Build or Buy?

Why airlines might benefit from using external AI tools instead of building them in-house


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Airlines operate in a highly competitive, safety-critical environment, making artificial intelligence an invaluable tool—especially in such data-rich areas as aircraft maintenance and reliability.

Innovations driven by artificial intelligence (AI) that predict maintenance needs, optimize operations and enhance customer experience are capturing the attention of airline executives. While building proprietary AI tools may seem exciting, looking for products and services developed by specialized AI firms is the smarter choice.

Airlines excel in logistics, safety, customer service and travel management—core competencies honed over years of success. AI development, however, falls outside of these priorities. Diverting focus to build an internal AI program can lead to financial strain, delayed adoption and lost competitive advantage (as seen in other industries). Tools developed by specialized AI providers allow airlines to stay focused on flying while leveraging cutting-edge AI solutions.

Airlines struggle to attract top AI talent, since people with such expertise often favor fast-paced industries, tech giants (such as Google or Microsoft) and AI-driven startups that offer higher salaries, flexible schedules and thriving tech cultures. A Deloitte Aviation Outlook report notes that 68% of aviation executives see recruiting specialized tech talent such as data scientists and AI experts as their most substantial business challenge. Without these experts, airlines will find it nearly impossible to sustain competitive internal AI initiatives.

Building an internal AI program is costly and time-consuming, too. AI Paygrades reports that a median salary of $336,613 for top AI talent, meaning a three-person team alone exceeds $1.4 million annually. Beyond salaries, airlines must invest in high-performance computing, cloud services, advanced infrastructure and expensive model training—resources that take time to develop. With AI evolving rapidly, airlines risk mounting costs in an endless race to keep up.

Falling behind also weakens any competitive edge that AI solutions provide. The FAA's Roadmap for AI Safety Assurance stresses the need for incremental adoption and continuous updates. Specialized AI providers offer dedicated expertise, helping airlines stay ahead while focusing on core operations.


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Companies that develop AI tools in-house could face data, cost and talent challenges.

Building AI models is just the beginning. Production models require ongoing monitoring for drift, ethical use and scalability to meet user needs—costs that are often grossly underestimated. External AI providers offer the expertise and infrastructure to manage demand fluctuations, regular updates and maintenance and comprehensive oversight, all while meeting internal performance requirements.

AI solutions rely on clean, consistent data. Airlines have diligently stored electronic data since the early 2000s. Those decades-old records are often messy, full of inconsistent data entry and language, and are scattered across legacy systems, modern platforms and even handwritten notes. Before AI can deliver meaningful insights, data must be aggregated and standardized. External AI specialists can streamline preparation, validation and management, ensuring model-ready data.

AI service providers have a major advantage over airlines, since they have the ability to leverage economies of scale—lower development costs, shared infrastructure and top-tier talent. External AI firms also continuously refine algorithms based on industry input, which could give airlines access to battle-tested solutions and knowledge at a fraction of the cost and time. These adaptable, scalable tools could allow airlines to expand or adjust usage without overhauling their tech stack.

AI development carries considerable risk. Data misinterpretation, errors and system failures can lead to financial loss, reputational damage or even safety concerns. External AI teams invest in compliance frameworks to ensure adherence to industry regulations on data privacy and cybersecurity. They are contractually accountable for delivering reliable, auditable AI solutions—something internal teams may struggle to maintain consistently.

An often-overlooked advantage of outsourced AI tools is rigorous bias control and independent model validation, which can reduce legal and reputational risks. In-house AI efforts often overlook these safeguards, creating blind spots in risk management.

Airlines thrive by focusing on their core strengths, not by becoming AI developers. Entrusting AI innovation to specialized providers is not just strategic, it is essential to staying competitive and getting ahead in an industry where rapid advancement is the norm.