



**Intelligent Automation:
Reinventing the Way Government Does Business**
The State of Tennessee
Department of Finance and Administration
Division of Strategic Technology Solutions

NASCIO Award Category: Emerging & Innovative Technologies
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Strategic
Technology Solutions

Executive Summary

With 2020 unleashing a global pandemic causing the world to reinvent the way they do business Federal, State, and Local government institutions were faced with delivering faster, more accurate services to their citizens, all while budgetary reductions caused by economic downturns and increasing unemployment emphasized the need to “do more with less”.

Tennessee state leadership has the aspiration to go from “good to great” and be best-in-class in serving its residents. The state assessed the efficiency opportunity in both effectiveness and service delivery to translate that aspiration into actionable initiatives. That said, we identified an estimated **\$1.5B** in efficiency opportunity. The single largest thematic area (~33%) of opportunity was within customer experience and business process automation. As a result, the state has invested resources to launch a new intelligent automation program. Intelligent automation has the potential to:

- Fundamentally transform the way state government operates
- Improve service delivery for residents
- Generate efficiencies for taxpayers
- Empower state employees to spend their time on the highest value add activities.

Recently, the technology industry has developed new tools within intelligent automation that have *become a viable and* more direct path toward automating routine and repetitive tasks. With the rapid maturation and acceptance of these tools, the realization of desired business value will be achieved quickly. The traditional methods of software development will not work with the IA program. Understanding, acceptance, and active participation of the business owners within our agencies is essential to the success of IA.

Idea

There is significant enthusiasm and excitement for the potential of IA to transform state agencies. It is important for our IA program to quickly convert excitement into results while ensuring continued momentum and investment. Setting and communicating aggressive goals will bolster the ongoing business case for IA as it is an inexpensive and low complexity solution for many operating challenges.

The outcome of this project is intended to support the governor’s operational goal of Transparent and Efficient Government through the following:

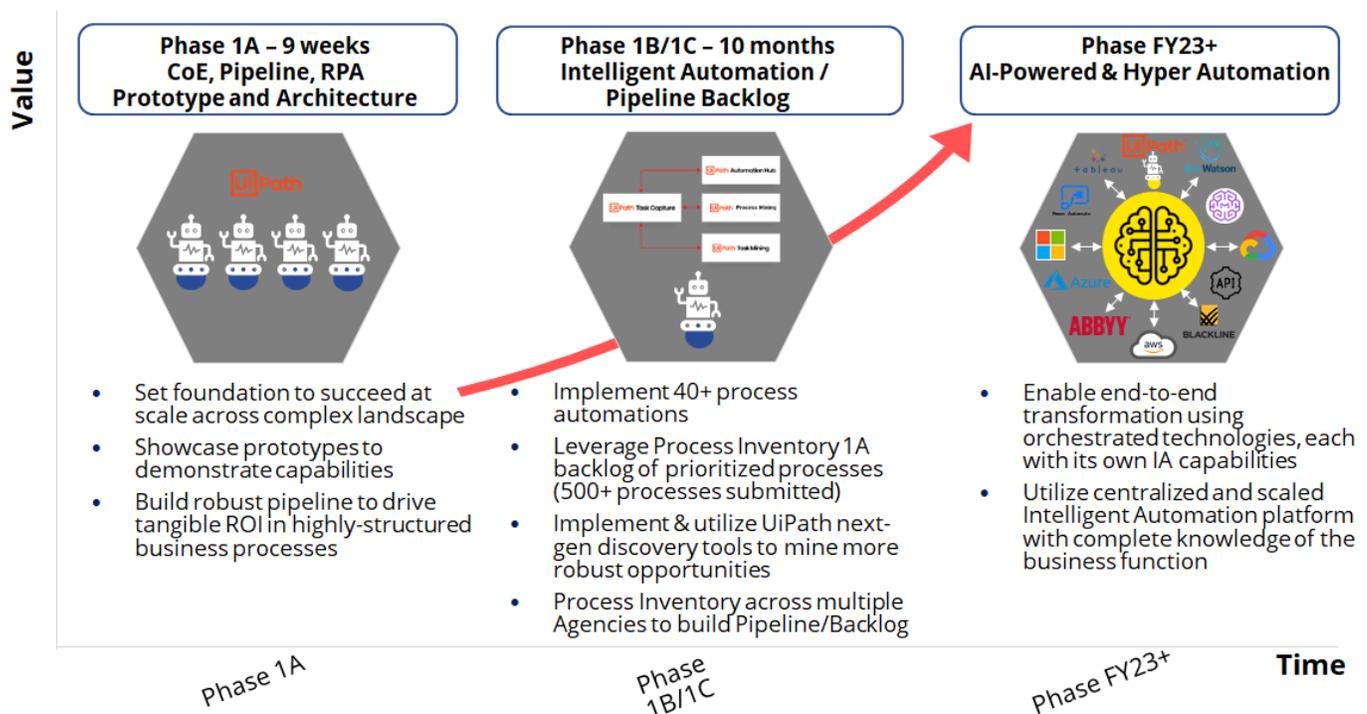
- **Improved Customer Experience:** Automation enables organizations to make better use of customer data to improve customer experiences by anticipating their needs and reduce customer friction such as the need to repeat information due to manual error.
- **Greater Return on Human Capital:** Automation creates new organizational capacity, which can be directed at more complex or higher-value tasks.
- **Improved Employee Morale:** The tasks and processes most suitable for automation are typically, the least enjoyed, and employees relieved of them can be refocused on more rewarding and higher-value activities.
- **Improved Process Quality:** Automation enables better transaction accuracy, controls, and standardization.
- **Greater Levels of Flexibility and Scalability:** Automation allows scheduling of process execution, object reuse for other processes, and the reassignment of automation technologies when more important processes arise.

Roughly \$500M in efficiency can be realized through optimization, standardization, and automation. The initial drive is across all 23 executive agencies. This equates to over 34,000 employees and interaction with many citizen-facing systems. The consequence of not addressing inefficiencies and not improving the customer experience is prevention of the expansion of services to our citizens and as well as stagnating the work environment for our employees.

The Approach

The IA initiative is unique and includes multiple phases with several workstreams per phase.

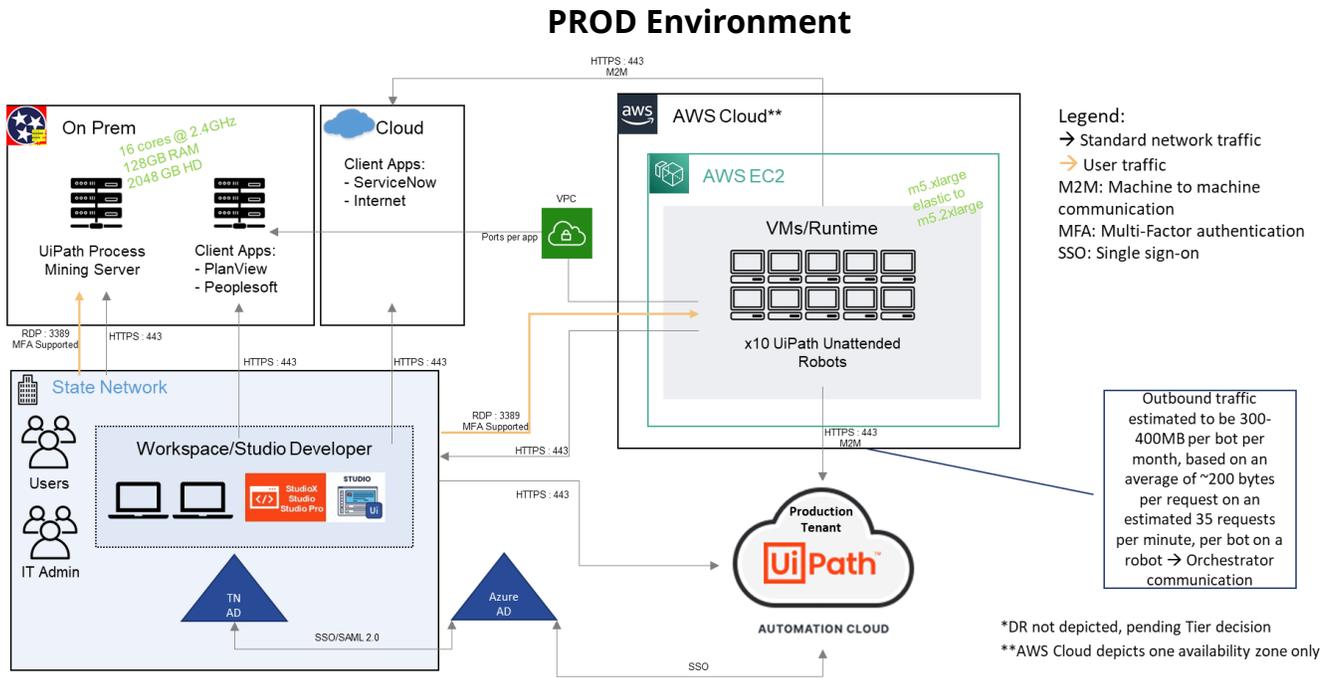
- Phase 1A, the foundation phase, was completed in nine weeks.
- Phase 1B/1C deployed over 40 automations within ten months across multiple agencies.
- All environments were built out within four months, enabling readiness for the IA rollout. The focus was on automation that would be reusable for up to 23 Agencies.
- FY23 is scheduled to cross multiple Agencies as well.



The success of the IA initiative was dependent on collaboration and cooperation across multiple divisions. All department leads had work outcomes in their Individual Performance Plans (IPPs) that were linked to the success of the IA initiative. This resulted in a rapid collective response to obstacles and demonstrated that the public sector could be nimbler than most private sector initiatives. The execution of this initiative included a great deal of autonomy, which is a major differentiator for a program of this magnitude and visibility. Customer Experience and Process Automation is considered one of the top five initiatives across the IT Industry. Intelligent Automation is one of the five Strategic Initiatives for our agency.

Implementation

The IA Program is integrated with the state’s enterprise architecture, leveraging existing technologies and networks. The diagram below depicts how our IA Solution for Year 1 is integrated with the AWS, the on-premises infrastructure, and the state network.

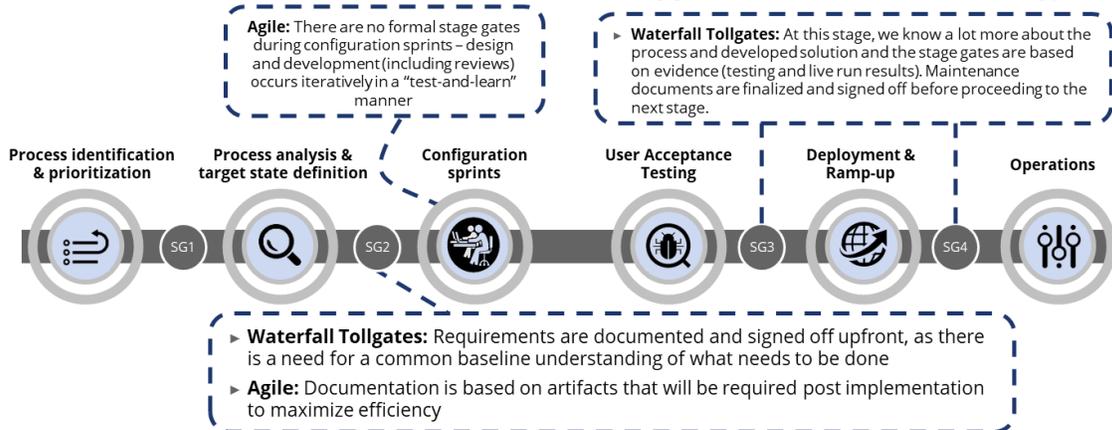


The Project Management Approach

The IA program has a steering committee that includes agency, technology, and solution sponsors, as well as the Project Management Office that approves the scope and approach. The program leverages an Agile methodology applied across the end-to-end approach to process automation. For this initiative, a combination of waterfall and agile approaches emphasize utilizing the standard documentation requirements with the iterative approach in short iterations to optimize dev and test.

	Waterfall Detail Design	Agile
Approach to documentation	Documentation is used as a means to outline what we intend to do , so that relevant stakeholders can review and provide sign-off before we execute against it.	The iterative “test-and-learn” approach means that documenting what you intend to do when you’re not sure what the best solution is would be a waste of time . Instead, documentation focuses primarily on describing what has been built and documenting only information required for maintaining the delivered solution going forward.

How do we use these two documentation approaches in our methodology?



The IA initiative will be assessed by the amount of quantitative and qualitative benefits realized, as shown below, by sprint.

#	Automations (12)	Complexity	Qualitative Benefits	Metrics (Hours/Year) *
1	F&A Billing - PO & Req Log	Medium	Reduces risk by standardizing review process	450
2	F&A Billing - Process Purchase Requests (Pt. 1)	Medium	Decrease in Average Handle Time (AHT), Improved monitoring of the overall process, Improved quality, Increased compliance	3,120
3	F&A Billing - Process Purchase Requests (Pt. 2)	Medium	Decrease in Average Handle Time (AHT), Improved monitoring of the overall process, Improved quality, Increased compliance	
4	F&A Billing - Process Purchase Requests (Pt. 3)	Medium	Decrease in Average Handle Time (AHT), Improved monitoring of the overall process, Improved quality, Increased compliance	
5	F&A Billing - Process Monthly Billing	Medium	Ensures compliance that journals are approved and posted on time	475
6	DGS VAM - Assignment Change Completion	Low	Validates that back-end application updates are made correctly	360
7	DGS Admin Services - Manage REQ/PO Tracking: Entering Req Info	Medium	Reduces turnaround time in dispatching the PO could boost customer experience	1350
8	DGS Admin Services - Manage REQ/PO Tracking: Dispatch PO	Medium	Reduces turnaround time in dispatching the PO could boost customer experience	
9	DGS OFM - Payroll Processing	Low	Potential to scale across departments and create a standardized approach	450
10	DGS Procurement - CI Evaluation	Medium	Potential to scale across departments and create a standardized approach	1,350
11	DOHR Job Postings - Audit & Create Jobs	Medium	Ensures complete audit of job request postings	9,909
12	DOHR Job Postings - Upload Candidate Responses	Medium	Allows for timely turnaround of responses to hiring teams	
Total Hours				17,464

In addition to quantitative and qualitative metrics, equal importance is placed on the performance and reliability of the initiative. Currently, the IA initiative is hovering at an unprecedented 98% automation success rate.

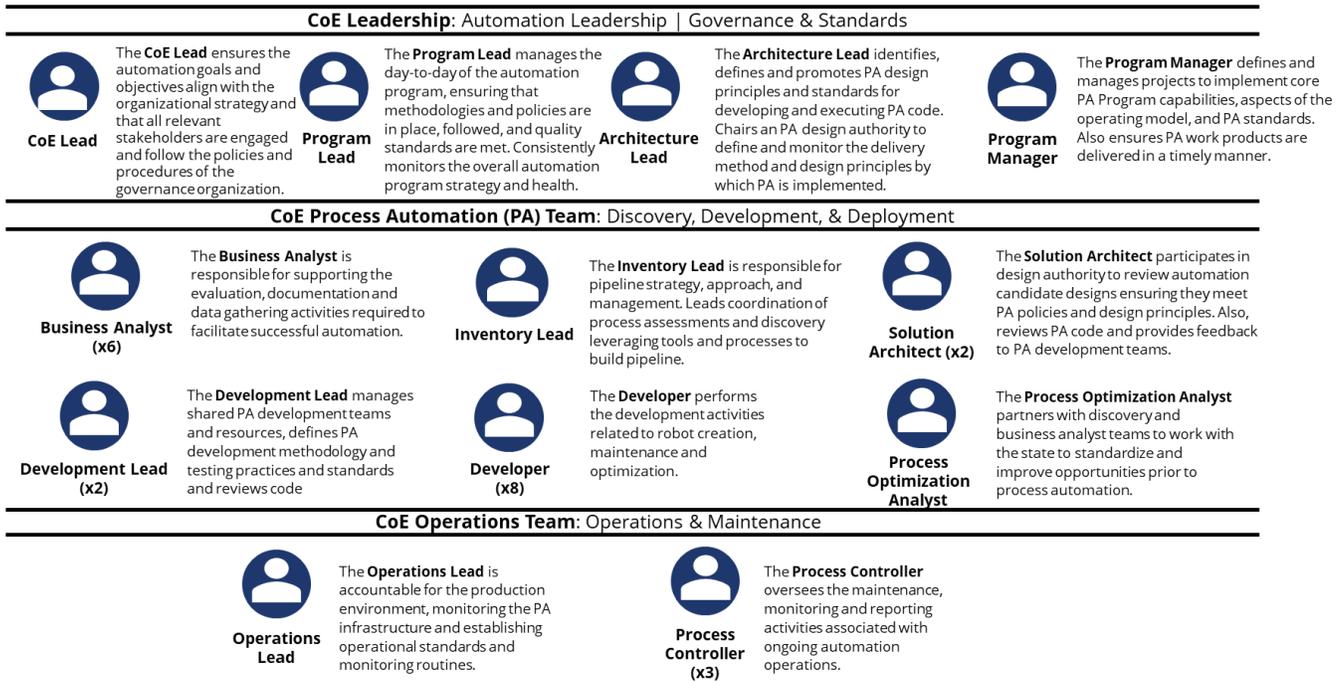
Who was involved?

The diagram below depicts how different layers of the state are engaged for scope approval, buy-in, awareness, and adoption. Several vehicles were utilized to communicate with stakeholders and agencies, including process automation go-live announcements and notifications.



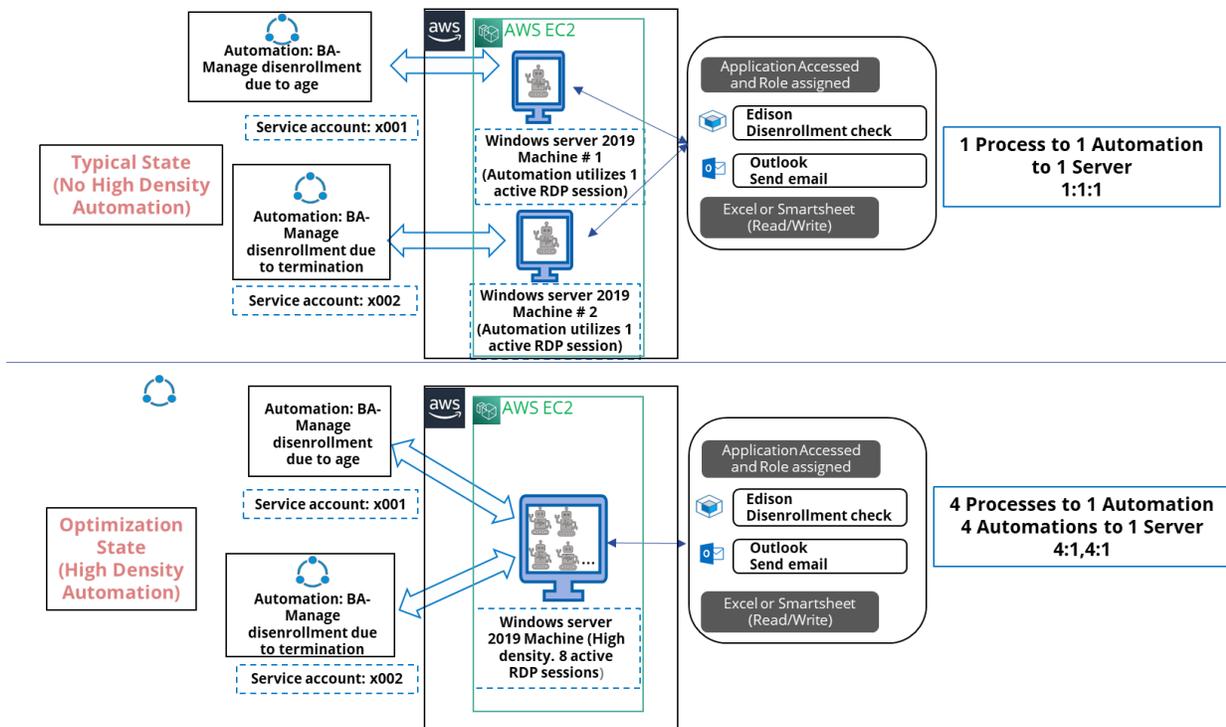
The Team Organization

The IA initiative consists of the team organization defined below. Each Sprint is 12-17 weeks which enables 4-6 production deployments per year.



Technical Architecture

The IA initiative has taken a proactive approach to infrastructure optimization. As opposed to having one (1) automation to one (1) server, the state has designed a high-density infrastructure that supports four (4) processes to one (1) automation (BOT) (4:1) and four (4) automations (BOTs) to one (1) virtual server (4:1). This vision enables the state to roughly have a 60% cost savings in infrastructure. The diagram below depicts the before and after.



Impact

As stated earlier, the state goal is to go from good to great in customer experience. With the approach taken, there has been little to no disruption in the quality of work for employees or customer experience. The significant impact is the multiplier used when designing and deploying an automation, as automation can have a reusability multiplier of up to 23 agencies or up to 50 divisions. This economy of scale provides unprecedented quantitative and qualitative metrics. There has been little to no change in the environment. The IA initiative uses the existing AWS infrastructure to support unattended BOTs that reside on E2C virtual server instances. Due to the use of the vendor UiPath SaaS model, there was no on-premises environment buildout. Due to the high-density approach, there will be a minimum of additional virtual servers needed as we scale. In less than ten months, there are over 25,000 hours saved with a significant reduction in change requests, rework, and poor data.

Testimonials:

- “Process automation has introduced new opportunities to remove repetitive work and meet turnaround times while staff is free to perform other duties.”

Deborah Betancourt Domain Director (General Government Services) State of Tennessee

- “Through a great partnership, we successfully transformed our business processes into automations, which allowed us to decrease our workload and increase our capacity to offer additional services to customers. After sharing the success with other agency HROs, they are excited to implement these automations into their offices.”

Dana Braxton, IPMA-SCP Human Resource Director State of Tennessee

Looking Forward

The IA initiative is expected to be across 12-14 agencies in FY23, with roughly 80 additional automations deployed. By FY25 it is expected, with the current momentum, that all agencies and other organizations within the state will be positively impacted with the IA initiative. It is expected that by the end of FY25, a total of 250 automations will be deployed. This would equate to conservatively 200,000 hours saved per year. As the IA initiative progresses, new IA tools are being introduced to maximize optimization. Currently RPA, OCR/ICR, Intelligent Document Understanding, AI, and ML are being leveraged.

The IA initiative is, and will be, maintained by the IA organization, Center of Excellence, and the UiPath SaaS model. The state leadership objective was to go from good to great. With providing quantitative (hours per year), and qualitative (customer experience, data quality, response times), coupled with the correct out-of-the-gate design and best practices used, the investment is a fraction of what other similar initiatives have costs.