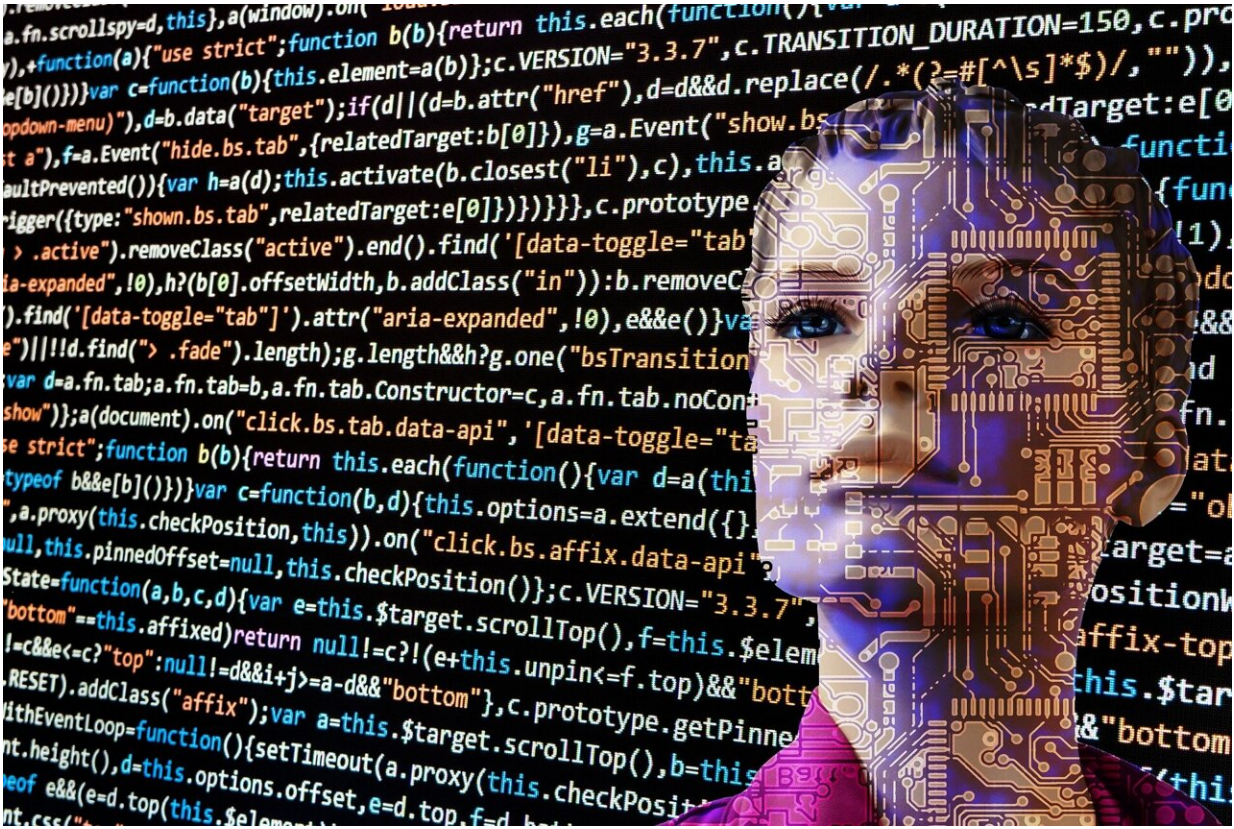# Many firms prefer ready-made AI software, with a few tweaks

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Credit: Pixabay/CC0 Public Domain

Artificial intelligence has fundamentally changed nearly every industry, from manufacturing and retail to construction and agriculture. As AI becomes even more ubiquitous, firms are often opting for off-the-shelf

technology that can be modified to meet their needs.

Chris Forman, the Peter and Stephanie Nolan Professor in the Dyson School of Applied Economics and Management in the Cornell SC Johnson College of Business, was part of a research team that examined firms' decisions to adopt AI technology and how that adoption was sourced: by purchasing readymade software; by developing their own; or with a hybrid strategy, which the researchers say may reflect "complementarity" among sourcing approaches.

In an analysis of more than 3,000 European firms, they found that many—particularly in science, retail trade, finance, real estate, and manufacturing—are increasingly opting for readymade technology that can be tailored to the specific needs of the firm. And while AI may seem to be threatening the human workforce, these findings indicate that workers with AI-related skills will still be needed.

"In the vast majority of industries, firms are doing both readymade and in-house development, and I think it's an interesting question for future work to understand why that's the case," said Forman, co-author of "[Make or Buy Your Artificial Intelligence? Complementarities in Technology Sourcing](#)," which published in the *Journal of Economics and Management Strategy*.

"Readymade software is important," he said, "but for the vast majority of firms, it does not appear to be a substitute for in-house software, which suggests that it's not, at least in the short run, going to eliminate the need for AI-related skills."

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For their study, the researchers examined data from a survey conducted in 2020 by the Directorate-General of Communications Networks, Content and Technology from the European Commission (EC), which assessed AI adoption across the 27 countries of the European Union. The team used data from 3,143 firms across Europe in the study.

Business software is hard to implement, and historically, as new technologies spread, firms have relied on readymade software. "This aspect of trying to understand the extent to which readymade software could potentially substitute for the need for skills was interesting," Forman said.

The data in the study comprised firms in 10 industry sectors, with the largest share coming from manufacturing (19%), trade and retail (18%) and construction (12%). Industries with the smallest share of respondents included agriculture (4%) and utilities (3%).

Firms most commonly use AI for a few purposes: fraud or risk detection, process or equipment optimization, and process automation in warehouses or robotics.

Among respondents who had adopted at least one AI application, more than 58% reported using readymade software; nearly 38% hired an external consultant; 24% used modified [commercial software](#); 20% used software developed in-house; and 20% modified open-source technology for their firm's needs. Some [firms](#) deployed the technology in multiple ways.

Among the findings: The financial and scientific sectors—and to a lesser extent IT—preferred developing and customizing their own software, while agriculture, construction, and human health preferred readymade solutions.

Forman said that in the past, as new technology spread, the demand for different types of skills emerged. "Historically, the net effect has tended to be that, overall, labor demand goes up," he said, "but it remains to be seen what happens in this case."

As often happens with new technology, Forman said, the diffusion of AI technology to early adopters has resulted in users' best practices getting incorporated into readymade software, which makes these solutions even better. This was the case, he said, with enterprise resource planning—automation software that helps to run an entire business.

"When you look at prior digital technologies, there's often a process of complementary innovation, or co-invention, where you figure out how to use this digital technology in the way that's most effective for your firm," Forman said. "That usually takes place over time, through a process of experimentation and figuring out what works and what doesn't."

This research, the authors wrote, "has taken the first steps toward highlighting the importance of sourcing strategies to understanding the diffusion of AI."

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