AI Adoption, Rewired:
A Systems Thinking Approach

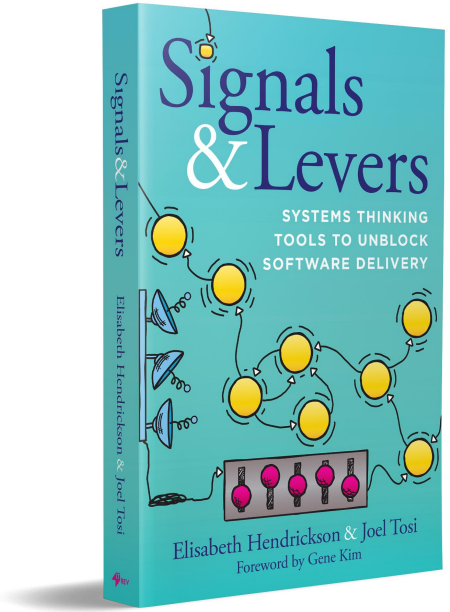
Elisabeth Hendrickson

Joel Tosi

About Us

Joel Tosi

Elisabeth Hendrickson



forthcoming from
IT Revolution, Sept 2026

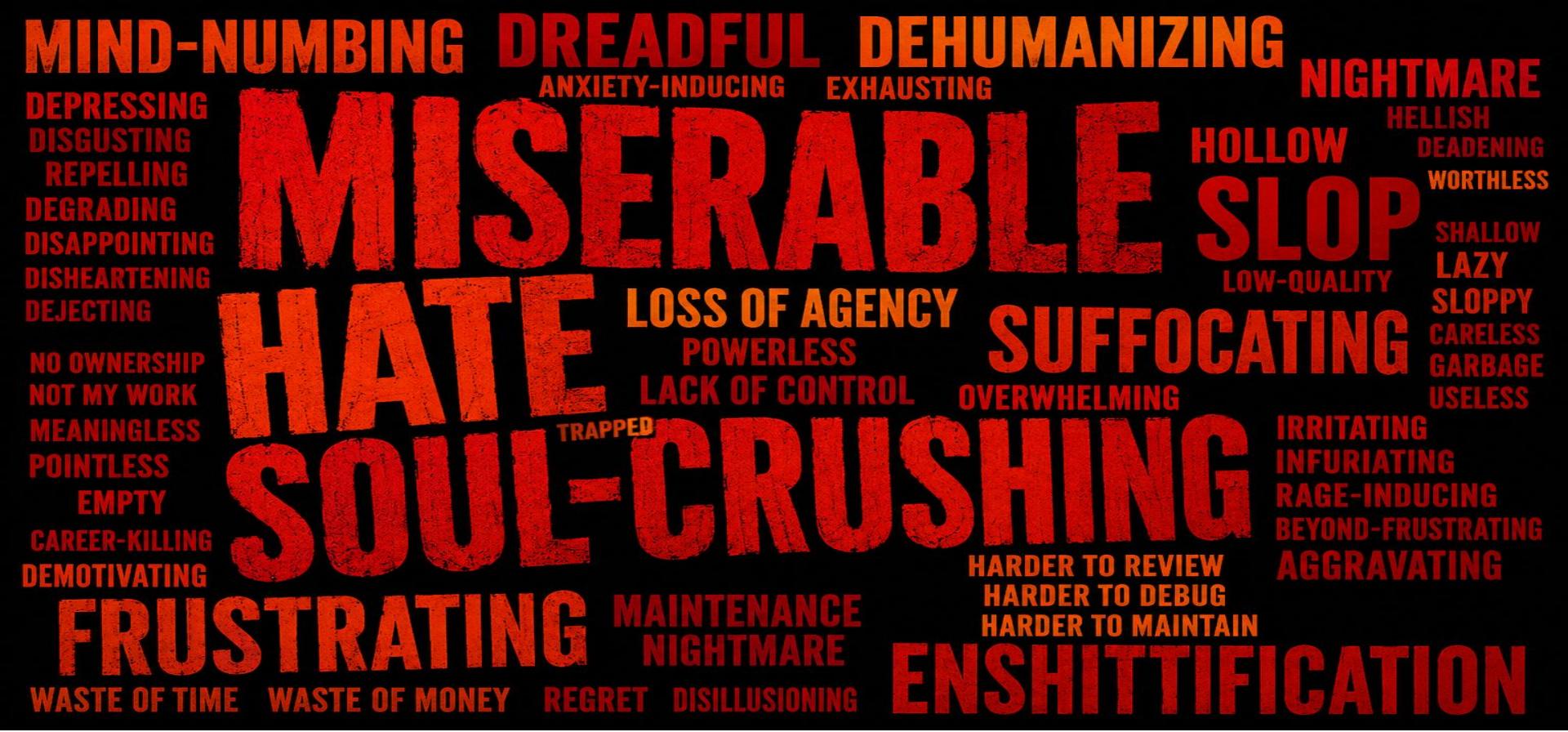
The Hype

10x! 100x! 1000x! No more humans!

Hype: a timeline

Jan 2023	Asset management firm ARK Invest predicts **10x increase** in coding productivity by 2030
May 2024	Github CEO says 10x not enough, it will be **100x**
Feb 2025	Andrej Karpathy coins the term "**Vibe Coding**"
Dec 2025	Steve Yegge claims **1000x engineer** will emerge
Mar 2026	Jensen Huang, Nvidia CEO, says engineers should spend **~$250K/yr on tokens**

The Skepticism



word cloud generated by ChatGPT from [a Reddit thread on the impact of AI on coding]

Have We Forgotten "No Silver Bullet?"

"There is no single development, in either technology or management technique, which by itself promises even one order of magnitude [tenfold] improvement within a decade in productivity, in reliability, in simplicity."

—Fred Brooks

So…what does the data say?

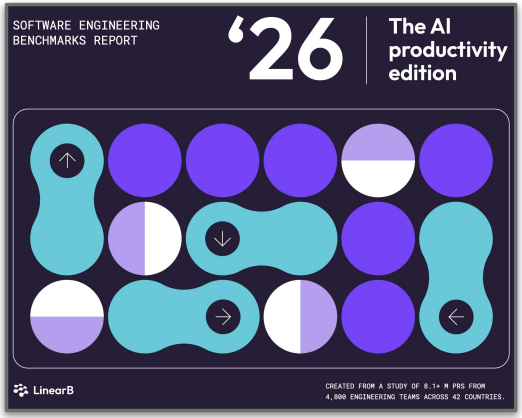
Reports with observed engineering activity:

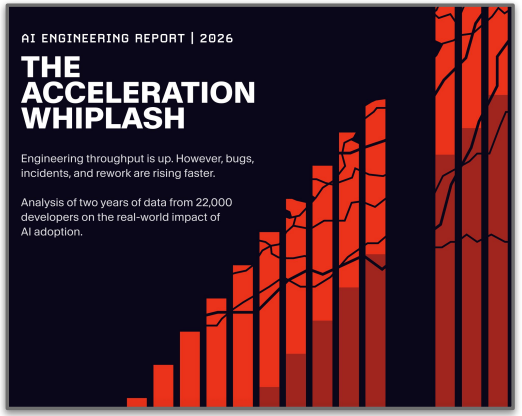
CircleCI, *The 2026 State of Software Delivery*.

Faros, *AI Engineering Report 2026: The Acceleration Whiplash*.

DX, *AI-Assisted Engineering: 2026 Q1 Impact Report*

LinearB, *2026 Software Engineering Benchmarks Report*





“A small group of top performers is shipping faster and more reliably than ever, but most teams are experiencing the opposite.”

CircleCI—*2026 State of Software Delivery*

28.7M CI workflows

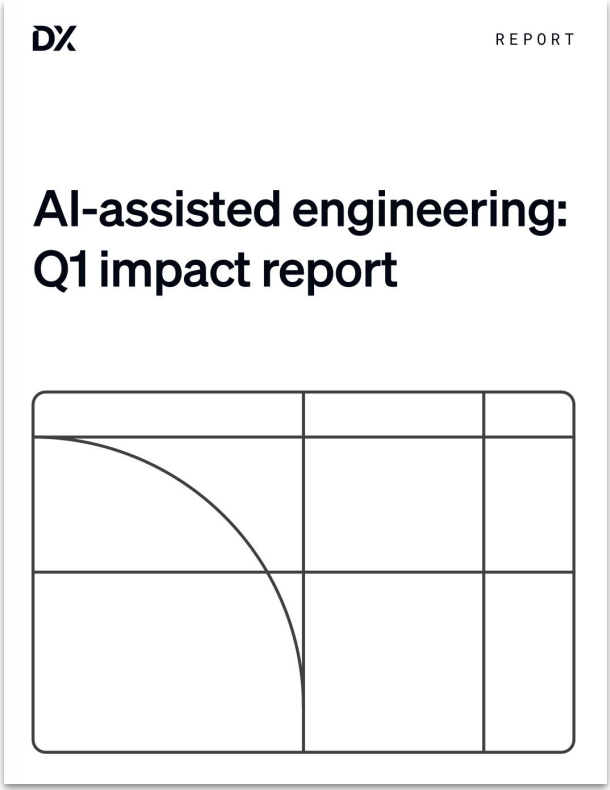
“AI made it easy to start work. It did not make it easy to finish it.”

Faros—*AI Engineering Report 2026: The Acceleration Whiplash*

22K devs, 4K teams

“While some organizations are seeing clear improvement to quality as AI usage increases, others are seeing serious degradation, with many swinging significantly.”

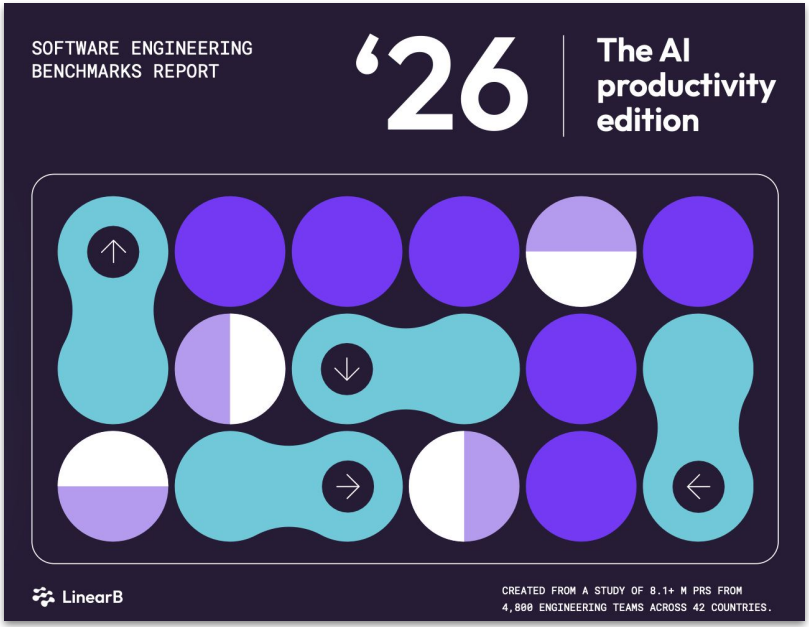
DX—*AI-Assisted Engineering: 2026 Q1 Impact Report*



500 companies

“AI-assisted coding has increased output across the industry, but it has also exposed new challenges downstream: in review, testing, release, and governance.”

LinearB—*2026 Software Engineering Benchmarks Report*



8.1M PRs, 4.8K teams
164K contributors

Unpacking the Data

understanding disparate outcomes through the lens of systems thinking

Software Delivery is a Non-Linear Sociotechnical System

A **system** is a set of interrelated parts that does something.

1. **The whole is indivisible**. The system's behavior emerges from the relationship between its parts, not from the parts themselves.
2. **Parts are interdependent**. Change one part of a system and it affects other parts, often in unpredictable ways.
3. **Systems are fractal**. A part can be a subsystem composed of interrelated parts. It's systems all the way up and down.

“AI has flooded a system built around human-paced development and human-quality code with output it was never designed to absorb.”

Faros

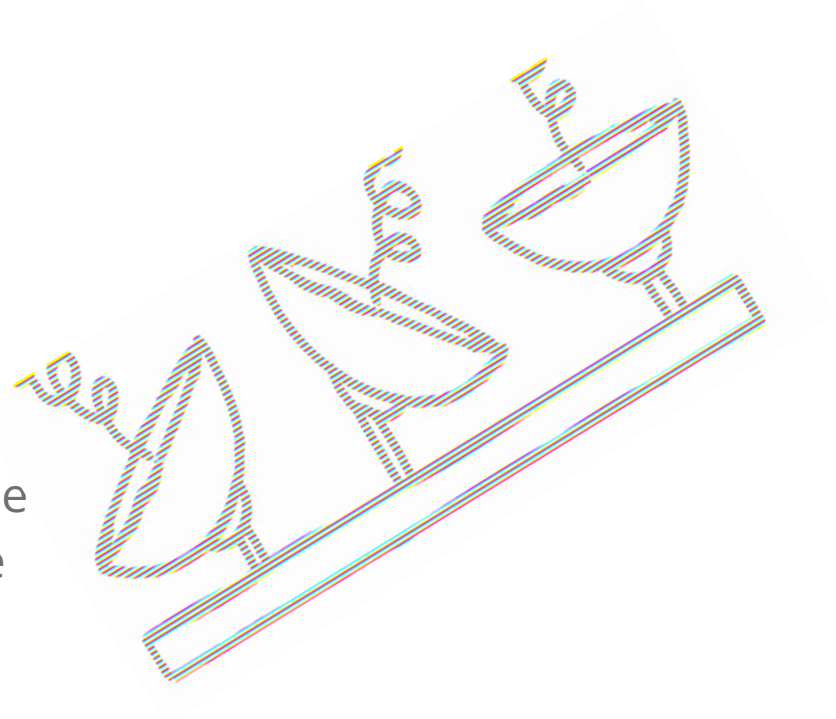
AI Engineering Report 2026: The Acceleration Whiplash

Signals

A **signal** is an observable characteristic or attribute of the system that tells you something about the way the system works.

Signals can be quantitative (lead time, cycle time, velocity, defect counts) or qualitative (quality, morale).

You are surrounded by signals.

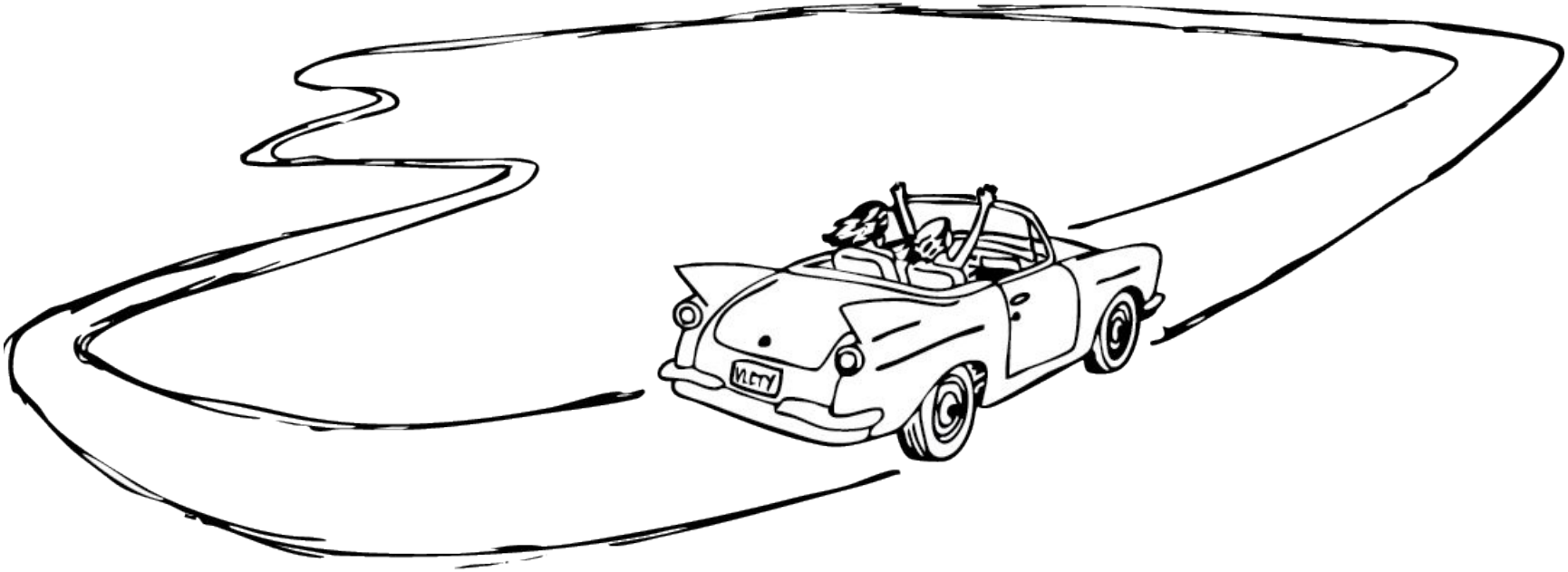


Proxies / Noise

Proxies measure something related to what you actually want because the real thing is too difficult to measure directly.

Noise is irrelevant, misleading, or distracting data with no correlation to outcomes.

Never Confuse Speed and Progress



Focus on Outcomes

productivity

running,
tested
code in prod
value delivered

quality

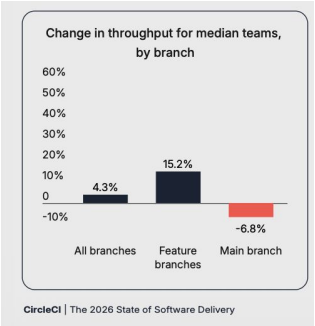
failures,
incidents,
mystery
behavior

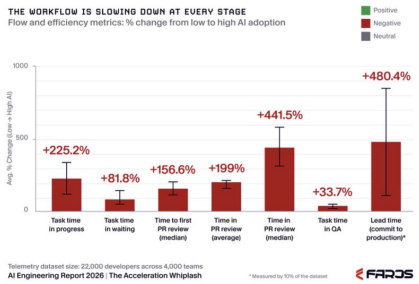
revenue

money

Productivity

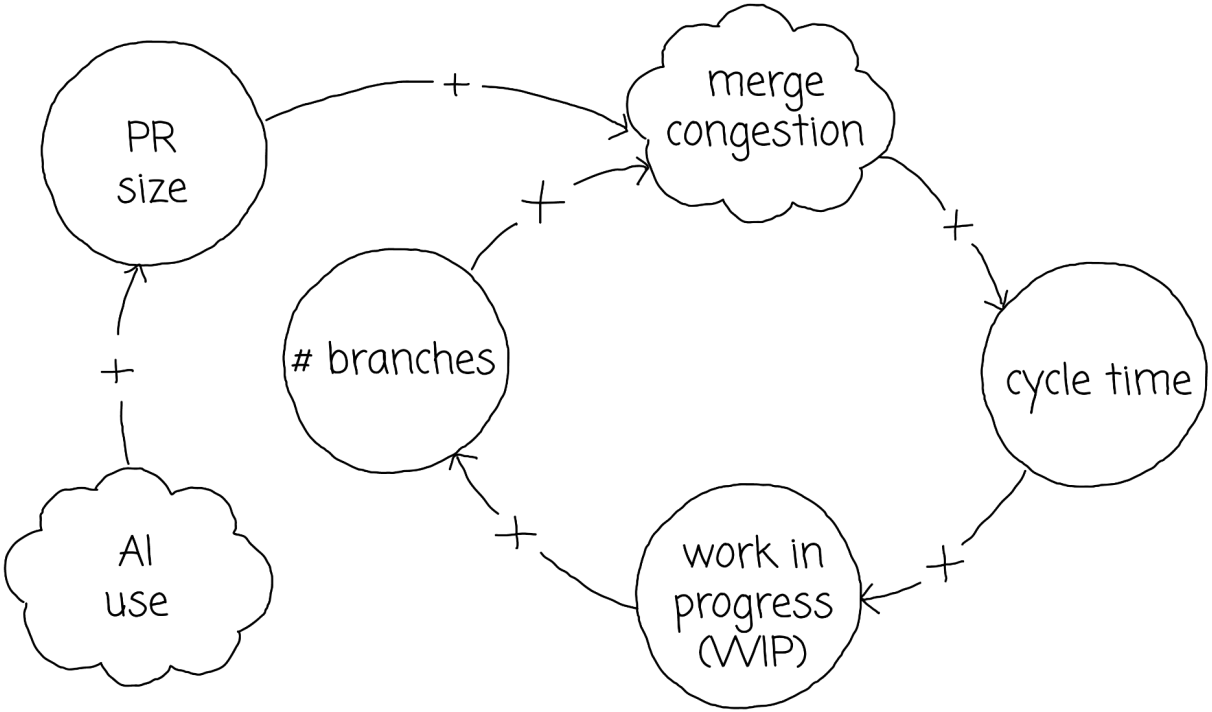
Puzzle: more code, more branches, less progress?



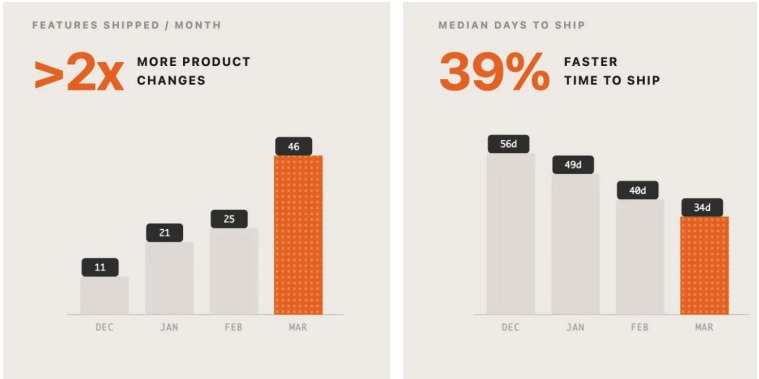


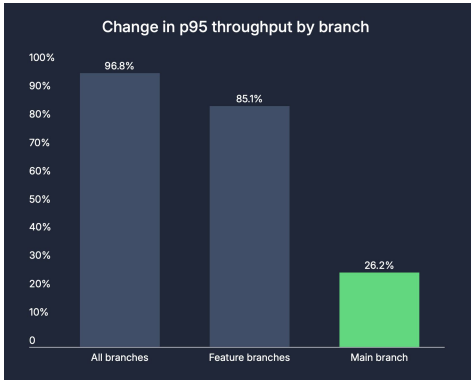
- CircleCI: 15.2% increase in throughput on feature branches; 6.8% decrease in throughput on main; “integration is the biggest bottleneck“
- Faros: PR review times up 199.9% (~3x), -11% deploys/week as teams move from low to high AI adoption. Average PR size is up 51.3%.
- LinearB: 32.7% acceptance rate for AI PRs v. 84.4% for humans; AI-assisted PRs 2.6x larger than unassisted ones

A reinforcing loop of influences...



But some organizations are doing more?

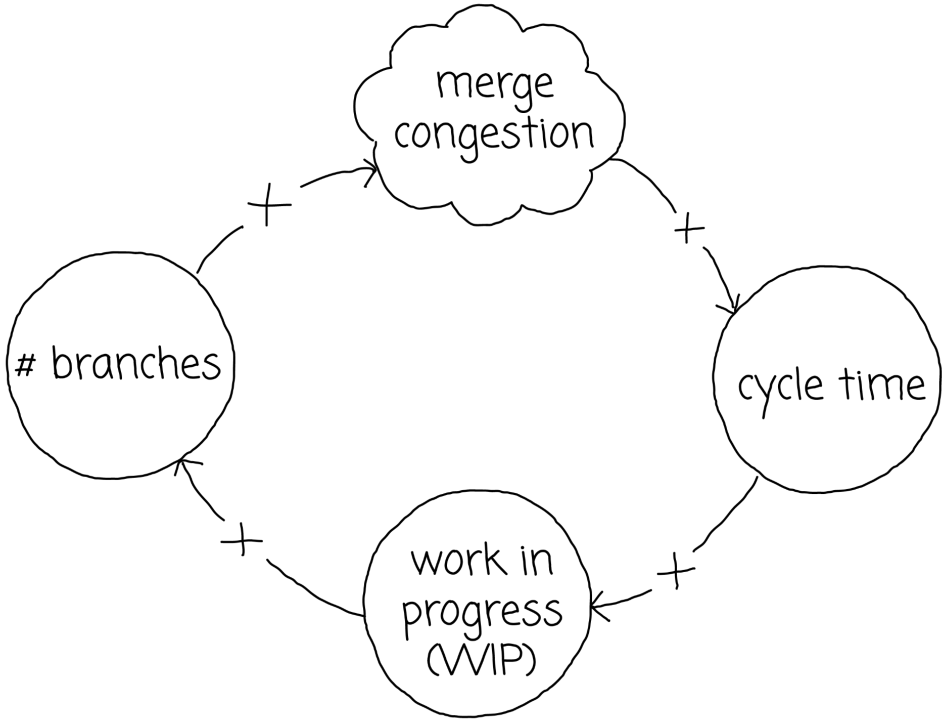




Intercom case study:
2x more product changes
39% faster lead time

CircleCI: elite orgs see 26.2% increased changes on main

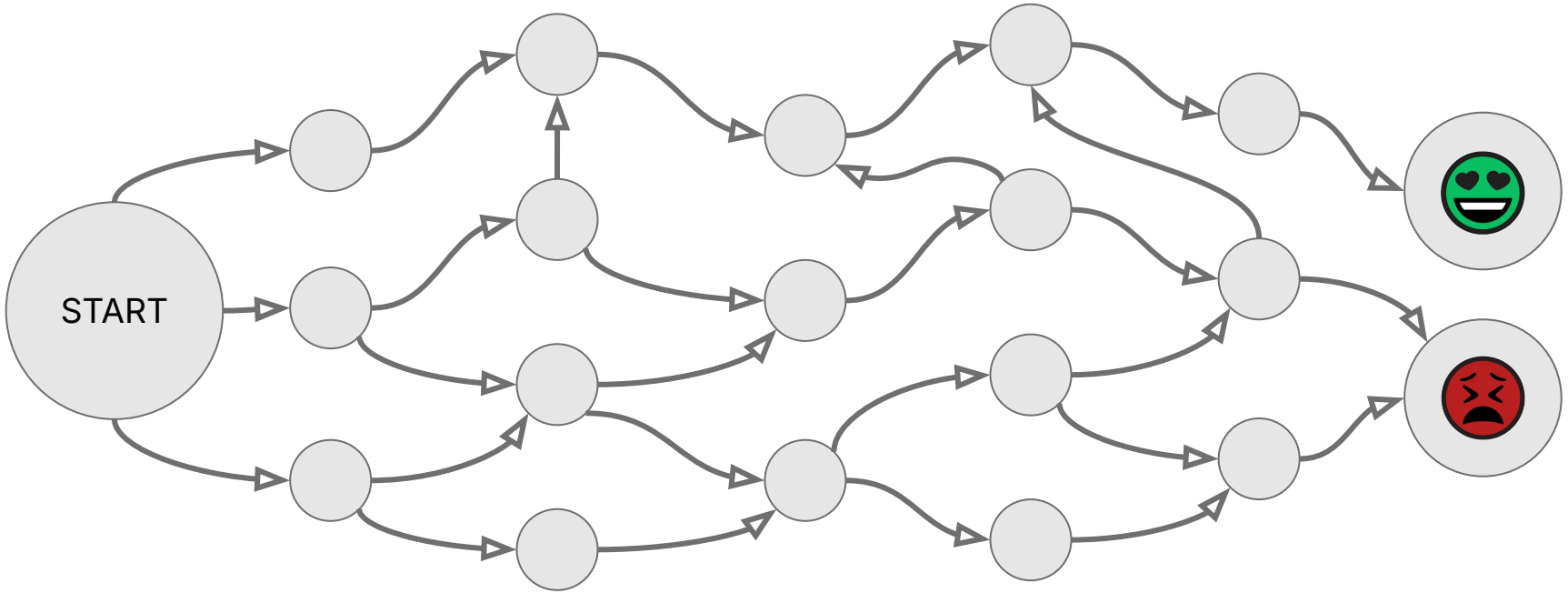
Reinforcing loops can be vicious OR virtuous



Context is Everything

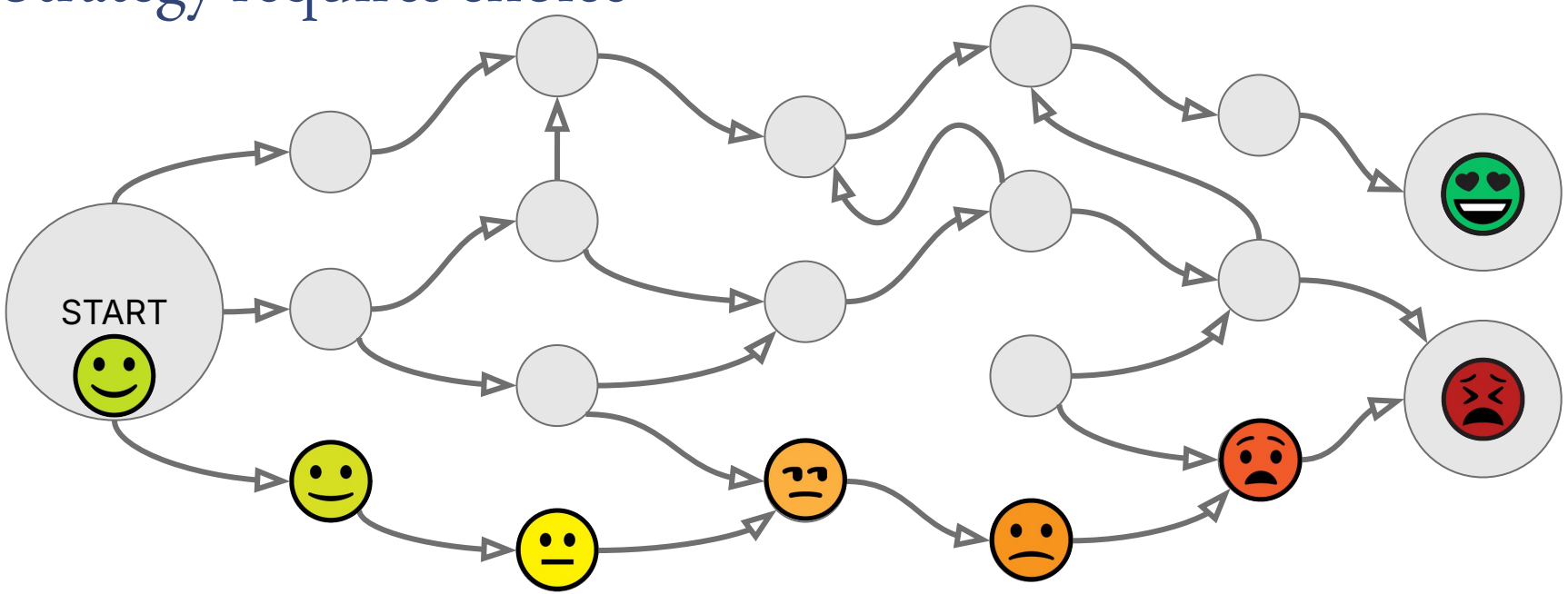
Systems Operate in Context

Think of your context like a board game...



...past choices determine current options.

Strategy requires choice



The CREATE model describes dimensions of context

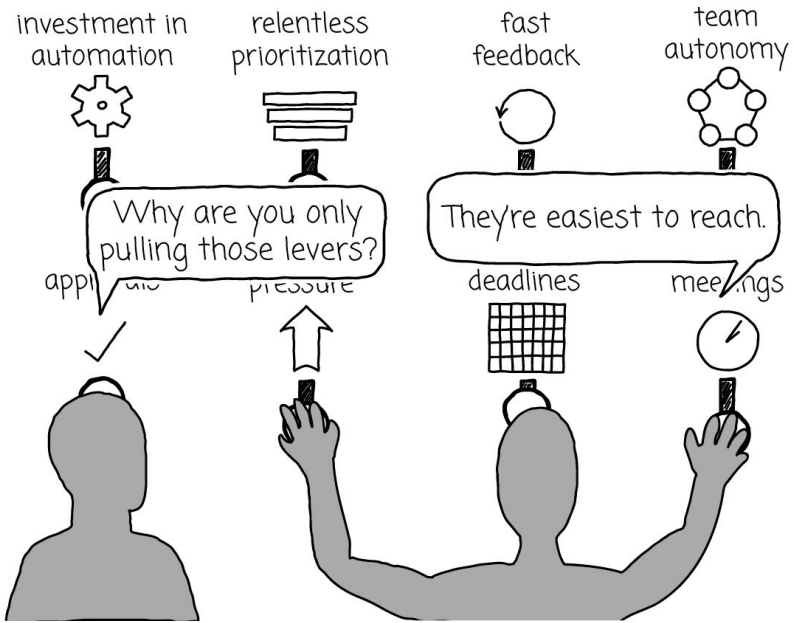
capacity	**risk**	**execution**
adaptability	**trust**	**economics**

What's different about successful organizations?

Execution: CircleCI notes mean time to recover from a failed build >3x for medium (21-50 people) companies than small (2-5) or large (1000+). They theorize that "have outgrown the speed and simplicity of small teams but have not yet built the systems and practices needed to operate effectively at larger scale."

Adaptability: Intercom is "optimized around moving fast"

Confusing Capacity with Execution

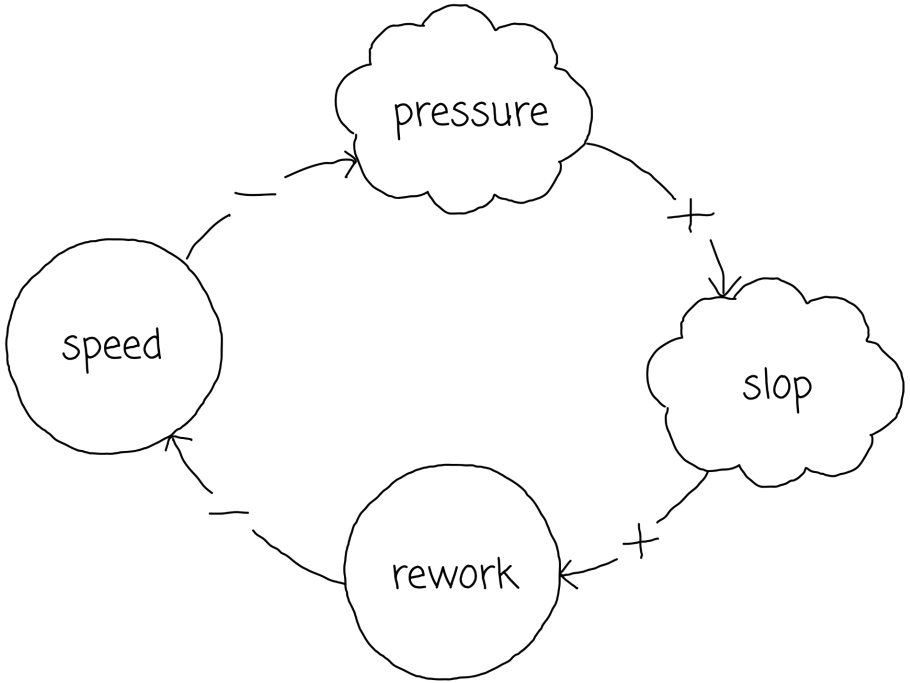


Quality

Slop?

- **DX**: “…some companies are shipping as many as 50% more defects than before.”
- **CircleCI**: “…success rates on the main branch fell to their lowest level in over 5 years, to 70.8%….attempts at merging changes into production code bases now fail 30% of the time”
- **Faros**: “Bugs per developer are up 54%. The incidents-to-PR ratio has more than tripled.”

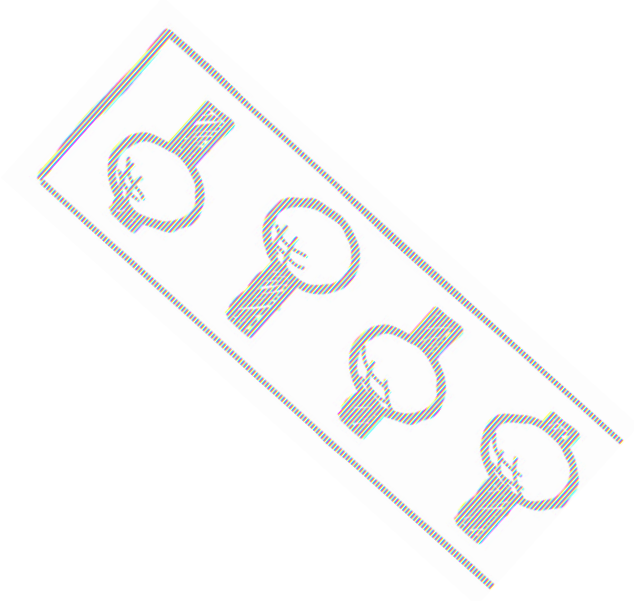
The slop doom loop



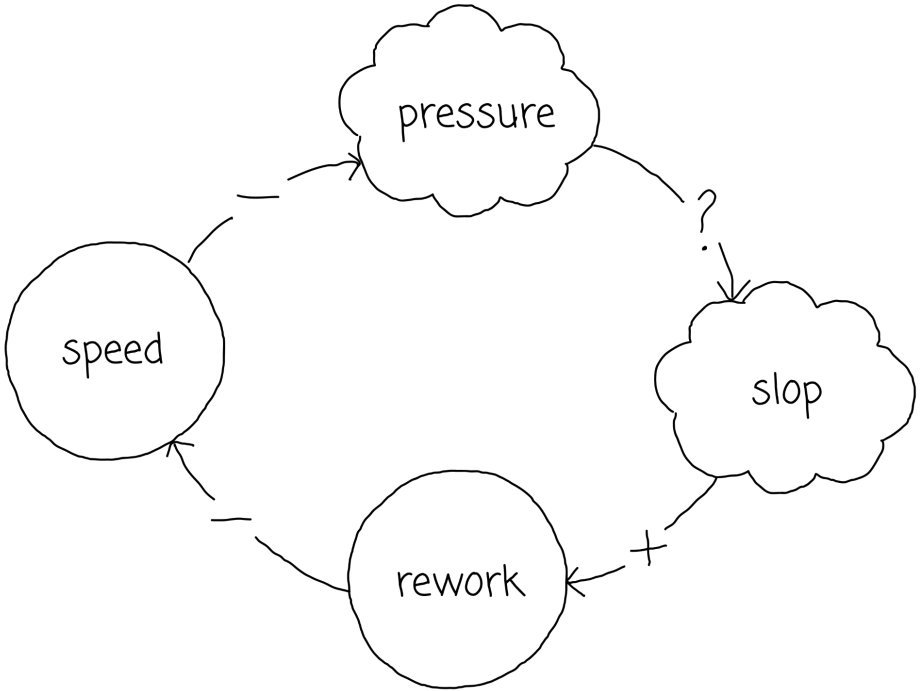
Levers

A **lever** is a **choice** that causes a shift in the system.

If you do something and the system does not appear to change at all, either you're not looking at the right signals, or the choice you made wasn't actually a lever.



Fixing the slop doom loop



What's different about successful organizations?

capacity? | **risk?** | **execution?** | **adaptability?** | **trust?** | **economics?**

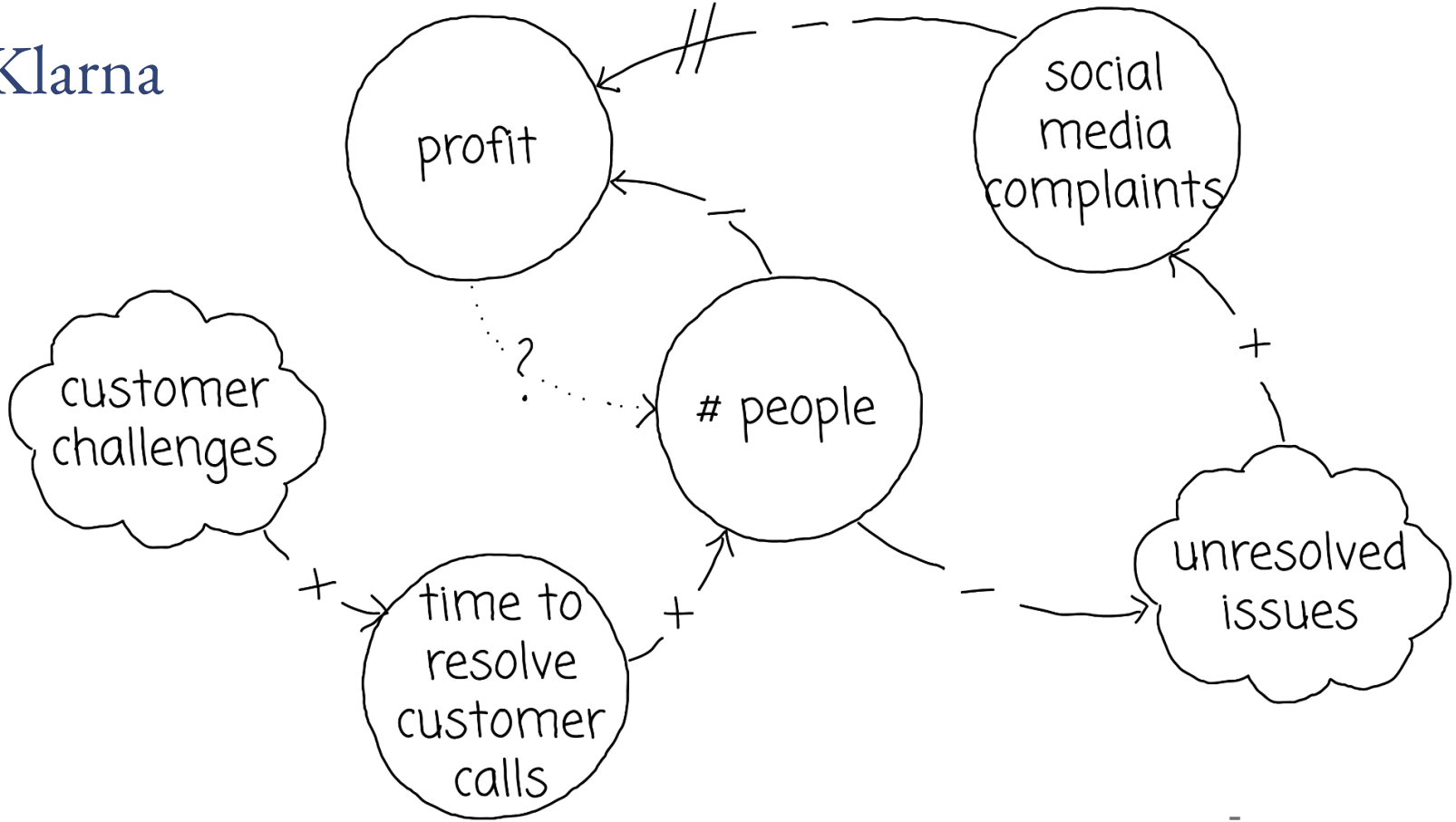
LinearB says, "Process maturity, tooling, and reviewer confidence appear to matter…"

Faros says, "The organizations with strong pre-AI engineering practices see the same quality degradation as those without"

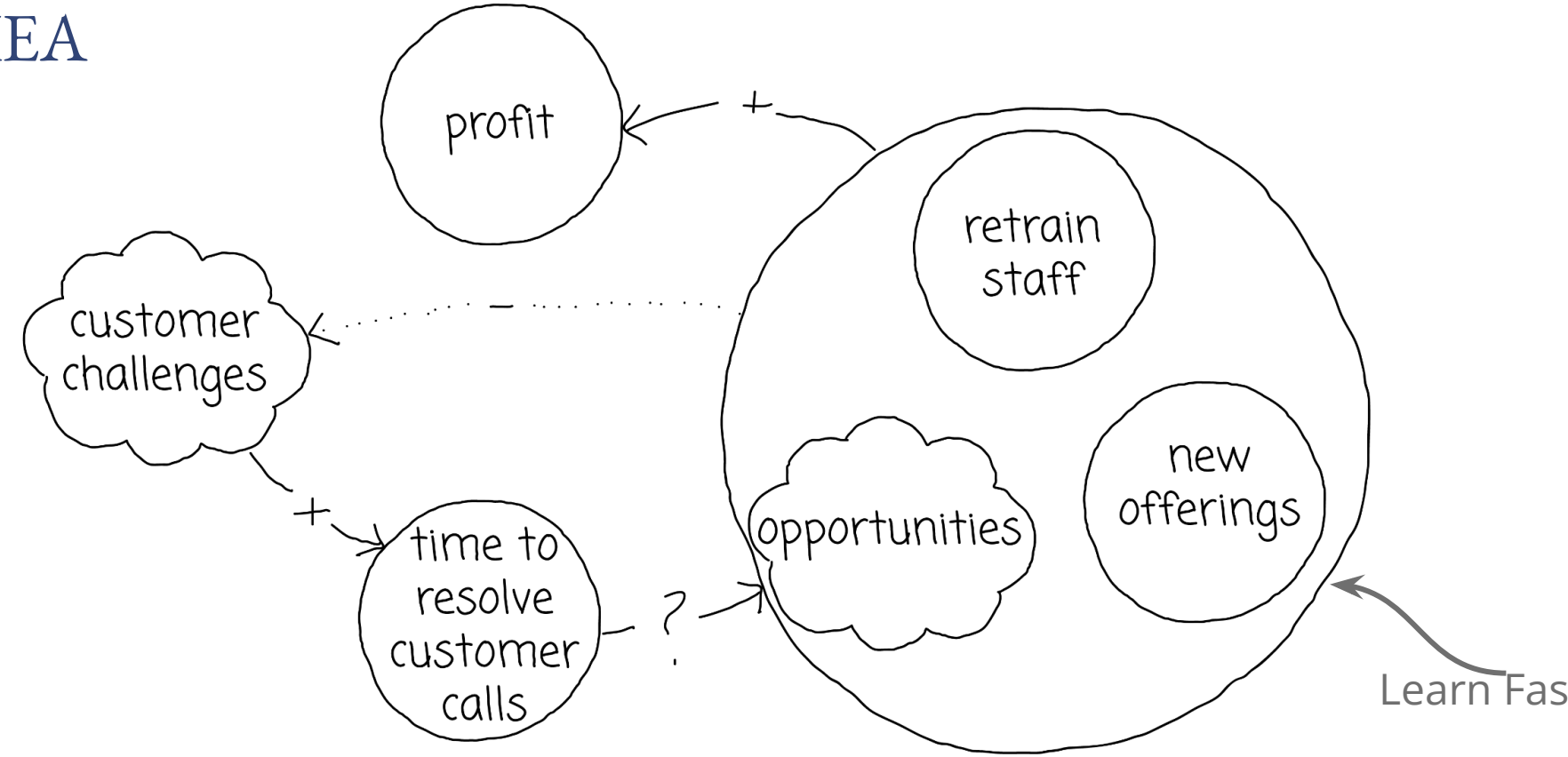
CircleCI says, "Shorter feedback and recovery cycles can help alleviate the strain created by higher change volume," and notes CI workflows were "18% faster [this year] than last year."

Revenue

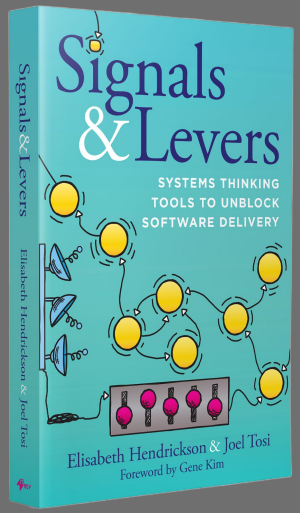
Klarna



IKEA



Now what?



Systems thinking: an essential toolkit for navigating turbulence.

Ultimately the “human in the loop” is about making choices / critical thinking – not about human micromanagement of bots

Connect with us!

Book updates & newsletter signup: signalsandlevers.com

Also appearing at conferences near(?) you!

- DevOps Midwest @ St. Louis MO, Sep 16
- Prairie Dev Con @ Winnipeg MB, Sep 21 - 22
- Papers in Systems (Online), Sep 28
- Tech Fuse DSM @ Des Moines IA, Oct 15 - 16
- Agile Testing Days @ Potsdam & online, Nov 16 - 19
- ***Your Book Club!***

Slides and resources: https://signalsandlevers.com/ai