

RESEARCH BRIEF · SEPTEMBER 2026

Application Modernization: The Spend, the Cost of Waiting, and Why Projects Stall

What companies invest in migrating and modernizing legacy web and desktop applications, what standing still actually costs, what goes wrong mid-project, and what the payoff looks like on the other side.

1. How much is being spent on modernization?

The market for application modernization services is large and growing at strong double-digit rates, though estimates vary by research firm:

\$22.7B

2025 modernization services market, growing to \$51.5B by 2031 (14.6% CAGR) — MarketsandMarkets

\$111B

Projected market by 2035, from \$24.3B in 2025 (16.4% CAGR) — Precedence Research

65%+

Share of 2025 US federal IT spending focused on replacing or modernizing past systems — GSA

Cloud application migration dominates the service mix, with re-platforming holding roughly a 28% revenue share in 2024 (SNS Insider) — companies favoring cost-effective transitions over complete rewrites. The major providers are IBM, AWS, Accenture, HCL, Capgemini, Oracle, and Microsoft.

2. The cost of *not* modernizing

The striking asymmetry: annual spending *on* modernization services (~\$25B) is tiny compared to the estimated cost of carrying legacy debt.

\$2.41T

Cost of poor software quality to the US economy in 2022, with \$1.52T attributed to technical debt — CISQ

40–50%

Share of total IT investment spend that technology debt can consume — McKinsey

60–80%

Share of enterprise IT budgets going to legacy maintenance — Gartner / Forrester / Deloitte benchmarks

~42%

Of a developer's work week spent on maintenance and technical debt, legacy systems being the primary cause — Stripe developer survey

- **Federal extreme case:** A 2025 GAO report found 79% of a \$105B+ annual federal IT budget went to operations and maintenance, with only 3 of 10 flagged critical legacy systems modernized since 2019.
- **Compounding:** Legacy maintenance costs rise an estimated 10–25% annually as hardware becomes scarce, specialist talent retires (COBOL contractors now run ~\$180–250/hr), and vendors sunset support.
- **Security exposure:** IBM's 2025 Cost of a Data Breach Report puts the global average breach at \$4.44M (US average far higher) and flags legacy systems as a risk multiplier; roughly 60% of breaches are linked to outdated or unpatched systems.
- **Opportunity cost:** In a Morning Consult survey, 80% of US business/technology leaders said a business-critical project was delayed or canceled in the past 12 months as a direct result of technical debt.

3. Problems during migration — and yes, projects die

Modernization projects fail at remarkably high rates. Multiple studies place the failure rate at **70–79%** — projects that miss goals, dramatically exceed budgets, or get abandoned outright. Over 70% of enterprise modernization programs exceed budgets by 30% or more.

PROBLEM	WHY IT KILLS PROJECTS
Undocumented business logic	Decades of rules buried in code with no documentation and no one left who understands them. Extraction failures surface as data inconsistencies and broken edge cases at cutover.
The "dual-run" trap	Phased migrations require running old and new systems in parallel. McKinsey found organizations overspend ~14% annually during transitions. Total cost of ownership rises for years before savings appear — this surprise kills momentum and executive support.
Scope set by the old system	Teams faithfully rebuild every legacy feature — including the ~40% nobody uses — instead of asking what the business actually needs, inflating budgets and timelines.
Talent shortage	~90% of technology leaders report recruiting/retaining tech talent as a major challenge; few people understand both the legacy stack and modern architecture.
"Tactical firefighting"	Under business pressure, teams abandon the strategic plan and hardcode quick features on the new platform — effectively building a new legacy system before the old one is retired.
Late testing	Bolting testing on at the end exposes data consistency issues, compliance gaps, and edge-case behaviors during cutover — often triggering rollback or abandonment.

Do problems stop projects entirely? Yes. "Abandoned" appears explicitly in the failure statistics — the 70–79% figure covers projects abandoned outright, not just those over budget. Common abandonment triggers: the dual-run cost trough exhausting executive patience, failed cutovers due to data inconsistencies, and mid-project discovery that critical business rules can't be safely extracted from the legacy code.

4. Benefits after modernization

For the minority of projects that succeed, documented returns are substantial:

228%

ROI over 3 years modernizing applications on Azure PaaS, including \$19.1M infrastructure savings — Forrester TEI study

288–362%

ROI range for mainframe modernization (on-platform vs. moving workloads off) — Kyndryl 2025 survey

74%

Drop in overall system maintenance demands after updating legacy applications — IBM research

60–80%

Reduction in mean time to resolve (MTTR) incidents after modernization — Aspire Systems

- **Concrete government examples:** the US Census Bureau saved ~\$1.9B by moving to an online census; DHS cut \$30M annually via cloud migration.
- **Security & reliability:** more than half of organizations report improved security and enhanced reliability as direct modernization outcomes; cloud modernization studies document ~50% breach-risk reduction.
- **Velocity:** release frequency rises and deployments become less risky — sometimes the difference between shipping a capability in two weeks versus three months against a competitor.
- **The caveat:** value arrives in phases. Credible business cases show early wins at 0–6 months, break-even at 18–24 months, and profitability at 24–36 months — costs go *up* before they come down.

5. Why companies keep waiting

Notably, almost no one delays because their systems are fine — in one lending-industry survey only 5.3% cited confidence in their existing platform. The real barriers, ranked across surveys:

BARRIER	EVIDENCE
Resources &	Limited internal resources (31.6%) and cost constraints (28.6%) top one

Budget	Industry survey, a separate analysis found budget constraints delay 44% of projects, with upfront costs averaging ~\$2.9M per system.
Fear of disruption	Fear of impacting customer experience was the #1 hurdle (28%) among 1,420 IT decision-makers; fear of downtime affects ~38% of projects, acute in banking, healthcare, and insurance where systems run continuously.
Entrenchment	26% cite deeply entrenched legacy systems — business logic so embedded that extraction feels impossibly risky.
Skill gaps	Shrinking pools of specialists who understand the legacy stack; teams dependent on retiring staff.
Organizational & personal risk	~30% lack internal buy-in due to unclear ROI. Executives delay because the decision carries visible personal risk — a failed modernization is career-defining in a way that quiet ongoing maintenance is not.

The self-reinforcing trap: one-third of organizations in a 2026 survey spend 80–100% of their technology resources maintaining existing systems, and another 41% spend 60–80% — the maintenance burden consumes the very resources needed to escape it. Meanwhile, modernization is fundamentally a risk-avoidance investment, which is harder to justify quantitatively than a revenue investment, making stakeholder alignment the persistent first hurdle.

6. The bottom line

Companies collectively spend roughly \$25B a year on modernization services against an estimated \$1.5T+ annual technical-debt burden in the US alone. They know the math — only ~5% believe their current systems are adequate — but they're caught between a 70%+ project failure rate on one side and 10–25% annually compounding maintenance costs on the other. The successful minority share a pattern: phased strangler-pattern approaches over big-bang rewrites, scope set by business need rather than legacy feature parity, honest accounting for the dual-run cost trough, and treating modernization as business transformation rather than a pure technology project.

Key sources

- MarketsandMarkets — [Application Modernization Services Market Report 2025–2031](#)
 - Precedence Research — [Application Modernization Services Market to 2035](#)
 - Software Improvement Group — [Cost of Technical Debt / State of Software 2026](#)
 - LegacyLeap — [Legacy System Statistics 2026](#) and [Application Modernization ROI: Three-Horizon Framework](#)
 - Microsoft / Forrester — [228% ROI Total Economic Impact study](#)
 - DreamFactory — [51 Legacy System Modernization Statistics \(2026\)](#) (incl. Kyndryl mainframe survey)
 - Saritasa — [2025 Survey of 500+ US IT Professionals](#)
 - Digital Dealer — [Modernization Delays Are Becoming Competitive Liabilities](#)
 - 10Pearls — [Survey of 1,420 IT decision-makers on modernization barriers](#)
 - Valuebound — [Why 70–79% of Modernization Projects Fail](#)
 - Synoptek — [Legacy System Modernization Cost \(McKinsey findings\)](#)
 - vFunction — [Cost to Maintain Legacy Software \(Gartner, Stripe data\)](#)
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