

Build vs. Buy

BUILDING INTERNALLY

There are several important criteria to consider when thinking about building in-house.

First, determine whether your technology is a core functionality of your business. In 2001, Target outsourced its e-commerce website to Amazon because the company executives did not see online shopping as a major revenue channel. Nearly a decade later, Target finalized realized that this was a huge mistake and took back control.⁶⁶ As a leader, you will have to judge whether the AI capability that you want to build is central to your long-term business.

Second, evaluate the availability of in-house talent. There is a massive skills shortage in the field of artificial intelligence. Even if your organization has a sufficient pool of talent for core products and services, you may hesitate to deploy these scarce resources to departments such as HR or customer service. The need for technical talent extends beyond the initial build, as you'll need specialists for ongoing maintenance and performance monitoring.

Third, set a timeline for deployment. Even if your company has the talent and the data to build a custom solution, you may not have access to them until higher-priority projects have been addressed. In many instances, your fastest solution may be a proof-of-concept with an external vendor.

Fourth, assess the availability of data for your project. Having tons of data doesn't mean that you have the right data. Even medium to large enterprises often don't have enough of the right data to train a machine learning algorithm in-house to an acceptable performance level. In comparison, a solution provider with numerous clients may have access to millions of aggregated customer inquiries. Using a third-party platform that has clients in the same industry can also give

your organization the benefits of knowledge transfer and additional domain expertise.

Finally, total ownership cost is a key factor when deciding whether to build or buy. If you decide to build, how much will it cost in internal resources? Be sure to include ongoing maintenance and upgrade costs. If you decide to buy, how much will it cost in the long run? If usage volume will increase, factor in how that may affect pricing. Many organizations estimate that 70 percent of their IT department budget is spent on maintaining existing infrastructure rather than to develop new projects.⁶⁷ Conduct an honest lifecycle analysis of the estimated costs of continual in house maintenance versus that of external licensing.

EVALUATING VENDORS

Given the hype, many third-party vendors claim to “use AI” but are really using the phrase as a marketing tool. When looking at our Machine Intelligence Continuum from Chapter 2, you’ll see that most vendors are actually using technologies that fall under Systems That Act and Systems That Predict, not Systems That Learn. To differentiate between value and hype, be sure to probe any prospective solution provider on the following:

Access to Data

Many companies are developing machine learning algorithms, but those with access to large volumes of proprietary data have an advantage. Likewise, those that can leverage their proprietary methods to extract maximum value from smaller but more relevant data stores can also excel. Look for partners with access to a lot of data that’s relevant to your domain.

Domain Specificity

Companies with many clients in the same industry can leverage their knowledge across customers. An AI-based customer-support solution for ecommerce will

already know how to process common questions such as “Where is my order?” and “How do I return a product?” Greater domain knowledge in a field allows for faster integration at lower cost. Furthermore, these providers are more likely to include features relevant to your business on their product roadmaps.

Team Talent

AI is a growth industry facing a massive skills shortage. When you evaluate a provider, look at the backgrounds and qualifications of the founders, key engineers, and product teams on their website or LinkedIn page. Most importantly, ask yourself if they truly understand your business and your problems. You want the right solution, not just a fancy one. Avoid AI startups that operate like hammers looking for nails, assuming any and all enterprise challenges can be solved with machine learning. Worry about the vendor’s technical pedigree only after confirming whether its proposed solution is a match for your business needs.

ROI Metrics

When choosing between potential partners, evaluate how they measure successful outcomes. Are their reporting metrics aligned with yours? Transparency in reporting suggests that a company has faith in its product and experience working with customers similar to you.

Client Experience

Evaluate a company’s expertise by examining its client list. In particular, look for specific and tangible results from customer case studies that resemble your use cases. When a company provides references freely or offers a risk-free evaluation process, it is demonstrating confidence in its product and customer experience.

Ease of Integration

Solution providers will quote integration timelines that range from a few days to a few months. Understand what's involved in their implementation process and their timeline for completion. What kind of support will they provide? Who is responsible for the data and technical integration? When should you expect to see results? Integration may also depend heavily on your organizational readiness. Be honest and ask prospective providers about what they will need from you and your team.

Pricing

Find a company that has a pricing model aligned with your business goals. Can you readily demonstrate the ROI to your CFO or CEO using their pricing information? Does the model account for your growth and future needs to deliver additional economic value over time? Does it include costs for maintenance and ongoing optimizations?

Security

With cybersecurity breaches at the forefront of the news these days, it's essential that your technology partner addresses security issues. Can the product meet the governmental, regulatory, and industry-specific compliance requirements? What is your partner's game plan for handling worst-case scenarios?

Data Connection

Does the prospective product offer seamless connections with the other enterprise tools on which you depend, such as your data and analytics provider or CRM system? Is the integration built-in, and if so, is it offered via an application programming interface (API) or platform? If not, will it require custom development?

Language Support

If you're working on a consumer-facing global product, such as a conversational agent or sentiment analysis, your solution may need to support additional languages. How many languages and types of voices does the prospective product support?

Professional Support

Most AI systems will need to be continually trained and updated. How accessible and competent is the vendor's professional services team to help onboard and maintain your AI system? Particularly for large enterprises, does the vendor have the capability to support the scale of service that you require?

Regulatory Requirements

Legislation may require your business to explain critical technology decisions. Many government regulations apply levels of control on the use of consumer data and software algorithms in certain contexts.

Limits of Use

No third-party solution will be perfect for your use case, so it is equally important to understand the features as well as the limitations of the software that you decide to buy. The sales staff at a vendor company may not have enough incentive to be fully honest with you, so the best way to get honest answers is usually to survey their existing customers. Ask them if they have run into problems with scalability, stability, security, compatibility, or ease of use. What frustrates them most about the product? What do they wish it could do that it currently can't? Keep in mind that technologies and the companies behind them are constantly evolving, so also find out how quickly and robustly a company addresses reported issues and improves the performance of their solutions.

Competitive Landscape

How does a specific vendor stack up against competition in the same industry or vertical? Since AI is heavily dependent on data, vendors that are unable to capture a sufficient portion of the market may find themselves falling further and further behind the market leaders. This may negatively impact their ability to deliver an excellent product or service to you, their customer. We track and assess vendors that offer AI-powered products for enterprise functions in our Enterprise AI Landscape.

Evaluating vendors can be a time-consuming and complex process, especially given the sales and marketing jargon that many of these AI companies use.

TRANSITIONING FROM BUILD TO ASSEMBLE TO BUY

Even if you have the necessary team, data, and time to build a complete AI solution in-house, it may not be strategic to invest so many resources upfront without proven ROI. In many cases, companies will start testing automation strategies by first buying from third-party vendors, then assembling a mix of external and internal technologies, and finally transitioning to a fully in-house and customized solution if necessary.

Many vendor solutions which purport to use AI are point solutions which address a single problem very well but can't support the complex workflows you need to do business. This is especially true in productivity software for sales and marketing. Thousands of vendors have flooded the market, but very few contain all the features that enterprise customers need. You'll often need to fill the gaps that are not addressed by the platform that you have bought.

Vendors may also be costly compared to in-house development, exhibit latency or unavailability if they are cloud-only solutions, or fail to meet your data security requirements. Many also optimize algorithms for specific tasks but do not help

you optimize your end-to-end machine learning pipeline or your overall business workflow.

Building a fully customized, in-house solution means you can build an end-to-end system that addresses all required aspects of your business workflow and technical integrations. You can optimize the entire pipeline, not just algorithms for specific tasks. You have a high degree of flexibility and can specialize in developing capabilities unique to your organization. Finally, you can design the exact security infrastructure you need to meet company and industry standards.

In transitioning from buy to build, an important consideration is whether there exists open-source software that will allow you to affordably customize and extend pre-built features without paying hefty costs to a third party. Open-source solutions exist for virtually all aspects of a machine learning platform, ranging from solutions that manage your data layer, model development and management, and higher-level analytics and reporting. Popular open-source solutions for building big data and AI platforms include Apache Hadoop and Spark, H2O.ai, Scikit-Learn, and TensorFlow. Such solutions can be mixed with paid enterprise solutions to achieve the functionality, scalability, stability, and security you require.