AI IMPACT REPORT NO. 166 · REVISED 5 OCTOBER 2026 · 250 ROLES COVERED

IT Systems Designers

AI augmenting solution modeling, component selection, and design validation.

EXPOSURE	WINDOW	ADOPTION TODAY	READING
58	1–6 yrs	Medium-High	The role is being reshaped.
Elevated exposure	until change lands		Exposure is the share of today's work AI can plausibly take on within the window.

§ 01 WHAT IS HAPPENING

What is happening to it systems designers

Impact

AI tools are being used to help model complex IT systems, simulate performance of different architectures, suggest optimal components or configurations based on requirements, analyze security implications of designs, and even generate initial drafts of system diagrams or technical specifications.

Risk

Workflow augmentation; focus on complex requirements, innovative architectures, and strategic alignment.

The IT Systems Designer role will be significantly augmented by AI. AI can assist in analyzing requirements, exploring design alternatives, and automating parts of the documentation process. This allows designers to focus more on understanding complex business needs, architecting innovative and resilient solutions, ensuring scalability and security, and aligning IT architecture with long-term strategic business goals.

Sector readiness

Emerging in Design & Architecture Tools

AI capabilities are being integrated into enterprise architecture tools, cloud design platforms, and specialized modeling software. Generative AI is also being explored for creating initial design artifacts.

§ 02 POSITION

Where you stand

i The IT Systems Designer role is being significantly augmented by AI, which can assist in modeling, simulation, component selection, and documentation.

ii AI provides tools to analyze complex requirements, explore design alternatives more rapidly, and automate parts of the design process.

iii The future IT Systems Designer will focus on understanding deep business needs, architecting innovative and resilient solutions that leverage AI, ensuring security and scalability, and critically validating AI-generated design elements. Strategic vision and complex integration skills will be key.

§ 03 ACTIONS 15 POINTS

What this means for you

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

01 **AI-Assisted Requirements Analysis & Prioritization.** Use AI tools to analyze stakeholder requirements, identify patterns, potential conflicts, or undocumented needs, and assist in prioritizing features.

02 **Generative Design for System Architectures (Initial Drafts).** Employ AI to generate initial drafts of system architectures or component layouts based on specified constraints, performance goals, and functional requirements.

03 **Performance & Cost Modeling/Simulation.** Leverage AI to simulate the performance, scalability, and cost implications of different design choices or technology stacks before implementation.

04 **Automated Component Selection & Compatibility Checking.** AI tools might suggest optimal hardware/software components or cloud services based on project needs and check for interoperability issues.

05 **Security by Design Assistance.** Utilize AI to analyze proposed architectures for potential security vulnerabilities or to recommend security best practices and controls.

06 **Focus on Complex Integration & Interoperability Challenges.** With AI handling some component-level design, dedicate more effort to designing robust integrations between diverse systems and platforms.

07 **Architecting for AI & ML Workloads.** Designing scalable and efficient infrastructure and data architectures specifically to support the organization's AI and machine learning initiatives.

08 **Cloud Architecture Optimization.** Using AI to design and optimize cloud-native architectures for cost, performance, resilience, and security.

09 **Automated Generation of Design Documentation & Diagrams.** Employ AI to assist in creating technical specifications, architecture diagrams, and other design documentation from models or descriptions.

10 **Validating AI-Generated Design Components.** Critically reviewing and validating any system components or architectural patterns suggested or generated by AI to ensure they meet all requirements.

11 **Staying Abreast of Emerging Technologies & AI in Architecture.** Continuously learning about new AI capabilities, architectural patterns, and how they can be applied to system design.

12 **Capacity Planning and Scalability Design.** Using AI-driven forecasts to design systems that can scale effectively to meet future demand.

13 **Designing for Resilience & Disaster Recovery.** Incorporating AI insights or using AI to model failure scenarios to design more resilient IT systems.

14 **Translating Business Strategy into Technical Architecture.** The core human skill of understanding overarching business goals and designing IT systems that directly support them.

15 **Ethical Considerations in System Design (especially AI systems).** Ensuring that designed systems (particularly those using AI) are fair, transparent, and avoid unintended biases or societal harm.

§ 04 CAUSES 10 DRIVERS

What is pushing this change

01 **Increasing Complexity & Scale of IT Systems.** Modern IT solutions often involve many interconnected components, hybrid environments, and complex data flows that AI can help model and manage.

02 **Demand for Agile, Scalable & Resilient Architectures.** Businesses need IT systems that can adapt quickly to changing needs, scale efficiently, and remain highly available; AI can assist in designing for these qualities.

03 **Advancements in Generative AI for Design & Modeling.** AI models are increasingly capable of generating initial design drafts, suggesting components, or simulating system behavior based on requirements.

04 **Growth of Cloud Computing & Microservices Architectures.** Designing and managing distributed, cloud-native applications and microservices architectures benefits from AI-driven modeling and optimization.

05 **Need for Faster Time-to-Market for New IT Solutions.** AI can accelerate parts of the design and documentation process, helping to get new systems and applications deployed faster.

06 **Integration of AI into Enterprise Architecture & Design Tools.** Software for enterprise architecture, system modeling, and even CAD are embedding AI features to assist designers.

07 **Focus on Security by Design & Proactive Risk Mitigation.** AI tools can help analyze designs for potential security flaws or recommend best-practice security controls early in the design phase.

08 **Data-Driven Decision Making in Technology Selection.** AI can analyze performance data, cost models, and compatibility information to support more informed technology choices.

09 **Requirement to Design Infrastructure for AI/ML Workloads.** As organizations adopt AI, IT Systems Designers are tasked with creating the underlying infrastructure and data architectures to support these initiatives.

10 **Automation of Repetitive Design & Documentation Tasks.** AI can automate the creation of standard diagrams, documentation from models, or initial drafts of technical specifications.

§ 05 VARIATION 5 SECTORS

Impact by sector

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

Cloud Solutions Architects	Heavy use of AI for optimizing cloud resource configurations, cost management, designing serverless architectures, and ensuring cloud security and compliance.
Enterprise Architects	AI for modeling complex enterprise-wide systems, analyzing interdependencies, ensuring alignment with business strategy, and managing technology lifecycles.
Infrastructure Architects	AI for designing resilient and scalable on-premise or hybrid infrastructure, capacity planning, network design, and data center optimization.
Application / Software Architects	AI for designing microservices architectures, selecting appropriate technology stacks for applications, modeling application performance, and ensuring secure coding practices are designed in.
Data Architects	AI for designing data warehouses, data lakes, data pipelines for AI/ML, ensuring data governance, and optimizing database performance.

§ 06 PREPARATION 8 SKILLS

Skills to build

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

01 **Deep Technical Knowledge (Multiple Domains: Cloud, Network, Security, Data, Apps).** Broad and deep understanding of various IT technologies and how they interoperate to form complex systems.

02 **Strategic Thinking & Business Acumen.** Ability to understand overarching business goals and translate them into effective, efficient, and future-proof IT architectures.

03 **Complex Problem-Solving & Analytical Skills.** Analyzing complex requirements, identifying constraints, evaluating trade-offs, and designing optimal solutions, often augmented by AI simulations.

04 **Proficiency with Design/Modeling Tools & AI Design Assistants.** Skill in using enterprise architecture tools, cloud design platforms, modeling software, and new AI tools that can generate or validate design components.

05 **Communication & Stakeholder Management.** Clearly articulating complex architectural designs, trade-offs, and recommendations to both technical and non-technical stakeholders.

06 **Understanding of AI/ML Concepts & Infrastructure Needs.** Knowing how to design infrastructure, data pipelines, and systems that can effectively support AI and machine learning workloads.

07 **Security Architecture & Risk Management.** Designing systems with security as a foundational principle, identifying potential threats in architectures, and incorporating appropriate controls.

08 **Innovation & Adaptability to Emerging Technologies.** Continuously learning about new technologies (especially AI), architectural patterns, and methodologies to design innovative solutions.

§ 07 INSTRUMENTS 11 ENTRIES

Tools in use

KINDS OF TOOL WORTH KNOWING

01 **Enterprise Architecture (EA) Tools with AI features.** Software for modeling enterprise architectures, managing technology portfolios, and planning transformations, increasingly with AI for insights.

02 **Cloud Provider Design & Costing Tools (with AI optimization).** Tools from AWS, Azure, GCP that help design cloud architectures and use AI to optimize for cost, performance, or resilience.

03 **Generative AI for Diagramming & Documentation.** LLMs and specialized diagramming tools that can generate initial drafts of system architecture diagrams or technical specifications from prompts.

04 **AI-Powered Code Analysis & Architecture Discovery Tools.** Tools that can analyze existing codebases or systems to help map out current architectures or identify dependencies, sometimes using AI.

05 **Simulation & Modeling Software (increasingly AI-enhanced).** Software used to model and simulate the behavior of complex systems, with AI enhancing predictive capabilities or scenario analysis.

06 **Requirements Management Tools with AI Analysis.** Platforms for capturing and managing requirements that may use AI to identify inconsistencies, gaps, or to group related needs.

NAMED TOOLS ALREADY IN USE

Sparx Systems Enterprise Architect / LeanIX / Ardoq (EA tools exploring AI)
Comprehensive enterprise architecture modeling tools that are beginning to incorporate AI for analysis and suggestion.

AWS Well-Architected Tool / Azure Cost Management + Billing (with AI insights)
Cloud provider tools that help design architectures according to best practices and use AI to provide recommendations for cost and performance optimization.

Lucidchart (with AI diagramming) / Miro (with AI features) / ChatGPT (for drafting descriptions)
Diagramming and collaboration tools that are adding AI features to help generate diagrams from text, or LLMs used for drafting documentation.

CAST Highlight / Structure101 (for software intelligence, architecture analysis)
Software intelligence platforms that analyze codebases to visualize architecture, identify technical debt, and assess complexity, sometimes using AI.

AnyLogic / Simulink (general simulation, AI can be integrated)
General-purpose simulation software where AI can be used to build more complex models or optimize simulation parameters.

§ 08 EXAMPLES 5 EXAMPLES

In practice

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

Generate Initial Cloud Architecture Diagrams with AI

EXAMPLE 1

HOW Describe your desired cloud infrastructure components and relationships to an AI diagramming tool or LLM to get a first draft of the architecture diagram.

GAIN Speeds up the initial design and documentation process, provides a visual starting point for discussion, and helps ensure consistency.

Use AI to Simulate Performance of Different System Designs

EXAMPLE 2

HOW Input different architectural patterns or technology choices into an AI-powered simulation tool to compare their projected performance, scalability, and cost.

GAIN Enables more informed design decisions by quantitatively comparing alternatives, reducing the risk of performance issues or cost overruns post-implementation.

Leverage AI for Security Vulnerability Analysis in a Design

EXAMPLE 3

HOW Use AI security tools to analyze a proposed system architecture and identify potential weaknesses, misconfigurations, or missing security controls.

GAIN Helps build more secure systems from the ground up by identifying and addressing potential vulnerabilities early in the design lifecycle.

Automate Parts of Technical Specification Writing

EXAMPLE 4

HOW Employ generative AI to help write initial drafts of sections for technical design documents, such as component descriptions or interface specifications, based on your outlines.

GAIN Reduces manual effort in documentation, ensures standard sections are covered, and allows more time for refining complex design details.

Get AI-Driven Recommendations for Cloud Service Selection

EXAMPLE 5

HOW Utilize AI features within cloud provider consoles or third-party tools that analyze your requirements and suggest optimal cloud services (e.g., instance types, database services) for cost and performance.

GAIN Leads to more cost-effective and performant cloud architectures by leveraging AI's ability to analyze a wide range of service options and pricing models.

§ 09 CONTEXT

How this role compares

Three neighbouring roles chosen to show the direction of travel.

Draftspersons (Basic technical drawing, non-design) / Junior System Configurators

MORE EXPOSED

AI IMPACT High (AI can generate standard diagrams from models, automate basic system configurations based on templates, and create initial drafts of technical documentation)

WORK MOVES TO Role may contract or evolve to managing AI design tools, validating AI outputs, or focusing on more complex, non-standard design tasks.

AI Infrastructure Engineers / MLOps Engineers

DIFFERENT SKILLS, GROWING

AI IMPACT Foundational (They design and build the specialized, scalable infrastructure required to train and deploy AI/ML models, which IT Systems Designers plan for)

WORK MOVES TO Deep expertise in cloud computing, containerization (Docker, Kubernetes), data pipelines, CI/CD for ML, and performance optimization for AI workloads.

Chief Technology Officers (CTOs) / Chief Architects

COMPLEMENTARY, LESS EXPOSED

AI IMPACT High Strategic Dependence & Augmentation (They consume AI-driven analyses of technology trends, system performance, and architectural options to inform overall technology strategy and major design decisions)

WORK MOVES TO Setting the long-term technology vision, driving innovation, managing enterprise-wide architectural standards, and making high-stakes technology investment decisions.

§ 10 VERDICT

Closing judgement

> For IT Systems Designers, AI is a powerful conceptualization and modeling partner. It automates aspects of design generation and analysis, allowing designers to focus on strategic alignment, innovation, complex integrations, and ensuring that IT architectures are resilient, secure, and effectively support evolving business needs.

§ 11 BASIS REVISED 5 OCTOBER 2026

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

45 to 58

WINDOW

2-7 years to 1-6 years

The 5 October 2026 review moved the score up by 13 points.

Exposure Index v2. Inputs: task applicability 55/100 (Microsoft AI applicability score 0.27 for Computer occupations, all other; Computer network architects); observed usage 34/100 (Anthropic observed exposure 0.25); official exposure tier 100/100 (BLS: very high); labour-market trajectory 34/100 (BLS projects employment to grow 6.4% over 2025–35); published adoption rating 55/100 (medium-high adoption). Weighted base 57.7. Final score 58. The previous figure of 45 was raised by 13 points: the earlier method kept 60% of the weight on an undocumented editorial prior and capped movement at fifteen points, so the measured evidence was only partly reflected. The change window moves from 2-7 years to 1-6 years under the one-notch-per-ten-points rule.

HOW THE FIGURE IS BUILT (EXPOSURE INDEX V2)

Task applicability — Microsoft Research, AI applicability score	55 × 35%	19.3
Observed usage — Anthropic Economic Index, observed exposure	34 × 20%	6.8
Official exposure tier — US BLS AI-exposure category	100 × 20%	20.0
Labour-market trajectory — US BLS projected employment change 2025–35	34 × 10%	3.4
Published adoption rating — This report's adoption level	55 × 15%	8.3
Weighted base		57.7
Exposure score		58

MEASURES BEHIND THE SCORE

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

AI-exposure tier: Very high. Projected employment change 2025–35: +6.4%. Matched to Computer network architects; Computer occupations, all other.

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

AI applicability score 0.28 (percentile 85 of 785 occupations) for SOC 15-1299, 15-1241.

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

Observed exposure 0.26 for SOC 15-1299, 15-1241 (percentile 89 of 756 occupations).

PUBLISHER PDF

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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§ 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 × 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.

I GLOBAL AND MACROECONOMIC IMPACT OF AI ON WORK

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 A/IS
Ethically Aligned Design — Recommendations for ethical AI design.

Center for AI and Digital Policy
Policy briefs — Accountable AI policy.