Software Improvement Group

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AI – the Good, the Bad and preventing the Ugly

Luc Brandts

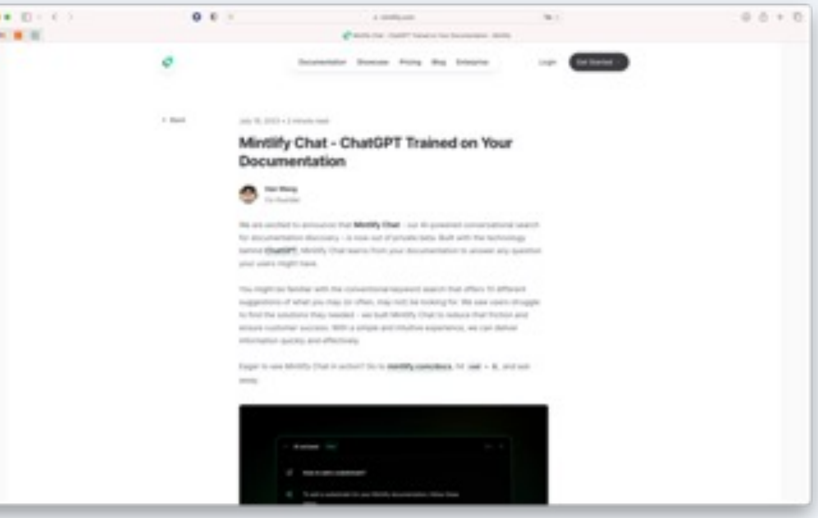
Contents

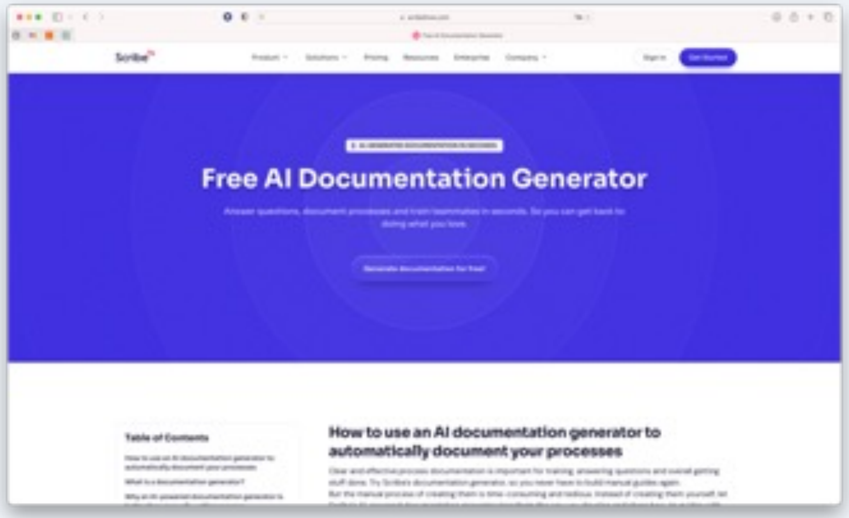
The impact of Generative AI on today's world

The impressive rise of ChatGPT and similar solutions,
the need to embrace GenAI

And, the need to manage the change.
Lessons from our benchmark, lessons from the past

AI is increasingly making the life of software developers easy

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Free AI Documentation Generator
How to use an AI documentation generator to automatically document your processes
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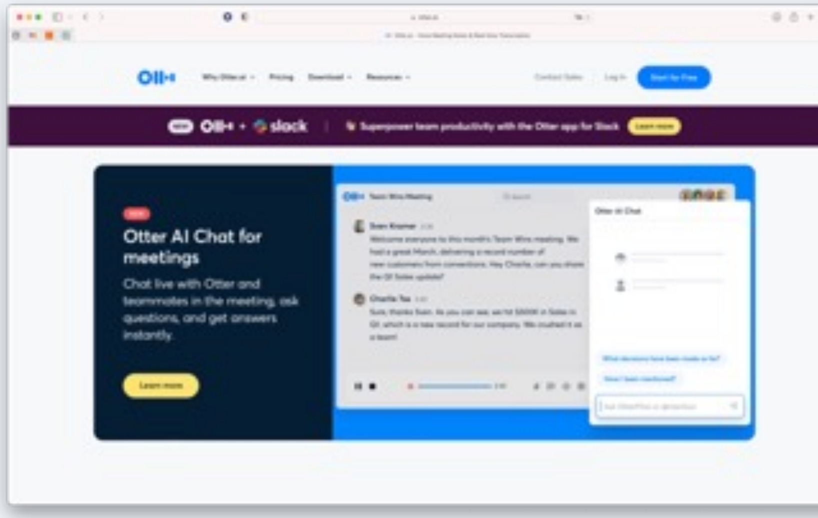
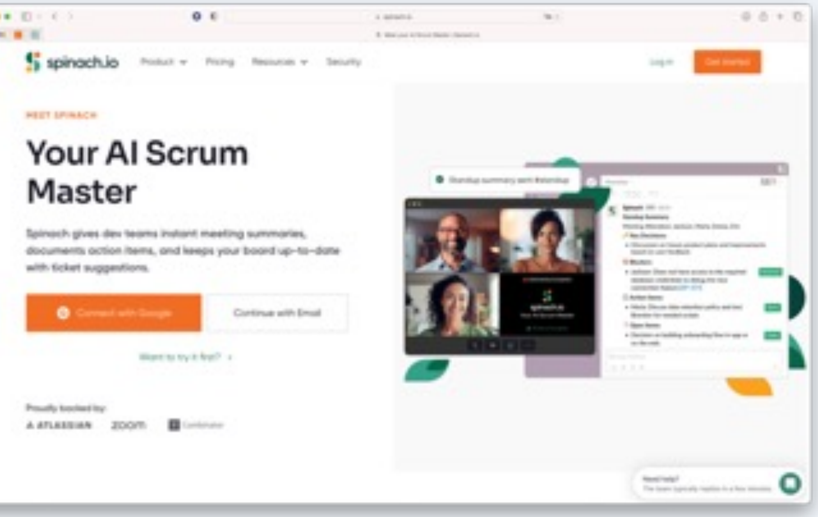

Otter
Otter + slack
Otter AI Chat for meetings
Chat live with Otter and teammates in the meeting, ask questions, and get answers instantly.
Learn more


spinach.io
MEET SPINACH
Your AI Scrum Master
Spinach gives dev teams instant meeting summaries, documents action items, and keeps your board up-to-date with ticket suggestions.
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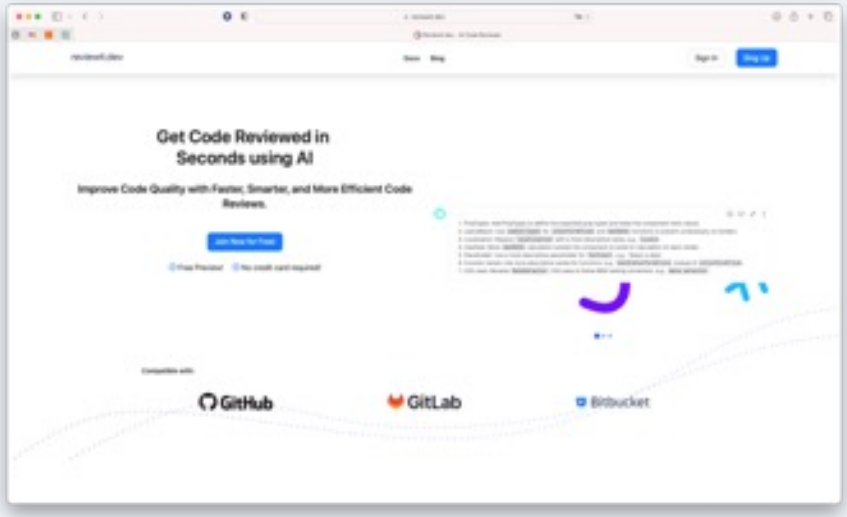
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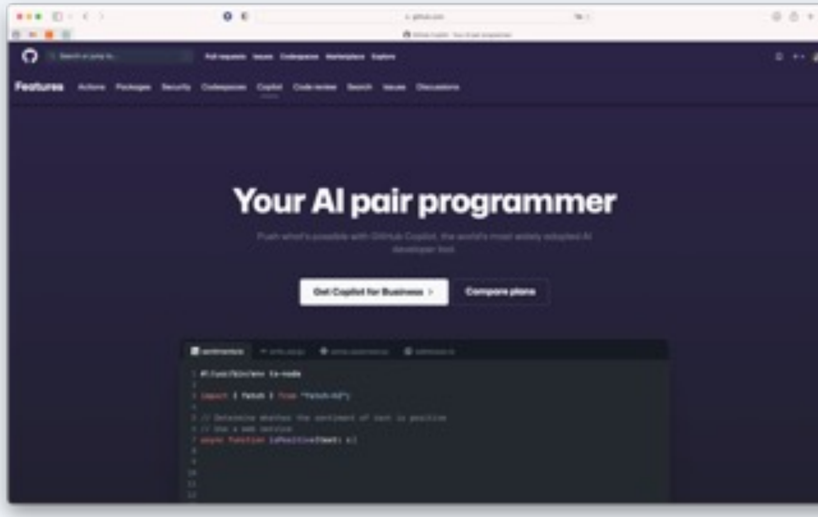

Warning

This presentation will **NOT** be about the super powers of generative AI

This is something we should all embrace

This presentation is about how we should manage the change

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SIG Background

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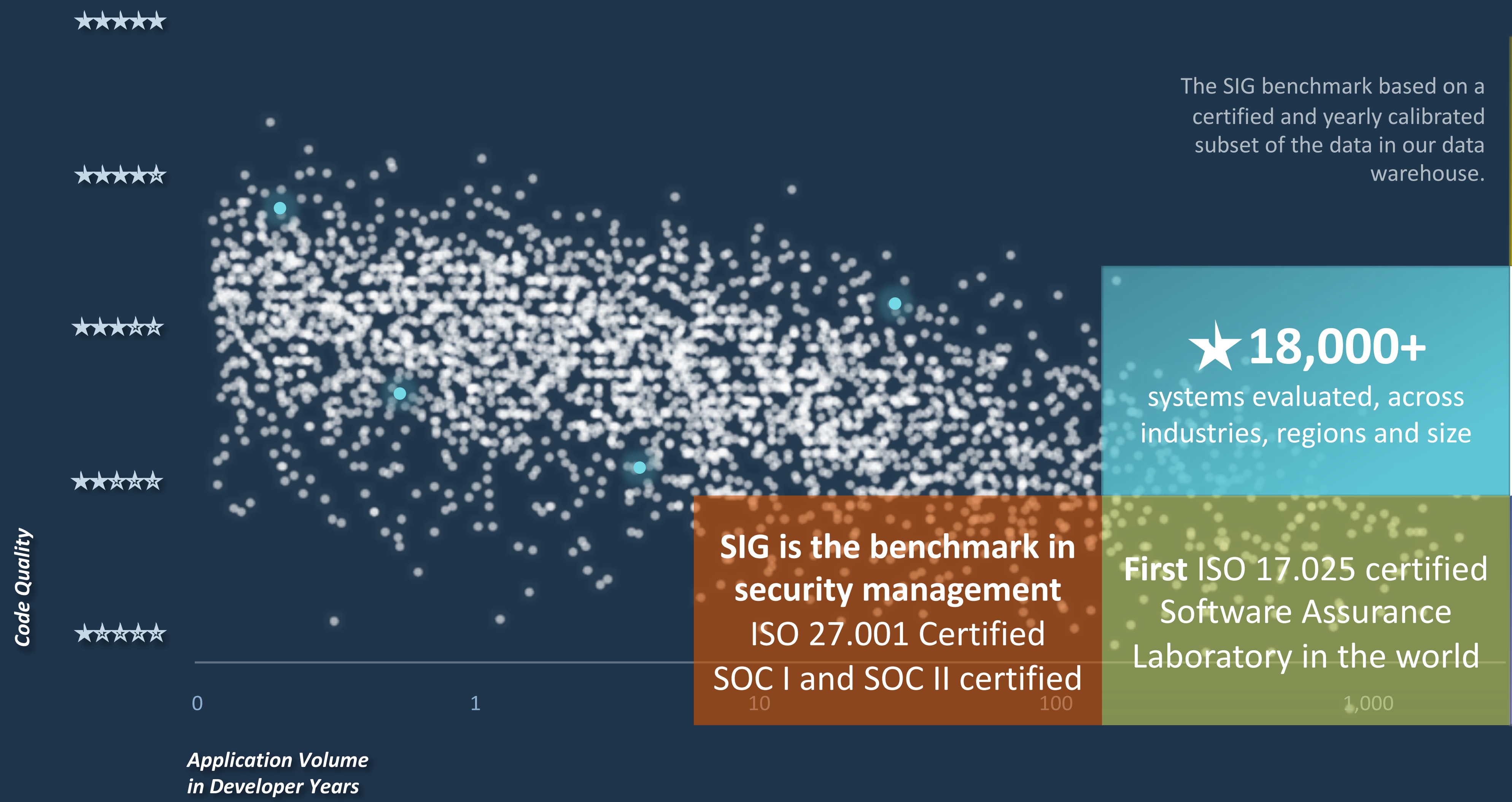
Benchmarked approach to manage the change



The SIG benchmark based on a certified and yearly calibrated subset of the data in our data warehouse.

350M+
Lines of Code per week analyzed and added to the benchmark database

★18,000+
systems evaluated, across industries, regions and size

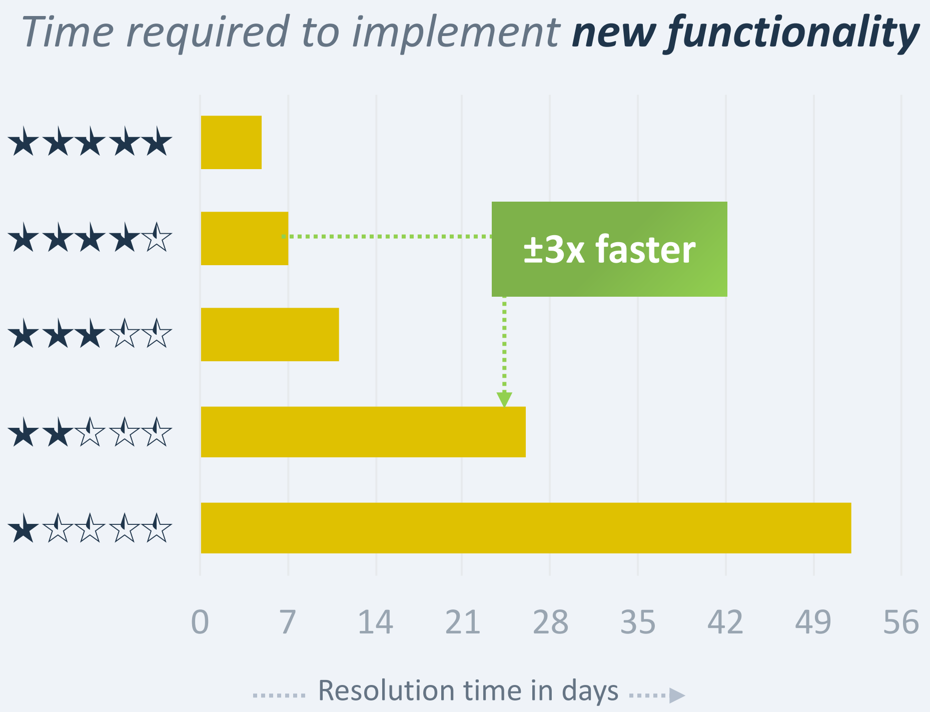
200+ billion
Lines of code in data warehouse, representing the largest benchmark of its kind

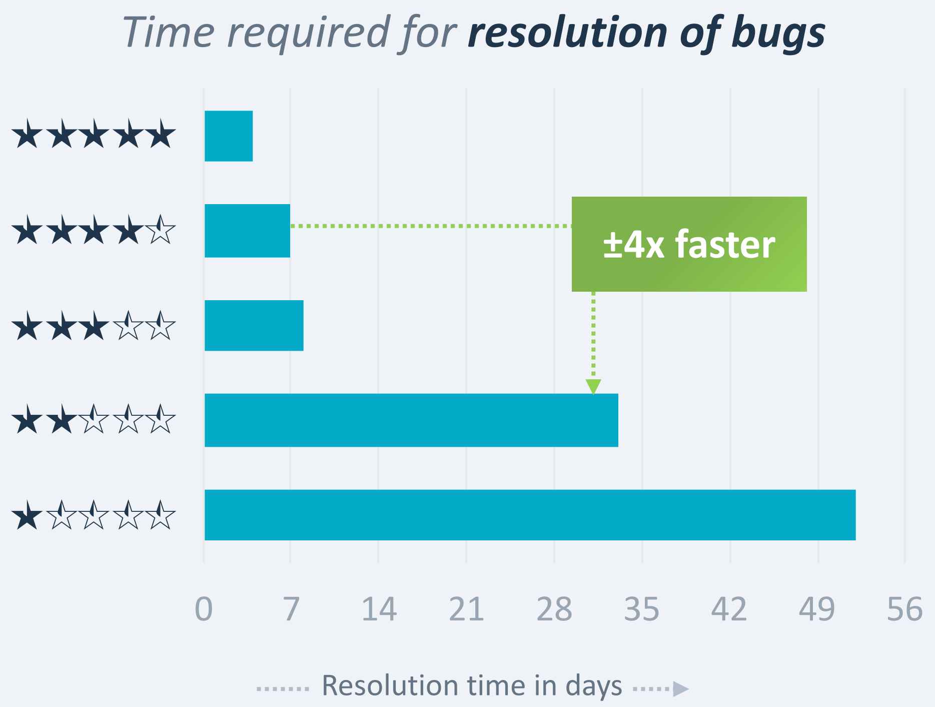
SIG is the benchmark in security management
ISO 27.001 Certified
SOC I and SOC II certified

First ISO 17.025 certified Software Assurance Laboratory in the world

300+
Technologies supported, leading the market by a (very) large margin

Build quality is a strong predictor for costs and risks





A ★★★★☆ system requires **3.5 times less effort*** to maintain than a ★★☆☆☆ star system

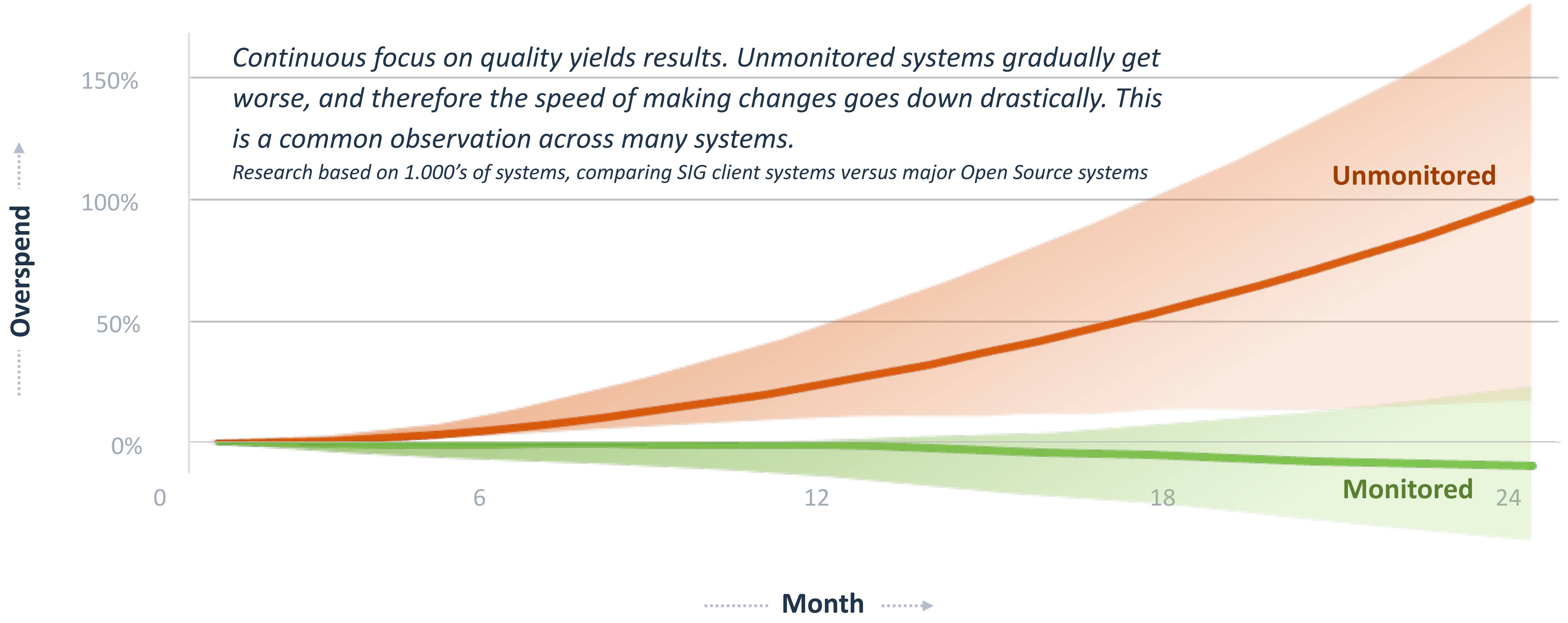
* **Source:** "Faster issue resolution with higher technical quality of software", Software Quality Journal, 2011

Consistent monitoring of each system leads to lower cost of ownership

Overspend on cost of ownership on Maintenance

Continuous focus on quality yields results. Unmonitored systems gradually get worse, and therefore the speed of making changes goes down drastically. This is a common observation across many systems.

Research based on 1.000's of systems, comparing SIG client systems versus major Open Source systems



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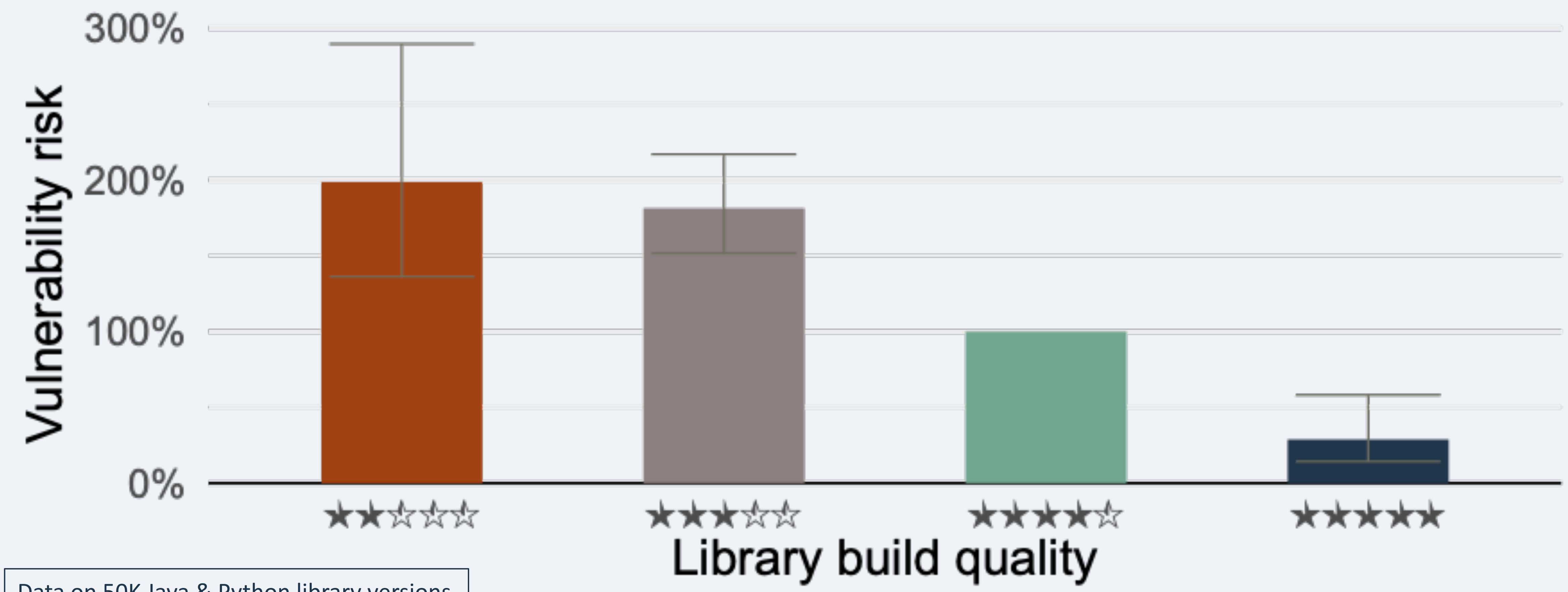
Security risk in bad quality software up to 10 times higher



Data on 50K Java & Python library versions

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Open Source

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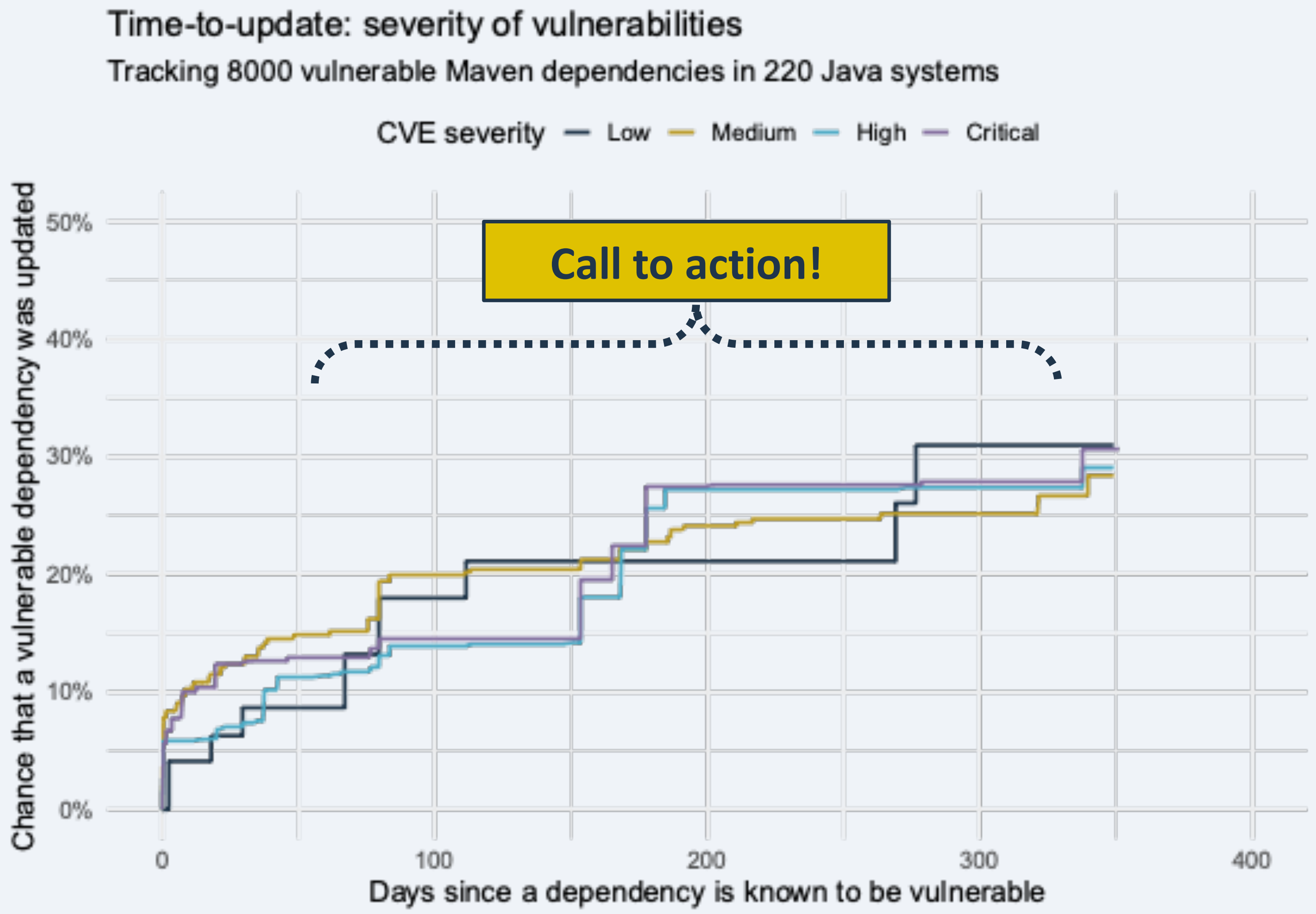
The severity of vulnerabilities is not a major factor whether updates are done



Key findings:

- Users of known vulnerable open-source libraries are not updating quickly, even if vulnerabilties are critical.
- **70% are still using known vulnerable Java libraries after a year has passed.**
- In many cases, security updates are available that can be implemented by development teams.

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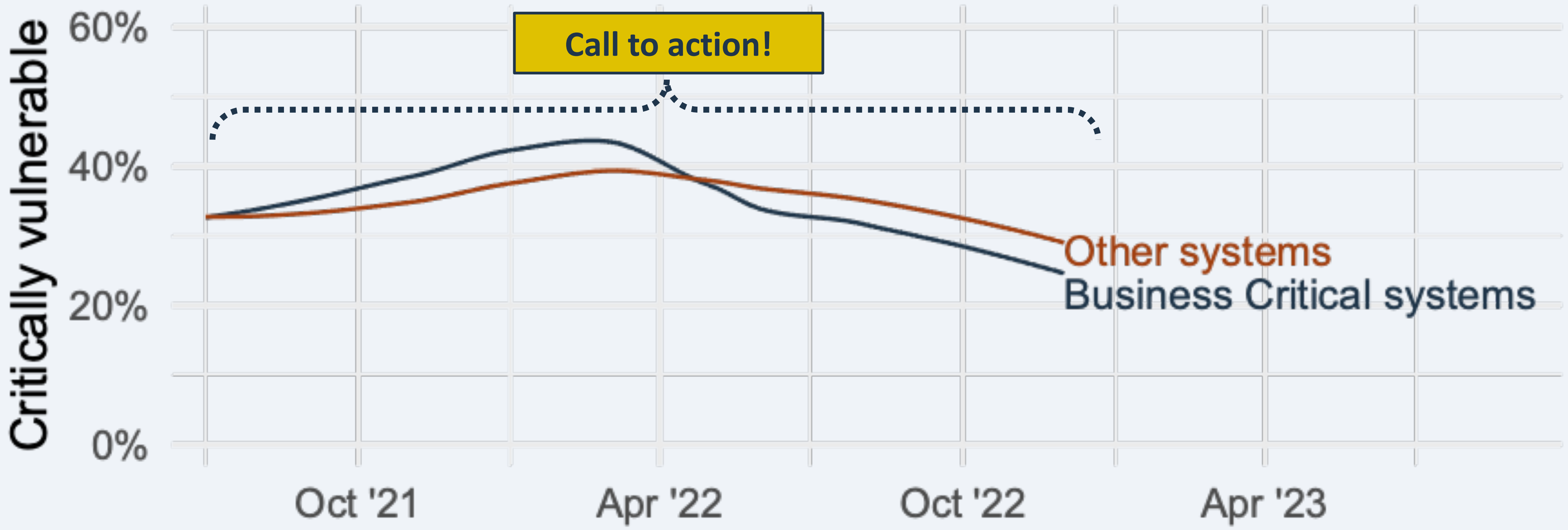
Go to zero vulnerabilities, business critical systems first



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AI and data-analysis systems
So, how about AI?

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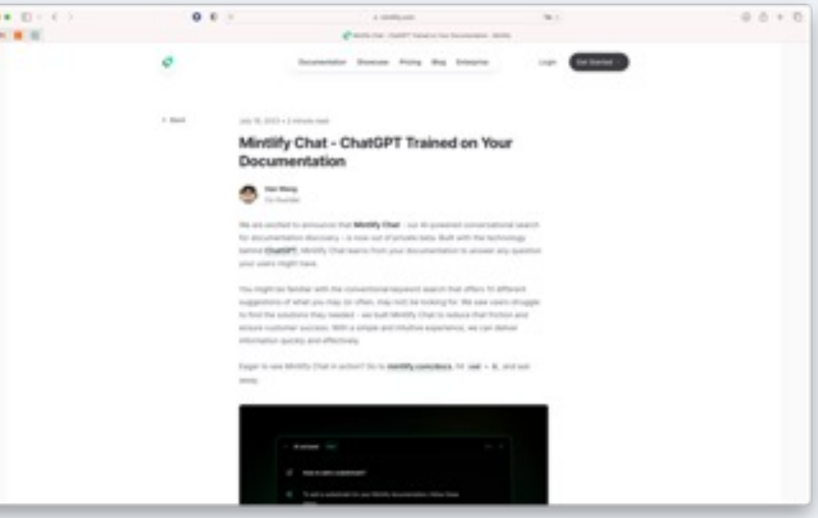
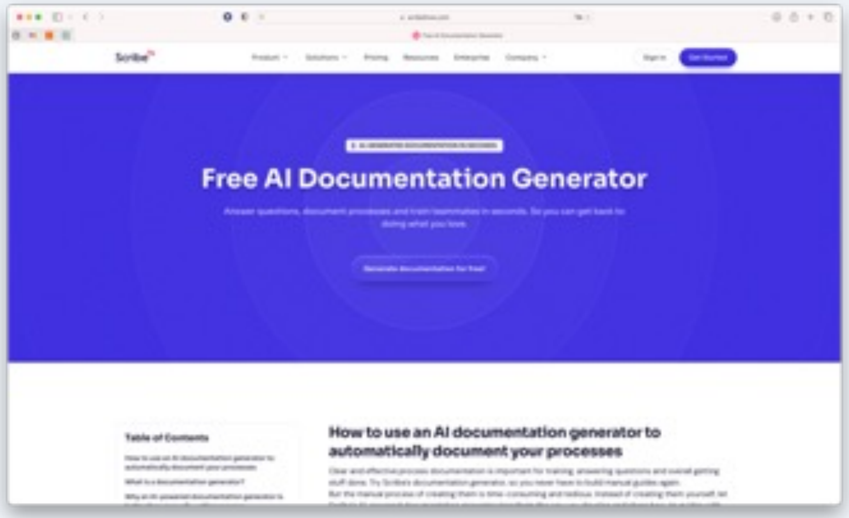
// DESIGN AND BUILD USING AI

AI is increasingly making the life of software developers easy

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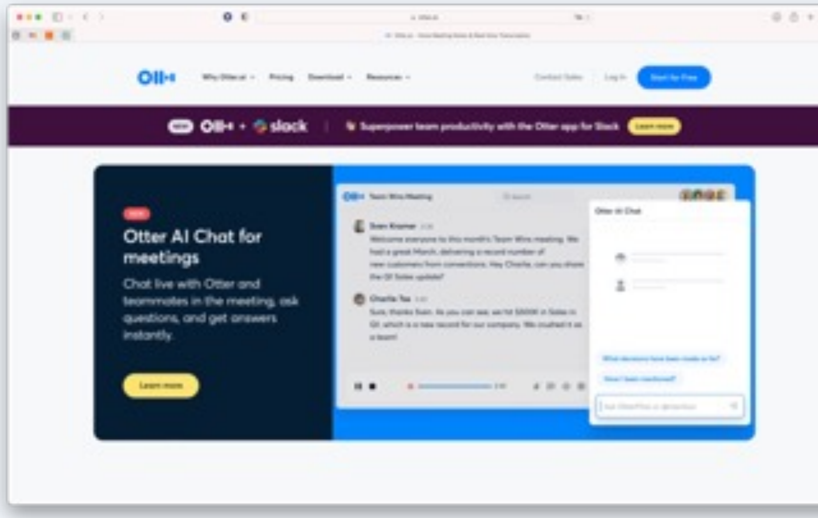

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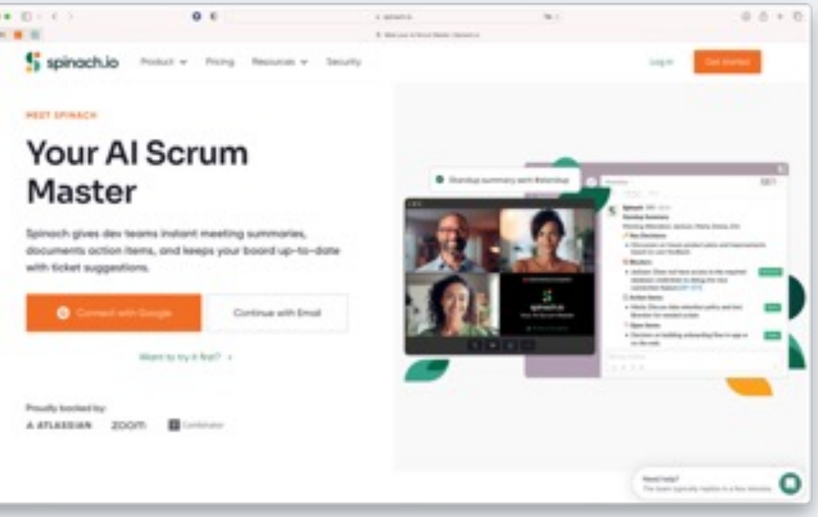
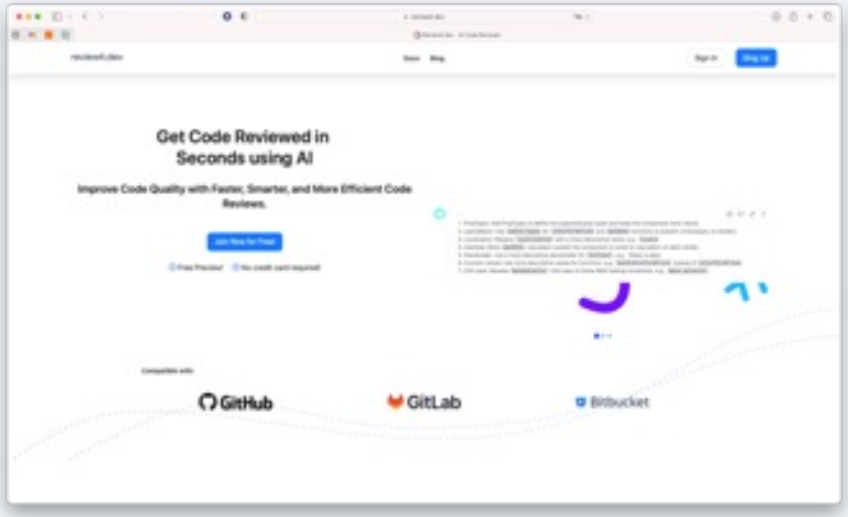


Spinach gives dev teams instant meeting summaries, documents action items, and keeps your board up-to-date with ticket suggestions.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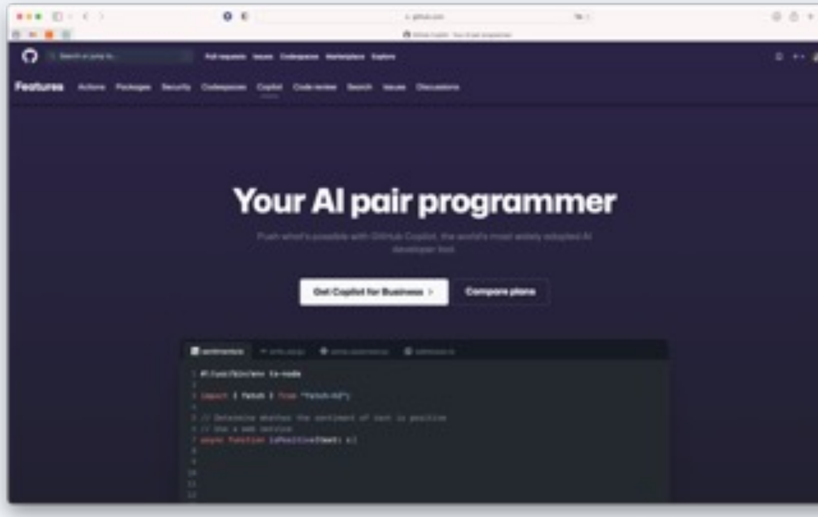
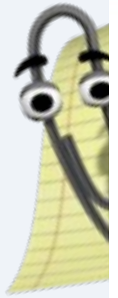
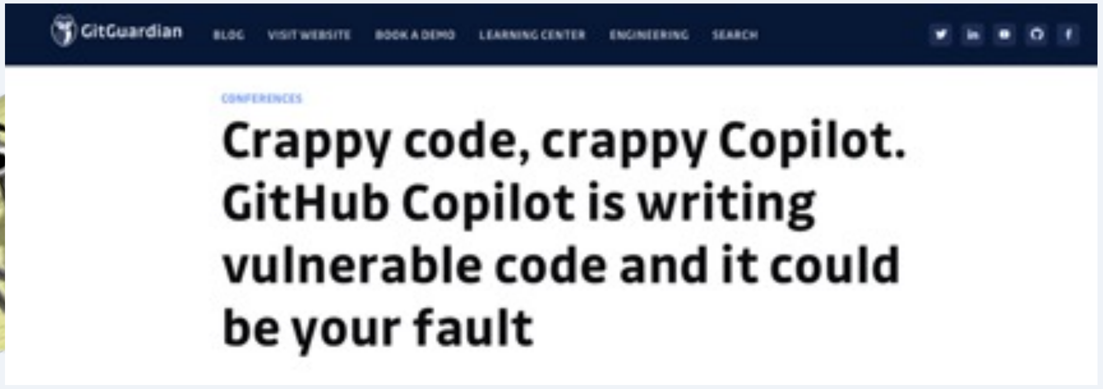


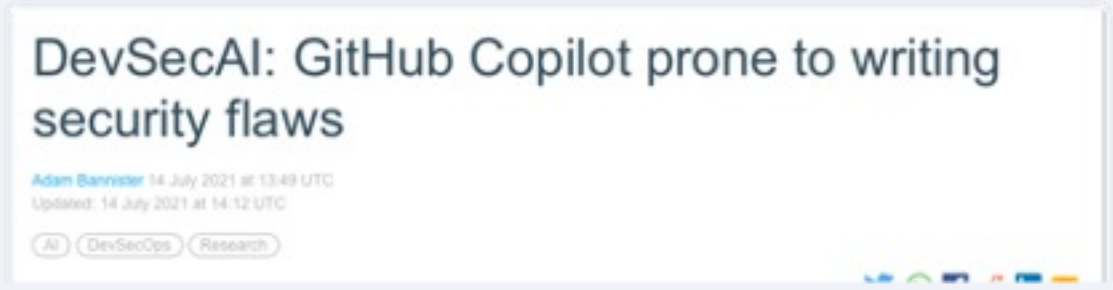
“AI pair programmer should be supervised like a toddler, says researcher”





CONFERENCES

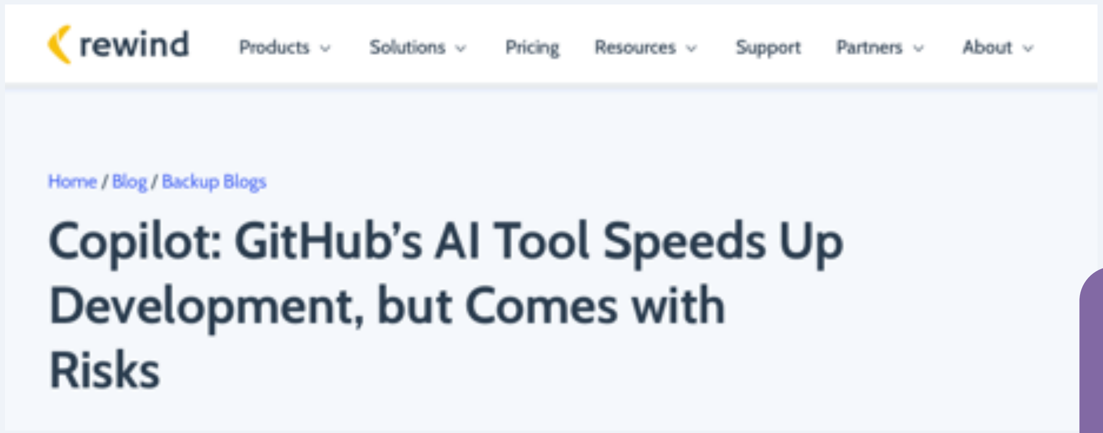
Crappy code, crappy Copilot. GitHub Copilot is writing vulnerable code and it could be your fault



DevSecAI: GitHub Copilot prone to writing security flaws

Adam Bannister 14 July 2021 at 13:49 UTC
Updated: 14 July 2021 at 14:12 UTC

AI DevSecOps Research



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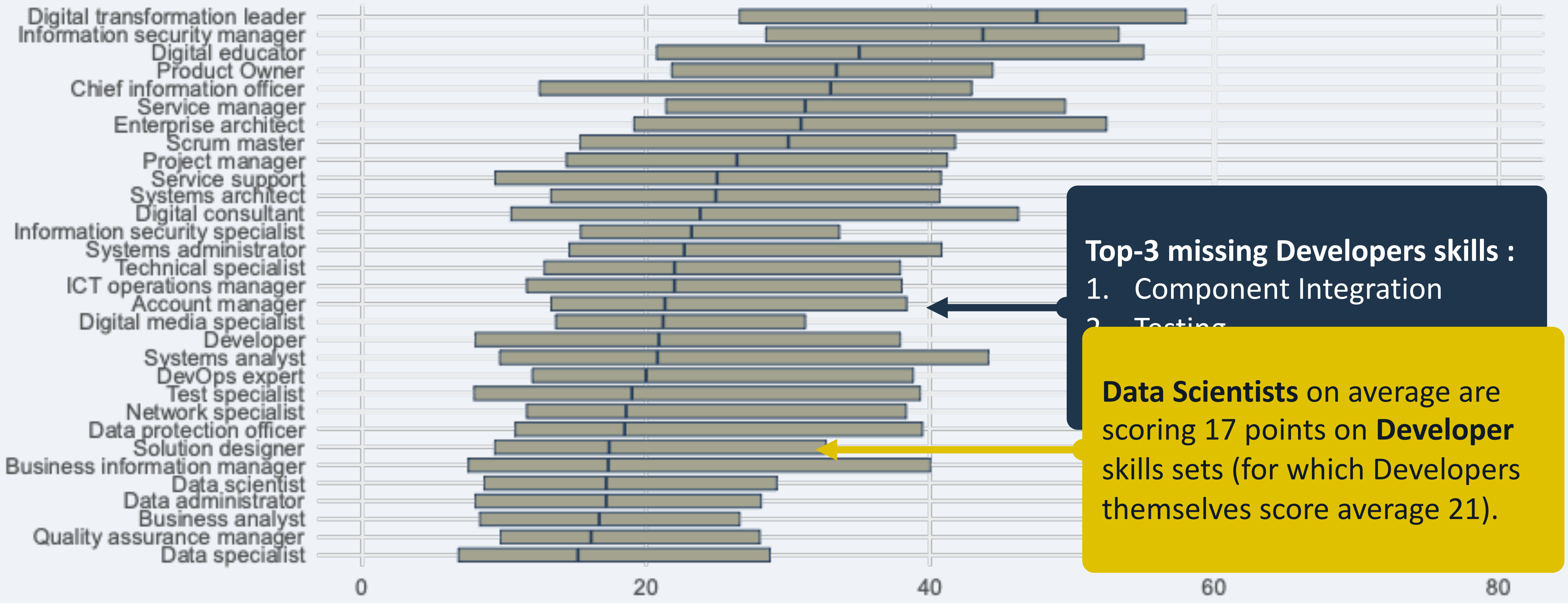
Copilot: GitHub’s AI Tool Speeds Up Development, but Comes with Risks

Oh, and yes… these images were generated by AI

Analyse the skill gaps of all job roles



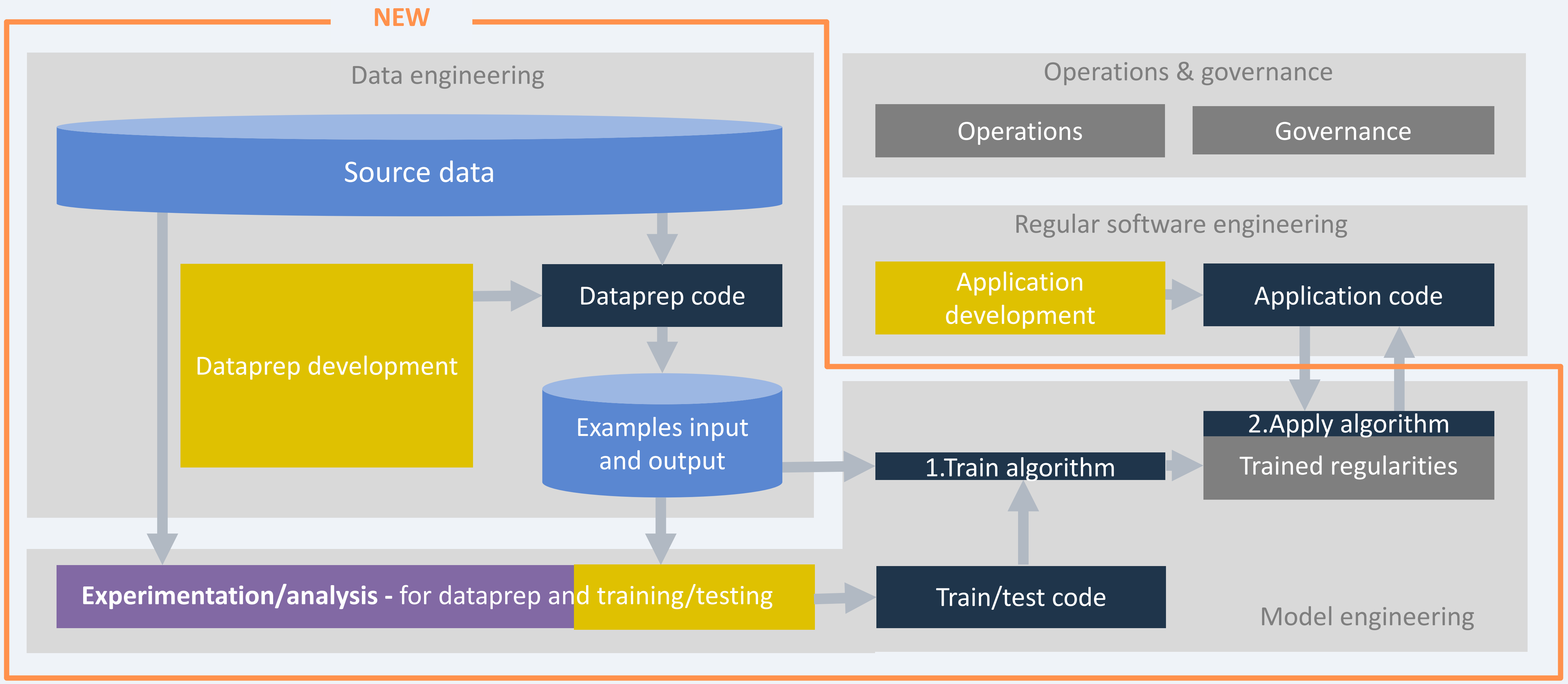
Top-3 missing Developers skills :

1. Component Integration
2. Testing

Data Scientists on average are scoring 17 points on **Developer** skills sets (for which Developers themselves score average 21).

EXIN Astride results for 5,500 participants.

How do we engineer machine learning?



🟦 =Data
⬛ =Code
🟨 =Writing code
🟪 =Exploring & experimenting

Educate and coach data scientists in software engineering

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TO_DATE(v_LOGC_RSVD_VAL_UNKNOWN, 'YYYY-MM-DD
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RS_VLD_FM_DT_xref_sol),TO_DATE(v_LOGC_RSVD_VAL_
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                MakeValidDate(i_RS_VLD_FM_DT_xref_sol))
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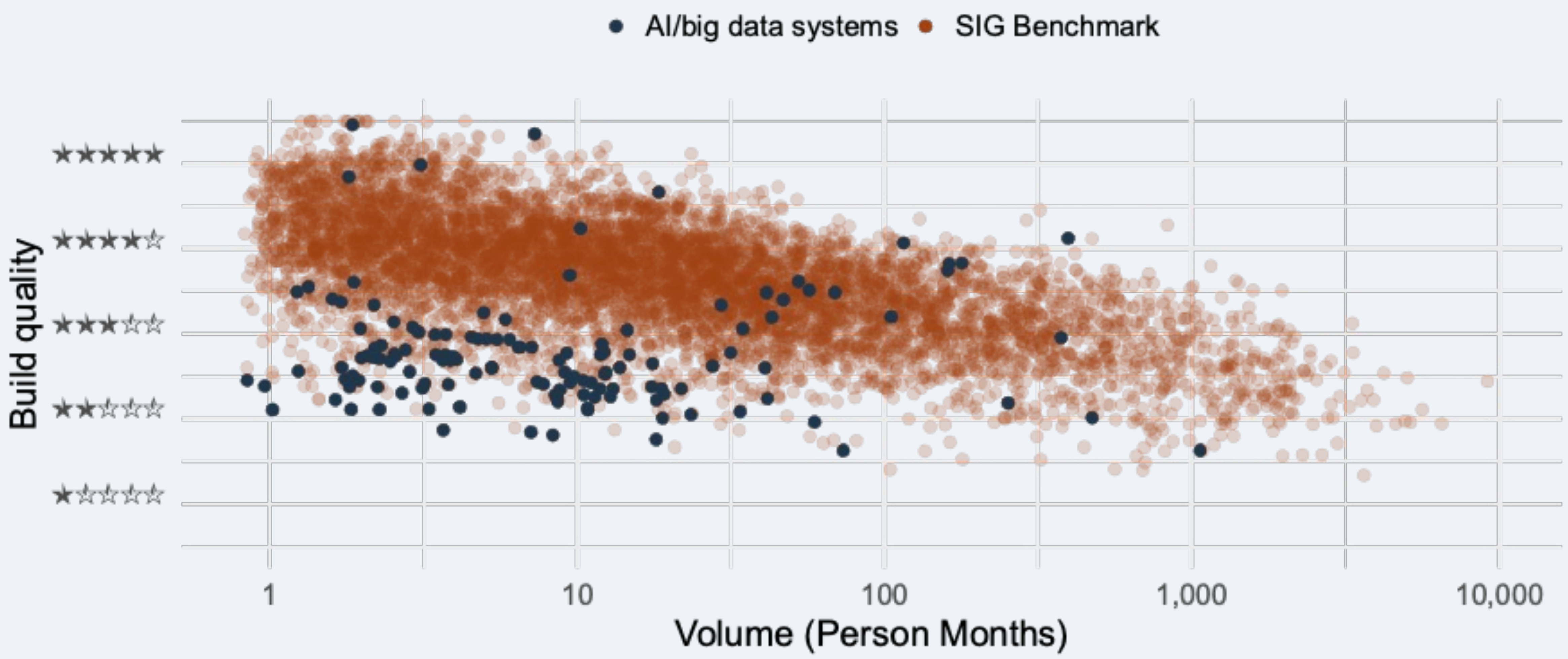
Currently build AI/big data systems are the future legacy



Just an example of what goes wrong

Test-code Ratio

AI/big data	Median	Recommended
1.5%	43%	80%

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How to manage the change

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Key take-aways

- Embrace new technology, embrace AI
- Understand AI is like any new technology: it has strong points, but it is not without its mistakes
- Understand that roles change from creation to review
- Make sure you understand it before you use it (at least know the pitfalls)
- Apply rigorous methods to ensure it works
  - Don’t destroy the innovation with red tape
  - But also don’t destroy your future with stuff that doesn’t scale or last