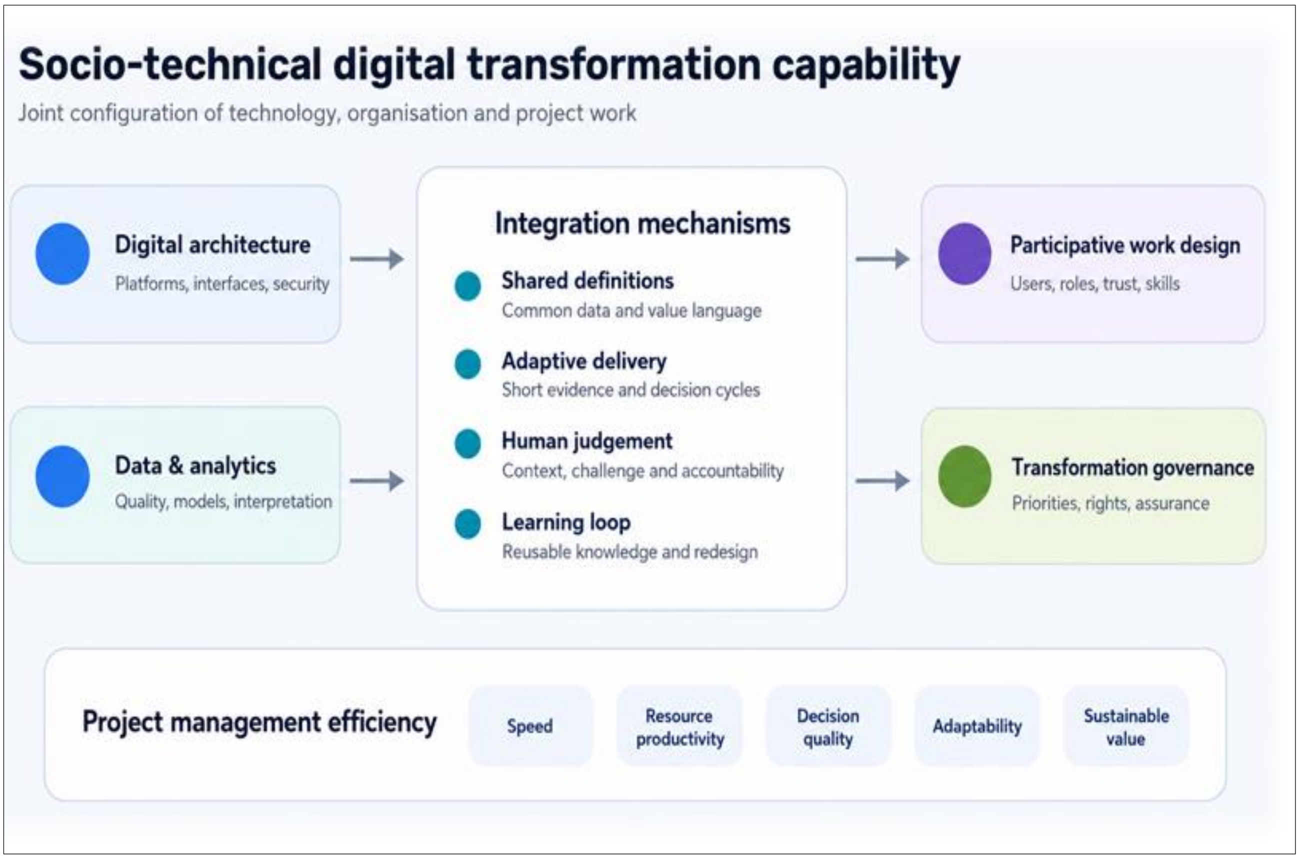

Figure 1: Integrated socio-technical capability architecture for project efficiency

5. Implications for Project Management Efficiency

The first implication concerns front-end definition. Digital environments can improve opportunity assessment by connecting strategic objectives, operational data and stakeholder evidence. Scenario modelling, process mining and collaborative requirements repositories allow teams to examine alternatives before committing major resources. Efficiency improves when ambiguity is surfaced early, assumptions are explicit and benefits have accountable owners. The risk is premature precision: detailed digital models may create confidence before strategic choices or data definitions are stable. Project managers should therefore distinguish evidence, assumption and forecast, and should maintain decision logs that explain why a baseline was accepted.

The second implication concerns planning and resource allocation. Integrated schedules and capacity data can reveal cross-project dependencies that are invisible within individual plans. Algorithms can support sequencing, forecast bottlenecks and propose resource scenarios, while project managers evaluate feasibility, political constraints and specialist availability. The objective is not automated scheduling but faster convergence on a credible plan. Digital transformation strengthens planning efficiency when data are current, resource calendars are governed and scenario results are challenged by practitioners. Where data are fragmented, automation simply produces a more elaborate version of the wrong plan.

The third implication concerns execution visibility. Shared workspaces, digital workflows and live performance signals shorten the interval between event and managerial response. This can reduce status-meeting time and manual reporting, but visibility must be designed around decisions. Excessive indicators disperse attention and encourage local optimisation. Effective teams use a limited hierarchy of measures: delivery flow, constraint age, forecast variance, quality, risk exposure and benefits evidence. Visual management should show exceptions and trends, not reproduce every transaction. The socio-technical capability is demonstrated when teams know which signal requires action, who acts and how the outcome is recorded.

The fourth implication concerns coordination. Modern projects rely on temporary networks of internal functions, suppliers, consultants and users. Digital platforms reduce geographical friction, but coordination quality depends on shared language, trust and role clarity. An implementation study of socio-technical digital tools found that management commitment, middle-line involvement and operator training were essential for adoption, particularly where digitalisation exposed existing waste or changed established routines (Dora *et al*., 2024). Communication efficiency is therefore not the volume or speed of messaging. It is the reduction of interpretive gaps, duplicated work and unresolved dependencies.

The fifth implication concerns risk and assurance. Integrated data can support continuous control testing, anomaly detection and earlier escalation. Artificial intelligence may identify patterns that human reviewers overlook, while humans contribute contextual reasoning and ethical accountability. The appropriate design is layered: automated checks for high-frequency rules, analytical support for complex patterns, and human approval for consequential decisions. Research on artificial intelligence in project management highlights opportunities in forecasting and decision support but also stresses data, transparency and competence requirements (Felicetti *et al*., 2024; Almeida *et al*., 2025). Efficiency is achieved when assurance is proportionate and embedded in work, not when control is removed.

The sixth implication concerns knowledge reuse. Digital repositories often fail because documents are stored without context, ownership or retrieval logic. A capability approach captures decisions, assumptions, patterns, reusable components and outcome evidence in forms that future teams can apply. Lessons should be linked to project stages, risk types and conditions of validity. Reuse reduces search effort and repeated error, but only when teams trust the content and obsolete knowledge is retired. Knowledge management research viewed through a socio-technical lens similarly identifies technology, motivation, interaction and organisational support as joint drivers of effective use (Thomas *et al*., 2024).

The seventh implication concerns benefits realisation. Project efficiency is incomplete if outputs arrive quickly but do not change operational performance. Digital transformation projects require transition measures that connect delivery milestones with adoption, process outcomes and strategic value. Benefits owners should define leading indicators, adoption thresholds and review points before implementation. The project team must then remain connected to operations long enough to test whether the new capability is used and whether unintended effects have emerged. This shifts efficiency from output production to value conversion and discourages superficial completion.

Table 1: Capability domains, mechanisms and project-efficiency implications

Capability domain	Key organisational resources	Efficiency mechanism	Illustrative project outcome	Principal risk if misaligned
Digital architecture	Interoperable platforms, modular interfaces, identity and access controls	Reduces duplicate entry and information latency	Faster baseline reconciliation and cross-project reporting	Tool proliferation and integration debt
Data and analytics	Data ownership, quality rules, metadata, models and interpretive skills	Improves forecasting and exception detection	Earlier intervention on schedule, cost and risk variance	False precision, opaque models and weak lineage
Adaptive delivery	Hybrid methods, short feedback cycles, configuration control and escalation rules	Matches control intensity to uncertainty	Shorter learning cycles and lower rework	Uncontrolled change or rigid process compliance
Participative work design	User involvement, psychological safety, role clarity and capability development	Improves requirements and adoption	Fewer workarounds and smoother operational transition	Resistance, overload and surveillance concerns
Transformation governance	Portfolio priorities, decision rights, benefits ownership, risk and ethical assurance	Aligns projects with strategy and accountability	Faster decisions and stronger benefits realisation	Central bottlenecks or fragmented accountability

6. Boundary Conditions and Failure Modes

The capability model also explains why digitalisation can reduce efficiency. The first failure mode is tool proliferation. Separate functions acquire applications that optimise local work but fragment data and identity management. Teams then spend time reconciling versions, maintaining integrations and navigating inconsistent workflows. The second failure mode is administrative digitisation, where paper controls are transferred into electronic forms without removing obsolete approvals or clarifying decision rights. The apparent modernisation increases traceability while preserving delay.

A third failure mode is algorithmic opacity. Forecasts and recommendations may be accepted because they appear objective, even when training data are incomplete or conditions have changed. Artificial-intelligence capability research emphasises calibration, data quality and complementary managerial skills (Mikalef and Gupta, 2021). Project governance should require explainability proportionate to consequence, documented human review and mechanisms for challenging automated output. A fourth failure mode is surveillance drift. Fine-grained activity data can improve flow analysis, but continuous individual monitoring may reduce psychological safety, encourage gaming and damage trust. Measures should therefore focus primarily on system performance and constraints, with transparent rules for personal data.

A fifth failure mode is capability asymmetry. Organisations may create sophisticated technology while leaving suppliers, users or regional units without the skills or connectivity to participate. This creates manual bridges and hidden work, moving rather than removing cost. A sixth is temporary-project isolation. Digital initiatives may deliver a platform without changing policies, incentives, job design or operational ownership. Reviews of digital transformation consistently show that organisational change and strategy implementation are central to value creation (Nadkarni and Prügl, 2021; Li, 2020). Project efficiency therefore depends on the receiving system's readiness, not only the delivery team's productivity.

Context also shapes the preferred configuration. Regulated and safety-critical projects require stronger assurance, data lineage and separation of duties. Innovation projects require experimentation and reversible commitments. Smaller organisations may benefit from simpler architectures and external platforms but face dependence on vendors and scarce specialist capacity. Public organisations must manage legitimacy, accessibility and continuity in addition to cost and speed. The framework does not prescribe identical structures; it requires explicit alignment between risk, complexity, digital maturity and work design.

7. An Operating Model for Capability-Based Transformation

The proposed operating model contains five recurring stages: sense, align, configure, execute and learn. Sense identifies project and organisational problems through operational evidence, stakeholder experience and strategic analysis. Align establishes value, decision rights, risk boundaries and benefits ownership. Configure designs the technical architecture and the accompanying roles, workflows, skills and controls. Execute uses short evidence cycles, integrated visibility and proportionate assurance. Learn compares expected and realised outcomes, updates reusable knowledge and modifies the capability system. Figure 2 illustrates this loop.

The stages are governed through decision gates rather than documentation volume. At the alignment gate, leaders test whether the initiative addresses a material problem and whether benefits have owners. At the configuration gate, assurance examines data, interoperability, security, workload and user participation. During execution, evidence gates assess forecast credibility, adoption risk and unresolved constraints. The learning gate verifies operational outcomes and identifies standards or components that should be reused. Gates should be lightweight for low-risk change and more demanding where decisions affect safety, rights, major expenditure or public trust.

Table 1 links capability domains with mechanisms and outcomes. Table 2 translates the framework into a measurement system. Metrics should combine leading and lagging indicators. Leading indicators include decision latency, age of unresolved constraints, data-quality exceptions, percentage of automated controls with named owners, user participation and capability training. Lagging indicators include schedule reliability, cost of rework, benefits achieved, adoption, operational incidents and reuse of validated knowledge. No single composite score should conceal trade-offs. A project that accelerates delivery by transferring workload or risk to operations is not efficient.

Implementation should begin with a bounded value stream or project portfolio rather than an enterprise-wide platform mandate. Organisations can map decisions, information delays and recurring rework; establish a small set of shared definitions; redesign one workflow; and test whether cycle time and quality improve. Technology investment follows the redesigned operating logic. Scaling then depends on reusable interfaces, governance patterns and communities of practice. This sequence reflects evidence that digital transformation is implemented through connected projects and organisational learning, not through a single technical event (Correani *et al*., 2020; Soluk and Kammerlander, 2021).

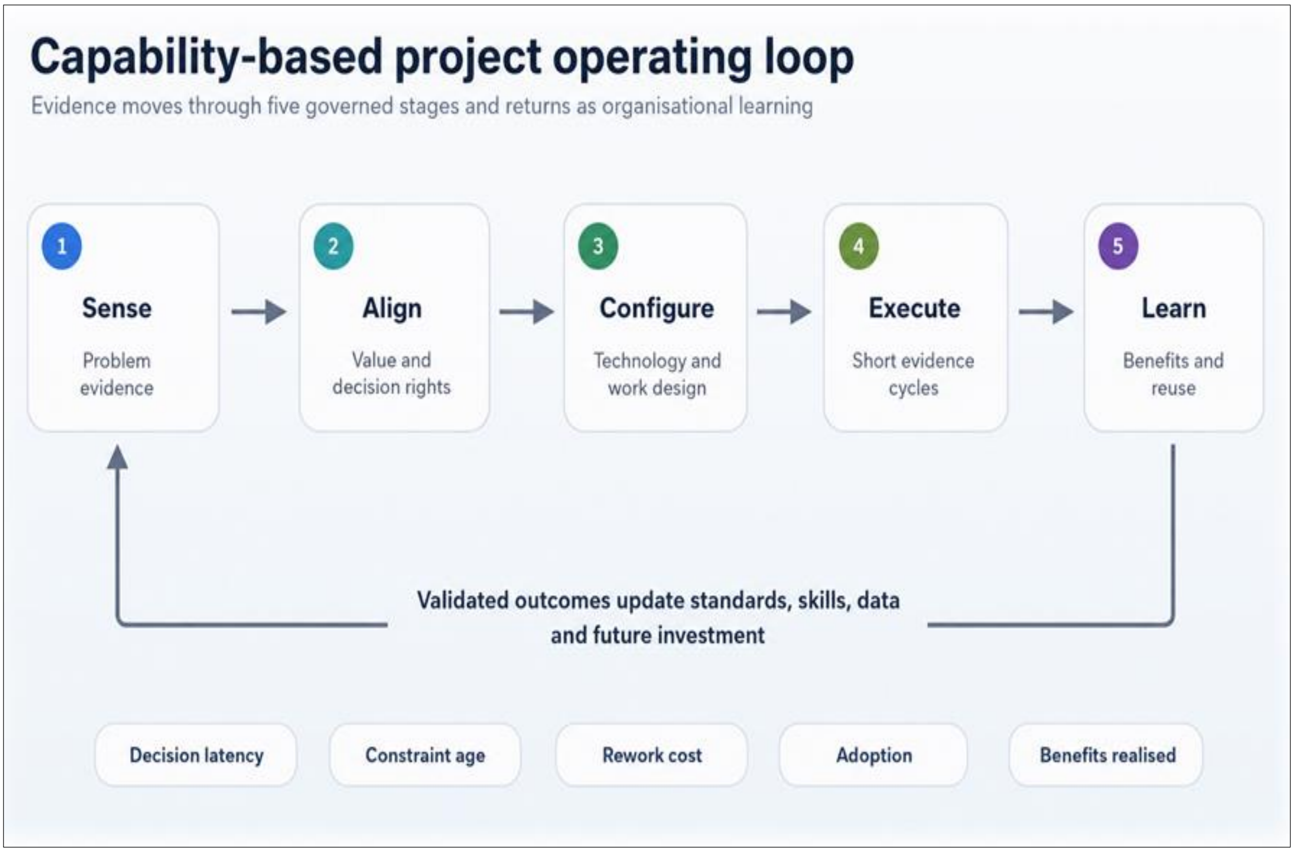

Figure 2: Governed operating loop for translating digital investment into project and organisational learning

Table 2: Stage-gated measurement model for capability-based transformation

Stage	Core management question	Leading indicators	Decision gate	Efficiency evidence
Sense	What material problem or opportunity requires intervention?	Problem age, stakeholder evidence, data confidence	Evidence of strategic relevance and feasible scope	Reduced low-value initiation and clearer assumptions
Align	What value, risk boundary and ownership structure will guide the project?	Benefits owner assigned, decision latency, dependency clarity	Approved value case and explicit decision rights	Fewer escalations and faster prioritisation
Configure	How must technology, roles, workflow and controls be jointly designed?	User participation, interface readiness, data-quality exceptions	Architecture, workload and assurance readiness	Lower rework and fewer transition defects
Execute	Are delivery signals reliable and are teams able to act?	Constraint age, forecast stability, unresolved risks, adoption signals	Evidence-based continuation, correction or stop decision	Shorter cycle time and improved schedule reliability
Learn	What changed in operations and what should be reused or retired?	Benefits trajectory, reuse rate, incident and workaround trends	Validated outcomes and updated standards	Sustained benefits and lower future search cost

8. DISCUSSION AND RESEARCH AGENDA

The central theoretical implication is that digital transformation capability is relational. Digital architecture, analytics, agile routines, participative design and governance have limited independent value; performance emerges from complementarity. This helps reconcile conflicting findings in which similar technologies produce different outcomes. It also refines dynamic-capability explanations by identifying project work as a microfoundation of reconfiguration. Projects do not simply execute transformation strategy. Their routines generate the evidence, relationships and learning through which transformation capability develops.

The model also broadens project efficiency. Traditional efficiency emphasises adherence to cost and schedule, while contemporary project success includes stakeholder value and strategic impact. Digitalisation adds new possibilities for speed and visibility but can externalise costs through cognitive overload, technical debt, weak adoption or reduced autonomy. A socio-technical measure of efficiency must therefore account for resource productivity, decision quality, adaptability, workforce experience, risk and benefits. Information-systems project research similarly finds that success is multidimensional and shaped by stakeholder interpretation rather than a single delivery measure (Pereira *et al*., 2022).

Future research should test capability configurations rather than isolated variables. Longitudinal studies could examine how social and technical components develop at different rates and whether misalignment predicts delay or benefit erosion. Comparative research should investigate regulated infrastructure, professional services, public administration, manufacturing and software-intensive settings. Researchers should also distinguish project-level digital capability from enterprise capability and study how knowledge transfers between temporary teams and permanent operations. Digital maturity may moderate these relationships: basic integration can yield large gains in fragmented organisations, while mature organisations may depend more on governance, redesign and analytical judgement.

A further agenda concerns human-machine collaboration. Research should identify which project decisions benefit from automation, which require augmentation and which should remain predominantly human. Experiments can compare planning quality, risk identification and stakeholder communication under different review arrangements. Ethical research is needed on surveillance, bias, explainability and accountability, particularly where project data influence employment or public services. Finally, studies should measure the cost of maintaining digital capability, including integration, cyber assurance, data stewardship, training and technical debt. Transformation capability creates value only when these recurrent obligations are recognised.

9. MANAGERIAL IMPLICATIONS

Managers should begin by reframing digital transformation from a technology programme into an operating-capability agenda. Sponsorship should be shared between business, technology and operational leaders, with a named benefits owner for each major initiative. Project managers should be involved in strategy translation, not only execution, because they can expose dependencies between architecture, process, skills and governance. Portfolio reviews should examine whether projects jointly build reusable capability or create competing platforms and fragmented data.

A disciplined implementation begins with a capability diagnostic rather than a software inventory. The diagnostic should trace a small number of important decisions across the project lifecycle and identify where information is delayed, duplicated, mistrusted or separated from accountability. It should also reveal which tasks depend on tacit expertise, which controls are performed only because legacy systems cannot share data, and which stakeholder groups absorb hidden coordination work. This evidence allows the organisation to select a pilot whose value can be observed within a realistic period. The pilot should be large enough to expose cross-functional dependencies but sufficiently bounded to permit correction without threatening essential operations.

During the pilot, leaders should maintain a joint design team that includes project delivery, operations, technology, risk, data and representative users. Its mandate is not to approve a predetermined application; it is to redesign the decision and workflow system. The team should define minimum data standards, exception ownership, review thresholds, access rules and a retirement plan for superseded reports or controls. Every new automated step should have a named owner, a fall-back procedure and an explanation of how its performance will be monitored. This prevents automation from becoming an orphaned technical feature after the implementation team disbands.

Scaling requires evidence of repeatability. Portfolio leaders should compare the pilot with its baseline, including cycle time, forecast stability, rework, user effort, incident frequency and benefits. They should separate gains produced by temporary attention from gains produced by a reusable capability. Components that prove transferable may become shared services, templates or standards; elements that depend on local conditions should remain configurable. Funding should include recurrent costs for integration, data stewardship, assurance, training and product ownership, because excluding these obligations exaggerates the apparent return.

Capability reviews should continue after deployment. Quarterly reviews can examine whether decision latency is falling, whether users bypass the designed process, whether models remain calibrated and whether benefits remain attributable to the change. Reviews should also identify controls that can be simplified as confidence grows. In this way, governance becomes an adaptive learning process rather than a permanent accumulation of approvals. The organisation preserves accountability while steadily removing avoidable friction, ensuring that digital efficiency remains credible to executives, project teams, operational staff and affected stakeholders. The review should ask whether the capability improves resilience: teams must continue making sound decisions during outages, staff turnover, supplier failure or demand change. Efficiency that disappears under disruption is optimisation without resilience and should not count as transformation success.

Project teams should design work and technology together. Each proposed automation or dashboard should be accompanied by questions about the decision supported, the role affected, the exception path, the data owner and the learning mechanism. User participation should include observation of real work, not only workshops with senior representatives. Training should address judgement and process understanding as well as application features. Leaders should protect space for challenge so that staff can question models, report workarounds and reveal adoption problems without penalty.

Finally, efficiency claims should be verified through operational evidence. Baselines must include current cycle time, rework, coordination effort, decision latency and user burden. Post-implementation reviews should test value after transition, compare expected and realised effects, and remove controls or reports that no longer serve a decision. This discipline prevents digital accumulation and turns project completion into organisational learning. The result is a transformation capability that is measurable, revisable and grounded in how work actually creates value.

10. CONCLUSION

Digital transformation improves project management efficiency when it functions as a socio-technical capability rather than a collection of tools. The capability combines interoperable architecture, trustworthy data, adaptive delivery, participative work design and governance. These elements shorten information and decision cycles, reduce coordination loss, strengthen risk detection and connect delivery with benefits. Their effects are conditional: technology introduced without redesign, ownership and learning can increase fragmentation, workload and false confidence.

The proposed framework positions project management at the centre of organisational transformation. Project teams translate strategy into new arrangements, generate evidence about their viability and transfer learning into future work. Efficiency should consequently be assessed through speed, resource productivity, decision quality, adaptability, workforce experience and sustainable value. Organisations that jointly design technical and social systems are better placed to convert digital investment into reliable performance while retaining the judgement, trust and accountability required in modern project environments.

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