# Building the future of AI: why middleware and infrastructure will drive success in 2024



As the artificial intelligence (AI) industry accelerates into 2024, a growing consensus among entrepreneurs and investors is shifting focus from creating numerous consumer-facing applications to developing the foundational infrastructure that supports these AI tools. This perspective draws parallels to historical gold rushes, where the most profitable players were not the miners themselves but those who supplied essential equipment—making the “shovels” rather than prospecting for gold.

The current AI landscape is saturated with various chat applications and agent wrappers, such as Lovable, Bolt, and Replit, all competing for attention through strong branding and influencer marketing. However, data underscores the challenges at this app layer. A 2024 report from Gartner reveals that 70% of AI startups experience difficulties in retaining users. This struggle is attributed to an oversaturated market where many applications build on the same foundational AI models, resulting in minimal differentiation among them. As these base models become commoditised, the competitive advantage for standalone apps diminishes significantly.

In contrast to the overcrowded app space, a promising opportunity arises in the development of middleware: the software layer that connects and enhances AI systems without seeking to replace core AI providers like OpenAI. Middleware tools address practical and persistent challenges faced by developers, such as managing hallucinations and contextual limitations in large language model (LLM) development environments. An example highlighted is CodeGuideDev, created by developer Cj Z, which functions as middleware to improve reliability and contextual understanding in AI-driven coding.

Middleware technology often operates behind the scenes and is far less visible to the general public, yet it offers substantial business advantages. A 2023 study by McKinsey indicated that companies specialising in middleware tend to achieve margins roughly 30% higher than those operating at the front end of AI application development. The reasons include reduced competition, more deeply integrated solutions, and higher customer switching costs. Consequently, investors are increasingly directing funds toward middleware solutions that complement rather than compete directly with large AI providers.

This trend mirrors earlier developments in the blockchain sector, where the most successful ventures were not always those that issued tokens but rather those that developed the critical infrastructure: exchanges, custody services, and compliance tools. AI’s current phase, sometimes likened to blockchain’s initial coin offering (ICO) era, is marked by frenetic innovation at the application layer. Yet the “invisible” protocols and tools analogous to Layer 1 blockchain solutions and smart contract development kits are proving to be economically indispensable.

One example of middleware gaining traction is the VS Code extension “cline,” endorsed by Cj Z. By embedding itself into pre-existing developer workflows, cline competes effectively with other AI-integrated development environments like Cursor and Windsurf. This approach exemplifies middleware’s advantage—enhancing existing platforms and developer habits rather than creating new, standalone ecosystems.

For those interested in building a financially viable AI middleware business, Cj Z offers clear guidance on social media platform X:

* Identify and target a specific gap within an industry.
* Develop middleware that resolves a persistent problem.
* Integrate closely with and leverage existing ecosystems.
* Market with focused, consistent, and strategic effort, akin to wartime resourcefulness.

Supporting this strategic focus on narrow applications, a Forbes report from 2024 notes that 60% of successful software as a service (SaaS) startups concentrated on niche, specialised tools.

Moreover, insights from the blockchain domain suggest fertile ground for applying these middleware principles within AI enterprise applications. Developers entrenched in blockchain technology recognise the importance of protocol design, interoperability, and trust mechanisms—all attributes essential to middleware components in AI. Practical suggestions for blockchain entrepreneurs expanding into AI middleware include translating on-chain logic into AI-native frameworks, designing validators for AI-generated outputs, building compliance bridges between smart contracts and LLMs, and creating AI co-pilots that comprehend complex blockchain functions such as multi-signature wallets.

The future of AI entrepreneurship, therefore, may hinge less on developing flashy personal assistant apps and more on creating the underlying invisible protocols that power numerous AI agents seamlessly. As George Siosi Samuels, managing director at Faiā and guest contributor to CoinGeek, summarises: “The gold rush is here. But the smartest founders aren’t chasing gold—they’re crafting the tools, protocols, and layers that let others dig faster, smarter, and safer. In AI, just like in blockchain, shovels scale. Apps get buried.”

Additionally, the integration of enterprise blockchain systems into AI platforms is becoming increasingly important. Such integration ensures the quality and ownership of data inputs, maintaining security while preserving data immutability. CoinGeek continues to cover this emerging technology, highlighting the critical role enterprise blockchain is set to play as the backbone of trusted, law-compliant AI.

In related developments, micropayment systems are identified as pivotal to building user trust in AI services, facilitating secure, transparent, and incremental financial interactions between AI providers and users.

As the AI ecosystem evolves, the momentum clearly leans towards those developing robust middleware solutions and infrastructure protocols that underpin the diverse applications populating this fast-growing technological frontier.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.flexential.com/resources/report/state-ai-infrastructure> - Corroborates challenges in AI infrastructure scaling and the shift toward specialized middleware solutions, as highlighted by IT leaders' struggles with latency, security, and skills gaps.
2. <https://www.spglobal.com/market-intelligence/en/news-insights/research/ai-infrastructure-trends-thoughts-and-a-2025-research-agenda> - Supports the analysis of middleware opportunities and market growth trends, aligning with the article's focus on AI infrastructure's evolution.
3. <https://www.bvp.com/atlas/roadmap-ai-infrastructure> - Validates the emergence of AI-dedicated infrastructure paradigms, mirroring the article's emphasis on foundational tools over consumer apps.
4. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai> - Substantiates the claim about middleware profitability, referencing McKinsey's findings on higher margins for specialized infrastructure providers.
5. <https://www.rcrwireless.com/20250220/fundamentals/ai-infrastructure-market> - Confirms the blockbuster growth projections for AI infrastructure spending, reinforcing the analogy to a 'gold rush' for foundational tools.
6. <https://www.forbes.com/sites/bernardmarr/2023/11/02/the-10-hottest-artificial-intelligence-startups-to-watch-in-2024/> - Note: Replace with a 2024 Forbes article on SaaS startups focusing on niche tools if available. The provided search results lack a direct link, but the article references a Forbes report about 60% of SaaS startups succeeding via specialization.
7. <https://news.google.com/rss/articles/CBMiigFBVV95cUxNVG5YamFOOGQzV2E4bFFzRnhseHdxRG82WUVTa1dHZUp2TjJlRXNHYXJTVzNBT1pONk1lQThsYXp5aV92U0RiRFlHWEMtR3RiSlBSRDlrSFJjT1l1WVFqUFRVNjdrNzJxTk92M3hoYmVXQzBmSkl2V21sSXJjeTNRLWRpamRwQWQwVmc?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data