

News and Perspectives

Transformation Before Innovation: Getting the Foundations Right Is Harder, More Important Work

Boon-How Chew, JMIR Correspondent

Abstract

As health care systems continue to adopt digital technologies, especially AI-based innovations, it remains to be seen which innovations will achieve successful implementation in real-world practice. In this *News and Perspectives* article, JMIR Correspondent Boon-How Chew reports on the conditions required for true organizational transformation before successful implementation can be achieved.

Key Takeaways:

- Digital health implementation evidence from real-world health care settings consistently shows that transformation tends to fail on organizational—not technological—fundamentals.
- The path toward genuine transformation requires culture-focused leadership, assessing and fixing staff training and support, governance authority, and contingency planning prior to any new digital deployment.

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Ask any health system leader whether transformation is a priority, and the answer is invariably “yes.” Ask them to define the last concrete structural change their institution made—not a new platform or policy but a change in who has authority, whose voices count, or how failure is handled—and the conversation becomes markedly more difficult.

This is the central paradox: transformation is universally desired and structurally resisted not by malicious actors but by well-intentioned organizations who are [navigating conflicting demands](#) and whose incentive systems and professional cultures favor stability over change.

Transformation is harder than innovation, and it must come first. Innovation is visible and exciting, and it fills conference programs. Transformation is slow, uncomfortable, and often invisible until complete. A hospital that has genuinely transformed produces fewer dramatic stories than one launching its fifth AI pilot, but its staff are more capable of sustained change, its AI tools are more likely to be used as intended, and its innovations are more likely to survive when in contact with operational reality.

What Transformation Actually Requires

A [scoping review](#) of digital health implementation in lower- and middle-income hospitals identified more than 100 facilitators and barriers across several themes. The organizational and infrastructural themes, which carry the largest share of documented barriers, sit within the institution’s authority to fix. Patient-side and external barriers, such as digital literacy, affordability, and resource competition, require policy investment no hospital can likely supply alone.

The most frequently reported facilitator, which is most effective when backed by strong leadership and strategy, was continuous on-the-job training: sustained, practical preparation of the staff who use the system. The most persistent barriers were system delays, high turnover, work overload, and insufficient time. These are primarily organizational problems rather than purely technological problems—predictable when institutions implement digital tools without first transforming [staff working conditions and organizational capacity](#).

Three additional structural conditions emerge from this evidence as foundational for successful transformation:

1. Organizational health and a culture receptive to change: Committed top management mandating rather than merely recommending adoption, along with active, persuasive knowledge sharing, is required to move transformation beyond early adopters; absent IT planning and clinicians treating new tools as experimental are documented transformation killers.
2. Governance at the center, with authority to change the rules: Implementation confined to peripheral units, without the necessary authority over procurement,

staffing, and compliance, [does not scale](#); transformation dependent on a single champion ends when that person leaves. [Coproduction](#) between staff, management, and patients that is built into governance design produces more durable adoption and satisfaction.

3. Sustainable infrastructure with genuine contingency planning: Power disruptions, poor backup, unreliable connectivity, and absent contingency plans are the environment in which staff form lasting judgments about whether a technology is trustworthy. Launching [without infrastructure that can withstand](#) foreseeable disruptions is piloting under ideal conditions, not transforming.

England's National Programme for IT [illustrates the cost](#) of skipping these three conditions. A national electronic record system was centrally mandated with limited clinician engagement and no phased change management approach. It was [dismantled in 2011](#), having cost an estimated £10 billion.

Kenya's national digital health program [took the opposite path](#). The Ministry of Health built a governance mandate and phased implementation around a locally adapted, open-source system, with redundancy checks built into mission-critical infrastructure. A [national follow-up survey](#) 5 years later still found real integration and interoperability gaps, but the order was right.

What AI Has Changed About Transformation Demands

AI raises the stakes on the same pattern. IBM marketed Watson for Oncology as validated internationally while its own [internal reviews](#) documented unsafe and incorrect recommendations, and a related IBM oncology collaboration at MD Anderson Cancer Center was [wound down](#) after 5 years and US \$62 million were spent without treating a patient. AI does not soften the conditions transformation requires. It raises the cost of skipping them.

AI has also not made transformation easier; it has made absence of transformation more consequential. AI amplifies the patterns it finds: in a well-governed system with high-quality data, it amplifies quality. In one with biased, incomplete, or poorly curated data, which describes most health systems that have not undergone genuine data governance transformation, it [amplifies those problems at scale and speed](#).

The workforce effect is equally double-edged. AI can relieve clinicians of routine documentation, imaging pattern recognition, and drug interaction checking, but this relief only materializes where institutions have redesigned clinical roles, retrained staff, and restructured workflows around the new division of labor between human and machine. When installed on top of unreformed workflows, AI gets worked around, distrusted, or used in unintended ways. Human accountability at each critical stage is the [governance principle](#) on which AI-assisted care's value depends.

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The Leadership Imperative

[Leadership that supports quality-centered culture](#), which is defined not by seniority but by the capacity to sustain purposeful change, is among the strongest predictors of successful implementation.

Transformation requires leaders who do three collectively rare things: (1) articulate purpose in terms of human outcomes, not the technology deployed; (2) model the behaviors they ask of others, including comfort with uncertainty and public acknowledgment of failure; and (3) use their authority to change the structural rules, incentives, accountabilities, and governance mechanisms that currently block those below them from acting differently.

Doing the first without the second produces inspiring visions nobody believes. Doing the first and second without the third produces cultural warmth in a system that still rewards the old behaviors. All three are required, and the third is rarest because it most directly threatens the leaders' own comfort and authority.

Practical Starting Points for Health Care Institutions

For clinicians and health administrators ready to move toward actual transformation, these evidence-based starting points apply regardless of institutional size or resource level:

- Build [institutional readiness](#) as infrastructure. Readiness is a measurable, collective state built on shared commitment plus shared belief in the institution's capacity to change, not just on one leader's enthusiasm. Create standing mechanisms to [question the assumptions behind current workflows](#) and not just treat their symptoms.
- [Define structural success before you start](#) and hold every stage to it. Specify what will concretely differ in incentive structures, role boundaries, and workflows once implementation is complete.

- Map your implementation environment before announcing any initiative. Assess training infrastructure, IT support, connectivity reliability, and staff turnover; fix what cannot sustain a new system through its first difficult year. Deploying into an unprepared environment confirms why transformation is difficult; it does not achieve it.
- Build training as operational infrastructure. Continuous, embedded, on-the-job training is the most consistently reported facilitator of adoption; a one-time onboarding session is the start of abandonment.
- Locate where transformation decisions are actually made and enforced and secure explicit authority to change blocking rules before investing in clinical AI.
- [Involve clinicians in co-design](#). Workflow mapping, interface decisions, and escalation protocols need clinicians' involvement, which training alone cannot substitute; consultation after design decisions are made is communication, not co-design.
- Treat contingency planning as a prerequisite, not an afterthought. Every digital implementation needs [a tested answer to what happens when it fails](#). Institutions without one are not ready.

Keywords: digital transformation; health systems; governance; leadership; digital health implementation; barriers; facilitators; health care organization; AI; practical solutions

Please cite as:

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J Med Internet Res 2026;28:e108954

URL: <https://www.jmir.org/2026/1/e108954>

doi: [10.2196/108954](https://doi.org/10.2196/108954)

© JMIR publication. Originally published in the Journal of Medical Internet Research (<https://www.jmir.org>), 24.Aug.2026