Fra hype til hverdag: Hvordan KI påvirker Technical Debt Management

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- **Professor of Software Engineering at UiO**
- Group Leader for the SE Group
- 15 years in Scandinavia
- Previously
  - Software Developer
  - PhD in Software Engineering (Chalmers)
  - Postdoc (Chalmers)
  - Independent Consultant
  - Principal, Strategic Researcher at CA Technologies (now Broadcom)
  - Startup ACDtek

Mili Orucevic

- **Chief Software Quality Engineer, Visma**
- AI-native Software Development
- Digital transformations to modern software engineering, and cloud
- Working with ~200 companies within the Visma Group
- Research projects

https://www.linkedin.com/in/milio

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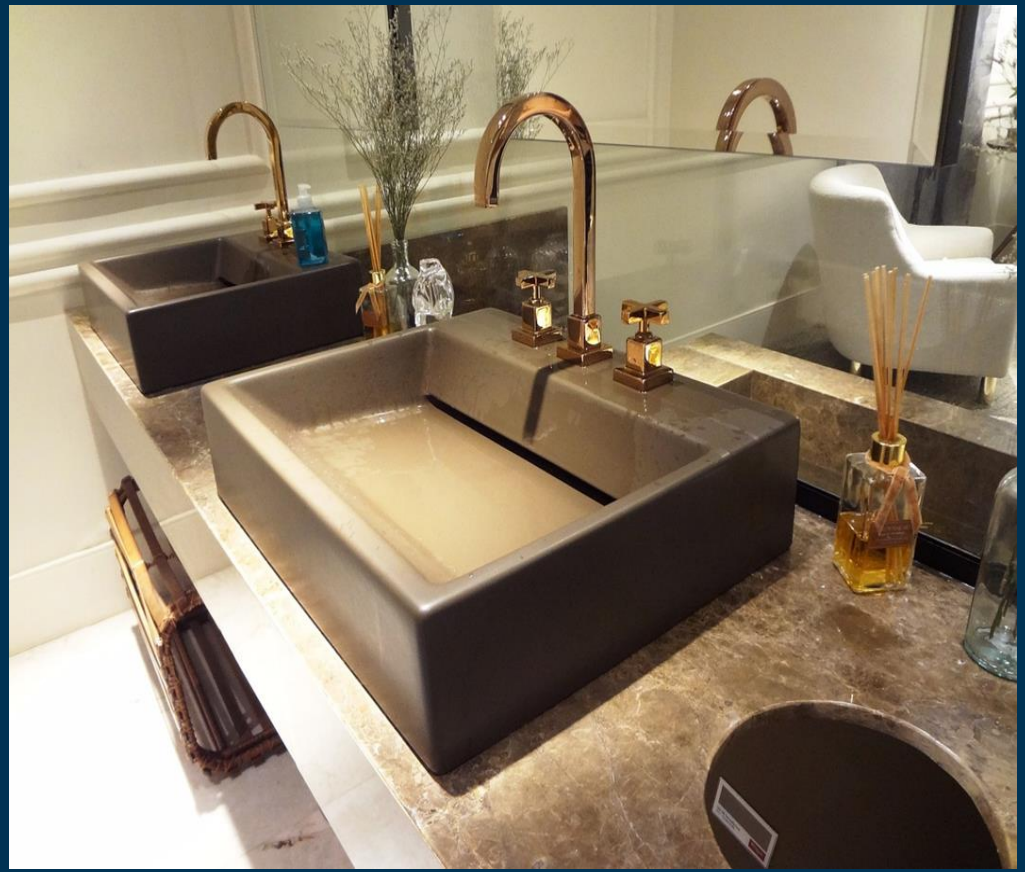

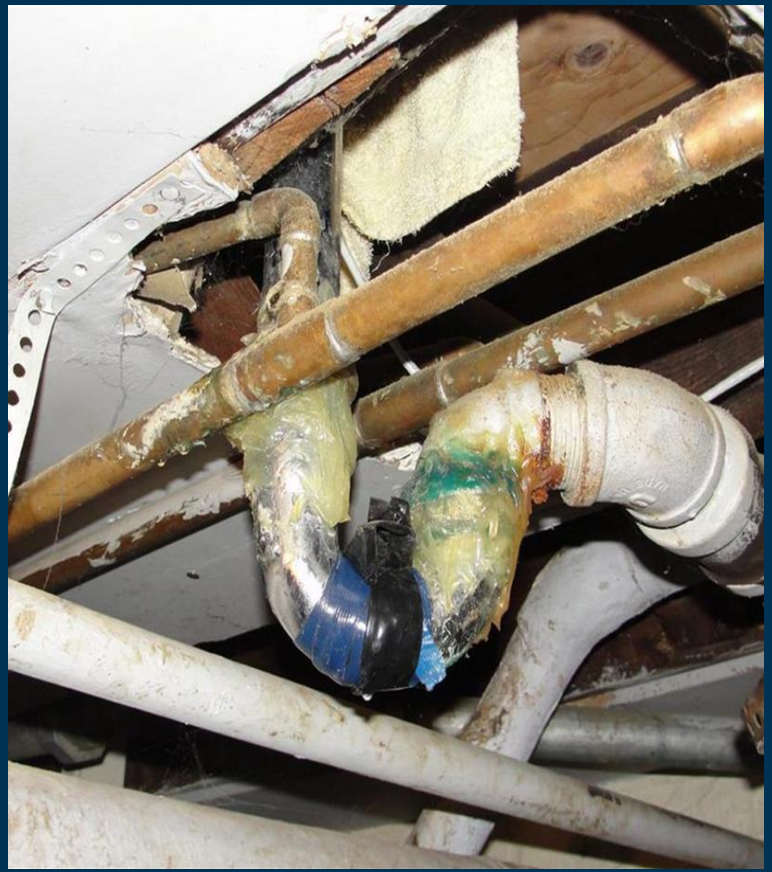

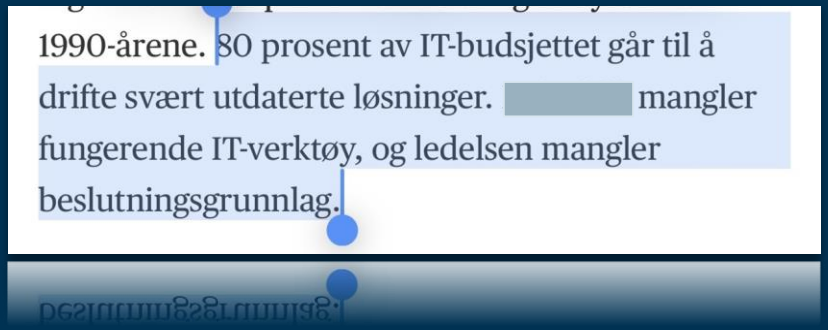

1990-årene. 80 prosent av IT-budsjettet går til å drifte svært utdaterte løsninger. [redacted] mangler fungerende IT-verktøy, og ledelsen mangler beslutningsgrunnlag.

høyeste i staten. Deloitte anslår at det reelle tallet er på 3,2 milliarder kroner, hvis man regner med lønn og administrasjon av IT-feltet. Det meste av budsjettet går til å holde liv i gamle løsninger.

– Rapporten peker på klare svakheter. Derfor jobber vi nå med å etablere en helt ny styringsprosess som integrerer en ny måte å tenke utvikling på i etaten,

Aftenposten, 07.04.2025 https://www.aftenposten.no/norge/i/zA1AAw/fersk-rapport-med-kraftig-kritikk-av[redacted]-digitaliseringsarbeid

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Technical debt causes an **average** **productivity loss of 36%**
(peaking at 90% in some projects)[1]

1 - T. Besker, A. Martini, and J. Bosch, 'Software developer productivity loss due to technical debt—A replication and extension study examining developers' development work', Journal of Systems and Software, vol. 156, pp. 41–61, Oct. 2019, doi: 10.1016/j.jss.2019.06.004.

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*Funded by Research Council of Norway

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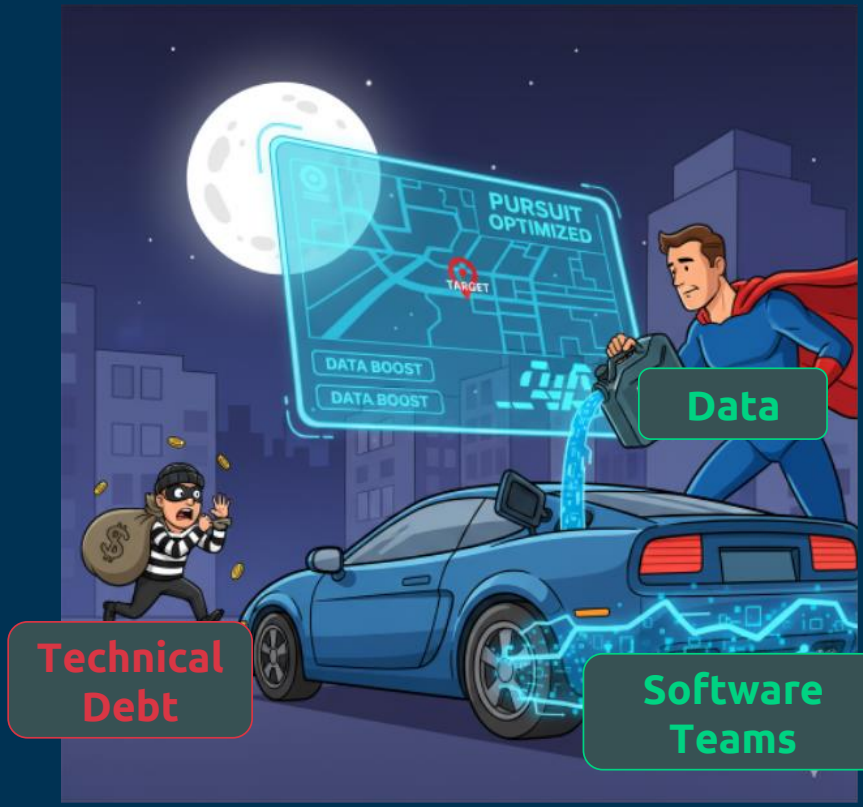
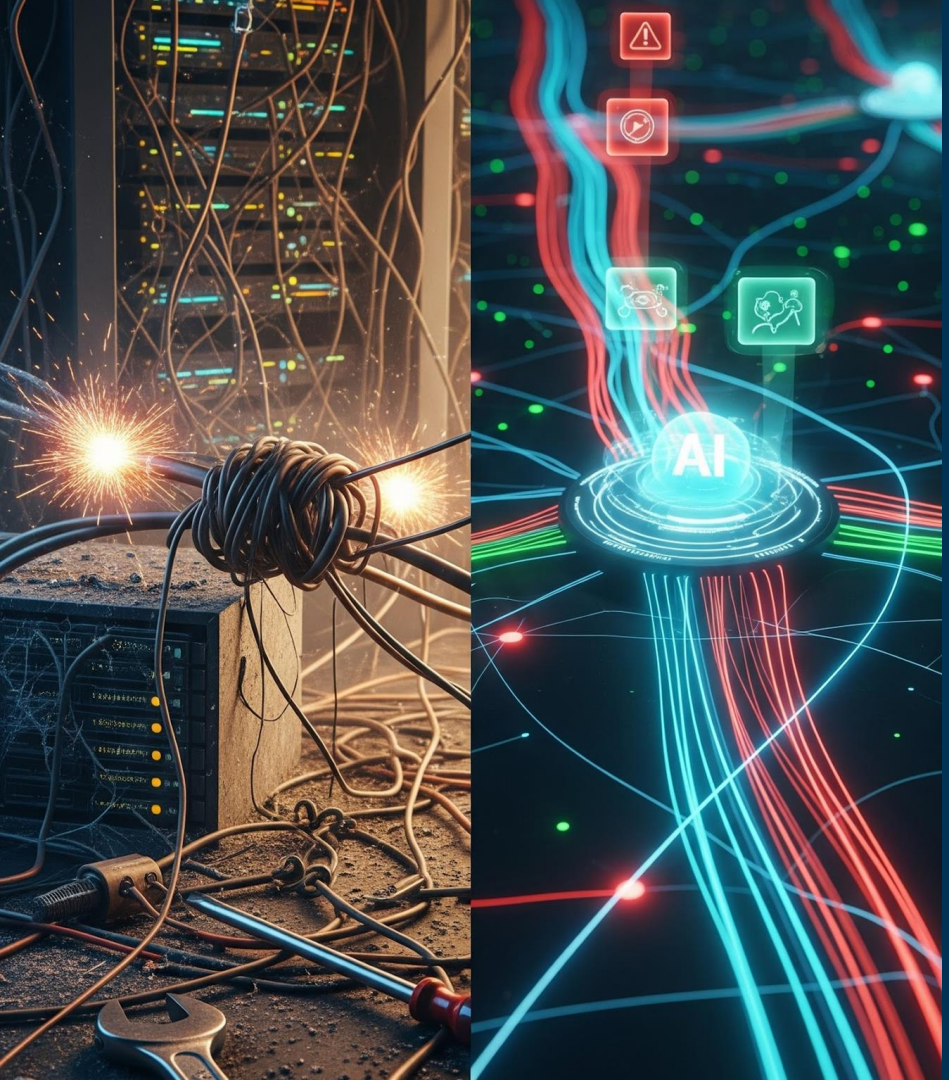
TechDebtOps IPN project goals

- Use a vast amount of available **data**
- **Fast feedback** on Technical Debt
- Keep technical debt at bay **before** it becomes a **problem**





Technical Debt and AI

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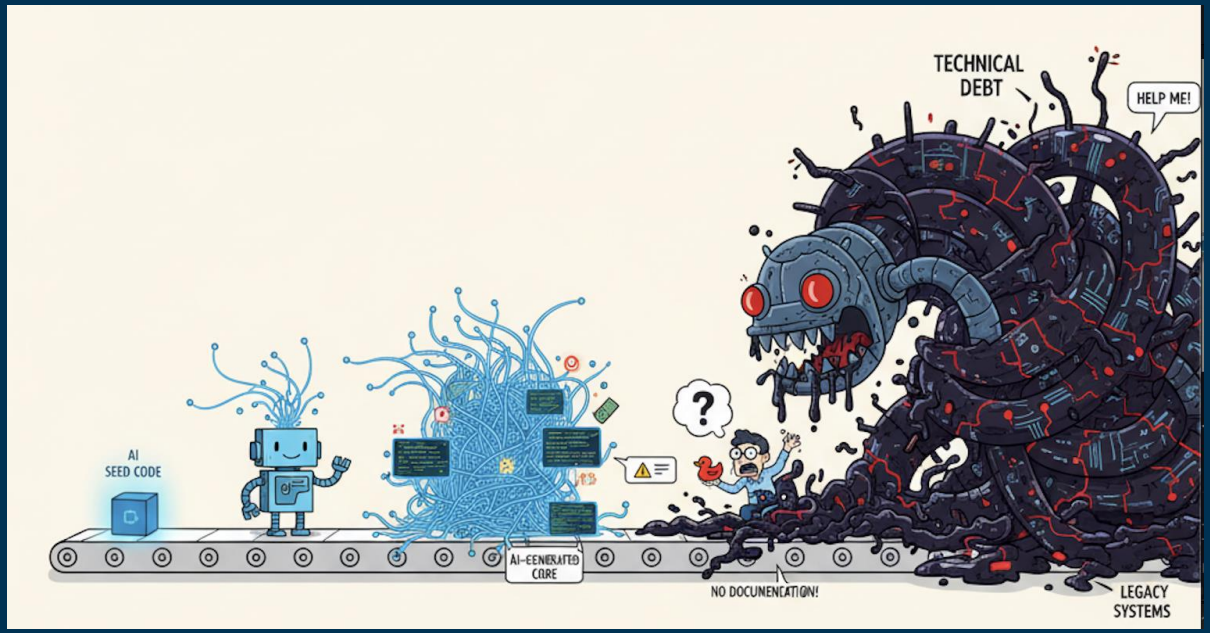
Two sides of the AI coin

AI helps fixing technical debt

Generating with AI creates code with technical debt

Generating code with technical debt can hurt in the long term without the right skills



Managing Technical Debt with AI: results from the TechDeptOps project

- AI can give good **suggestions** to make the **code better**
  - Even for **architecture** but we need more advanced tools
- AI can help to **identify issues**
- AI can help **prioritizing** written issues in the backlog
- **Visualization** boosts the adoption of AI tools

What do practitioners say?

A study with 92 people from Visma

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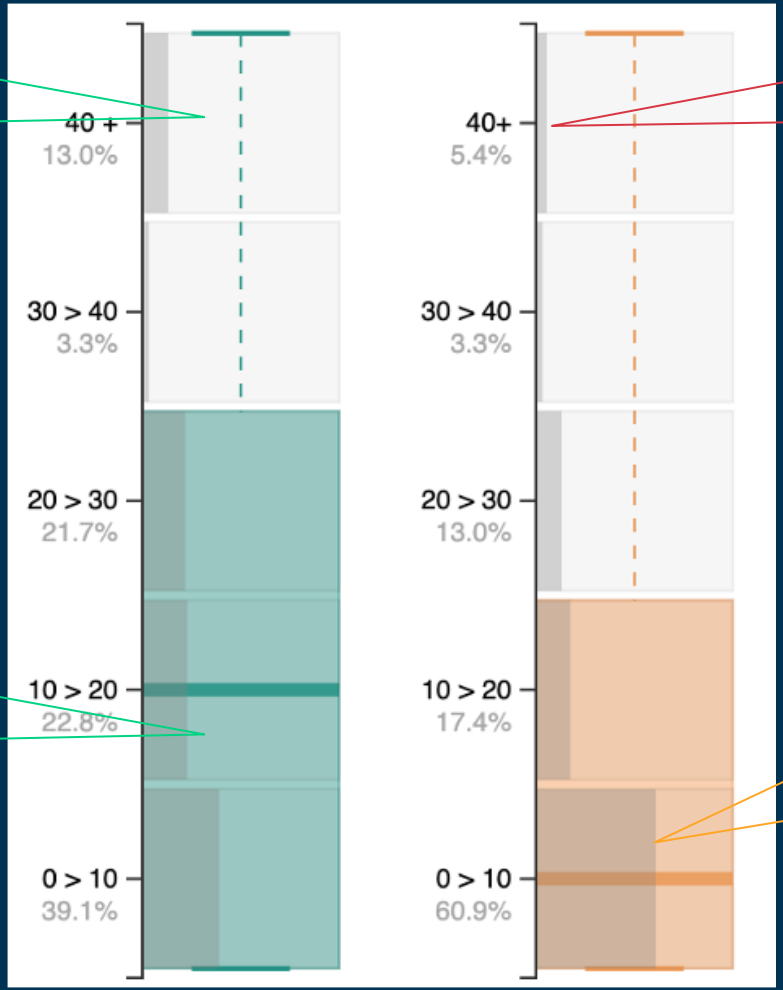
A few think AI helps **reducing** TD a lot **(40% +)**



A few are concerned that AI is **increasing** TD **a lot (40% +)**

Many think AI helps **reducing** TD **(median 15%)**

Many think AI **doesn't increase** TD a lot **(median 5%)**

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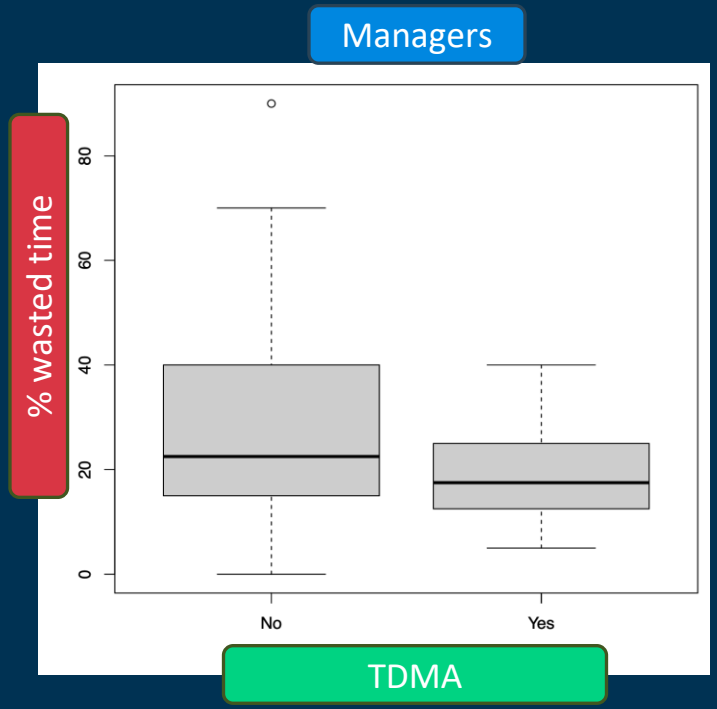
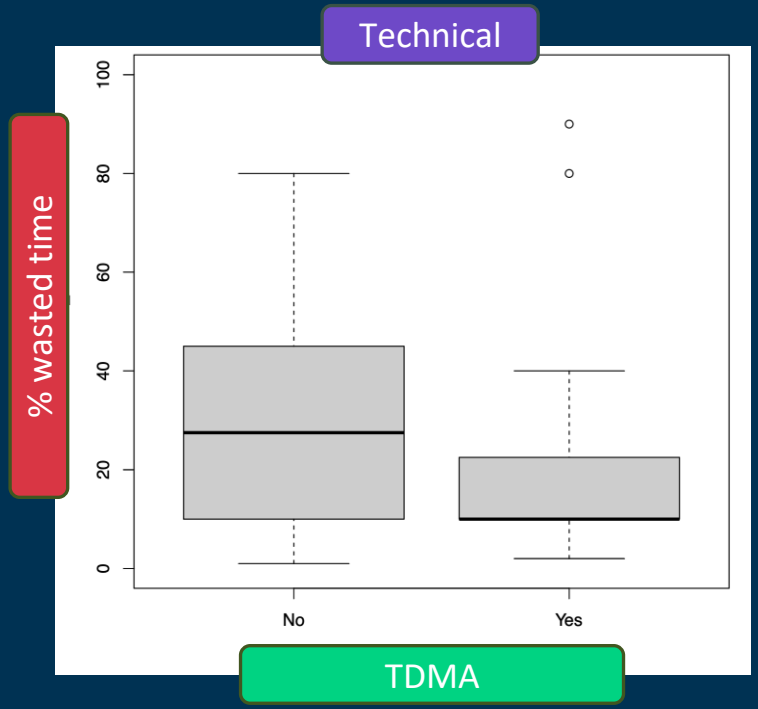
Positive or negative balance of AI for technical debt?

- What is their balance?

- 47 are positive
- 25 are neutral
- 20 are negative

Technical Debt Assessment is associated with Less Wasted Time





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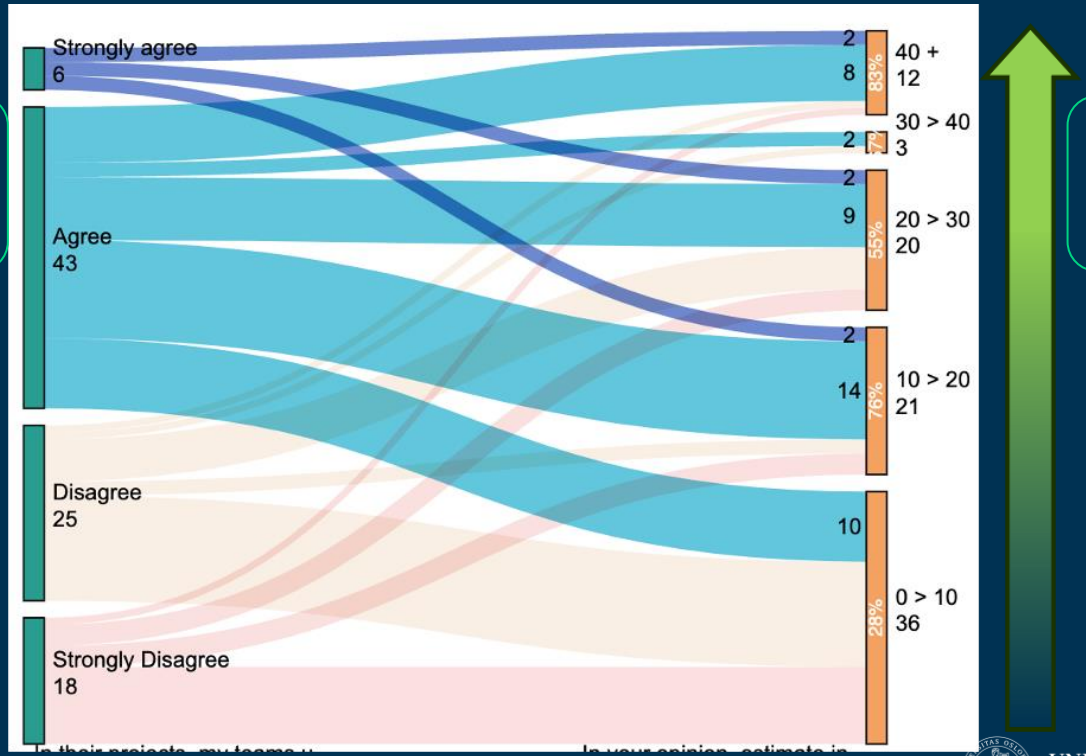
Actively using AI to manage TD gives results

Using AI to manage TD…



… leads to decreasing more TD

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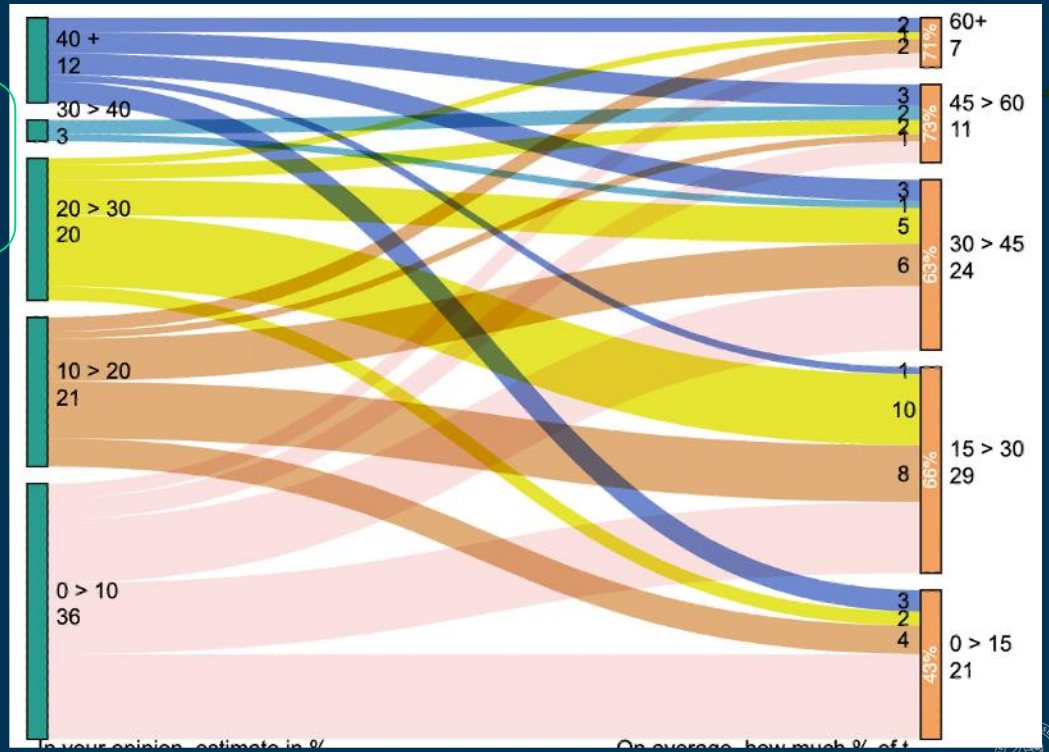
The ones suffering the waste are the ones benefiting the most

More TD decreased using AI…



… help the ones wasting more time because of TD

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Findings from DORA research

2024

If AI adoption increase by 25%,

- delivery throughput is decreasing
- stability is decreasing
- time spent on doing valuable work is decreasing
- product performance remain at the same level

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negative → positive

negative → negative

negative → positive

neutral → positive

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AI reflects and amplifies your existing capabilities

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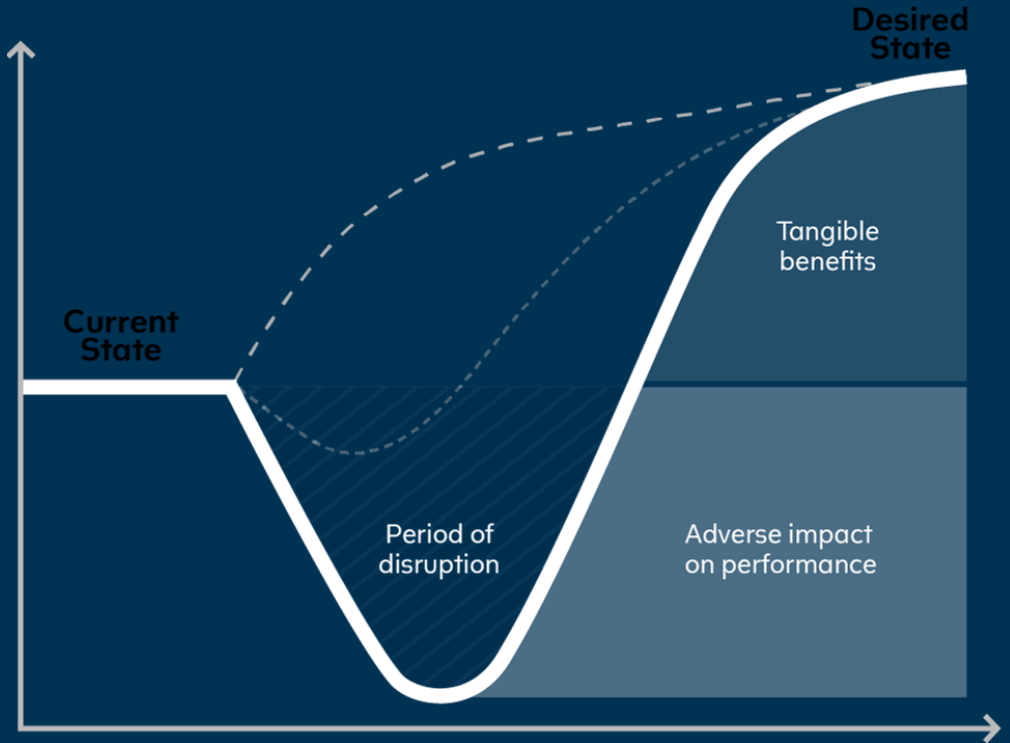
Why “stability” might be lagging behind?



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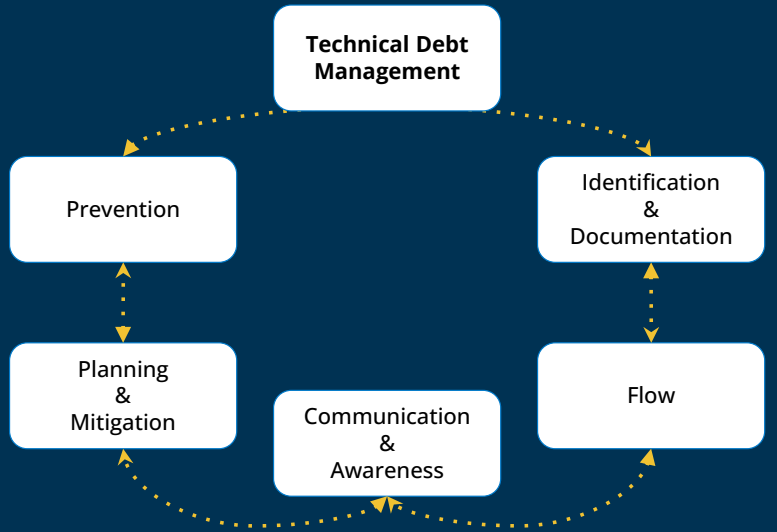
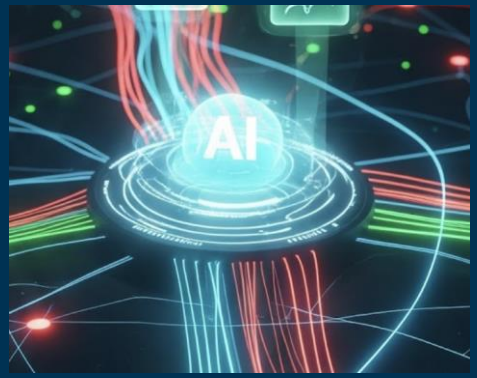
Systematically managing technical debt at scale



Take Aways

AI



+

Skills

=

Control of Technical Debt

In **TechDebtOps**, we **research**, **develop** and **share practices** and **tools** to deal with **AI** and **Technical Debt**

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Questions / Comments?

Reach out to us:

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Takk for oss!

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