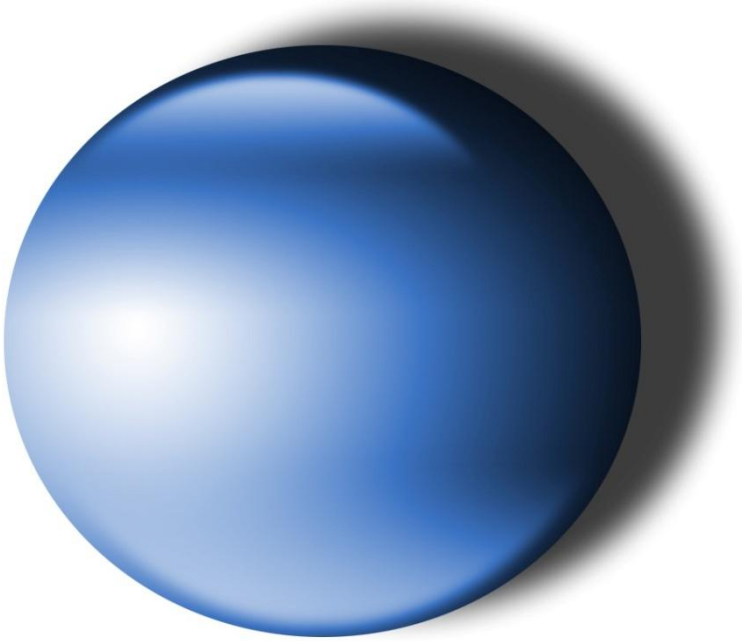
AI Agents Massively Change the Workforce in Software and Systems Development

Delft, October 27-8, 2026



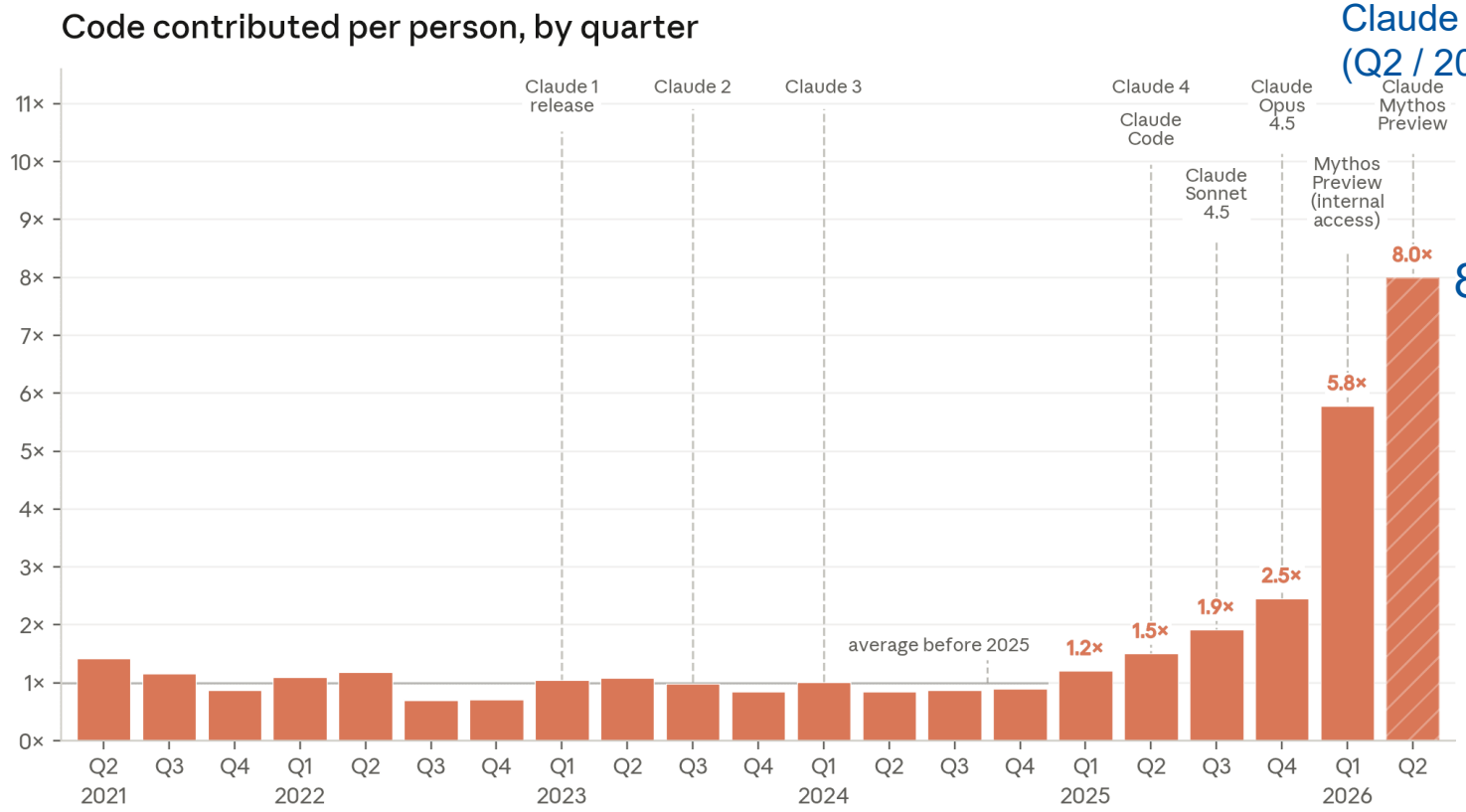
Prof. Dr. Bernhard Rumpe
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Output per Engineer Is Multiplying (in Software)

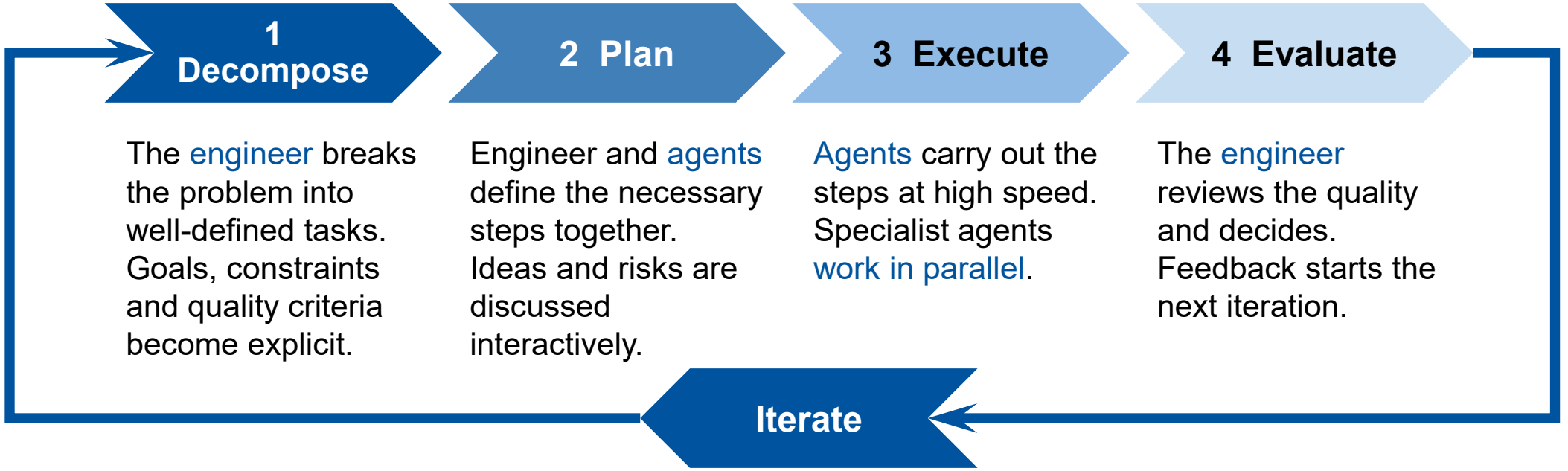
- Currently reported speedups:
  - 8 times within about 18 months
- AI is evolving from a tool into a coworker
  - (old) Chatbot: answers questions
  - (yesterday) Agent: takes a task, plans, executes, reports back
- Today:
  Teams of agents: work in parallel



Anthropic: When AI Builds itself, May 2026. https://www.anthropic.com/institute/recursive-self-improvement

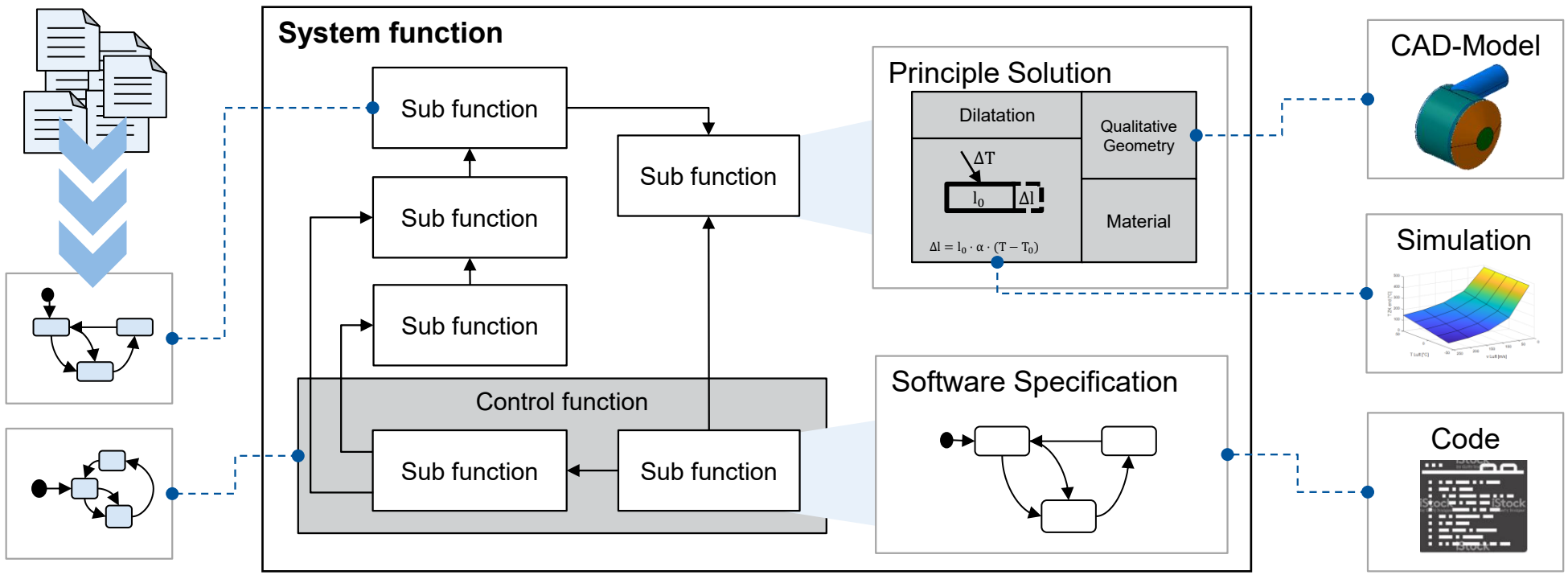
AI agents join the team as fast junior coworkers.
Where agents are used systematically, the output per engineer multiplies.

Engineers Direct and AI Agents Execute



The engineer's role shifts from doing the work to directing and judging it.

Code & Models: The Shared Language of Engineers and AI Agents



System development agents will not make engineers obsolete, but change their activities.

Jevons Paradox: Cheaper Leads to More, Not Less

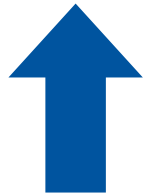
- First observed for coal in 1865: more efficient steam engines did not reduce consumption, but multiplied it
- The same is now happening to software and soon also systems
  - lower cost per function leads to far more digitalization
  - more variants, more integration, higher expectations
- For the workforce this means
  - demand for engineering competence grows
  - the bottleneck shifts to requirements management, domain knowledge, and integrative engineering

Definition

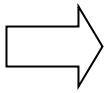
Jevons paradox:
When the cost of using a resource falls, its total consumption rises, because demand grows faster than the price falls.



Cost per function
drops sharply



Number of systems
rises disproportionately



We might see more innovation, more product variability, better user experience.
We will see more development efficiency.

Conclusion: What Deciders Should Do Now

- Engineering education will change
  - from writing every detail → to specifying, decomposing and evaluating
  - systems thinking and modeling as core skills (instead of only detailed specialization)
- The workforce becomes much more effective and innovative, but not necessarily smaller

1. Invest in education: train engineers in systems thinking and to lead AI agents
2. Build on models and digital twins as the shared basis
3. Set clear rules for human oversight and accountability

⇨ Human expertise plus specialized AI: an effective engineering workforce.