

Engineering Managers

AI accelerates design, code and documentation across engineering teams, changing what managers plan, review and staff for.

EXPOSURE	WINDOW	ADOPTION TODAY	READING
41 Moderate exposure	4–9 yrs until change lands	High	Augmented more than re-placed. Exposure is the share of today's work AI can plausibly take on within the window.

§ 01WHAT IS HAPPENING

What is happening to engineering managers

Impact

Architectural and engineering managers now lead teams whose output is shaped by AI coding assistants, generative design tools, simulation software with built-in optimisation and office copilots that draft specifications and reports. The manager's own routine work, which includes status reporting, meeting summaries, resource plans and first drafts of technical documents, is increasingly produced by assistants. The day-to-day shifts from gathering and relaying information towards judging quality, deciding how far to trust generated work, and setting direction for teams that can produce far more than before.

Risk

Status reporting and review tasks thin out; value moves to technical judgement, people leadership and AI adoption decisions.

The score sits in the moderate band: official measures place the role in the high exposure tier and sector adoption is high, but the measured applicability of AI to managerial tasks is modest and observed usage by managers themselves is very low. Reporting, planning documents, meeting notes and routine technical review are the tasks being automated. Accountability for engineering decisions, safety and quality, hiring and development of engineers, and difficult trade-offs between scope, cost and risk stay human. Over the 4-9 year window, expect smaller teams delivering more, managers spending more time on quality assurance and AI governance, and a premium on those who can keep engineering standards high while productivity tools change how work is done.

Sector readiness

Fast Tool Adoption, Slower Management Change

Engineering organisations have adopted AI tools quickly at the practitioner level, with coding assistants, generative design and simulation optimisation widespread in software, manufacturing and aerospace. Management practice has changed more slowly: most organisations are still working out how to measure productivity, review AI-generated work and set policy, which is where engineering managers now spend growing effort.

§ 02 POSITION

Where you stand

- i Position yourself as the manager who can set and enforce quality standards for AI-assisted engineering work.
- ii Build a reputation for developing engineers' judgement and review skills, which are the capabilities that AI tools make most valuable.
- iii Lead your organisation's approach to AI tool adoption, measurement and governance in engineering.

§ 03 ACTIONS

6 POINTS

What this means for you

Concrete changes to how the work gets done, in the order you are likely to meet them.

- 01 **Stay close to the work.** Managers who cannot evaluate AI-generated designs or code will be managing blind. Keep enough technical depth to judge quality yourself.
- 02 **Automate your reporting.** Let copilots compile status, summarise meetings and draft plans, then spend the recovered time with your engineers and stakeholders.
- 03 **Redefine review.** Code and design review are now the main quality control on generated work. Make review skills a core competency and allocate time for them.
- 04 **Measure outcomes, not output.** AI inflates volume. Judge teams on reliability, safety and delivered value rather than lines produced or tickets closed.
- 05 **Develop junior engineers deliberately.** Entry-level tasks are automating, so plan how new engineers build judgement without the routine work that used to teach it.
- 06 **Own the tool decisions.** Which assistants your team uses, how data is protected and what is permitted are management questions. Answer them before problems arrive.

What is pushing this change

- 01**AI coding and design assistants.** Engineers produce code, drawings and analyses faster, changing team capacity and the manager's planning assumptions.
- 02**Office copilots for management work.** Status reports, meeting summaries and planning documents are drafted automatically, removing routine managerial tasks.
- 03**Generative design and simulation optimisation.** Tools that explore design spaces and optimise structures change how projects are scoped and reviewed.
- 04**Quality and governance demands.** AI-generated work needs review standards and policy, creating new management responsibilities.
- 05**High sector adoption.** Engineering organisations have adopted AI tools widely, raising the published adoption rating.
- 06**Low observed usage by managers.** Recorded generative-AI use by engineering managers themselves is very low, keeping the score moderate.

Impact by sector

The headline figure is an average. Where you work changes the picture.

Software and technology	The most exposed setting, with coding assistants universal and management practice changing fastest around productivity and review.
Manufacturing and product engineering	Generative design and simulation are reshaping development, while physical prototyping and production keep exposure lower.
Civil, structural and infrastructure	AI supports analysis and documentation, but regulatory approval, liability and site work slow the pace of change.
Aerospace and defence	Heavy use of simulation and optimisation within strict certification regimes, which keep human sign-off central.

Skills to build

The skills that keep the human part of this work valuable as the routine part is automated.

- 01

Technical judgement. Maintain enough depth to evaluate AI-generated designs and code critically.
- 02

Quality assurance and review design. Build processes that catch errors in generated work before they reach production or site.
- 03

People development. Develop engineers' judgement and review capability deliberately as routine learning tasks disappear.
- 04

AI tool governance. Set policy on tool selection, data protection and acceptable use for your teams.
- 05

Stakeholder communication. Translate technical risk and AI-related uncertainty for executives and clients.
- 06

Outcome-based measurement. Learn to measure reliability, safety and value rather than volume of output.

Tools in use

KINDS OF TOOL WORTH KNOWING

- 01

Engineering productivity analytics. Platforms that measure team delivery and AI tool impact are emerging as management aids.

NAMED TOOLS ALREADY IN USE

GitHub Copilot	VISIT
Coding assistant used across software engineering teams, shaping velocity and review workload.	
Jira	VISIT
Project tracking platform with Atlassian Intelligence features for summarising work and drafting updates.	
Microsoft 365 Copilot	VISIT
Office assistant used for status reports, meeting summaries and planning documents.	
Autodesk Fusion	VISIT
Design and manufacturing platform with generative design that explores options from constraints.	
Ansys	VISIT
Simulation software with AI-driven optimisation widely used in product and aerospace engineering.	

In practice

Ways people in this role are already using AI, and what they get from it.

AI-assisted status reporting EXAMPLE 1	HOW	A software engineering manager uses copilots to compile sprint summaries and stakeholder updates from tickets and meeting notes, editing for accuracy before sending.
	GAIN	Several hours a week redirected to one-to-ones and design reviews.
Review standards for generated code EXAMPLE 2	HOW	A manager introduces a review checklist and test requirements for AI-generated code after a production incident traced to unreviewed output.
	GAIN	Quality is maintained as velocity rises.
Generative design in product development EXAMPLE 3	HOW	A mechanical engineering manager uses generative design to explore lightweight options early, then directs the team's detailed work on the most promising candidates.
	GAIN	Faster concept phase with more options considered.

How this role compares

Three neighbouring roles chosen to show the direction of travel.

Computer Programmers MORE EXPOSED	AI IMPACT	Code generation directly automates the core task of programming, far more than management work.
	WORK MOVES TO	Specification, review and system design.
Robotics Engineers DIFFERENT SKILLS, GROWING	AI IMPACT	AI is the enabling technology for the field, driving demand for people who build physical systems.
	WORK MOVES TO	Perception, control and hardware integration.
Plant Managers COMPLEMENTARY, LESS EXPOSED	AI IMPACT	Operational leadership on the factory floor keeps exposure lower than knowledge-heavy engineering management.
	WORK MOVES TO	Production, safety and workforce management.

Closing judgement

If you manage engineers, the part of your week spent compiling status and drafting plans is being automated, and your team's output is rising with tools you may not have chosen. The job now is to make sure that output is good: setting standards for AI-assisted work, judging what to trust, and developing engineers who can review as well as produce. Stay technical enough to evaluate the work, and put your management effort into people and quality rather than reporting.

Evidence and revisions

What the exposure figure rests on, what changed when it was last revised, and the published work cited for this role.

SCORE

41

WINDOW

4-9 years (unchanged)

The 5 October 2026 review held the score.

Exposure Index v2. Inputs: task applicability 33/100 (Microsoft AI applicability score 0.16 for Architectural and engineering managers); observed usage 4/100 (Anthropic observed exposure 0.03); official exposure tier 70/100 (BLS: high); labour-market trajectory not yet mapped for this occupation, so its weight was spread across the other inputs; published adoption rating 70/100 (high adoption). Weighted base 40.8. Final score 41. New report: the window of 4-9 years is set from the score band.

HOW THE FIGURE IS BUILT (EXPOSURE INDEX V2)

Task applicability — Microsoft Research, AI applicability score	33 × 39%	12.7
Observed usage — Anthropic Economic Index, observed exposure	4 × 22%	0.9
Official exposure tier — US BLS AI-exposure category	70 × 22%	15.6
Labour-market trajectory — US BLS projected employment change 2025–35	not measured	—
Published adoption rating — This report’s adoption level	70 × 17%	11.7
Weighted base		40.8
Exposure score		41

MEASURES BEHIND THE SCORE

US Bureau of Labor Statistics · *Employment Projections 2025–35 and AI Exposure Categories* (27 August 2026)

AI-exposure tier: High. Projected employment change not yet mapped for this occupation. Matched to Architectural and engineering managers.

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Microsoft Research · *Working with AI: Measuring the Applicability of Generative AI to Occupations* (10 July 2025)

AI applicability score 0.16 for SOC 11-9041; scaled to 33/100 as the task-applicability input.

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Anthropic · *Anthropic Economic Index report: Cadences* (26 June 2026)

Observed exposure 0.03 for SOC 11-9041; scaled to 4/100 as the observed-usage input.

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UK Department for Science, Innovation and Technology · *Assessment of AI capabilities and the impact on the UK labour market* (28 January 2026)

UK context: around 70% of UK workers are in occupations with tasks AI could perform or enhance, above the US average; a one-standard-deviation rise in exposure was associated with a 3.9% fall in UK job postings.

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<https://www.careerguard.ai/sources>

§ 12 APPENDIX

Method and sources

Each report was written from a large body of published research. The exposure score itself is computed, not written: it is the CareerGuard Exposure Index, a weighted average of occupation-level measures from the US Bureau of Labor Statistics (AI-exposure classification and 2025–35 projections), Microsoft Research (AI applicability scores) and Anthropic (observed exposure), together with the adoption rating published on the report. The organisations and publications below are the standing literature behind the narrative sections. Every source, with dates, licences and archived copies where we are permitted to hold them, is catalogued in the research library.

Exposure Index v2 (October 2026). Each input is scaled to 0–100 and weighted: task applicability 35% (Microsoft AI applicability score ÷ 0.5), observed usage 20% (Anthropic observed exposure ÷ 0.75), official exposure tier 20% (BLS very high = 100, high = 70, moderate = 40, low = 10), labour-market trajectory 10% ($50 - 2.5 \times \text{projected \% employment change}$), published adoption rating 15% (very high = 85, high = 70, medium-high = 55, medium = 40, low-medium = 25, low = 10). Inputs not measured for an occupation are dropped and the remaining weights renormalised. An editorial adjustment of at most ± 12 points is allowed only for automation channels the measures cannot see (robotics, self-service, machine vision, medical imaging, RPA/OCR, generative video) and is always logged with its reason. Scores are whole numbers, not rounded to five. The change window shifts one notch (a year at each end) per ten points of movement.

World Economic Forum

The Future of Jobs Report series — Employer survey of expected job growth and decline, skill shifts and technology adoption (2020, 2023 and 2025 editions); *Artificial Intelligence and the Future of Entry-Level Work* (2026).

AI governance and transformation reports — Frameworks on ethical AI, talent strategy and industry transformation.

McKinsey Global Institute

AI, Automation and the Future of Work series — Research quantifying automation potential by task, sector and demographic, from "Jobs Lost, Jobs Gained" to "Agents, robots, and us" (2025).

Industry-specific reports — Financial services, healthcare, manufacturing and others.

PwC

Global AI Jobs Barometer — Annual analysis of job postings and productivity by AI exposure (2024–2026 editions).

Upskilling Hopes and Fears survey — Employee perceptions and readiness.

Microsoft Research and Anthropic

Working with AI (2025); *Anthropic Economic Index* (2025–2026) — Occupation-level usage data from Copilot and Claude conversations, the two observed-usage measures behind the 2026 revision.

Stanford Digital Economy Lab and Stanford HAI

Canaries in the Coal Mine? (2025–2026); *AI Index Report* (annual) — Payroll evidence on early-career employment in exposed occupations; annual measurement of AI capability, investment and adoption.

Deloitte

Human Capital Trends series — Workforce, talent and HR technology trends.

Tech Trends series — Emerging technologies and their business implications.

Accenture

Technology Vision series — Forward-looking analysis of emerging technology, with emphasis on AI.

Fjord Trends — Design, innovation and human experience in a digital world.

Boston Consulting Group

AI/ML insights and industry solutions — "The AI Revolution in the Workplace" and related research.

EY

AI and workforce reports — Adoption, talent strategy and ethics.

IBM Institute for Business Value

AI and automation studies — Business models, workforce evolution and leadership.

OECD

AI Policy Observatory — International data and policy on AI, labour markets and skills.

Employment Outlook — Labour-market trends including technological impact (2023–2026 editions).

International Labour Organization

Generative AI and Jobs: A Refined Global Index of Occupational Exposure (2025) — Task-level exposure gradients for every ISCO occupation; successor to the 2023 global index.

International Monetary Fund

Staff Discussion Notes on AI and work (2024, 2026) — Complementarity framing: where AI augments and where it substitutes.

UK Department for Science, Innovation and Technology

Assessment of AI capabilities and the impact on the UK labour market (2026) — UK occupational exposure and job-posting evidence.

Brookings Institution

AI and automation research — Economic and social implications, displacement and skills.

Yale Budget Lab and Goldman Sachs Research

Tracking the Impact of AI on the Labor Market; AI and the US labour market (2026) — Aggregate labour-market monitoring; macro displacement estimates.

Oxford University (Oxford Martin School)

The Future of Employment — Frey & Osborne and subsequent research on susceptibility to automation.

MIT Technology Review

AI & Work — Reporting on AI research and its implications for industries and jobs.

Gartner

Hype Cycle for Artificial Intelligence — Maturity and adoption of AI technologies.

Future of Work reports — Workplace models and talent strategy.

U.S. Bureau of Labor Statistics

Employment Projections 2025–35; AI Exposure Categories; Occupational Outlook Handbook — Ten-year employment projections and, from the 2025 cycle, an AI-exposure tier for every detailed occupation.

Indeed Hiring Lab

AI at Work Report (2025) and posting-market updates — Skill-level transformation estimates and job-posting trends by occupation.

II CORE AI AND MACHINE-LEARNING RESEARCH

OpenAI

Research papers, blog and API documentation — Large language models, generative AI, safety and societal impact.

Google DeepMind

Research papers and blog — Reinforcement learning, AI for science, AGI and ethics.

Meta AI

Research papers and blog — Large language models, computer vision, AI for social good.

Hugging Face

Transformers library and model hub — Open-source state-of-the-art NLP models.

TensorFlow and PyTorch

Documentation and community forums — Core frameworks illustrating practical capability.

arXiv

cs.AI, cs.LG, cs.CV, cs.CL — Pre-print research.

NeurIPS and ICML

Conference proceedings — Top-tier academic research.

ACM and IEEE

Journals and proceedings — ACM Computing Surveys; IEEE Transactions on AI.

Kaggle

Datasets and competition solutions — Applied machine learning on real-world problems.

The Alan Turing Institute

Research and reports — Responsible and applied AI.

III ETHICAL AND RESPONSIBLE AI DEPLOYMENT

NIST

AI Risk Management Framework — Voluntary framework for managing AI risk.

European Commission

AI Act — Risk-tiered legal framework for AI.

Ethics Guidelines for Trustworthy AI — Principles for responsible development.

Partnership on AI

Research and best practice — Responsible AI development.

AI Now Institute

Annual reports — Social implications: power, inequality, rights.

ACM FAccT

Proceedings — Fairness, accountability and transparency.

Data & Society

Publications — Social implications of data-centric technology.

WIPO

Conversation on IP and AI — Intellectual-property implications of AI.

IEEE Global Initiative on Ethics of AI/IS

Ethically Aligned Design — Recommendations for ethical AI design.

Center for AI and Digital Policy

Policy briefs — Accountable AI policy.