Embed AI/ML Into Your Systems and Work

With AI/ML , agencies have a sophisticated way of finding "the needle in a stack of needles" and being able to do something useful with that intelligence.

Artificial intelligence (AI) and machine learning (ML) technologies are not new. But it has only has come to light in the past five years as part of the federal ecosystem. It wasn't until 2019 that Executive Order 13859 came out outlining a specific direction for AI and ML technologies. This guidance for regulation hones in on AI and ML applications in a couple of different areas.

First, the federal government needs to strike a balance between regulation and over regulating; fulfilling the need for regulation while recognizing the realities of implementation.

Luke McCormack
CIO (Retired)
Department of Homeland Security (DHS)

The intent is to make sure we are putting the right types of guardrails in place around this extremely powerful technology — but not at the cost of not getting the great use out of it. The great use is saving a considerable amount of manpower, while also implementing a considerable amount of very sophisticated capabilities that can be put into place very quickly.

The government collects and stores bushels and bushels of very sophisticated amounts of data. Ultimately the government needs to turn that into intelligence and with AI and ML you can do that at machine speed.

When doing that there are lots of different dynamics around the implementation of a machine making a decision correctly and striking the balance between human insertion into that decision making process. And there are more dynamics around what are the ramifications of these decisions and who is held responsible when perhaps the machine doesn't make the right decision.

What you have here is an ability for the federal government to take all this vast amount of data that's producing through the Internet of Things (IoT), where there are hundreds of thousands or millions of devices out there collecting information, and turn it into actionable knowledge.

For example, take a look at security. There's lots of instrumentation out there collecting information, gathering it into these data lakes. Without AI/ML you really don't have a sophisticated way of finding "the needle in a stack of needles" and being able to do something useful

ML AI

with it. These technologies allow you to do this at machine speed and do it very accurately. So being able to do this search and analysis very quickly, while being able to do it very precisely is significant.

This means having the in-house talent is paramount, but securing that talent is a real issue for the federal government. You can have all the sophisticated technology in the world, but if you don't have the ability to harness that from a data scientist standpoint simply because you don't have the talent in-house to do it creates another set of issues. The challenge of making sure we have good talent and that we can keep it, retain it and recruit it consistently is huge if you want to pursue this capability in the most efficient manner.

The other aspect that needs to be embraced are the lessons learned. First and foremost is that despite the AI/ML promise it is not a panacea. They're not going to answer to all your problems.

Buying Embedded AI/ML Solutions

Today, when buying AI or ML, you are buying solutions that embed AI and ML in the product/service offering. Using cybersecurity as an example, today you're buying all types of instrumentation and sensors tools to collect information. Then you need to buy some service that uses AI and ML in the background to make use of the information.

I think where we are headed to an environment where you can buy a service offering from a company with embedded AI and ML capabilities. You won't buy the individual tools and the speeds and the feeds that collect the information, you are going to buy the outcome.

In short, we've collected the data, we've instrumented the data, and now we're analyzing the data and making good sense of it so we can find that "needle in the stack of needles".

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The Future

AI and ML got its start in the DoD and the Intelligence Community (IC). Both of these have a slam dunk use case for gathering all that information and then trying to analyze it.

But beyond DoD and the IC, there are huge opportunities to embed AI and ML into transportation, health care preparedness, border security and a whole host of additional applications. If you think about that whole mission set, what you're starting to see are offerings now with AI and ML being embedded into those solutions.

I think on the civilian side what you are going to see—and starting to see already—is more of the embedded capabilities bundled into a service. That way these civilian agencies don't have all of the sophisticated, organic, raw skill sets in-house to get the benefits of AI and ML.

It's getting rolled up in ways they can simply use the capability based on all the data that they've been collecting. In other words, here is all this data, now pull that together and put that in a useful way that we can make a decision on, or better yet the machine can make a decision on. ■

About The Author

Mr. McCormack is National Director of ACT-IAC. He also serves as the National Director for the U.S. Cyber Challenge.

Mr. McCormack retired as the Chief Information Officer (CIO) at the Department of Homeland Security (DHS), where he provided strategic direction, cyber security services, oversight to cross-component information technology efforts and IT Cloud/infrastructure services. He also served as the Vice Chairman of the Federal CIO Council. Prior to this appointment, he served as the Department of Justice Deputy Assistant Attorney General for Information Resources Management/Chief Information.