BORNBEE RESEARCH

MORE AGENTS ≠ MORE INTELLIGENCE.



Why adding more AI agents makes your system worse — and what to do instead.

The Mythical Agent-Month · A quantitative analysis

Does Brooks's Law govern AI agent coordination?

> *"Adding manpower to a late software project makes it later." — Fred Brooks, 1975*

Omer Mustafa

Founder, Bornbee Technologies

MORE AGENTS ≠ MORE INTELLIGENCE.

In practice, more agents often mean more handoffs, more coordination, and more opportunities for reasoning to degrade.

- **More handoffs** between agents
- **More context loss** across the chain
- **More contradictions** in the final output
- **More coordination tax** that can cancel the gains

TWO STUDIES POINT TO THE SAME PATTERN.

STANFORD

When compute is equalized, single agents can match or beat multi-agent systems on multi-hop reasoning.

GOOGLE / MIT

Coordination overhead grows super-linearly; the strongest results cluster around 3-4 agents.

The issue is not agent capability. The issue is coordination cost.

THREE NUMBERS THAT MATTER.

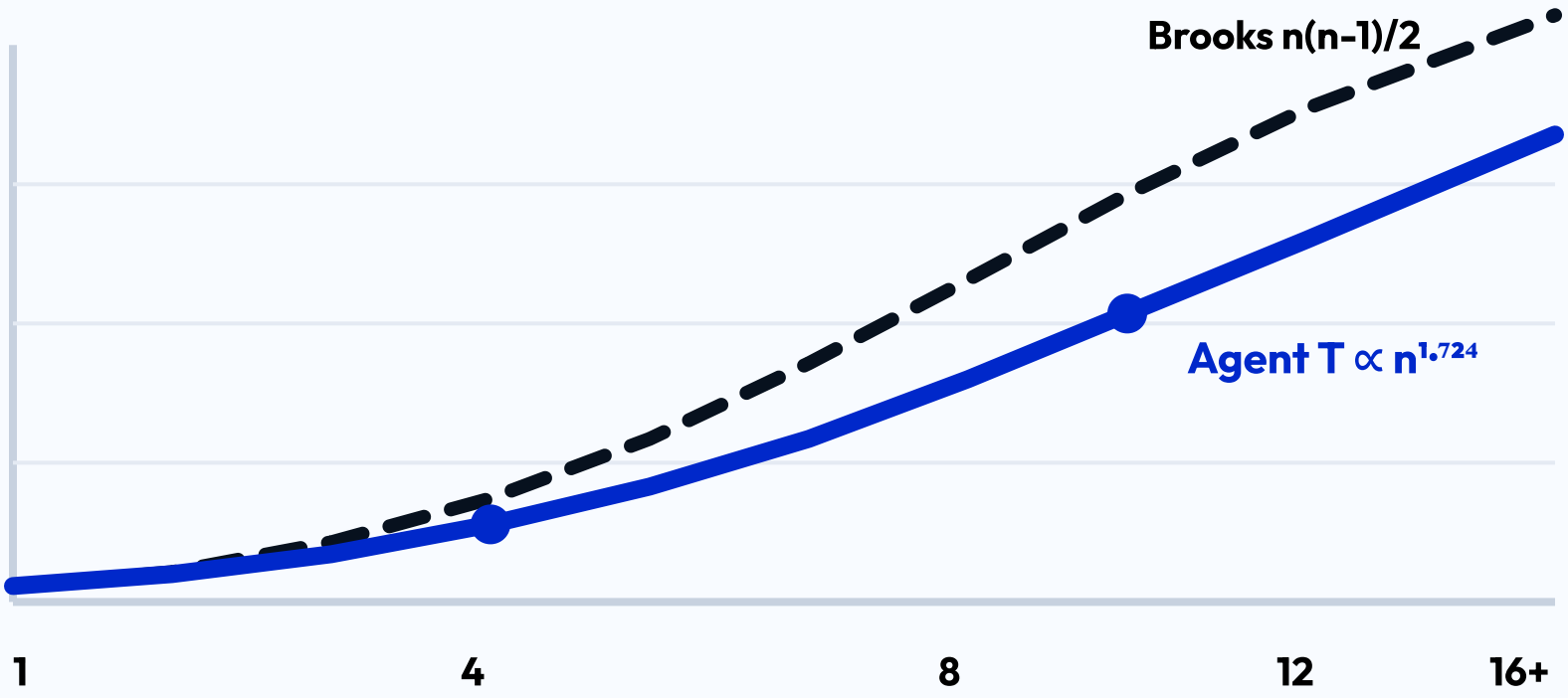
17.2×
ERROR AMPLIFICATION IN UNSUPERVISED SWARMS

92.6%
COMPUTE WASTED ON COORDINATION OVERHEAD

3–4
OPTIMAL AGENT COUNT BEFORE DIMINISHING RETURNS

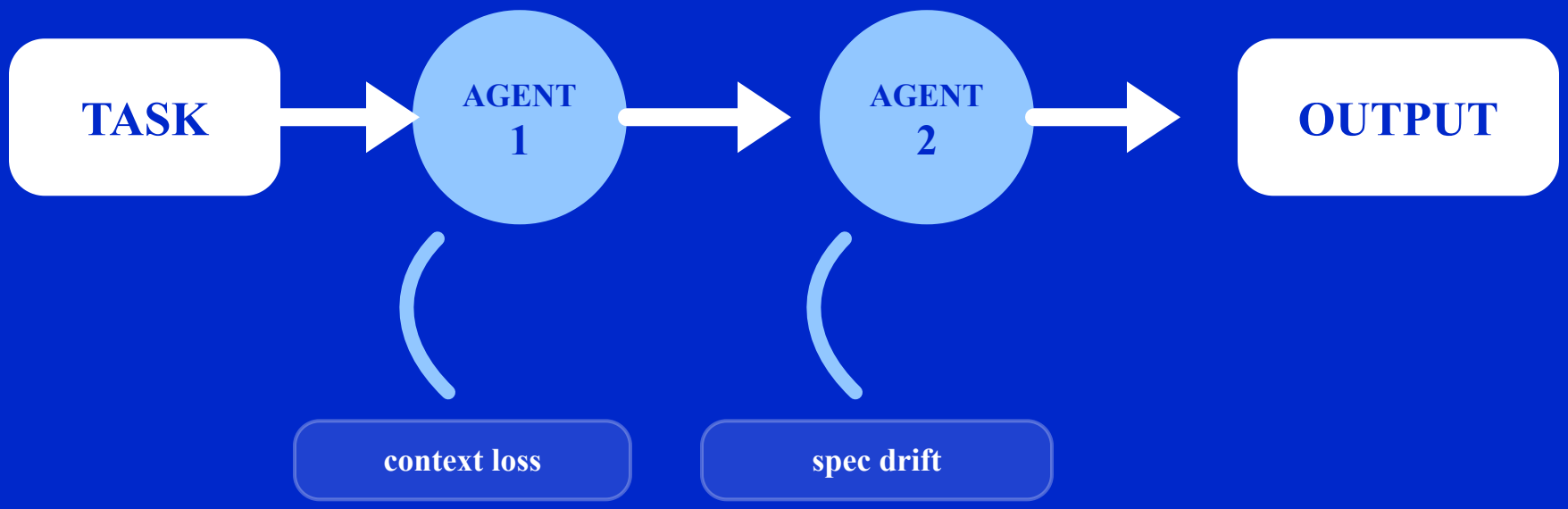
COORDINATION OVERHEAD COMPOUNDS FAST.

Brooks's human-team curve and the measured agent curve are not identical — but both point in the same direction.



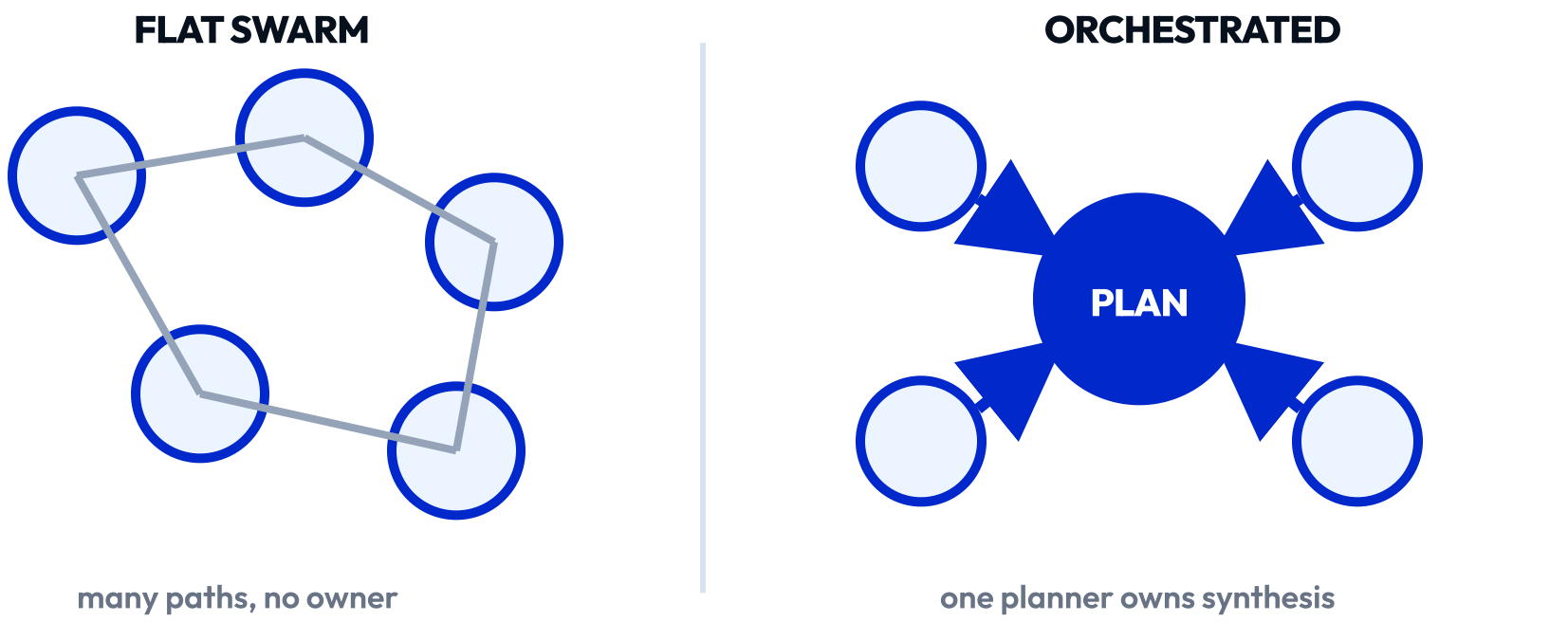
HANDOFFS BREAK REASONING CHAINS.

Each handoff compresses the task, shifts context, and creates room for drift, omissions, and contradictions.



38–48% predicted specification loss after 3–4 handoffs in sequential workflows.

FLAT SWARMS AMPLIFY ERROR. ORCHESTRATION RESTORES COHERENCE.



Measured benefit: fewer contradictions and omissions when one agent owns the final synthesis.

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SWEET SPOT



PERFORMANCE TENDS TO PEAK AT

3-4 AGENTS

Beyond that point, coordination overhead usually grows faster than useful parallelism.

BUILD A SURGICAL TEAM, NOT A COMMITTEE.

1
PLANNER
Owns the objective and final synthesis.

2
SPECIALISTS
Handle cleanly separated sub-tasks.

3
INTERFACES
Define what each agent must return.

4
VALIDATION
Check contradictions before output.

The goal is not more agents. The goal is clearer responsibility.

THE FUTURE IS NOT MORE AGENTS.

IT'S BETTER COORDINATION.

Architecture first.
Agent count second.

BUILDING AI SYSTEMS?

Start with architecture before adding agents.

Read the full Bornbee Research brief.

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Interested in AI automation or agent architecture services? Visit Bornbee or contact Omer Mustafa to discuss your system.

Omer Mustafa

Founder, Bornbee Technologies