Improving Outcomes in Government through Data and Intelligent Automation

WHAT IS INTELLIGENT AUTOMATION?

Organizations are redefining, improving and maturing operational processes and creating intelligent workflows that combine intelligent automation technology with new ways to get work done. Intelligent automation is the **common name for technologies used together to transform how people work**. It consists primarily of artificial intelligence and robotics, but also includes blockchain, cloud computing and other technologies. Artificial intelligence, one component of intelligent automation, refers to machines and software that perform tasks we typically associate with humans, such as recognizing and analyzing speech or images, predicting events based on past information, or making decisions. Intelligent automation is a technology term but also is **used to describe the process of transforming work** through new technologies.

THE BENEFITS OF INTELLIGENT AUTOMATION

Intelligent automation can be **used for many tasks federal employees must spend hours to complete**, particularly those involving paper forms and other written information. It can **help employees quickly analyze data** by reading and interpreting information on documents faster than people can. It also can **help agencies plan**. For example, by analyzing an agency's usage of the internet and internal agency networks, intelligent automation can predict the computer bandwidth needed to support agency employees working remotely on any given day and adjust the agency's cloud computing capacity to meet these workers' needs. Moreover, by using past information to simulate future trends, it can help budget managers with financial decisions such as predicting spending, while also creating a permanent record of financial transactions.

IN THE SPOTLIGHT
THE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The Department of Health and Human Services is using intelligent automation and intelligent workflows and the technologies that it incorporates to improve grants management through its ReInvent Grants Management initiative. About 70% of federal grant funding comes from HHS—the department distributed almost $500 billion in grants in fiscal 2017. So, the department's efforts to make grants management more efficient could substantially benefit federal grants management overall.[1]

Now, HHS and other agencies distribute grants through a complicated process fraught with challenges. The many operating divisions, offices and projects within HHS manage grants differently, making it difficult for them to coordinate and share information. Grantees and grant administrators spend hours handling large amounts of paperwork. And the HHS process relies on several legacy information technology systems that are connected to one another, meaning a glitch in one system can cause a ripple effect across the entire process.

1   Department of Health and Human Services, "HHS ReInvent Grants Management," Jan. 24, 2019, 2. Retrieved from https://bit.ly/3lQPA40

Department leaders recognized that even small changes could save time and taxpayer dollars. Through human-centered design, they turned to their users—grantees, applicants and grants administrators—to note any steps in the grants process that presented difficulties and also suggest possible remedies. They participated in numerous conferences and meetings where users could share their thoughts and recommendations with HHS.

Based on user feedback, HHS introduced technologies at points in the process where they were likely to lead to productivity improvements or solve problems. For example, the department is working to improve the customer experience by reducing the time it takes for grantees to access information about the grants process. One improvement is a single sign-on process—a single credential users can use to log into the many grants-management systems with one username and password, rather than having to log into multiple systems using different login information.

Additionally, HHS found that artificial intelligence and blockchain, two of several technologies that make up intelligent automation, can improve how grant administrators evaluate risks in awarding grants. On average, department employees spend between four and eight hours completing a risk assessment before awarding a grant. The assessment is based on a host of data, such as financial audits or past grants awarded to the prospective grantee.

To shorten the process, the department developed the Grant-recipient Digital Dossier using blockchain, distributed ledger technology that permanently records data. The dossier centralizes information about prospective grantees from different government databases. Artificial intelligence then finds and summarizes information about prospective grantees from documents that are often hundreds of pages long. AI can reduce the time spent on an assessment from as much as eight hours to as little as 15 minutes by pointing grant administrators to information about an applicant without having to sift through the multiple data repositories containing all forms of unstructured data. AI also can assess if information in the database points to potential risks grant administrators should investigate further, such as whether the grantee's previous work with government indicates that the grantee might not have the technical capacity to perform work under a new grant. With these improvements leading to reductions in staff hours, **AI could potentially save the agency about $142 million annually**. And as AI tools analyze more and more information, they could identify patterns in data that could predict if grantees are engaging in fraudulent behavior.

Acknowledge that intelligent automation is not a silver bullet, and it is not appropriate for every challenge. Agencies should start with a clear need where intelligent workflows can be part of the solution. The goal should not just be automating work; it is equally important to redesign and mature the process of doing work.

Seek feedback from users. Agencies should seek user input during technology design, implementation and use to help ensure products are functional and useful to them. When the Department of Defense was creating artificial intelligence tools to help first responders analyze and evaluate information about natural disasters, the department spoke with emergency responders to understand their work and how technology fits into it, to make sure the tools would be effective.

Evaluate where employee time can be redirected. Technology can perform time-consuming, repetitive or tedious tasks faster than people can, which can lead to hours, even days, in time saved for employees. When introducing technology solutions, agency leaders should evaluate where to redirect employees' newly available time, and what tasks require human involvement or judgments, such as tasks requiring critical thinking or personal interaction with customers.

Agencies can redirect employees' time to focus on complex tasks only people can do. For example, purchasing goods and services requires agencies to deal with reams of data, and the Department of Homeland Security turned to artificial intelligence to redirect acquisition professionals' time from sifting through databases to find information about contractors to being able to evaluate information that might affect a contractor's performance.

Create and deploy easy-to-use technology. When an agency introduces technology into its processes, it should be intuitive and easy to use. If the technology is difficult or time-consuming, the expected time savings could be wiped out, or employees might revert to doing business the old way. At HHS it only takes grant administrators five minutes to watch an instructional video that teaches them how to use an artificial intelligence tool that can reduce the time to complete a risk assessment before awarding grants from as much as eight hours to as little as 15 minutes.

Recognize that technology does not replace people. Intelligent automation makes employees more productive and does not replace them in the day-to-day work of government. Employees still must complete tasks that remain beyond the reach of these technologies.

Establish data standards.
Intelligent automation relies on data, so establishing clear standards around data is critical for effective and accurate information sharing. Data standards should include how data is formatted, stored, used, accessed and shared. HHS has been introducing standards for grants management, such as what can be considered a direct cost when reporting grant spending.

Minimize bias by encouraging diversity of thought. Intelligent automation tools are only as good as the data they use. Therefore, checking to make sure data is accurate, and free of historical biases, should be a priority for agencies. DOD's Joint Artificial Intelligence Center and its data governance council engage a diverse group of stakeholders when making data-related decisions, tapping at any given time the expertise of engineers, security experts, data scientists, ethicists and other specialists from government, industry and academia.

Agencies interested in adopting intelligent automation tools should consider the following steps:

1. **Identify the problem you are trying to solve.** Intelligent automation technologies are most effective when used to address a specific problem.

2. **Determine whether intelligent automation is the right tool for the problem.** Intelligent automation tools should only be used if they are the most effective solution to a problem.

3. **Identify what data you already have.** Intelligent automation tools depend on data and are only as good as the data they use.

4. **Speak with other federal agencies working to solve similar problems.** Many agencies are already using intelligent automation tools to solve problems, and they could share with new users the valuable lessons they learned. For example, government employees can join the General Services Administration's artificial intelligence community of practice by emailing AI-subscribe-request@listserv.gsa.gov.

OTHER RESOURCES

- The Partnership for Public Service and the IBM Center for The Business of Government published a blog post on how new federal leaders in 2021 can maximize the benefits of intelligent automation—and particularly artificial intelligence—in their agencies. The post is available at https://bit.ly/3jBGpnv.

- The IBM Center published blog posts summarizing five discussions on intelligent automation and data that the Partnership and the IBM Center hosted between June and October 2020, available at https://bit.ly/2SxblE4. Recordings of the sessions are available on the Partnership's website at https://bit.ly/2HbWEte.

- In 2020, the IBM Center released a report on how federal, state and local governments can innovate and implement emerging technologies, such as intelligent automation. The report is available at https://bit.ly/3s694ps.

- Since 2018, the Partnership and the IBM Center have published several papers on AI. The publications include a report presenting federal and local government AI use cases, a white paper exploring AI's workforce implications, and a white paper outlining AI-related risks and ethical concerns. The publications are available at https://bit.ly/2SylVyZ.

- Between 2011 and 2013, the Partnership and the IBM Center published three reports on using data to make decisions. The reports discuss how to use data for better program results, build an agency culture that embraces data use for decision-making, and build and sustain data-driven programs and projects. The reports are available at https://bit.ly/3jASKZ5.

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