

Gartner Research

Software Development for Technical Professionals Primer for 2024

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Initiatives: Software Development for Technical Professionals

Technical professionals developing applications must upskill and reskill to embrace modern software engineering technologies and practices. Gartner's 2024 initiative helps address delivery challenges in creating successful products with winning business outcomes.

Scope

This initiative will help organizations tackle methodology and tooling challenges to meet the need for software innovation, development and ongoing maintenance.

Topics in this initiative include:

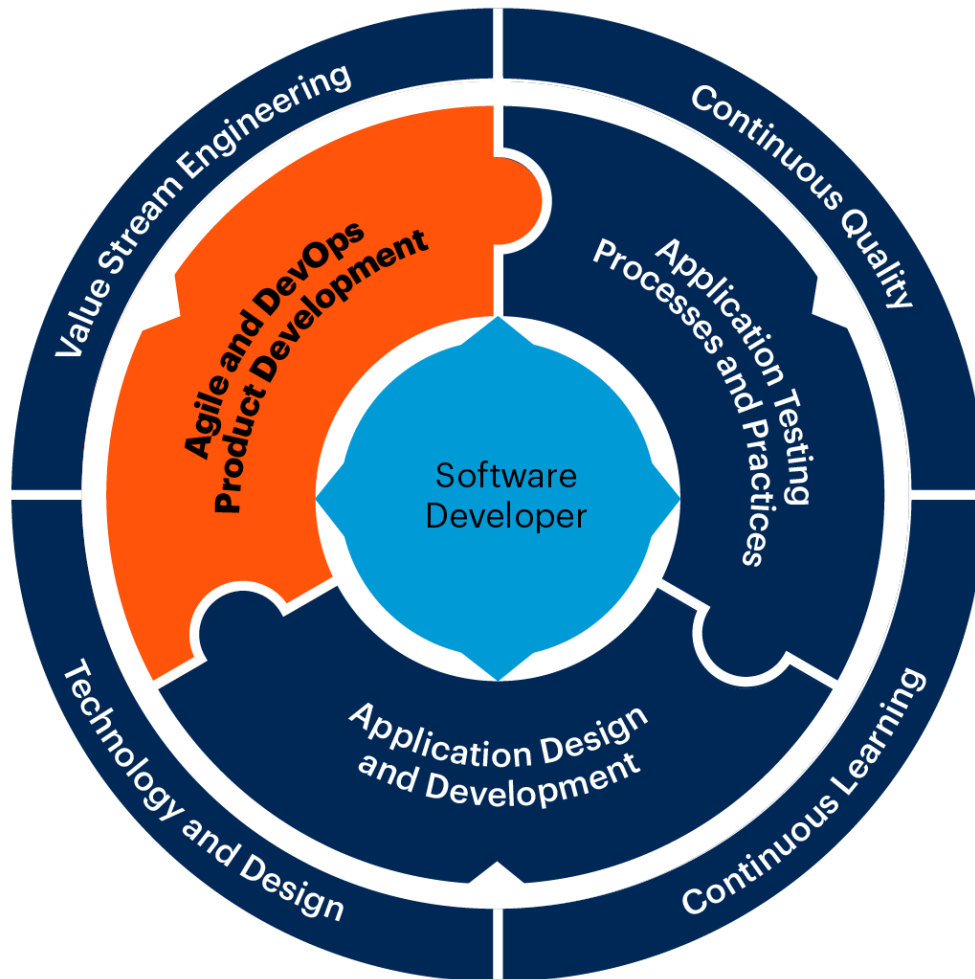
- **Agile and DevOps Product Development:** Enhance software development skills and scale development efforts to satisfy business needs and expectations, while improving customer experience and maximizing effectiveness, leveraging agile methodologies, DevOps practices and platform engineering.
- **Application Testing Processes and Practices:** Enhance quality assurance skills and apply effective testing processes, practices and tools to increase agility and ensure the quality of modern software applications.
- **Software Application Design and Development:** Build and refactor applications, taking advantage of modern technologies, processes, practices, frameworks, tools and platforms to minimize future maintainability concerns, while providing great user experience (UX) across multiple platforms.

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Analysis

Figure 1: Software Development for Technical Professionals Overview

Software Development for Technical Professionals



Source: Gartner
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The emergence of generative AI combined with the limited availability of needed skills is impacting every business. Organizations must continue to accelerate the adoption of new processes, practices and technologies to increase the quality and speed of product and service delivery. More than ever, success depends on finding, developing and retaining people possessing strong technical skills, but technical skills alone are not enough. Cultural obstacles, many of which reach well outside the software development organization, must also be addressed.

With good reason, software development professionals are the most technical contributors in an organization. Software development teams need to master a wide array of processes, practices, platforms, languages, frameworks and devices available to effectively create, enhance, validate, deliver and support modern applications. Continuously modernizing efforts, encouraging the adoption of new methodologies, and successfully adopting modern development processes and platforms require significant evolution in the entire organization.

To succeed as a digital business, software development professionals can only affect positive change by continuously improving their technical and interpersonal skills to increase the delivery of business value. For developers, success will require that organizations:

- Adopt a product quality and business agility mindset with collaboration among development, IT operations and stakeholders to enable continuous delivery of business value.
- Prioritize continuous improvement, design thinking and continuous learning to expand development knowledge, skills and expertise.
- Combine technical expertise and business savvy to effect and influence change in the way the organization perceives, designs and delivers value.
- Continuously evaluate and adopt new frameworks, platforms, tools and languages to enable new business opportunities.
- Adopt modern QA and testing processes, practices and tools that support increased agility and customer satisfaction.

Topics

The development of custom software applications continues to evolve in its sophistication and complexity, while the business increasingly expects solutions to be delivered faster than ever.

Our research in this area addresses the following topics:

Agile and DevOps Product Development

Software development teams often struggle to keep up with business demands. Many methodologies can help these teams scale their contributions, while improving quality and contributing more business value. Our insights help software development teams choose and effectively apply the proper methodologies, processes, practices, platforms and tools to improve the delivery of business value.

Questions Your Peers Are Asking

- How can we apply agile practices to deliver better products faster?
- What patterns, processes, practices, frameworks, tools and platforms will help accelerate the delivery of quality software applications?
- How do we effectively scale agile methods to the enterprise?
- How do we implement DevOps to improve product delivery and increase customer value?
- What key skills must we acquire to improve quality and increase agility?
- How does platform engineering improve our ability to deliver stakeholder value?

Recommended Content

 Some recommended content may not be available as part of your current Gartner subscription.

- [Solution Path for Agile Transformation](#)
- [Essential Skills for Agile Development](#)
- [User Story Essentials](#)
- [Agile Training and Certification](#)
- [Organize for Agility With Team Topologies](#)

Planned Research

- A guidance framework for continuous integration
- Interval planning in SAFe
- User story mapping
- User story security risk assessments

Application Testing Processes and Practices

Quality is foundational to both modernization and development efforts. Successful product development teams test and validate their applications for efficacy, reliability, security and performance to ensure quality. Our insights help developers, quality engineers and testers enhance their skills and adopt effective testing processes and practices essential for validating modern software products.

Questions Your Peers Are Asking

- How can we establish an effective testing initiative to validate the quality of custom-developed applications?
- Which frameworks, tools, processes and practices should we use to test and validate applications?
- What skills do our quality engineers need to have?
- How can we build continuous quality with DevOps toolchains?

Recommended Content

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- Essential Skills for QA Engineers
- How to Create an Effective Test Plan
- Create, Optimize, Integrate: The 3 Pillars of Building Effective Automated Tests
- Shift Left With Test-Driven Development
- Shift Further Left With Behavior-Driven Development

Planned Research

- Test data management
- Test environment management
- Accessibility testing
- AI-augmented software testing
- Development security testing
- Best practices for reviewing AI-augmented code

Software Application Design and Development

Modern applications continue to grow in sophistication and complexity as they deliver increasingly advanced capabilities. Development tools, frameworks, standards and platforms continue to evolve quickly. Similarly, the architectural options continue to mature, challenging developers with more choices than ever when developing applications. Our insights help developers understand and select the proper design patterns, frameworks and tools needed to deliver custom software applications.

Questions Your Peers Are Asking

- Which languages, frameworks, tools and practices should we use to build great applications?
- How can we build high-performing, reliable and maintainable applications?
- How can we apply user experience and design practices to improve applications?
- How can we select and use development frameworks, tools and technologies to improve developer productivity?

Recommended Content

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- JavaScript: A Single Language for Web, Mobile and Microservices Apps
- Proven Practices to Enhance Application Architecture and Software Development Skills
- Essential Skills for Application and Software Developers

- Essential Skills for Security in Modern Application Development
- Assessing How Generative AI Can Improve Developer Experience

Planned Research

- Evaluating front-end development technologies
- Five key UX practices for application development teams
- GenAI code assistants
- Secure coding practices for software developers

Suggested First Steps

- 2024 Planning Guide for Software Development
- 13 Ways Your Agile Adoption Will Fail
- Scrum Essentials
- Kanban Adoption Guide
- Essential Metrics for Agile and DevOps Teams

Essential Reading

- Agile Superhero Training Manual
- Scrum Master Essentials
- Product Owner Essentials
- SAFe Adoption Guidance for Software Engineers and Architects
- Implement Agile Database Development to Achieve Continuous Delivery
- Solution Path for Continuous Delivery With DevOps
- How to Create and Apply a Definition of Done
- How to Document Application Architecture
- Community of Practice Essentials
- Keys to DevOps Success

Document Revision History

Software Development for Technical Professionals Primer for 2023 - 30 June 2023

Application Development for Technical Professionals Primer for 2022 - 4 February 2022

Application Development and Platforms for Technical Professionals Primer for 2021 - 20 January 2021

Application Development and Platforms for Technical Professionals Primer for 2020 - 22 January 2020

Application Development and Platforms for Technical Professionals Primer for 2019 - 5 February 2019

Related Priorities

Initiative Name	Description
App Architectre & Integratn for Tech Professionals	This initiative addresses the challenges of defining and delivering modern application architecture, software and integration solutions.
Software Engineering Leadership	This initiative equips software engineering leaders with the management, operating model and execution practices needed to lead a world-class software engineering organization and grow their careers.
Build/Deliver Dig. Prods/Exp. to Drive Biz Results	This initiative provides guidance on how software engineering teams can build and deliver software effectively, and with quality and security.
Adopt Modern Architectures and Technologies	This initiative focuses on the best practices for adapting to technology trends such as generative AI, modernizing architecture, leveraging new platforms and frameworks, and reducing technical debt.
Build a World-Class Software Engineering Org.	This initiative will help you build, manage and organize teams to create effective digital products and experiences with appropriate technologies, a motivated talent pool and proven methodologies.

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Actionable, objective insight

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Research

New-to-Role Software Engineering Leader

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eBook

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Discover insights and actions for business and technology leaders.



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