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**T**he stock market's AI euphoria implies huge efficiency and productivity gains. But how exactly might this come to fruition? AI is being added to almost every application with differing levels of success, but what is the end state?

Each transformative economic era has produced companies of increasingly large scales, these are companies that didn't just participate in the revolution but enabled it. The Dutch East India Company (VOC), founded in 1602 with record capital of 6.4 million guilders, pioneered the modern corporation with innovations like joint-stock ownership and limited liability, reaching 200% of its original value by 1635 and

breaking centuries of economic stagnation. The Industrial Revolution, beginning around 1760 but not significantly boosting productivity until the 1840s, culminated with Standard Oil controlling 90% of U.S. oil refining by 1905 at over \$1 trillion valuation in today's dollars, helping GDP per capita to more than double. The Internet Revolution compressed this timeline but created similar value, with the web launching in 1991 and companies like Microsoft and Apple becoming the first trillion-dollar winners by 2018. Internet technology is estimated to have driven two-thirds of total productivity growth between 1995-2002 with 1.5 percentage point annual gains during the late 1990s boom.

Now the AI Revolution has produced Nvidia, which reached a \$4 trillion market cap in 2024, with possibly only the Dutch East India Company's tulip-fuelled peak exceeding it (by some valuations). Nvidia isn't just an AI company; it's the infrastructure provider that makes the majority of AI possible. Like Standard Oil powering industrial factories, Nvidia powers the computational engines of artificial intelligence. For Nvidia's \$4 trillion valuation to be justified, AI must deliver productivity improvements that match previous revolutions but at unprecedented speed and scale. Goldman Sachs estimates AI could boost global GDP by 7% (\$7 trillion) and increase productivity growth by 1.5 percentage points over a decade, McKinsey projects AI could add \$2.6-4.4 trillion annually in economic value.

If we compare the timelines, Standard Oil took approximately 10 years (1870-1880) to achieve 80% market dominance in oil refining, enabling mass productivity gains across industries as it scaled. AI's trajectory is far more compressed

but also more nascent. Claude 3 became the first AI system to exceed average human intelligence (100 IQ) in March 2024, meaning we are just over one year into the era of above-average artificial intelligence. Despite the newness of the technology, adoption has been explosive in certain fields, even in 2024, GitHub's survey found 97% of developers used AI coding tools, with over 15 million programmers using Copilot - a 4x increase in just one year. Indeed, the tech sector tends to be in the vanguard of tech adoption, see crypto to cloud. This early adoption behaviour makes its current embrace of AI technology a crucial leading indicator of broader market potential. We can examine the usage patterns of programmers more closely to see where the technology might deliver most benefit. Significantly, developers are increasingly treating their Integrated Development Environments (IDEs) as more than a text editor - it's becoming an intelligence platform, or a new kind of operating system, with AI agents now transforming IDEs into universal command centres. This shift has created massive new companies: Cursor (Anysphere) raised \$900M at a \$9B valuation and is now reportedly seeking \$10B, while OpenAI acquired Windsurf for \$3B, demonstrating the market's recognition that AI-native development environments represent the future of programming.

I believe this demonstrates the potential for the rise of the intelligence platform, it's not about just writing code, workflow automation or asking a bot questions, it's about your Agents controlling Model Context Protocol (MCP) and plugging into

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every tool your computer and internet can connect to. This is the beginning of a new computing layer. For programmers, this means system administration agents that configure servers and manage deployments, data analysis agents that manipulate Excel spreadsheets and generate reports, communication agents that send Slack messages and schedule Teams meetings, and agents that research topics for themselves to work out solutions. These aren't isolated tools - they're coordinated agent teams where an agent delegates tasks to specialist sub-agents who work collaboratively to create an end result. The universal connectivity means anything with an API becomes accessible to AI agents including the agents themselves, turning the IDE into a command centre that can orchestrate entire business processes through natural language instructions.

While tech forges ahead, some sectors clearly lag in AI uptake. In larger organisations, early clunky or overly ambitious implementations may have left a sour taste in some executives' mouths. But where every penny counts - in startup land - people are onboarding the tools as soon as they emerge, the efficiency gains far outweighing any teething problems. The writing is on the wall, and it seems like the days of learning to use each tool might be on the way out. Your one tool is your AI interface. Yes, there can still be hallucinations, but

discounting the power of AI is like not hiring any junior staff because they might make a mistake, or using a slide rule over Excel because there is less to go wrong...

This new intelligence layer is already creating a profound market disruption. Web page traffic has shifted as people bypass traditional interfaces and access services through AI. Search engines, comparison shopping sites, and information aggregators face existential threats now that AI can generate and act on information without requiring human navigation. Vendors must adapt or perish, focusing on API/data quality, AI integration capabilities, working out how to monetise access rather than user interface niceties for their competitive moat. This trend has obviously not gone unnoticed by the LLM companies themselves, for instance, Anthropic are already deploying their Claude for Financial Services platform, and all the players are positioning more as a one-stop shop rather than simple chat interfaces. As CTO at a tech startup, I feel that I am on the front lines of this transformation, and it seems to me that the productivity gains implied by Nvidia's valuation might not be unreasonable.



# The emerging intelligence layer: from learning tools to tools that learn