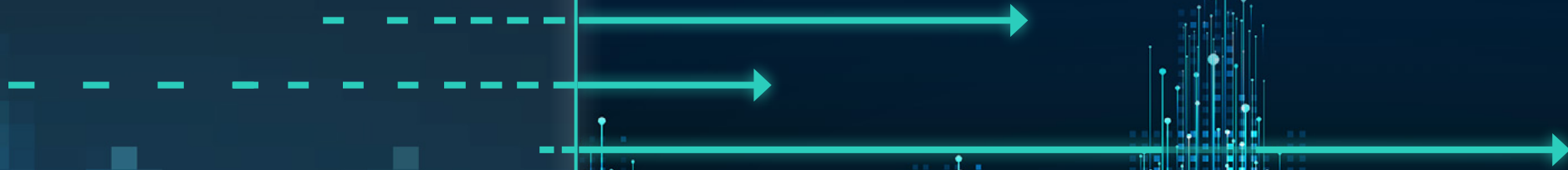


Gartner®

Building and Implementing Modern Application Architecture and Technologies

Drive business value with this strategic roadmap.





Evolve your team's approach to adopting application architectures.

Software engineering leaders tasked with modernizing architectures and technologies to drive business results need to:

Build a business case for modernization investments

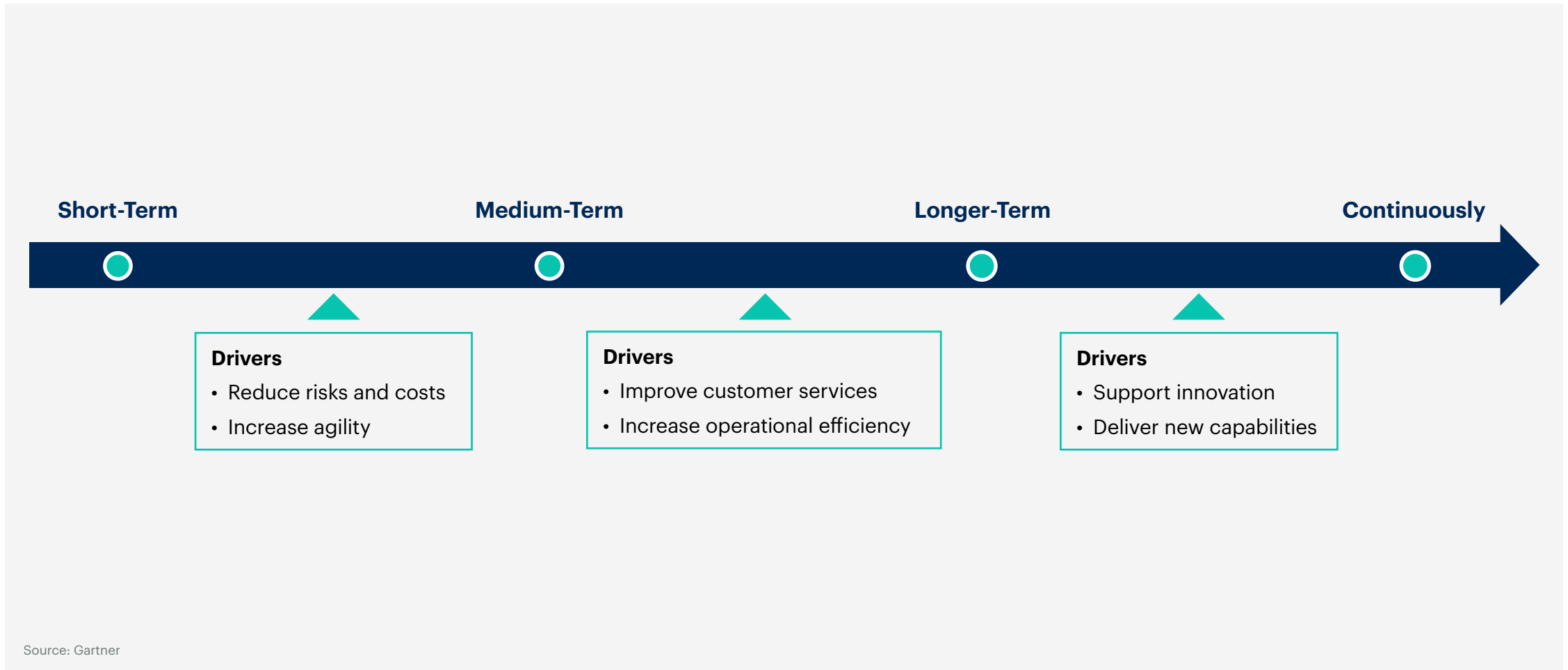
Assess their organization's readiness to adopt new application architectures and technologies

Coach teams to adopt new architectures and technologies

Use this strategic roadmap to build a compelling business case to obtain funding, and develop a migration plan for adopting new technologies and application architectures.

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Get access to the extensive roadmap and even more resources in your client portal. [Log In](#)

3 key drivers of success over time



Short-Term

Medium-Term

Longer-Term

Continuously



Short-Term Priority

→ Assess and Prioritize

Tighten the process for defining business goals and products.

Start by focusing on issues that drive business value, like delivering superior capabilities and providing cost savings. Assess critical gaps and prioritize investments needed to better develop a strategy that funds and drives modernization initiatives.

Key Actions

- 1 Develop** a successful business case that targets the most important business capabilities.
- 2 Engage** business stakeholders to build modernization strategies driven by business outcomes.
- 3 Introduce and govern** usage of modern application platforms.

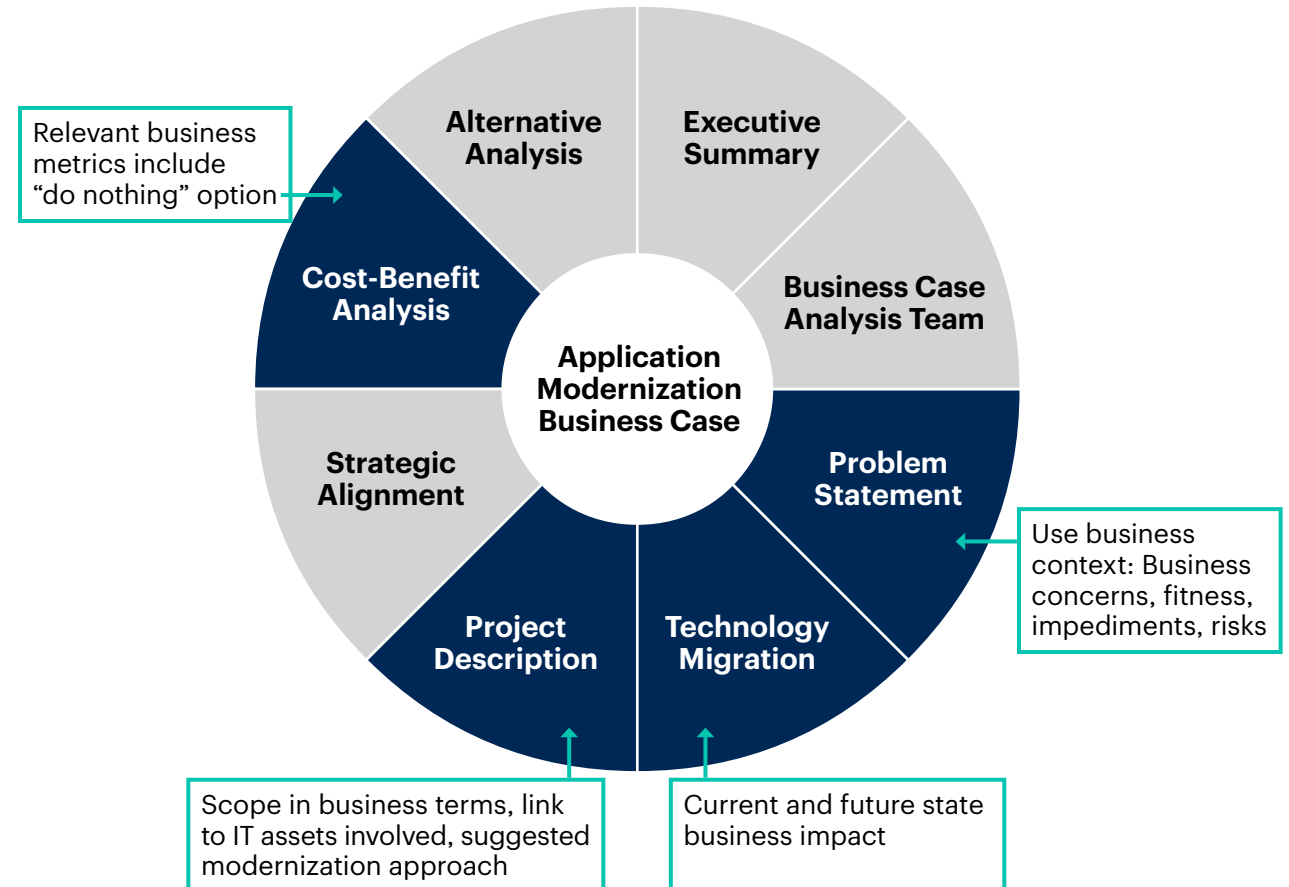
Sample Action

Modernize an application to enhance the capabilities of the business.

Ensure that the business case explains how the revised application will enhance the potential of the business, while reducing the time to value, cost, risk and disruption.

Saving in time equates to a saving in cost in all areas of the business.

Areas needing specific attention in a modernization business case



Source: Gartner

Short-Term

Medium-Term

Longer-Term

Continuously

Medium-Term Priority

→ Execute

Focus on opportunities to improve services and operational efficiencies.

Execution of a prioritized modernization plan cannot happen all at once. Improvements to application architectures and technologies are interdependent and build on each other.

Start by assessing the level of technical debt in current software builds and prioritizing remediation.

Key Actions

- 1 Create** tracking dashboards to visualize technical debt and monitor progress.
- 2 Facilitate** collaboration and knowledge sharing by establishing communities of practice for new architectures and technologies.
- 3 Improve** the developer experience by starting a platform engineering practice.

Sample Action

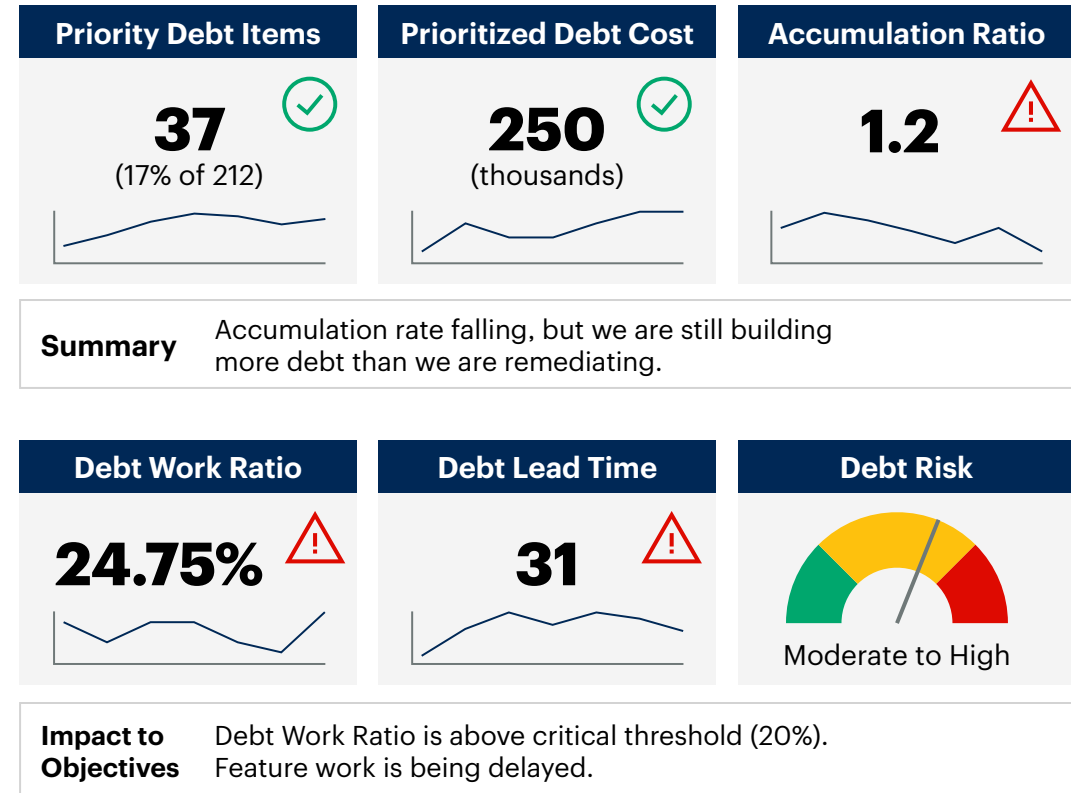
Create a dashboard to track progress in managing technical debt.

Select metrics that provide insight into the impact that technical debt has on value delivery, and chart those metrics on a dashboard that makes it easy to see the status of your debt remediation efforts.

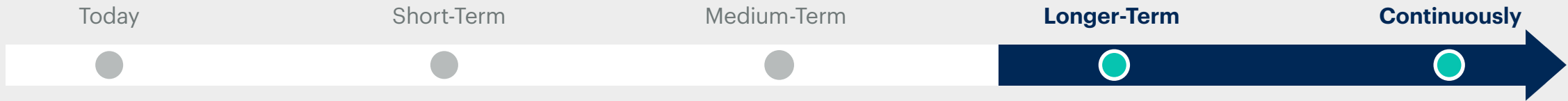
Dashboards are used to identify, visualize and track key metrics.

Example of a Technical Debt Dashboard recommended by Gartner

Clients can log in to view the Gartner research "[Visualize Your Technical Debt With a Tracking Dashboard](#)," to find out how to build dashboards similar to this.



Source: Gartner



Longer-Term and Continuous Priority

→ Iterate and Reprioritize

Reassess your modernization goals and gaps regularly.

As your architectural approach continues to modernize, shift your focus to supporting innovation and delivering new capabilities.

Key Actions

- 1** **Revise** migration and modernization priorities.
- 2** **Upskill** teams in architecture patterns and practices.
- 3** **Establish** innovation teams to experiment with new technologies and architectural models.
- 4** **Adopt** continuous modernization practices.

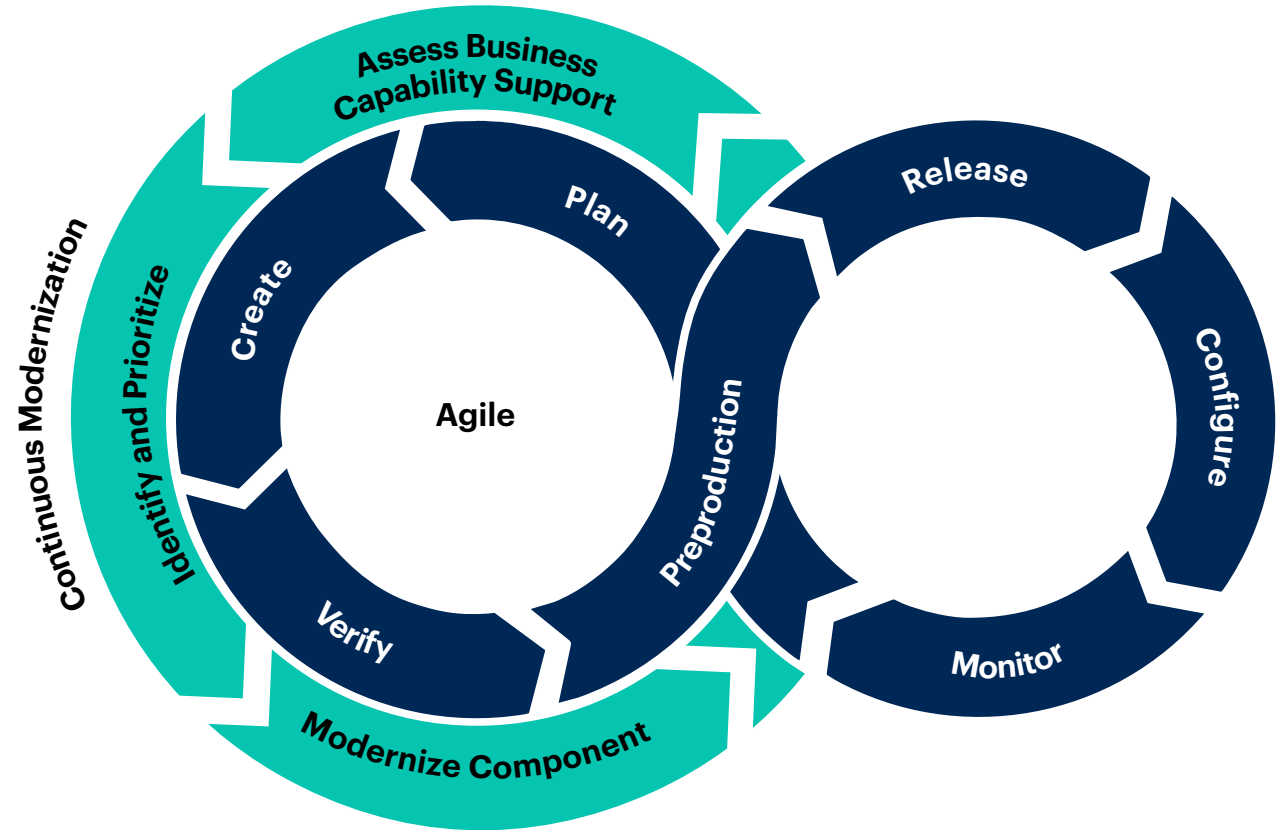
Sample Action

Establish a continuous modernization culture.

Support ongoing digital initiatives and provide continuous delivery of digital products. Existing legacy enterprise applications create friction points that negatively impact agility and velocity — and modernization — is essential for digital initiatives.

Minimize the cost, risk and impact of modernizing legacy applications, and enable continuous delivery.

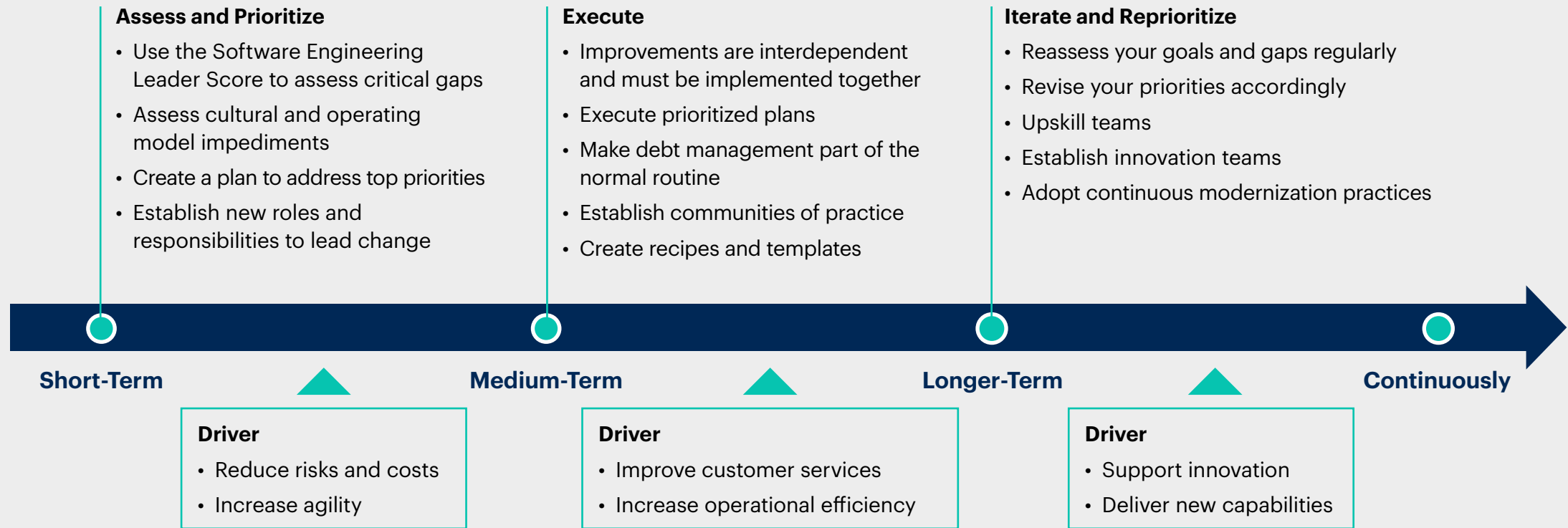
Continuous modernization minimizes the cost, risk and impact of optimizing legacy applications



Source: Gartner

Strategic Roadmap: Timeline for adopting modern application architecture and technologies

Migration Path Timeline



Source: Gartner

Build & Deliver Software to Drive Business Results

Demonstrate Business Value

Build compelling business cases, demonstrate ROI, value metrics, cost analysis, budgeting, communicate business value, product roadmap, build vs. buy.

Implement Agile & Apply a Product Model

Project to product, product planning, scaling agile methodologies, metrics, measuring success, SAFe, scrum, Kanban, lean, team topologies.

Improve Delivery & Execution Processes

DevOps, DevSecOps, life cycle management, feature management, delivery metrics, continuous feedback, operational efficiency, observability.

Enhance Design, Quality & UX

Design thinking, accessibility, design systems, test automation, performance testing, code reviews, static code analysis, intelligent user experiences, maintainability.

Create APIs, Integrations & Data Services

API management, event streams and channels, integrations, iPaaS, integration patterns, data platforms, data migration, data pipelines, data structure, operationalizing data.

Build Security Into Software Engineering Processes

Software supply chain security, software composition analysis, SBOMs, code scanning, library analysis, vulnerability assessment.

Adopt Modern Software Platforms & Technologies

Cloud platforms, low-code platforms, programming languages, web and mobile frameworks, tech stacks, open source, microservices, containers, serverless.

Modernize Application Architecture

Architecture patterns/practices, reference architecture, reduce technical debt, cloud migration, refactoring, microservices, cloud-native, event-driven, domain-driven design.

Explore Emerging Trends & Technologies

Architecture trends, evaluating emerging technology stacks and platforms, edge computing, quantum computing, immersive technologies, self-healing applications.

Design & Engineer AI Systems & Solutions

Creating intelligent applications, AI agents, chatbots, prompt engineering, integrating models, emerging AI techniques and tools, intelligent automation, AI user experiences.

Use AI to Improve Software Development & Delivery

Generative AI coding assistants, intelligent integration and automation, AI-generated test cases, coding agents, AI-driven code modernization.

Establish Platform Engineering & Create Platform Teams

Internal developer portals, infrastructure as code, SRE, internal marketplaces, internal developer platforms, DevOps platforms, GitOps.

Attract, Develop & Retain Developer Talent

Staffing & hiring, career paths, insourcing, interview guides, communities of practice, self-service learning, learning platforms, skills prioritization & evaluation, productivity metrics.

Improve Developer Productivity & Developer Experience

Internal developer portals, low-code development, onboarding, collaboration tools, fast flow, automation, cloud development environments.

Gartner Priorities Navigator™ for Software Engineering Leaders

Build Effective Leadership

Leadership skills and impact, roadmaps, maturity models, building business partnerships, measuring success, delegating decisions, new to role, peer partnerships, career paths.

Optimize Organization Design & Strategy

Adapting to change, resource budgeting, remote and cross functional teams, self-organizing teams, offshoring, outsourcing, operational efficiency, organization culture.

The Gartner Priorities Navigator™ represents critical areas where Gartner provides supportive expert advice and tools to software engineering leaders and their teams.





Adopt Modern Architectures & Technologies

Build a World-Class Software Engineering Organization

Source: Gartner

Actionable, objective insight

Explore these additional complimentary resources and tools for software engineering leaders:

 <p>Tool Software Engineering Effectiveness Diagnostic</p> <p>Increase personal effectiveness by benchmarking against peers.</p> <p>Explore Now</p>	 <p>Webinar Gartner Top 6 Strategic Technology Trends in Software Engineering for 2024</p> <p>Understand which trends have the greatest potential to impact engineering.</p> <p>Watch Now</p>	 <p>eBook Build and Deliver Digital Products That Drive Business Results</p> <p>Mature your organization to work effectively with other teams.</p> <p>Download Now</p>	 <p>Research 5 Actions to Drive Software Engineering Leader Effectiveness</p> <p>Explore the highest impact actions leaders can take.</p> <p>Download Now</p>
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