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Editor's Note

Soumika Das

I'm excited to share a pivotal moment in our journey—one that marks not just a new chapter, but an entirely new realm of possibilities.

After over two decades of building trust, delivering excellence, and pushing the boundaries of technology, we have evolved. **We are now Neurealm**—a name that embodies our vision of charting new frontiers where human ingenuity meets cutting-edge technology.

This transformation represents our sharpened focus as an AI-first organization. In today's rapidly evolving landscape, we lead with AI at the forefront of everything we do as we engineer, modernize, and operate tech-stacks for our clients.

What truly sets us apart in this new era are powerful differentiators. First, **Neurealm Labs**—our innovation engine that serves as the hub for crafting breakthrough solutions, frameworks, and accelerators.

Second, our **Xcelerate** partnership program enables us to co-innovate with technology leaders, bringing you accelerated time-to-market solutions and direct access to cutting-edge capabilities.

As we continue impacting over 20 million lives through our work—from enhancing passenger experiences for 30 million travelers annually to modernizing supply chains that serve 500 million patients—we remain committed to our RITE values: Respect, Integrity, Trust, and Empathy.

I encourage you to explore our refreshed digital presence at **neurealm.com** to discover more about our innovative solutions and capabilities. Connect with us on **LinkedIn** to stay updated on our latest developments, insights, and thought leadership as we continue this exciting journey together.

Leader's Perspectives

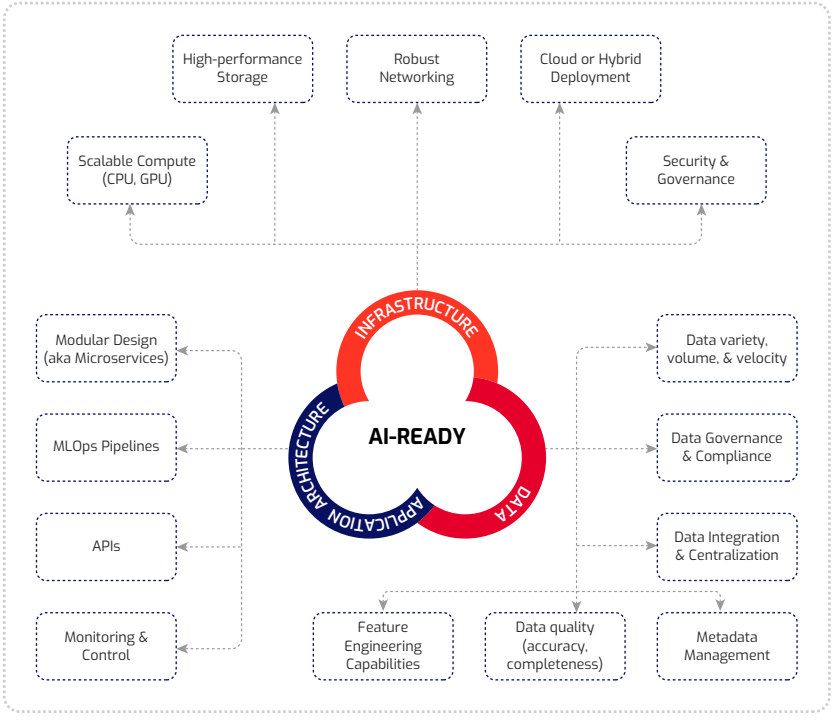
Rajaneesh Kini

COO, Neurealm

Across industries, leaders are making bold moves with AI - investing in models, mapping out use cases, and launching pilot projects with high expectations. But too often, I've seen a familiar pattern: ambition without alignment.

The strategy is sound, the excitement is real but the foundations aren't built to carry the weight. Not because the technology isn't ready. But because the infrastructure isn't. The data isn't. The Application architecture isn't. Of course, AI tools can be used as a patch work on top but if you really need the benefits, you need to have all these layers ready for AI.

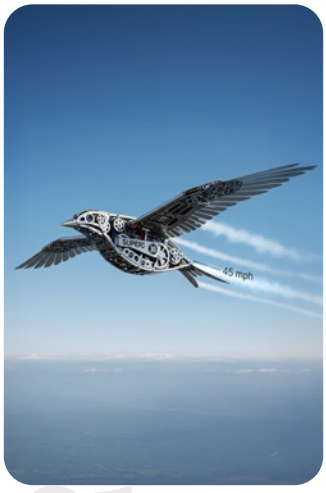
AI may look like plug-and-play. But it's compute-heavy, data-hungry, and operationally demanding. Without the right foundation beneath it AI stalls. AI readiness is a multi-faceted concept, encompassing infrastructure, data, application architecture, and strategy, governance and security.



For an in-depth look at what it truly means to be AI-ready.

Read the full article here.

What's New in Tech



01

"SUPER" Robot Bird Flies at 45 mph Without GPS or Light

At the University of Hong Kong, researchers have developed "SUPER, " a robot bird capable of navigating dense environments at 45 mph using only onboard sensors and computing, unlike typical drones that rely on GPS. It can even avoid obstacles as small as 2.5 mm, mimicking a bird's natural agility.

02

Light-Driven Cockroach Cyborgs Navigate Wirelessly and Non-Invasively

Researchers have developed a novel method for creating cockroach cyborgs that navigate autonomously using a small UV light helmet. This system steers the cockroaches by leveraging their natural aversion to UV light, eliminating the need for wires, surgery, or electrical shocks. This approach preserves the insect's sensory organs and maintains consistent control.

03

AI-Powered Handwriting Analysis for Early Dyslexia Detection

A new study suggests that AI-powered handwriting analysis could provide an early and efficient screening tool for dyslexia and dysgraphia in young children. This method aims to supplement existing costly and time-consuming screening tools, which typically focus on one condition at a time.

Source: www.sciencedaily.com

Introduction to AI-Augmented Data Engineering

In recent months, the narrative around AI in data platforms has shifted. Earlier, the conversation used to be centered around how AI and ML could help derive smarter insights from data. But now, customers are asking something deeper, more operational: how can AI make the data engineering process faster, cheaper, more accurate and more scalable?

As data volumes explode and complexity multiplies, enterprises are under pressure not only to extract value from data, but also to streamline and accelerate the data pipelines that make this data usable. Manual processes, brittle ETL (Extract, Transform and Load) pipelines, prolonged onboarding of new data sources, and growing technical debt in data lakes and warehouses are no longer sustainable.

AI, and more specifically AI-augmented data engineering is stepping in to change the game.

From traditional to modern data engineering

Traditionally, data engineering has been seen as the plumbing behind data analytics — responsible for ingesting, transforming, storing and delivering data reliably and securely. While foundational, this work has long been manual, time-consuming, and highly repetitive, involving:

- Writing and maintaining ETL/ELT code
- Data mapping and transformations
- Schema handling and evolution
- Metadata management
- Testing and validation
- Documentation and compliance adherence

Modern data engineering, on the other hand, is platform-centric, agile and increasingly intelligent. The rise of cloud-native tools, data lakehouses, ELT, and automation have

already shifted the landscape. AI-augmented data engineering aims to take this further by infusing intelligence into every stage of the pipeline.

What does "AI-augmented" mean?

AI-augmented data engineering is not about replacing engineers with AI. It is about enabling data engineers to do more with less; faster, more accurately, and with better context. Think of this as a co-pilot model, where AI assists, recommends, auto-generates, and even auto-heals.

Some practical examples include:

- Auto-generation of transformation logic from high-level intent (e.g., natural language prompts)
- Intelligent schema mapping across evolving data sources
- Proactive data quality checks using anomaly detection and pattern recognition
- Automated documentation and lineage tracking with LLM-based summarization
- Predictive workload optimization for query performance and orchestration
- AI-driven observability to detect bottlenecks or data drift

This shift isn't just incremental; it's transformational. It redefines productivity in data engineering from hours per task to tasks per minute.

Why AI has become indispensable

There are three major forces driving the adoption of AI in data engineering:

01. Scale and complexity

Data platforms today ingest from hundreds of sources in varied formats (structured, semi-structured, unstructured). Human-only approaches can't keep up with the pace of schema changes, data drift, and onboarding velocity. AI helps automate detection, adaptation, and validation.

02. Talent shortages and skill gaps

The demand for skilled data engineers far exceeds supply. AI-infused tooling lowers the barrier by abstracting complex tasks and allowing engineers to work at a higher level of abstraction, freeing them from repetitive coding and debugging.

03. Agility and time-to-value

In today's business environment, speed is a competitive advantage. AI reduces the time to onboard new data sources, implement new pipelines, and respond to operational issues.

Key technologies enabling the shift

A suite of technologies are powering AI-augmented data engineering:

- **Large Language Models (LLMs)** revolutionize metadata management, documentation, SQL/PySpark generation, and data exploration through natural language interfaces.
- **Machine learning (ML)** enables anomaly detection, data quality scoring, and performance optimization.
- **AutoML** automatically builds and deploys predictive models, reducing the need for dedicated ML pipelines from scratch.
- **Vector databases and embeddings** enhance search, semantic understanding, and entity matching across messy data.
- **AI-powered orchestration tools** enable smart scheduling, dependency management, and failure prediction to enhance pipeline reliability.

Together, these tools not only reduce development and maintenance effort, but also enhance trust and reliability in data pipelines.

Closing Thoughts

AI-augmented data engineering is no longer optional; it's becoming a **baseline expectation** in modern data platform strategies. The shift is not just about tools, but about **rethinking how data engineers interact with the systems they build**. Those who embrace AI as a co-pilot will not only accelerate delivery but also unlock entirely new ways to scale, adapt and innovate.

About the Author

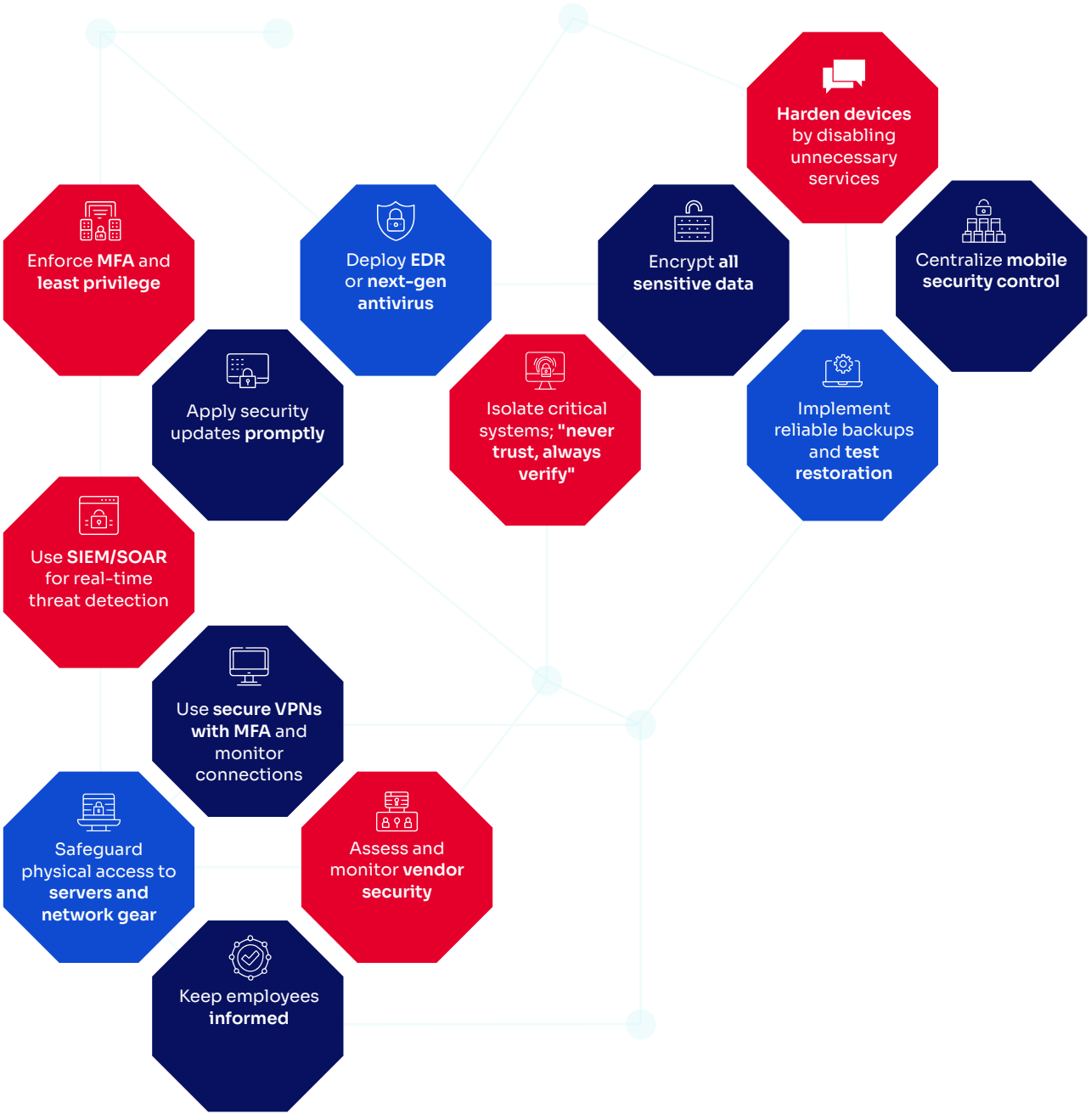
Pragadeesh J is a seasoned Data Engineering leader with over 22 years of experience and currently serves as Director – Data Engineering at Neurealm. He brings deep expertise in modern data platforms such as Databricks and Microsoft Fabric. With a strong track record across CPaaS, AdTech, and Publishing domains, he has successfully led large-scale digital transformation and data modernization initiatives. His focus lies in building scalable, governed, and AI-ready data ecosystems in the cloud.

A Microsoft-certified Fabric Data Engineer and Databricks-certified Data Engineer Associate, he is passionate about transforming data complexity into actionable insights and business value.

Pragadeesh J

Fortifying the Digital Frontier

Key Best Practices for Device Security



by **Gowtham P**
InfoSec Engineer, Neurealm

Cook a Software Dish with AI Engineering

In cooking, you need one chef who has all ingredients at hand and the recipe well-recited in their mind. This chef single-handedly drives the orchestra in a kitchen and cooks a delicious dish.

Conventional software engineering involves a team cooking a dish; they know requirement interpretation, designs, tools, and testing. This is then served via deployment, fixes, and upgrades.

The new engineering process with Generative AI (Gen-AI) would be much like cooking, where an engineer has all the tools and agents at hand. The engineer knows the technology ingredients and recipe. Ingredients could be design patterns, coding technologies, UI tools, libraries, etc. With the help of single or multiple AI agents, a single engineer would run the kitchen and cook a software application dish. Even the Root Cause Analysis (RCA) and fixes are handled with the help of an AI agent.

The next question is, do you even need a software engineer to do it? The new skill is about using the AI agents and knowing what to build. But like a master chef, having an engineering background is definitely going to help for the right ingredient mix decisions.

The final point I'd like to make is even though the recipe is the same and the ingredients are the same, each dish by a different chef has different value. This could be because they have a special ingredient/special sauce, or because of a special touch (like a mother's dish) to make it perfect. Would that be a differentiator?

About the Author

Vikram Barate serves as VP - Engineering at Neurealm for the HiTech expanse of Telecom, Network, Security, and Communications. He also brings expertise in cloud and AI transition for these domains. He represents Neurealm in industry forums like ONF, GSMA, and TIP. Vikram also drives Neurealm Labs' efforts in tech strategy, thought leadership program, and customer-centric innovation.

Vikram Barate

AI-Native: Redefining Intelligent Platforms with Cloud-Native Principles

The two forces converging to redefine how we build, deploy, and scale intelligent platforms today are cloud-native computing and AI. While they continue to independently transform the enterprise technology stack, true potential lies in their intersection — a synergy that empowers organizations to innovate faster, make smarter decisions, and deliver hyper-personalized experiences at scale.

AI-native systems are not just AI-enabled, they are architected from the ground up to support intelligent behaviors, learning loops, and real-time inference at scale. Being AI-native means designing platforms that treat models, data, feedback loops, and experimentation as fundamental characteristics.

The rise of cloud-native: A foundational pillar for agility

Cloud-native architectures have been dominant for some time now, offering scalable, resilient systems built on microservices, dynamically orchestrated containers, and declarative infrastructure with continuous delivery. As it turns out, these key tenets also provide the foundational agility required for AI-driven applications to thrive.

AI: The brain behind smart applications

AI, on the other hand, brings intelligence to the equation, from real-time predictions and recommendation engines to generative capabilities and autonomous decision-making. However, AI models, especially those based on deep learning and LLMs, come with unique infrastructure needs, namely:

- Data-intensive processing
- High-performance compute (GPU/TPU) environments

- Model versioning and monitoring
- Scalable inference pipelines

This is exactly where the cloud-native ecosystem shines.

Cloud-native: An ideal match for AI

The marriage of cloud-native principles with AI development and deployment processes addresses several challenges that traditionally hindered enterprise AI adoption, such as:

01. Scalability

Cloud-native platforms can elastically scale AI workloads based on real-time demand, whether it's training large models or serving millions of inferences per second. Kubernetes can be used with GPU-aware autoscaling to run training and inference jobs efficiently.

02. CI/CD & tooling for AI (MLOps/GenOps/LLMOps)

Cloud-native DevOps practices extend naturally for AI. Pipelines can be created to train, validate, and deploy ML or LLMs continuously, just like any other application artifact.

03. Observability and monitoring

Cloud-native observability tools can track not just application metrics but also model performance metrics, enabling better model drift detection/model degradation, and aid proactive tuning. For GenAI, these tools facilitate the management of prompt versions, testing of response quality, and management of token usage and cost.

04. Security and compliance

With service meshes, secrets management, and policy-based governance, cloud-native platforms provide enterprise-grade security for sensitive AI workloads. Also, integrating SHAP/LIME based explanations for transparency in decisions can support compliance in regulated industries.

Real-world impact: Use cases emerging today

- **Healthcare insights:** From medical imaging to patient triage, AI models run on Kubernetes clusters, dynamically allocating compute power while ensuring compliance and security.
- **Predictive maintenance:** Edge devices stream data to cloud-native platforms where AI models predict failures before they happen.
- **Personalized customer engagement:** Retail and financial services are deploying LLM-powered assistants and recommendation engines within cloud-native stacks for real-time personalization.

Looking Ahead: Towards an AI-first, cloud-native future

As GenAI continues to mature and LLMs become a core component of enterprise applications, the need for a robust, flexible, and scalable infrastructure becomes paramount. Cloud-native platforms are not just infrastructure enablers, they are intelligence accelerators. Organizations that embrace this convergence of AI and cloud-native computing will not only outpace their competition in delivering value but also position themselves as truly AI-first enterprises.

About the Author

Juzar is the Director of Engineering for the Digital Platform Engineering practice at Neurealm. My areas of interest include Cloud Native product engineering and platform modernization.

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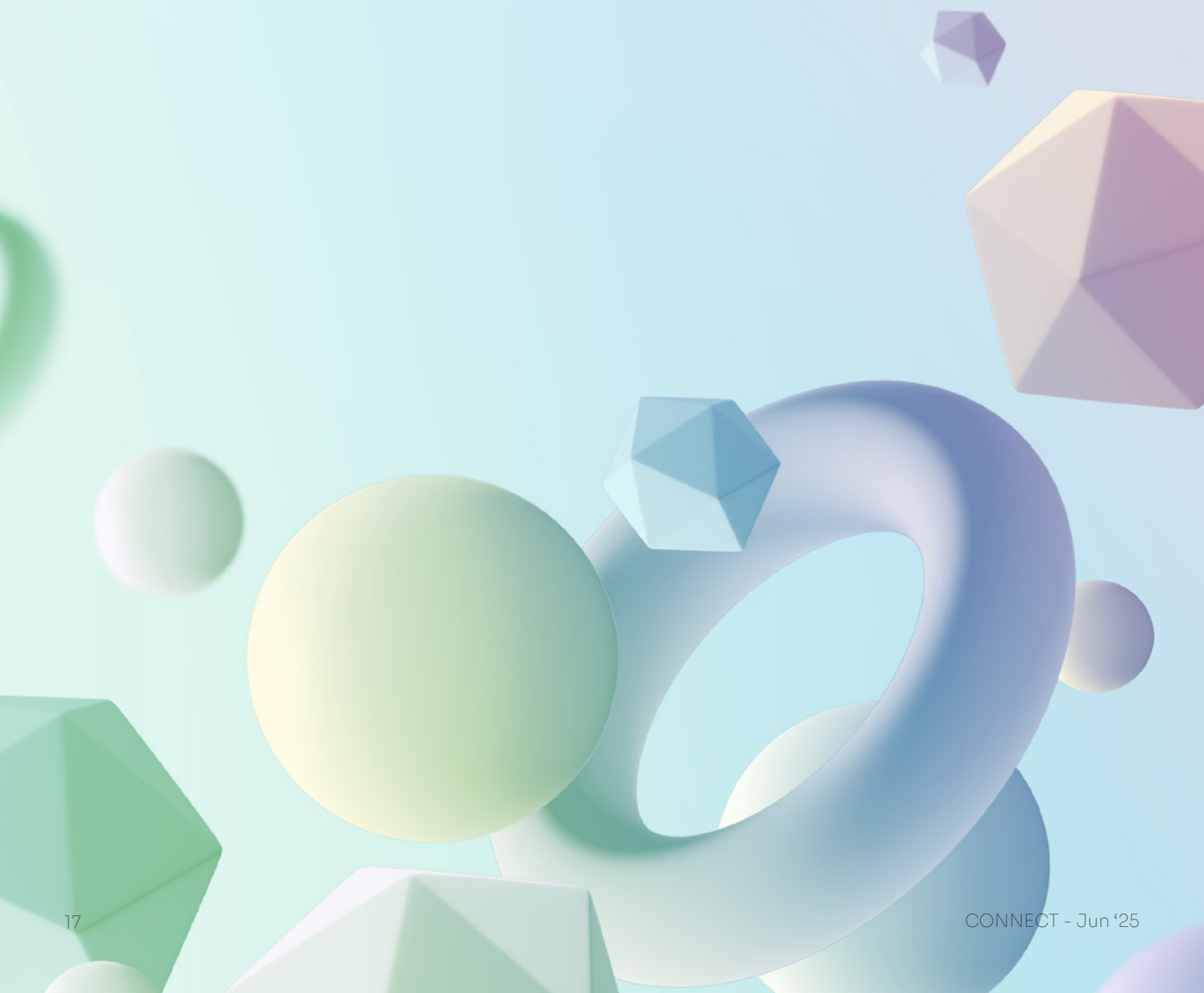

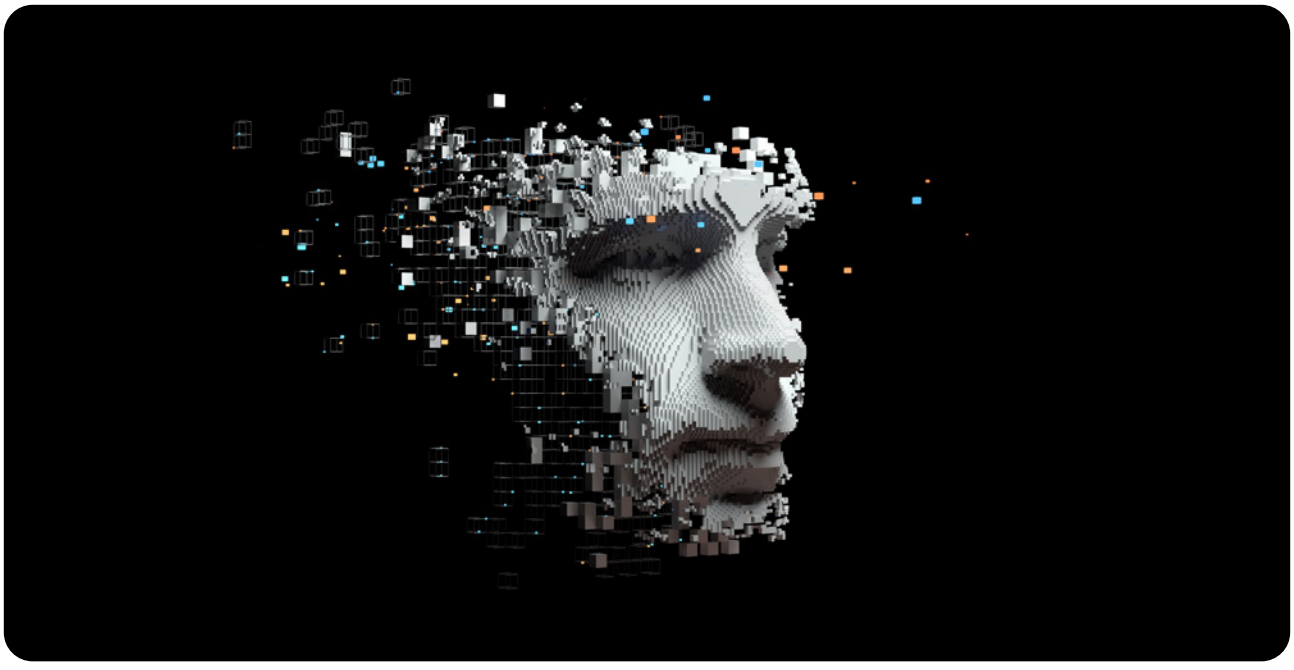

Think before you AI – Cheat sheet for choosing AI only when it's the best fit!

AI can elevate IT services — or derail them. As IT service providers, knowing when to embrace AI versus when to avoid it is critical to delivering real value without unnecessary complexity or cost.

Here is an AI use case qualification checklist.

A. Business need:

- ☑ Is the problem ambiguous or predictive in nature?
- ☑ Will AI deliver measurable ROI (time, cost, accuracy)?
- ☑ Is there a clear process owner?

B. Data readiness:

- ☑ Is clean, relevant data available?
- ☑ Are data privacy and security covered?
- ☑ Is the data labeled?

C. Technical feasibility:

- ☑ Is this beyond rule-based logic?
- ☑ Is real-time performance non-critical?
- ☑ Are reusable AI services/models available?

D. Organizational readiness:

- ☑ Are stakeholders AI-aware?
- ☑ Is there a model retraining plan?
- ☑ Is infrastructure ready for deployment and monitoring?

E. Risk & compliance:

- ☑ Are there ethical or legal concerns?
- ☑ Is explainability needed?
- ☑ Are fail-safes in place?

Quick decision guide

- Business Impact — Use AI only if significant value is expected.
- Data Quality — High-quality, diverse data is essential.
- Logic Complexity — Prefer AI for dynamic, predictive patterns.
- Task Frequency — Repeated tasks benefit more from AI.
- Performance Needs — Avoid AI if ultra-low latency is required.
- Transparency — Choose AI only if black-box models are acceptable.
- Compliance — Audit rigorously where rules are strict.

Read the full article here

About the Author

Kannan is a seasoned and certified Multi-Cloud Architect, Data Engineer, and DevOps Engineer with over three decades of industry experience, including 7+ years leading cloud transformations and hybrid environments. Currently serving as **Technical Architect and Cloud Practice Lead at Neurealm** (past 13 months), he drives architecture strategy, delivery excellence, and innovation across diverse customer engagements.

He leads cross-functional teams of cloud architects, engineers, and operations specialists to deliver scalable, secure, and cost-optimized solutions aligned with client needs across industry verticals.

Kannan Gopalan

The End of an Era: Why Design is No Longer Subjective in the Age of AI

For decades, the design world has clung to a romantic notion: that design is purely subjective, a mystical dance between intuition and inspiration. As a seasoned professional who has witnessed the ebb and flow of countless trends, I'm here to tell you that this belief, while comforting, is now officially obsolete. The silent revolution is here, and its name is Artificial Intelligence.

We are at a pivotal moment in the history of design, a paradigm shift as significant as the invention of the printing press or the advent of digital design software. AI is not just another tool in our arsenal; it is fundamentally reshaping the very essence of how we create, evaluate, and understand design. The age of purely subjective "I-know-it-when-I-see-it" design is giving way to a more objective, data-driven, and powerfully efficient creative process.

The Visual Evolution: From Gut Feeling to Algorithmic Precision

Remember the days of endless debates in boardrooms over color palettes and layout choices, often won by the most eloquent or senior voice in the room? AI is systematically dismantling this subjective battlefield. By leveraging vast datasets of user behavior, engagement metrics, and aesthetic preferences, AI introduces a layer of objectivity that was previously unimaginable.

We are witnessing a visual evolution, driven not by the whim of a few, but by the collective intelligence of the many, analyzed and interpreted by sophisticated algorithms. AI can now predict with astounding accuracy which design elements will resonate most effectively with a target audience. A/B testing, once a cumbersome process, can now be simulated at scale, providing clear, actionable insights before a single pixel is pushed in the final design.

This doesn't mean the designer's eye is irrelevant. Instead, it elevates our role. We are no longer just creators of aesthetically pleasing visuals; we are strategic thinkers who can interpret AI-driven data to make informed decisions. Our creativity is now augmented by a powerful analytical partner, allowing us to move beyond "what looks good" to "what works best."

The Unseen Hand: Key Plays by AI Agents in the Design Process

The true game-changer in this new landscape is the rise of AI agents – intelligent systems that can understand, reason, and act on our behalf. These are not just passive tools; they are active collaborators in the creative workflow.

Here's how AI agents are making their mark:

- **Generative Design at Scale:**

  Need to explore hundreds of logo variations, website layouts, or product packaging concepts in minutes? AI agents can generate a vast array of options based on a set of predefined parameters and goals. Platforms like ***Midjourney***, ***DALL-E***, and ***Adobe Firefly*** are prime examples of how generative AI is transforming initial ideation, allowing designers to explore hundreds of visual concepts in moments. This frees up designers from the drudgery of repetitive iteration and allows us to focus on refining the most promising concepts.

- **Intelligent Asset Management:**

  The days of sifting through disorganized folders of stock photos and icons are numbered. AI-powered asset management systems can automatically tag, categorize, and even suggest relevant visuals based on the context of your design. Enterprise-level Digital Asset Management (DAM) systems, increasingly powered by AI, are revolutionizing how designers access and organize their visual libraries, automatically tagging and suggesting assets based on project context – think of advanced features in solutions like ***Adobe Experience Manager Assets***.

- **Predictive Analytics for User Experience:**

  AI agents can analyze user interaction data in real-time to identify friction points and suggest improvements to the user experience. Tools like ***Contentsquare***, ***Hotjar*** (with AI features), or even ***Google Analytics 4*** (GA4) leverage AI to provide deeper insights into user behavior, identifying patterns and predicting areas for UX improvement, moving beyond raw data to actionable recommendations. This allows for a continuous cycle of optimization, ensuring that designs are not only aesthetically beautiful but also intuitive and effective.

- **Personalization at an Unprecedented Scale**

  AI enables us to move beyond one-size-fits-all design. By understanding individual user preferences and behaviors, AI agents can dynamically tailor visual experiences, creating a more engaging and relevant interaction for each person. For example, content management systems (CMS) and marketing automation platforms with AI capabilities, such as ***Optimizely*** (formerly Episerver) or

Salesforce Marketing Cloud, are enabling designers to create dynamic visual elements that adapt to individual user profiles and past interactions, delivering hyper-personalized experiences.

From Whimsical Animation to Stark Reality: AI's Artistic Versatility

Perhaps the most captivating demonstration of AI's power is its ability to not only understand but also create in distinct and complex artistic styles. The conversation is no longer about whether an AI can generate an image, but how well it can capture a specific aesthetic, from the enchantingly whimsical to the breathtakingly real.

Take, for instance, the beloved art style of Studio Ghibli. The hand-drawn warmth, the vibrant nature scenes, and the expressive characters are all hallmarks of this unique aesthetic. Now, AI agents can be trained on this specific visual language. By analyzing the entire Ghibli filmography, these agents can learn to generate new artwork that is strikingly evocative of the original masters. They can create idyllic landscapes, charming characters, and scenes imbued with that signature sense of wonder, all at the prompt of a designer. The impressive stylistic versatility demonstrated by tools like Midjourney and Adobe Firefly allows them to grasp and recreate intricate artistic nuances.

On the other end of the spectrum, AI is blurring the lines between reality and digital creation with its ability to generate photorealistic, cinematic images. By studying the principles of photography – lighting, composition, lens effects, and color grading – AI agents can produce visuals that are indistinguishable from a high-end photograph. This has profound implications for everything from product mockups and architectural visualizations to concept art for films. The ability to generate a "real" photograph of a scene that has never existed is a powerful tool for any creative professional.

The New Creative Renaissance: A Partnership, Not a Replacement

The fear that AI will replace human designers is a common, yet misguided, one. The reality is far more exciting. AI is not our competitor; it is our collaborator. It handles the laborious, time-consuming tasks that have historically bogged down the creative process, freeing us to focus on what we do best: strategic thinking, emotional intelligence, and storytelling.
The future of design is a symbiotic relationship between human creativity and artificial intelligence. By embracing this partnership, we can create designs that are not only more effective and efficient but also more innovative and impactful than ever before. The subjective era of design may be over, but a new, more powerful, and objective age of creativity is just beginning. And for a seasoned professional like myself, that is a prospect that is nothing short of exhilarating.

Closing Thoughts

The end of one era simply heralds the dawn of another. As designers, our canvas has expanded, our brushstrokes empowered by data, and our potential for impact limitless. The true artistry now lies in harnessing this intelligent partnership to craft not just designs, but experiences that truly resonate. The era of truly intelligent design has arrived.

About the Author

Siddarthan R, an award-winning Associate Manager of Design at Neurealm, has over 11+ years' experience crafting compelling visual narratives. He translates complex ideas into engaging, results-driven designs. He is passionate about integrating cultural insights and travel into storytelling , He utilizes AI design tools to enhance efficiency. He consistently delivers high-quality designs from concept to delivery, boosting brand visibility and user engagement through strategic implementation.

Proficient in Adobe Creative Suite, branding, and design principles, Siddarthan's travels and cultural understanding inform his goal: designing for mass audience comprehension, not personal preference. He holds a B.Sc. in Visual Communication, building a strong foundation in visual storytelling.

Siddarthan R

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