











From Automation to Autonomy: Future-Proofing DevOps Roles in an AI powered World.

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AI's Growing Influence in DevOps & Software Engineering: The Problem



“AI & DevOps: The news, social media and latest trends”



DEVOPS TODAY

MONDAY, FEBRUARY 25 2025 @DEVOPS_COMMUNIT

AI INTEGRATION, SECURITY UPGRADES & EMERGING INNOVATIONS



PACKET PUSHERS

Get Excited About Riding the AI Infrastructure Wave

● REDUCING DEMAND FOR TRADITIONAL ENGINEERS

IT firms shifting focus to AI-skilled new-age roles

PADMINI DHIRUVARAJ
Bengaluru, August 7

AS AI ADOPTION and advancement increase, IT companies are shifting focus from traditional roles like system and DevOps engineers to new-age roles that combine skills in AI, machine learning (ML), data analytics and robotic process automation (RPA).

Krishna Vij, business head at TeamLease Digital, said, "The rise of AI and automation is reducing the demand for traditional system and DevOps engineers, but also creating new opportunities in AI-related fields."

There has been a noticeable decline in the demand for system engineers, with a 25% drop from fiscal 2022 to fiscal 2023 and a further 64% drop from FY23 to FY24, according to Kapil Joshi, deputy CEO of Ques IT Staffing.

"This decrease primarily reflects a period of adjustment after significant hiring sprees in previous years and a temporary slowdown in certain sectors. However, demand for system engineers has been picking up in other areas as industries increasingly adopt digital transformation strategies."

Infosys, which recorded an unprecedented hiring spree in 2022, is now grappling with delays in onboarding over 500 freshers, many of whom have been waiting for more than two years. However, the IT company said that it is "honouring all the offers that it has made... As

TECHNOLOGY TALK



■ There has been a noticeable decline in the demand for system engineers with a 64% drop from FY23 to FY24.

■ Roles like data entry, customer service, technical support, traditional software developers, and network and system administrators are under greater threat from AI advancements.

■ Traditional roles of system engineers transformed rather than entirely replaced by AI; the demand is strong for roles that combine traditional engineering skills with expertise in AI, ML, data analytics

■ Infosys, with an unprecedented hiring spree in 2022, is now grappling with delays in onboarding over 500 freshers.

onboarding is always aligned with client requirements, we spread the joining dates of various batches to align with changes in project schedules and to ensure employees have access to the right training," an Infosys spokesperson had told *FE*.

The traditional roles of system engineers are being transformed rather than entirely replaced by AI, experts said. "AI is not expected to fully replace system engineers; rather, it will transform their roles and create new opportunities. AI complements system engineers by automating routine tasks, allowing them to focus on strategic and innovative activities," Vij said.

However, roles like data entry, customer service, technical support, traditional software developers, and network and system administrators are under greater threat from AI advancements. Krish Ramineni, CEO and

co-founder of Fireflies.ai, observes a significant shift in the hiring landscape.

"From 2022 to 2024, there has been a more than 50% increase in job openings related to AI and machine learning. On the flip side, traditional engineering roles like frontend, mobile, and backend development have seen a decline of about 20%. Tools like GitHub Copilot, which are now writing 40% of code for engineers, are a testament to this shift," he said.

The demand is currently strong for roles that combine traditional engineering skills with expertise in AI, ML, data analytics, and robotic process automation (RPA).

Millind Shah, managing director of Randstad Digital in India, said, "Companies are prioritising individuals with expertise in AI integration, knowledge of ML frameworks, understanding of data structures and algorithms, and other

advanced system design rather than those who are merely acquainted with core utilitarian skill sets."

Despite the decline in traditional roles, the need for skilled professionals who can leverage these technologies effectively continues to grow. Further, the role of software engineer while evolving, remains secure for the foreseeable future.

In India, the demand for skilled software engineers remains strong, with 5.2 million professionals already active and this demand is projected to rise from 3.7% in 2023 to 2.3% in 2025, requiring nearly 1.1 million engineers by then, Vij said.

Further with IT firms like Infosys, Wipro, and IT Mindtree, along with mid-tiers, reporting multi-year high utilisation rates during the April-June period, hiring is expected to gain pace in this fiscal year.

An Eye for an AI

IT PROFILES

What's Hot?

Prompt engineer, AI ethicist, AI explainability engineer, generative AI engineer, LLM operations engineer, vector database engineer, specialists in AI/ML Cybersecurity, DevOps, network security



▶ Those with foundational knowledge across multiple areas. plus

HOW ARTIFICIAL INTELLIGENCE WILL TRANSFORM OPERATIONS AND DEVOPS

How AI is Reshaping DevOps Automation in 2025: Smarter, Faster, More Secure

AI & DevOps in the News

In an age of increased information, the promises of a brighter DevOps future augmented by AI is evident. However beneath the surface, what does this really imply?

An Invitation to embrace Critical Thinking

“

Not everyone who claims to be an expert, is indeed an expert. Please note: I have never claimed to be an expert on anything... In fact, anyone claiming to be an expert on anything, in my opinion, should immediately be viewed with suspicion...

”

Chris A Jackson, Sci Fi & Fantasy writer

The Problem

01

Destabilisation
of the IT
industry &
ecosystem

02

Threat to
careers and
significant job
role changes

03

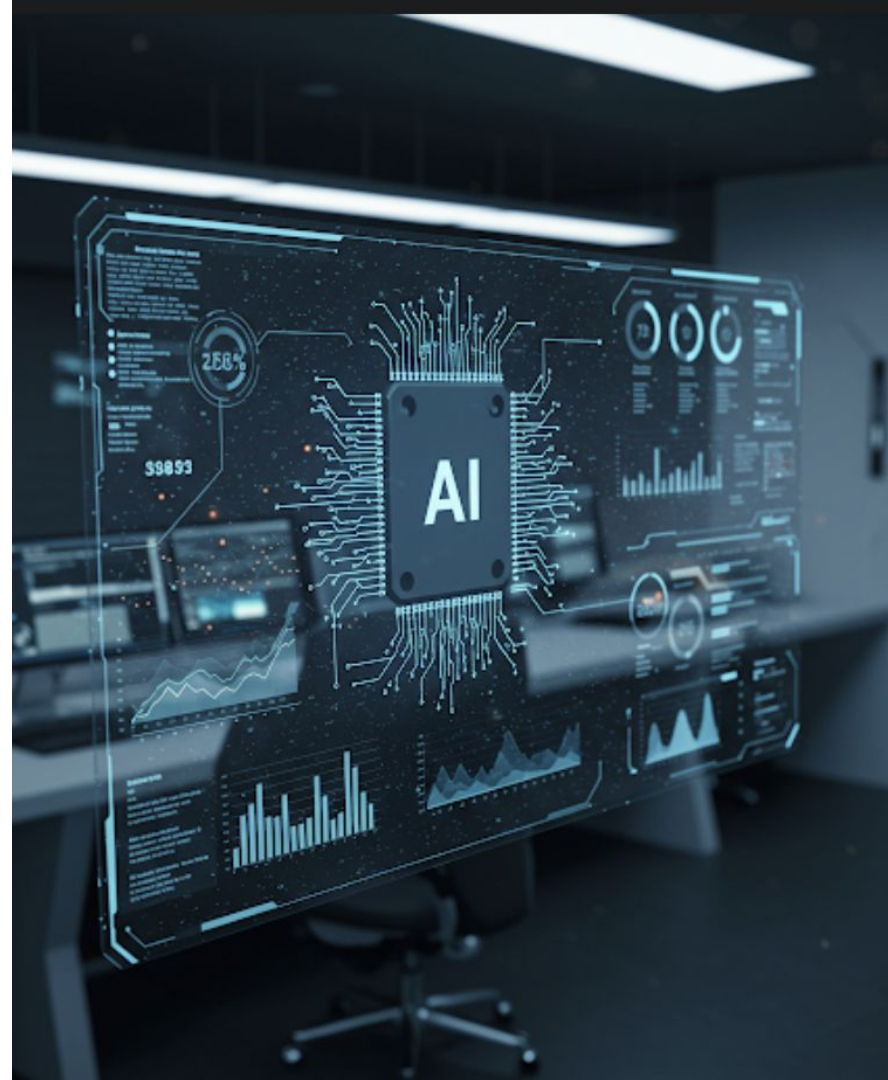
More security
vulnerabilities,
Data privacy and
Compliance
issues

04

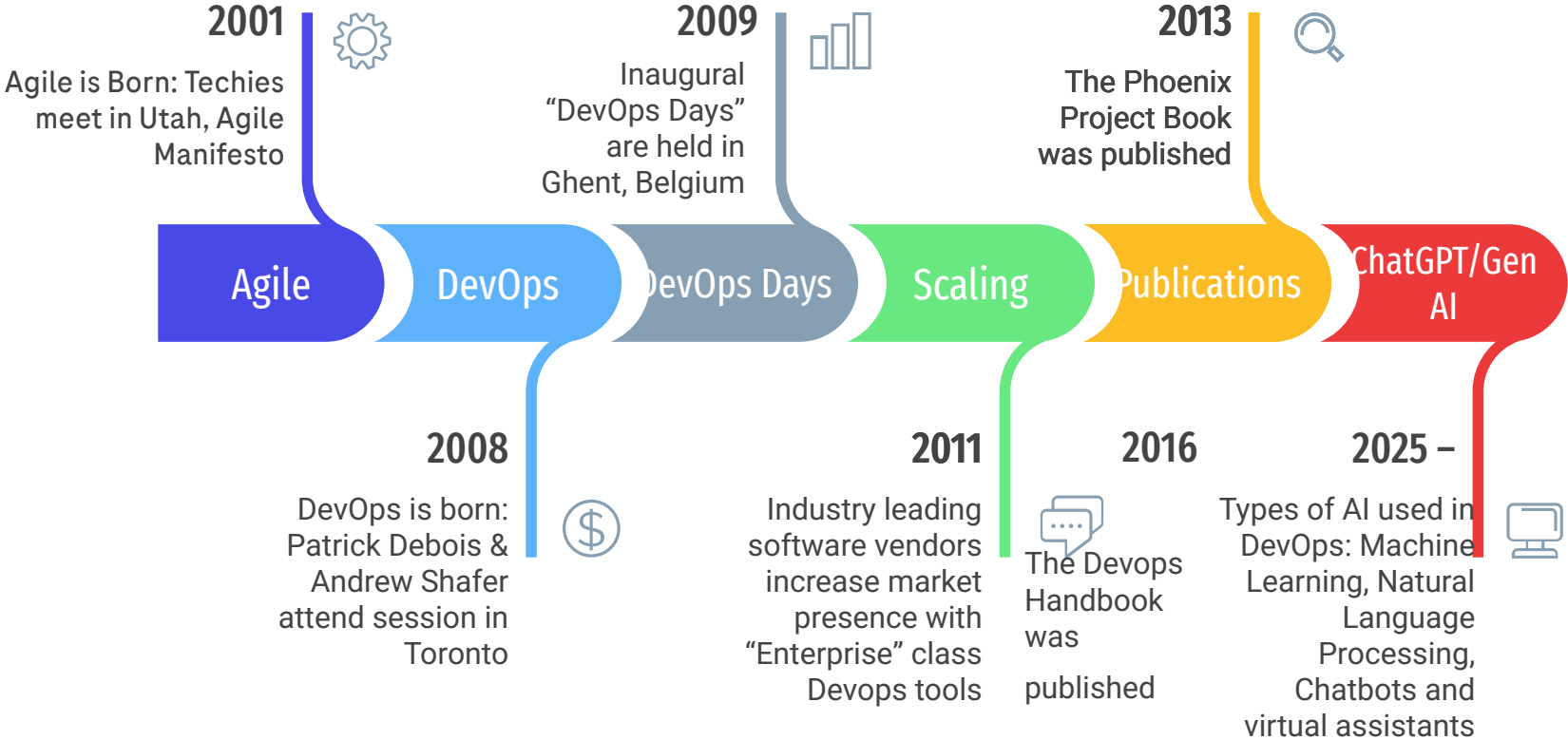
Ethical concerns,
Bias in AI
algorithms plus
maintenance
overhead



AI & DevOps: Evolution & Facts



DevOps: Evolution Timeline



AI in DevOps: Facts & Stats

Overviews from studies, surveys and research ...

AI in DevOps Market to be worth USD 24.9 billion by 2033

61% of organisations have reported that AI in DevOps has enhanced deliverable quality

81.7% of developers are utilizing ChatGPT, highlighting its widespread adoption.



38% of medical providers utilise AI for computer aided diagnostics

Goldman Sachs via BBC predicts that AI may replace 300mil jobs worldwide, representing 91% of all global employment

MIT/Boston University forecast that by 2025, AI and automation could replace two million manufacturing jobs

PwC reports that 75% of CEOs believe generative AI will substantially alter their business practices within 3 years.

“Peeling back the layers & lifting the veil on DevOps automation realities”

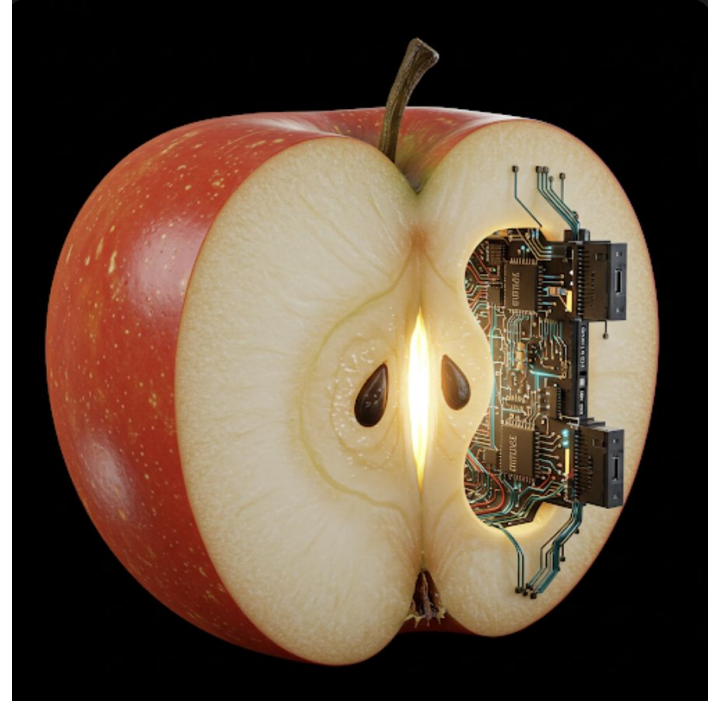


What is at the Core of the DevOps & Software Engineer's reality?



"We're aware there's often a significant gap between the day-to-day reality for most developers and "conversations about what developers want"

GitHub



IT ecosystem & DevOps Engineering reality

“”

In many cases, the things
developers value and want to do
more of are in conflict with how
their performance is measured

Inbal Shani
Chief Product Officer at Github

“ Leadership emphasis on quantity (volume) instead of “quality” (value)

Quantity ...

- **Number of incidents resolved:** Managers focus on how many tickets are closed.
- **Story points completed :** Teams race to burn down points
- **Lines of code or features shipped:** We believe more output = more productivity.
- **Number of deployments per week:** DevOps praised for speed
- **Velocity metrics in sprints:** Used as a key performance KPI.
- **Time to close tasks:** Speed over substance

Quality ...

- **How incidents are handled:** Root cause analysis, prevention, and communication quality.
- **Value delivered to users:** Does the feature solve a real user problem or improve UX?
- **Impact of Shipped code:** did it reduce friction, improve performance, or solve key issue?
- **Stability and reliability:** fast and safe deployments with minimal downtime or errors
- **Team Collaboration & Learning:** Did the sprint foster better ways of working or unblock others?
- **Clarity of purpose & outcomes:** While LLMs have broad knowledge, they may lack depth in highly specialized or niche areas.

Human Bias toward Quantity

- A Psychological & Evolutionary Lens -

Cognitive Shortcut (Heuristics)

Humans use numbers as mental shortcuts to make sense of the world. Quantity is tangible, easy to measure and compare - unlike quality often nuanced and subjective

Evolutionary Bias Toward Abundance

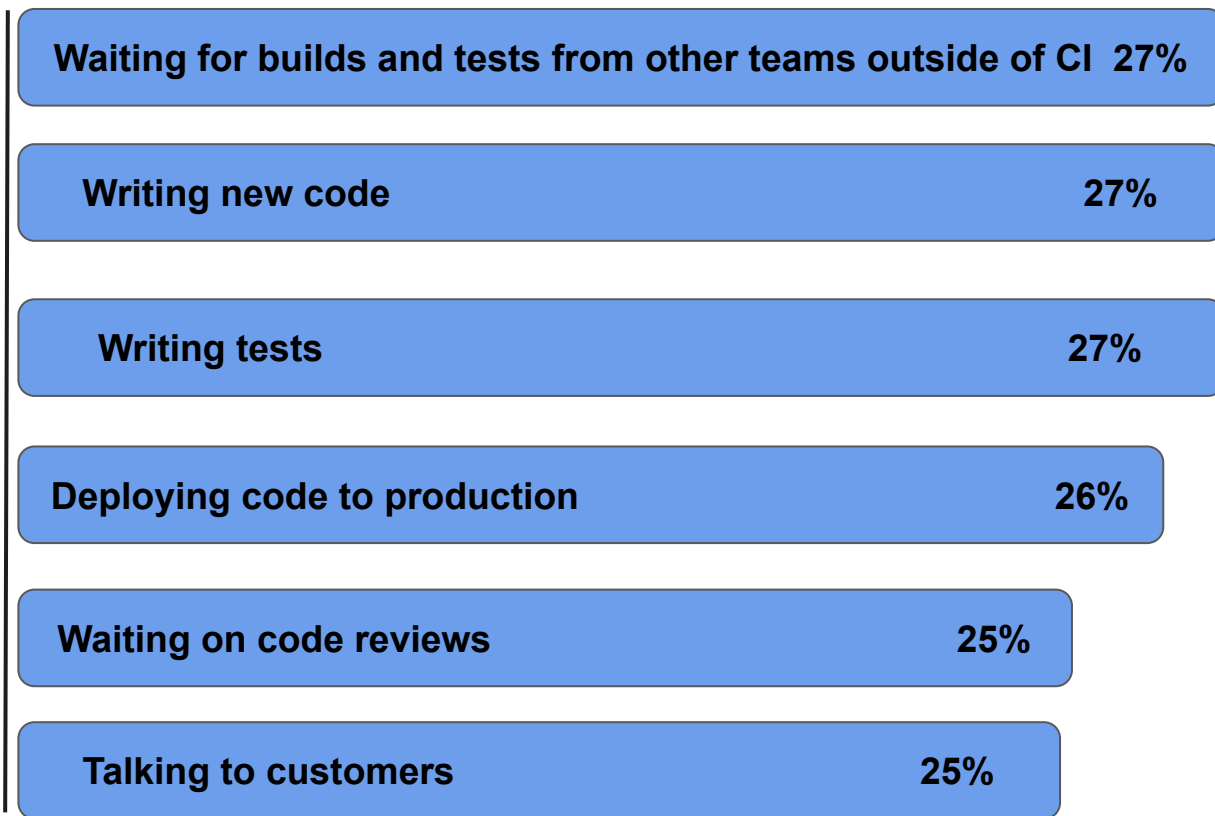
In ancient environments, “more” often meant survival. More Food, more tools, more allies –increased chances of survival. This hardwiring still affects modern thinking

Managerial Visibility & Control

Quantity gives a false sense of control. It’s easier to report “we shipped 20 features” than “we solved 3 high impact problems that delighted users. Numbers feel like progress.

DevOps Engineering reality

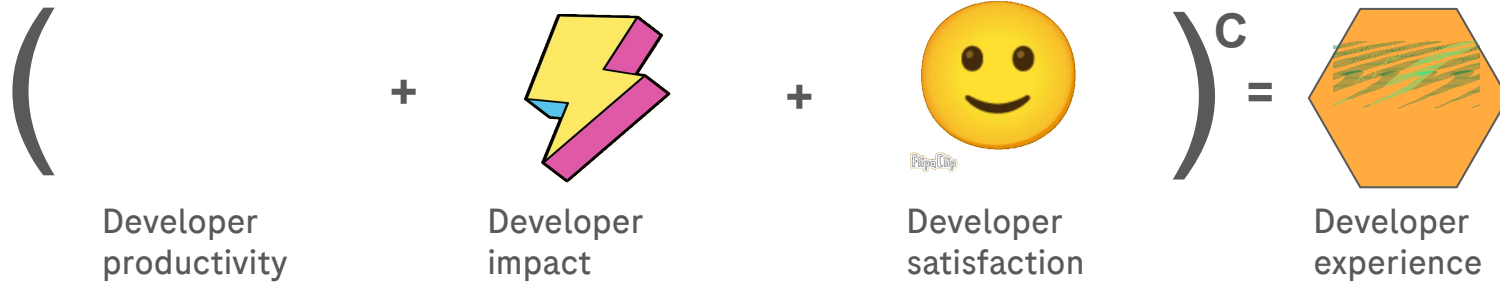
What developers spend the most time on daily ...



More emphasis on the Developer Experience



Focusing on the Developer “DevEx”



An additional boost to the Developer Experience?

We have recently witnessed the rise of revolutionary AI features, tools, apps, agents ...



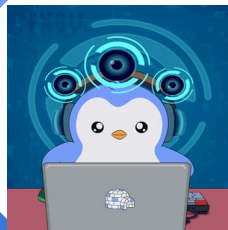
Automation vs Human Expertise: The Limits of AI in DevOps



Observations from the Trenches: Limits of AI in DevOps

Lack of Advanced Reasoning

Example: Getting AI to write Ansible playbooks & Terraform scripts is not enough. These scripts need **environment specific parameters** that AI cannot know



The 70% vs The 30%

AI is good at “The happy Path”, **one-shotting** and **scaffolding basic features**. The 30% is where engineering really happens and the difference between code that somehow works vs “product ready software”

Security & Compliance Oversight

AI might overlook **subtle security vulnerabilities** or misjudge compliance requirements in code changes. It could also introduce subtle security vulnerabilities.

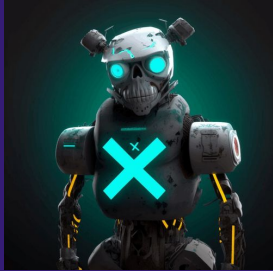
Critical & Contextual Judgements

AI excels at pattern recognition in logs, observability and automation, but lacks the contextual understanding and critical lenses to handle **novel situations**, **business impact**, and **unforeseen consequences**.

Observations from the Trenches: Limits of AI in DevOps

Accidental & Essential Complexity- (Fred Brooks)

AI tools seem good in addressing accidental complexity- **automating repetitive tasks** and **streamlining workflows**. They are unable to handle essential complexity, requiring **deep understanding**, contextual reasoning & adaptability



The Duct Tape Developer or Flash Dev

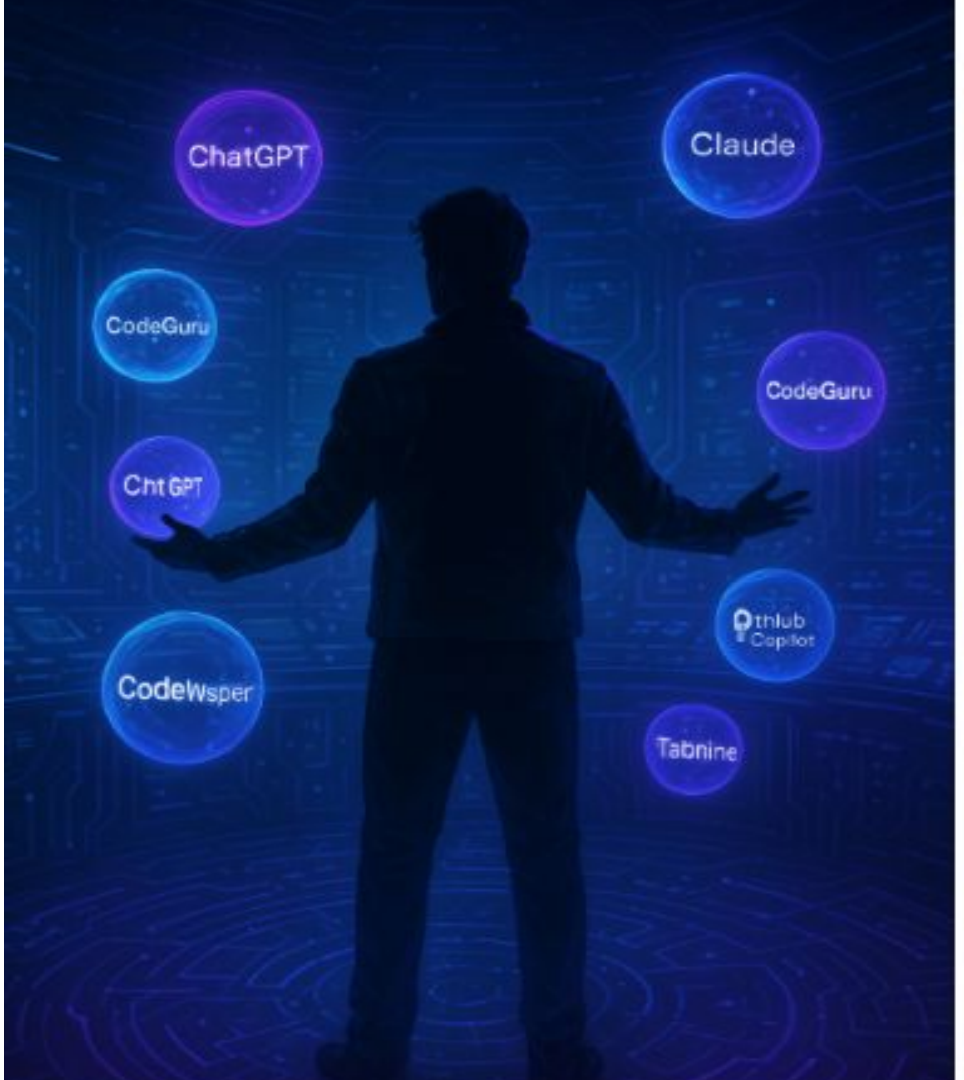
Highlights how a less technically experienced Developer is prone to blindly accept AI suggestions, ending up with code that is brittle, works on demo and collapses in production.



The AI fully replacing humans simulation..

Researchers at Carnegie Mellon University staffed a fake software company entirely with agents from Google, Open AI, Anthropic & meta. The results were laughably chaotic

The AI Enhanced DevOps Leader: AI, a Tool not a Threat



AI & Human Oversight

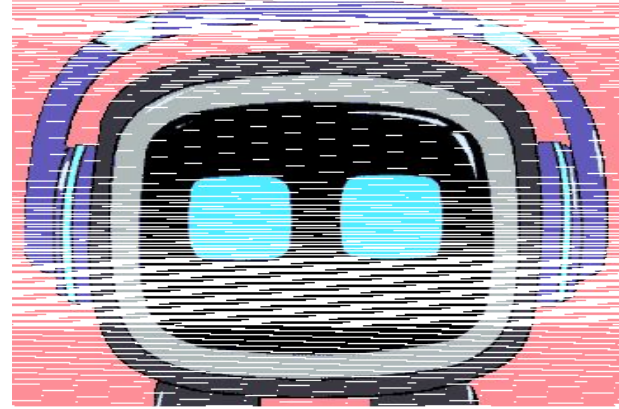
AI in the hands of a seasoned developer is a true power combo

They don't blindly trust AI — they spot red flags, roll back when needed, refactor constantly, think through edge cases, and challenge architectural decisions with confidence



AI & Human Oversight

Think of AI as an **autopilot** in aviation: It handles routine functions brilliantly but still requires skilled pilots **for critical decisions and unexpected situations.**



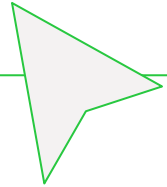
Call to Action & Recommendations



Future proofing DevOps Roles in the age AI

1. **Embrace the art of Critical Thinking in an AI World:** AI continues to bombard us with the how, we should continue to take ownership of the “Why?”

Critical thinking prompts us to ask, **who** is putting these models together, **how** are they being built and **what data** is being fed into these models?



Future proofing DevOps Roles in the age AI

2. Storytelling & Business Acumen

Craft stories and narratives that link engineering work to real business impact, helping developers clearly understand the value they're creating .



Future proofing DevOps Roles in the age AI

- Lean in to “User-Centricity & Empathy” -

3. User Centricity: You Can't Automate Empathy

Only humans can *fall in love with the problem*—like a DevOps engineer optimizing a release pipeline not just for throughput, but to reduce deployment downtime for critical healthcare apps patients rely on.

That's not automation—it's empathy in action.



Future proofing DevOps Roles in the age AI

4. Psychological Safety: The DevOps Advantage AI Can't Replicate:

A stressed-out DevOps team won't question flaky CI pipelines, challenge insecure IaC patterns, or take the risk to refactor legacy scripts.

Safe teams ship better code—AI just follows the script



Invest Where It Matters: DevOps Entry & Expert Stages



Evolving into the AI - Enhanced Engineer: The DevOps Metamorphosis

5. Future Proofing Senior DevOps Engineering Roles in an Age of AI

Continue Experimenting

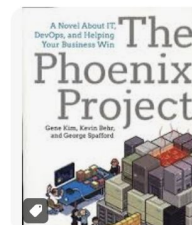
The DevOps engineer must evolve – merging human judgment with AI capabilities to not just automate but architect smarter systems and career paths.

Avoid Skills Atrophy

Continue flexing your natural coding muscles to avoid skills atrophy. Do not give in to complacency.

Old Books, Timeless Wisdom.

Rediscovering high-ranking DevOps Engineering books – Like Clean Code, The pragmatic Programmer, The DevOps Handbook and The Phoenix Project from the last decade reveals patterns, principles, and insights that remain deeply relevant—and in many cases, indispensable.



Future proofing DevOps roles: Targeting the Edge (Junior Minds)

“”

Klarna halted all new developer hires and laid off 10% of its workforce before its IPO, focusing instead on AI-powered automation.

Press Release, 2024
Klarna

“”

Meta, Microsoft, and Google: These tech giants have all implemented significant hiring freezes, particularly impacting junior and entry-level software engineering roles. The integration of AI has automated many coding tasks, especially those typically assigned to less experienced developers

Press Release, 2024
Klarna



Invest Where It Matters: DevOps Entry levels



6. Building the Future Talent Pipeline:

No juniors today = no seniors tomorrow. Companies face critical skill gaps without continuous talent development

7. Legacy System Lifelines:

Junior developers are essential for maintaining and understanding legacy systems. As they grow within an organization, they carry forward critical institutional knowledge that AI cannot replicate.

8. Enhancing Team Diversity and Innovation:

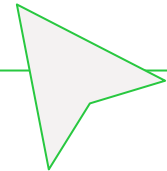
Junior developers bring fresh perspectives and new ideas. Their approaches can challenge the status quo, leading to improved processes and solutions.

Future proofing DevOps Roles in the age AI

9. Supporting Sustainable Growth:

Investing in junior developers promotes a culture of learning and growth, leading to higher employee retention and a more resilient organization.

By establishing 'Native AI' young developer initiatives'

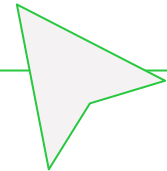


Future proofing DevOps Roles in the age AI

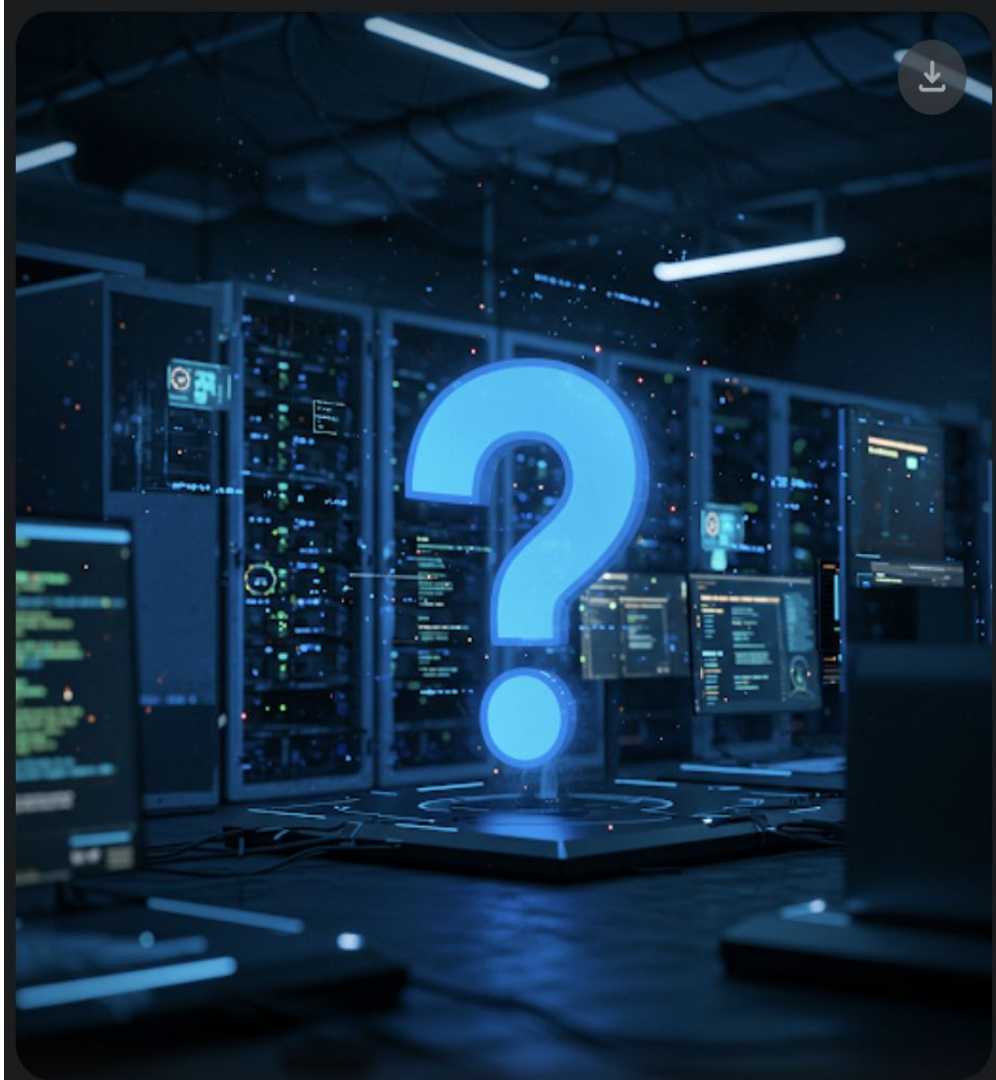
10. Mentorship Cycle Reinforcement:

Teaching juniors sharpens senior engineers' communication and technical skills through explanation

- Establish mentoring programmes between Senior & Junior DevOps Engineers



Questions???



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