What demands will the post-pandemic future bring to our mission, operations and services? Governments are already asking this question even as they continue their response to the public health and economic crises created by COVID-19. Part of the answer can be found in exploring new technologies and digital transformation that will extend the agility gained during the pandemic to and beyond the recovery.

Yet declining revenues mean any digital initiative must extract new value from existing technology investments. Four emerging technologies will help governments achieve these goals: artificial intelligence (AI) and machine learning, Internet of Things (IoT), data analytics and Fujitsu quantum-inspired computing.

**Automation with AI and Machine Learning**

Machine learning has become the most popular way to implement AI capabilities and leverage the insights gained into automation. Machine learning extends AI by allowing the device or algorithm to learn on its own how to respond appropriately to new input. For example, an algorithm can learn to identify the extent of invasive plants as it reviews videos or photos from land inspections.

Other use cases include processing images from cameras attached to vehicles, train engines and drilling devices to inspect the condition of roads, rail tracks and water pipes. Images and data from connected cars and traffic signals can be processed by AI systems for real-time, adaptive management of traffic flow.

AI and machine learning technologies are increasingly embedded in smart devices and modern software. By looking for solutions that incorporate these technologies, a government can realize two major benefits. The first is better data insights. The ability to automatically and intelligently process large volumes of information makes it easier to identify trends across multiple and complex data sources. And as machine learning gains new insights, this automated processing can improve over time.

The second major benefit is enabling employees to focus on higher-value analysis and problem solving. Instead of the time-consuming, tedious and error-prone work of manually reviewing data, staff receive alerts, reports and evidence that help them identify problems and needs — as well as the best response.

**Broad Controls with IoT**

Internet of Things is the broad term describing networked sensors and devices that monitor and control specific, generally small tasks, equipment or functions. In the public sector, a common use case for IoT is in “smart city” devices and services. For example, sensors on streetlights can measure air quality, detect copper-wire theft or monitor traffic flow. Sensors in garbage cans can signal when they need to be emptied.

Although individually these IoT devices and the amount of data they produce may be small, combined their impact can be large. When hundreds or thousands of IoT devices are installed across a government’s operations or geographic area, the data gained can create better decision-making and more cost savings from automated control.
Quantum-inspired computing offers the power to solve complex problems, streamline operations, and identify opportunities for cost reduction and service improvements.

Equipment and crew logistics. Routine operations, such as scheduling and routing a snowplow fleet, can also benefit from optimization to reduce costs and improve service in continually changing conditions.

Bringing the Future to the Now

All of these emerging technologies are worth considering, but a government doesn’t need to implement them all at the same time. Start with the technology that will solve the biggest operational challenge or enable improved support for the mission. Then consider how this technology can leverage existing systems to maximize the value delivered. Additionally, a partner with expertise across all of these technologies can help define the best solution, then accelerate its impact for digital transformation.

A government may choose an emerging technology for the benefits of improved public health and safety, enhanced service to constituents, or streamlined and more effective operations. But most of all, by beginning the move to emerging technologies now, governments can better respond to current demands and be better prepared for the unknowable demands of the future.

This piece was written and produced by the Government Technology Content Studio, with information and input from Fujitsu.