



theCUBE
research

Docker's Impact on Agentic AI, Software Supply Chain Security, Developer Productivity, ROI

theCUBE Research Analysis of ~400
IT and AppDev Leaders

Executive Summary

Docker offers an industry-leading suite of development products for cloud-native applications, enabling developers to rapidly build innovative and secure software. By securing the software supply chain, Docker allows teams to safely create, share, run, verify, and continuously update applications across any environment. This streamlined workflow, from local development on a laptop to deployment in production, shortens release cycles and accelerates time to value. It also supports AI-powered and agentic AI application development, simplifying complex processes and automating configurations to boost productivity. Embraced by over 20 million developers across thousands of enterprises worldwide, Docker's unmatched capabilities and partnerships make it the preferred tool for developers seeking efficiency and innovation in building modern cloud-native applications, securing the software supply chain, and creating cutting-edge, agent-based, and AI-powered applications, all from one integrated suite of products.

This executive report, grounded in global insights from 393 IT, Platform Engineering, and Application Development professionals across large SMBs and mid-to-large enterprises, highlights Docker's business value through measurable gains in product time-to-market, cost efficiency, secure software supply chain, and AI. Software development is undergoing a generational shift driven mainly by the rise of AI-native systems and agentic applications. Docker now provides critical capabilities for software development that are powering this new AI and Agentic era. Enterprises are no longer just building applications; they're architecting intelligent, autonomous systems that must be portable, secure, and instantly scalable. Docker sits at the center of this AI application transformation, enabling development teams to move faster, increase security, and reliably deliver the next generation of AI-powered software. The findings included herein demonstrate how Docker continues

to serve as essential infrastructure for organizations developing secure, scalable cloud-native and AI applications, with its impact expanding in an increasingly digital and innovation-driven economy.

Based on the data gathered as part of this project, the report illustrates:

- **AI and Innovation Acceleration:** Docker emerges as essential infrastructure for artificial intelligence initiatives, enabling organizations to standardize AI environments, accelerate project development, and deploy intelligent system solutions with unprecedented reliability and flexibility. In fact, 52% of respondents reported reducing AI project setup time by over 50%, underscoring Docker's role in speeding AI delivery and positioning it as a fundamental technology for organizations pursuing AI-driven competitive strategies. Docker has transcended its original technical scope to become a catalyst for comprehensive organizational transformation. Rather than simply improving development workflows, Docker now serves as the foundation for strategic initiatives spanning security architecture, market responsiveness, cost optimization, and innovation acceleration. Docker serves as a fundamental backbone for enabling effective modernization and AI strategies, a recurring theme in discussions with IT executives. The principle of containerization, at the core of Docker, offers significant advantages. It empowers organizations to streamline their development and deployment processes, creating a more agile and efficient IT environment. This approach is not only crucial for accelerating digital transformation initiatives but also aligns with the rapidly evolving practices of AI application development, enabling teams to integrate advanced AI capabilities seamlessly and at scale.

- **Security, Compliance, and Risk Management:**

Docker plays a critical role in strengthening software supply chain security, vulnerability mitigation, compliance, and governance by providing trusted tooling that helps developers build and deploy secure applications at scale. From securing local development environments to providing automated vulnerability scanning, signed images, and policy enforcement, Docker enables teams to meet industry standards while reducing risk across the software lifecycle. Security and compliance are also areas where Docker delivers measurable impact. Ninety-five percent of survey participants reported that Docker improved their ability to identify and remediate vulnerabilities, with 64% noting significant improvements and 31% describing the impact as transformative. This is a benefit recently expanded upon with the introduction of Docker Hardened Images, which further strengthens application security from development through production. Additionally, 93% of respondents rated Docker as highly effective in maintaining security compliance, and 81% of enterprises now meet most or all compliance goals across the software development lifecycle using Docker.

- **Operational Excellence Through Integrated Developer Workflows:**

Docker's value extends beyond containerization by unifying key aspects of the development workflow, from local development and testing to deployment and production. By standardizing environments, automating setup, and integrating with CI/CD pipelines, Docker reduces friction across the software lifecycle. This integration enables developers to work more efficiently with fewer errors, while also reducing operational overhead and minimizing technical debt. As a result, our research shows that 72% of developers report significant productivity improvements, allowing teams to focus more on delivering value and less on managing fragmented tools and environments. Docker offers significant business advantages by improving time efficiency and reducing development friction. Its containerization standardizes

applications, eliminating compatibility issues and accelerating the development lifecycle. This isolation also fosters collaboration and faster iteration among teams. Furthermore, Docker provides platform unification, ensuring consistent application deployment across diverse environments, simplifying infrastructure management, and providing a robust foundation for scalable applications. This makes Docker a powerful business investment.

- **Strategic Agility and a Competitive Advantage:**

Docker has emerged as a strategic enabler for organizations seeking to maintain a competitive edge in fast-changing markets. By standardizing and streamlining application development and deployment, Docker significantly reduces time-to-market for new features and products, allowing teams to respond rapidly to evolving customer needs and market dynamics. More than just a tool, Docker is now viewed as essential infrastructure that delivers long-term advantages in operational efficiency, security, and innovation capacity. These benefits compound over time, positioning organizations not only to keep pace but also to lead. Docker continues to demonstrate its strategic value across the software development lifecycle, according to new findings from theCUBE Research.

On the modernization front, 88% of respondents reported that Docker helped modernize at least 10% of their application workloads, with nearly two-thirds modernizing between 31% and 60% of their environments.

A staggering 72% of developers report significant productivity improvements when using Docker. This gain is strongly linked to the adoption of streamlined DevOps practices, where 75% of organizations have either fully transformed (39%) or significantly adopted (36%) DevOps practices enabled by Docker. The platform is also accelerating innovation: 92% of respondents reported that Docker reduced the time-to-market for new features or products, with

over half achieving efficiency gains of more than 25%. Docker is playing an increasingly vital role in AI development as well. 52% of respondents cut AI project setup time by over 50%, while 80% report at least a 26% faster time-to-market for AI solutions.

On tangible cost savings:

“With our use of Docker’s Testcontainers Cloud, we’ve achieved over \$1 million in annual savings. The productivity gains and reduced infrastructure overhead alone justify the investment.”

— Ian Brown, Engineering Manager, JVM Ecosystem, Netflix

- Financial and Human Capital Optimization:** Docker delivers exceptional financial performance, positioning it among the highest-return enterprise technology investments. The combination of substantial cost reductions, operational efficiency gains, and revenue acceleration through faster time-to-market creates compelling value propositions that extend far beyond traditional infrastructure optimization. Beyond efficiency and security, Docker is driving real business value. More than 95% of organizations report annual cost savings, with 43% saving between \$50,001 and \$250,000, and 22% saving up to \$1 million annually. Notably, 69% of organizations report ROI exceeding 101%, underscoring Docker’s strong economic proposition.

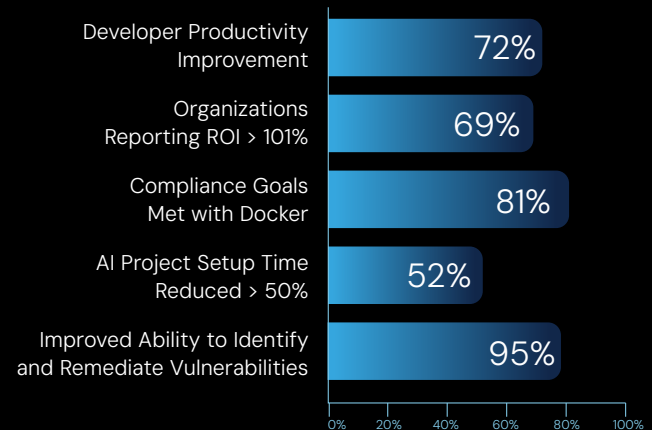
On Culture, Retention, and Innovation:

“Our developers were ecstatic when Docker was finally approved. It’s not just a tool—it’s a symbol of the shift toward modern, developer-friendly practices at Availity. Docker has improved engineer satisfaction, supports onboarding, and enables the kind of innovation that helps us retain top talent in a competitive market.”

— Sarah Andres, Principal Architect, Availity

Key highlights include:

Business and Developer Outcomes from Dockers and AI Initiatives



These results reflect a growing consensus among large, experienced enterprise teams: Docker is not just a container tool—it’s a key driver of development agility, security confidence, cost efficiency, and AI acceleration.

AI Enablement and Innovation Acceleration

Docker's strategy for AI is to make building and running agentic and AI-powered applications as simple, secure, and accessible as any other form of software development. Its approach focuses on addressing the fragmented and complex nature of today's AI landscape by providing a standardized, container-based foundation for AI models, tools, and services. This involves creating a trusted ecosystem with curated catalogs for AI models and MCP tools, ensuring developers have access to verified, secure, and ready-to-use components. This strategy also provides a clean, modular way to wire these different components together, tackling the major challenge developers face when trying to connect models, tools, services, data sources, and infrastructure. The ultimate goal is to evolve the Docker development platform to support the entire lifecycle of AI and agentic applications, from local development to production deployment.

Docker's evolving vision is realized through an integrated suite of AI tools that empower developers and drive enterprise outcomes. For local development, Docker Model Runner allows developers to pull and run LLMs with simple, familiar commands and native GPU acceleration. To connect AI agents to external services, the Docker MCP Catalog and Toolkit provides a secure gateway and a curated, ever-growing library of nearly 150 containerized tools, from partners like Stripe, Elastic, Neo4j, and GitHub, all manageable within Docker Desktop. These components are unified through Docker Compose, which now enables developers to define an entire agentic application (including models, tools, and services) in a YAML file. This platform reflects a broader architectural trend: agents are the new microservices. Just like early service-based systems, agentic apps introduce complexity in orchestration, connectivity, and

scalability. Docker Compose was built for this evolution, bringing together models, agents, and tools into a single, developer-friendly workflow.

Docker Compose also simplifies the path from development to production. Developers can define their full agent stack once, run it locally using Docker Compose Up, and deploy the same configuration to platforms like Azure—without rewrites or refactoring. It's a consistent, portable workflow from laptop to production.

To address local hardware limitations during development, the new Docker Offload feature enables seamless execution of compute-intensive tasks on cloud GPUs. Because model iteration is GPU-bound, Docker Offload eliminates this bottleneck by offering one-click access to cloud-based GPUs with no setup, no infrastructure tickets, and no constraints. Developers simply run their agent stack, and Docker handles the compute behind the scenes.

Operational Efficiency and Cost Savings

“By containerizing nearly our entire environment with Docker, we cut infrastructure costs by up to 50% in some workloads—like our recent Elasticsearch migration—and freed up our teams to focus on innovation rather than firefighting bespoke configurations.”

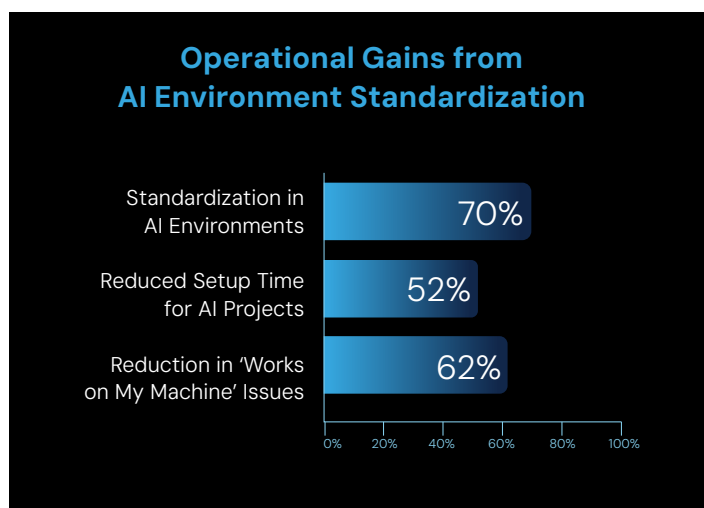
— Stuart Powell, Engineering Manager, JWP Kinetics

This empowerment of individual developers directly translates to enterprise success by accelerating the development of AI applications, reducing time-to-market for new features, and ensuring that AI applications are secure, scalable, and run reliably from local environments to production. As AI becomes a core business driver, Docker is emerging as essential infrastructure for standardized, portable, and scalable AI environments. By bringing composability, simplicity, and GPU accessibility to the agentic era, Docker is helping developers—and the enterprises they support—move faster, safer, and with far less friction.

On Development Workflow Acceleration:

“Docker enables our developers to validate workflows locally and bypass lengthy CI builds. That’s been a game-changer for productivity and speed. It’s also dramatically reduced our time to market for new features—well over 50% in some cases.”

— Ed Weed, Senior Technical Product Manager, John Deere



Docker is playing a pivotal role in streamlining and scaling AI initiatives by providing reproducible, version-controlled environments that ensure consistent model behavior from development through production. According to theCUBE Research, 78% of respondents reported improved reliability in AI testing and validation, while 76% said Docker helped scale their AI infrastructure more effectively. This consistency is crucial for delivering accurate and trustworthy AI outcomes, especially as organizations expand their AI capabilities across increasingly complex environments.

Docker’s impact extends beyond the core infrastructure. A remarkable 85% of respondents reported positive outcomes in deploying AI workloads across hybrid and edge environments, highlighting Docker’s suitability for decentralized, modern AI architectures. 61% of organizations attribute Docker’s role in helping prevent delays in AI projects, underscoring its value in mitigating the risks associated with AI innovation. Far more than just a container tool, Docker is accelerating AI adoption by simplifying infrastructure, enforcing consistency, and enabling better governance across the AI lifecycle.

Security and Compliance Efficiency

Docker's forward-looking vision for security and DevSecOps centers on simplifying and embedding security deeply into the developer workflow. Recognizing that security has become a non-negotiable board-level concern, Docker has strategically evolved its platform to deliver robust, secure-by-default solutions. Built-in development environment security controls, such as role-based access controls, image and registry access management, and the hardened Docker Desktop, set a strong foundation for secure and compliant software delivery. Additional tools such as Docker Scout proactively identify vulnerabilities and provide real-time security insights, empowering developers to rapidly triage and remediate issues, thereby significantly reducing exposure to software dependencies and the supply chain.

Docker Hardened Images (DHI) represent a significant leap in software supply chain security, delivering ultra-minimal, pre-validated base images that achieve near-zero CVEs and shrink the attack surface by up to 95%. Built to be minimal, signed, continuously patched, and SLSA-compliant, these images include comprehensive security attestations such as SBOMs, digital signatures, and FedRAMP-ready variants. Since their launch, adoption has accelerated across industries (from startups to global enterprises), making them a trusted foundation for production workloads without slowing developers, while enabling platform and security teams to move faster and more securely. At the artifact level, Docker Hardened Images protects the integrity of software outputs.

Docker's commitment to secure products extends beyond container images to encompass solutions such as Hardened Docker Desktop and Enhanced Container

Isolation (ECI), both of which significantly reduce the attack surface by enforcing stringent security standards in the core developer products. Secure development begins with these core tools, and Docker Desktop now features hardened configurations, role-based access controls, image access management, and registry access management, providing teams with tighter governance from the outset. Docker's implementation of Zero Trust principles further reinforces enterprise security by establishing continuous verification and granular access control across developer environments. By shifting security left, Docker enables developers to identify and remediate vulnerabilities at the earliest possible stage of development, reducing risk and increasing efficiency.

Security Confidence and CI/CD Acceleration

“Docker Scout gave us centralized image vulnerability management with virtually no setup. It just worked. Combined with Docker Desktop, we’ve drastically improved our security posture and accelerated our CI/CD pipeline—shipping features to production in minutes.”

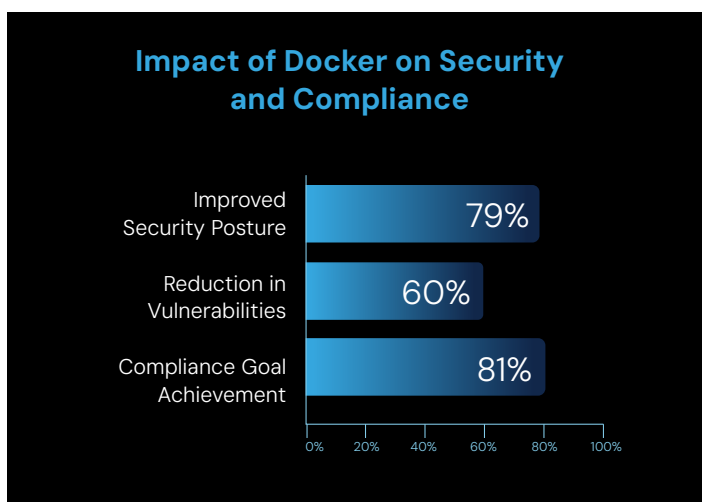
— Stuart Powell, Engineering Manager, JWP Kinetics

Docker also secures the entire software pipeline with policy enforcement capabilities in Docker Scout. These policies help teams establish guardrails around builds, image usage, and vulnerability thresholds, and Docker is expected to expand this into a broader suite of policy-based controls that secure the entire software supply chain.

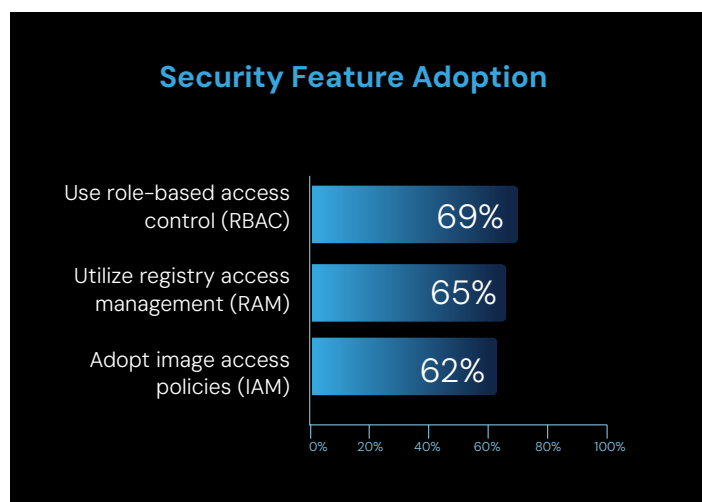
Additionally, Docker's strategy integrates comprehensive compliance support into developer workflows, simplifying adherence to rigorous industry standards, including SOC 2, ISO 27001, and FedRAMP. This alignment not only streamlines compliance for developers but also ensures that enterprise customers can trust applications meet high security benchmarks without compromising

speed or innovation. Docker’s forward-looking strategy encompasses secure tools, building blocks, products, and application development practices, providing developers with trusted, composable, and safe solutions that drive DevSecOps maturity. By addressing security across development tools, pipelines, artifacts, and provenance, Docker offers holistic protection across the software supply chain. Through these comprehensive measures, Docker empowers enterprises to confidently deliver secure, compliant, and innovative applications at scale.

Security is no longer just about code or containers; it’s about securing the entire development journey, and Docker has stepped in to meet that challenge head-on.



Organizations are seeing substantial benefits from integrating security directly into the Docker container lifecycle, which helps reduce the attack surface and improve vulnerability management. For instance, Docker Scout has led to significant or even transformative advancements in how 72% of organizations identify and fix vulnerabilities. The frequency of security monitoring also highlights a company’s security maturity: 37% of companies scan for Common Vulnerabilities and Exposures (CVEs) on a weekly basis, while 17% engage in continuous monitoring.



These integrated controls enable companies to build secure pipelines by default, reducing overhead in audits and security remediation processes.

Developer Empowerment and Unified Governance

“Docker gives our developers the freedom to work the way that suits them best, while still ensuring strong central governance. It’s a foundational piece of our infrastructure that enables a unified approach to security and compliance across a highly diverse engineering organization.”

— Stuart Powell, Engineering Manager, JWP Kinetics

Developer Productivity Gains

Docker enhances developer productivity and accelerates software development by leveraging multiple technologies, integrations, and automations throughout the software development lifecycle. By packaging an application and all its dependencies into a single, lightweight container, Docker ensures that software runs identically on a developer’s laptop, a testing server, and in production. This consistency eliminates time-consuming, environment-specific debugging. Docker containers start in seconds and use minimal resources, enabling developers to replicate complex, multi-service environments on their local machines quickly. This capability dramatically accelerates the local “inner loop” of coding and testing. It also streamlines the onboarding of new developers, allowing them to launch a complete development environment with a single command.

On developer experience and satisfaction:

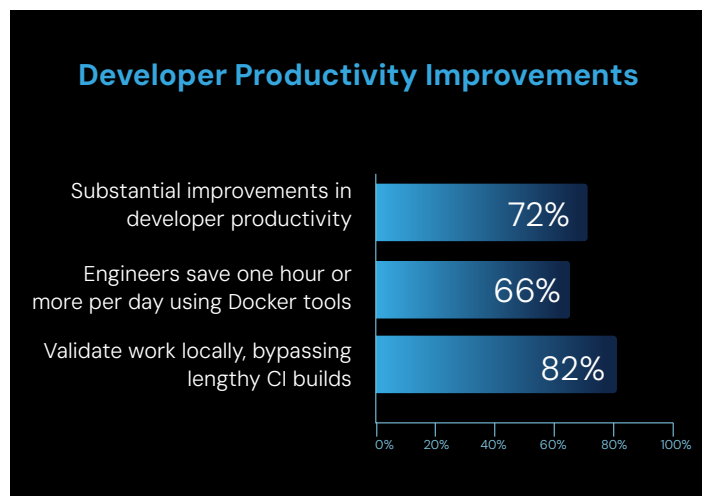
“Docker’s Testcontainers Cloud saves our developers at least an hour a day. It’s a key part of our DevStack that improves build times and developer satisfaction significantly.”

— Ian Brown, Engineering Manager, JVM Ecosystem, Netflix

Docker acts as a force multiplier by integrating seamlessly with several modern developer toolchains and enabling advanced software architectures. Docker’s suite of tools provides deep integration with popular IDEs, such as VS Code and JetBrains, as well as all major cloud providers (AWS, Azure, and GCP), creating

a smooth path from local development to cloud deployment. Docker is a cornerstone of microservices architecture, providing the necessary isolation for teams to build, deploy, and scale services independently. It also enables developers to build AI-powered and agentic AI applications, simplifying complex dependency management and making it easier to run and train models with features like Docker Model Runner, Docker Offload, Docker MCP Catalog. Finally, by automating environment setups and offering secure-by-default components like Docker Hardened Images, Docker’s tools reduce manual configuration and security-related work, allowing developers to focus on building innovative features.

Docker’s impact on developer productivity is foundational. According to the research:



Developers are significantly more efficient thanks to Docker, which frees them to focus on innovation instead of tedious setup and debugging. This increased efficiency also translates into higher quality and faster iterations, with 65% of teams reporting a significant reduction in rework. Furthermore, 77% of teams experienced shorter build times, a crucial improvement that enhances feedback loops and accelerates iterative workflows. Docker’s ability to standardize environments also leads to 73% better reporting consistency between

local development and CI/CD pipelines. Ultimately, Docker streamlines workflows, empowers developers with more autonomy, and minimizes disruptive context switching, all of which are key factors in boosting both developer satisfaction and overall productivity.

On Developer Productivity and Standardization:

“Docker has absolutely helped standardize development environments across our global teams. For those who use it, the time saved daily can be substantial—easily over an hour. That kind of consistency not only speeds up development but also reduces rework and makes scaling much more manageable.”

— Ed Weed, Senior Technical Product Manager, John Deere

Docker’s vision is to streamline and accelerate modern application development by maximizing developer productivity through simplified tools and workflows. At the core of this strategy is Docker Desktop, which provides a consistent, pre-configured development environment across operating systems, reducing setup time from days to minutes. Tools like Docker Compose, BuildKit, and Dev Environments optimize the inner development loop (code, build, test) while Docker Hub and Docker Scout enable seamless collaboration, image reuse, and proactive security. With over 20 million monthly users and integrations across major platforms

like GitHub, AWS, and Kubernetes, Docker continues to evolve its platform to support AI-powered workflows, cloud-based development, and secure software supply chains; all designed to let developers focus on building, not managing infrastructure.

On Developer Productivity and Local Development:

“Docker has been transformative for our development workflows. It’s the first tool engineers install when they join Availity, and it’s essential to how we shift left and build quality into the application lifecycle. Developers can validate and test locally with Docker, often saving one to two hours every day and dramatically reducing rework.”

— Sarah Andres, Principal Architect, Availity

Business and Financial Impact

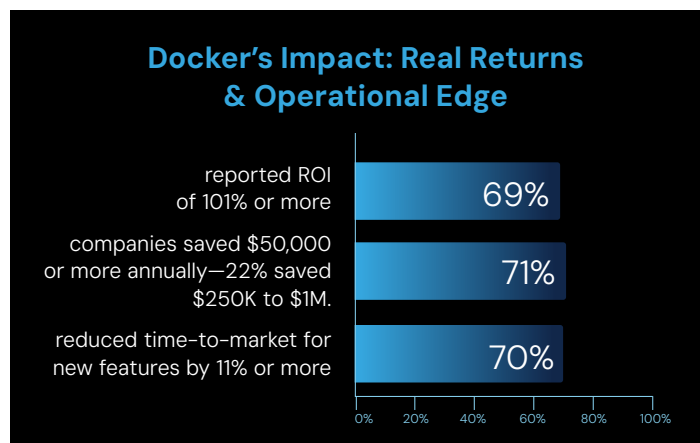
Docker equips enterprise development teams with the technology, security, and efficiency they need to build modern, high-value software rapidly. By enabling the creation of AI-powered and agentic applications, offloading complex builds to the cloud, and significantly reducing or eliminating security vulnerabilities, Docker empowers developers to spend more time on creating innovative applications and less time on setup and rewriting. Enterprises benefit not only from faster time-to-market, but also from higher-quality, more creative, and more secure applications. When developers can build faster and safer, the entire business accelerates with lower costs, more substantial ROI, and more innovation delivered to their markets. With Docker, developer productivity and the ability to create advanced applications become a direct driver of business growth and financial impact.

On standardization and ROI:

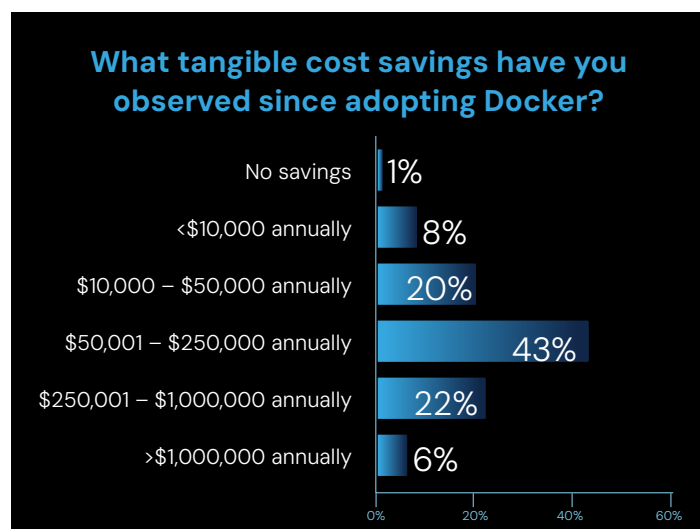
“Testcontainers is our official standard for mocking services in integration tests. It delivers strong ROI—easily in the 50–60% range—by reducing errors, speeding up builds, and enhancing developer productivity.”

— Ian Brown, Engineering Manager, JVM Ecosystem, Netflix

Docker drives direct financial returns and operational advantages:



Docker acts as both a cost optimizer and a value enabler, driving faster innovation cycles through productivity gains while simultaneously cutting costs by reducing rework and tool sprawl. Organizations leveraging Docker onboard engineers 26% faster, significantly lowering both ramp-up time and the cost per hire. Furthermore, 69% of enterprises have either made significant strides or fully transitioned to a unified development platform with Docker. This standardization simplifies complex toolchains and boosts team alignment, ultimately enhancing the DevOps maturity of 75% of organizations.



Enabling Modern DevOps and Cloud Efficiency:

“Docker has been instrumental in our transition from legacy systems to more modern architectures. It’s played a major role in driving our DevOps maturity and contributed to meaningful reductions in our cloud spend—between 11% and 25%.”

— Ed Weed, Senior Technical Product Manager, John Deere

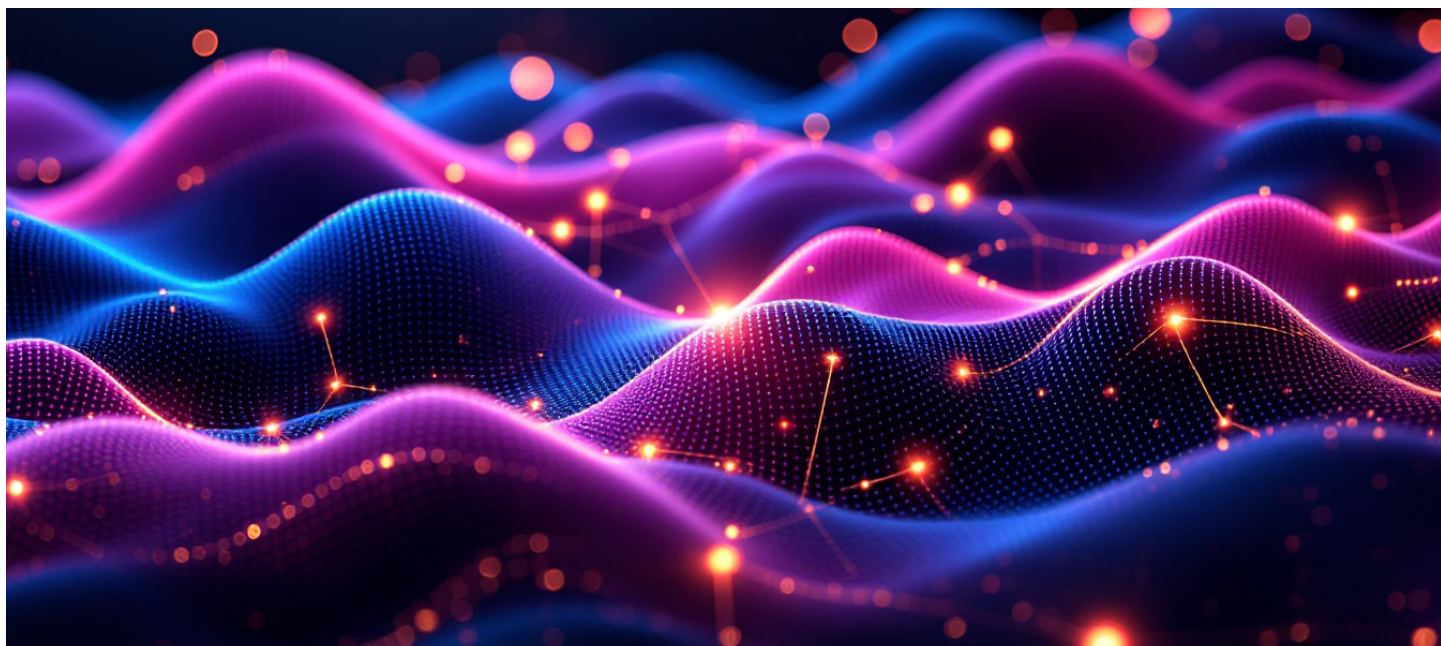
Docker’s impact extends well beyond developer productivity; it directly fuels business performance and financial outcomes. By unifying development workflows, accelerating onboarding, and reducing costs across infrastructure, security, and tooling, Docker enables organizations to operate with greater speed, agility, and confidence. Notably, 64% of survey respondents reported a decrease in cloud service provider fees attributable to Docker, 29% cited a moderate reduction, and 13% realized savings of more than 25%. The measurable ROI and widespread cost savings reported

by enterprises highlight Docker’s role as a foundational platform for building scalable, secure, and innovative applications. As AI and agentic architectures become core to digital transformation strategies, Docker stands out as a critical enabler, turning technical acceleration into business growth.

On Standardization and DevOps Enablement:

“With Docker, we’ve made major progress toward standardizing our toolsets across engineering. It plays a key role in enforcing consistency between inner-loop development and CI/CD, and it’s helped move us away from best-of-breed sprawl. That’s been crucial as we mature our DevOps practices and accelerate our cloud migration.”

— Sarah Andres, Principal Architect, Avallity



Analyst Recommendations

Based on extensive survey data and executive insights, businesses evaluating developer productivity, AI readiness, and software supply chain security should strongly consider Docker as a strategic investment. Docker is no longer simply a container tool; it has evolved into a foundational platform that enables faster time-to-market, scalable AI development, and embedded security throughout the software lifecycle. With 72% of developers reporting significant productivity improvements and 69% of organizations achieving an ROI of over 101%, Docker demonstrates a compelling value proposition that aligns directly with business goals such as innovation velocity, cost reduction, and developer enablement.

Organizations seeking to accelerate AI initiatives, standardize development workflows, and reduce the operational burden of compliance and security would benefit from adopting Docker's integrated toolchain. Enterprises that use Docker not only minimize setup time for AI projects by 51% or more but also achieve

material gains in security maturity; 81% now meet most or all compliance goals using Docker. The platform also supports meaningful modernization efforts, with 88% of teams reporting Docker-enabled application modernization across at least 10% of workloads. As businesses increasingly move toward AI-native and agentic applications, Docker's ability to provide secure, composable, and GPU-enabled development environments positions it as a key enabler of next-generation software architectures.

Given the widespread cost savings, with data showing 95% of organizations report annual financial gains, including 22% that save between \$250,000 and \$1 million, Docker should be considered not only for its technical benefits but also for its measurable economic impact. For IT leaders focused on operational efficiency, cloud migration, or platform unification, Docker offers a proven path to simplify complexity and drive competitive differentiation. We recommend that enterprises integrate Docker into their platform strategy to future-proof their software delivery pipelines and to support scalable, secure, and innovative digital transformation initiatives.

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