Harnessing the Power of
Process Automation for Tennessee

July 2021 - May 2023

Executive Summary

Process automation (PA) has the potential to fundamentally reimagine the way state government operates while simultaneously improving service delivery for residents, generating efficiencies for taxpayers, and empowering the state's workforce to spend their time on the highest value-added activities. Popular uses of process automation include data entry, reconciliation, spreadsheet manipulation, systems integration, automated data reporting, analytics, customer outreach, and communications. Given this, the fact that Process Automation (PA) is one of Strategic Technology Solutions' (STS) top strategic initiatives is no surprise.

State Leadership aspires to be the best in class in serving its residents. To this end, STS has invested in the core infrastructure to empower process automation (PA). Process automation is a technology that automates repetitive, rules-based tasks. Like an Excel macro, operating within a spreadsheet, it can record actions performed across a personal computer and access systems and perform delineated tasks for human users. Process automation products and technologies emulate human actions, enabling process owners or staff with appropriate training to rapidly design, test, and deploy automation, dramatically reducing an organization's low-value workload.

The benefits of process automation adoption within any state organization can be significant. Process Automation is an excellent tool for "Shifting from Low to High-Value Work." Because process automation automates tasks, not jobs, it is primarily a tool for increasing capacity and reducing administrative workload, allowing employees to focus on higher value-added work. Process automation is not just a workload reduction technology; it can increase quality, reduce human error, improve compliance, and add new services to a department's portfolio. For example, if an employee only can audit a 10 percent sample of transactions, process automation, running 24/7, may be able to audit the entire data set and send non-compliant records for adjudication.

What sets Tennessee apart from other states' PA implementations? Tennessee has taken an enterprise approach rather than a traditional agency-by-agency rollout. To do this, we focused on performing process discovery across Executive Branch Agencies to identify common processes, thereby enabling us to design for BOT reuse, enabling a multiplier of up to 40x where we have a single BOT versus up to 40, which is what allows us to operate enterprise-wide automation. This approach also enables up to a 50% reduction in hours to support operations and production and up to a 50-60% reduction in turnaround time from design to deployment. The reduction changed our design to deployment turnaround from 12–16 weeks to a 4-6-week cycle.

In addition to optimizing the reuse of Process Automation BOTs and reducing the lifecycle and costs from design to support, the state also optimized its infrastructure by enabling a high-density performance optimization configuration, enabling up to a 70% reduction in servers needed.

Idea

The PA Initiative is a category of its own for many reasons.

- It is the only Intelligent Automation project statewide across 23 Executive Branch Agencies, bringing reusability to the state. This approach is unique to Tennessee, as other states focus on agencies and divisions.
- We focused on BOT reuse which enables a multiplier of up to 40x, enabling us to enable enterprise-wide at a significantly reduced cost. This approach also enables up to a 50% reduction in hours to support operations and production.
- The Enterprise BOT enables a 50-60% reduction in turnaround time from design to deployment. Going from 12-16 weeks down to 4-6 weeks.
- We used a high-density performance optimization configuration enabling a 70% reduction in infrastructure hardware to support our BOTs over the next four years with logical horizontal scaling.
- We have implemented real-time executive dashboards, a website, and demonstration videos to promote awareness of this strategic initiative across the state.
- Within 18 months, we have deployed process automation across 15 agencies.

The PA Initiative is one of the state's top five strategic initiatives and focuses on improving our citizens' experience and employees' quality of work life. The initiative supports the governor's operational goal of Transparent and Efficient Government through the following:

Artificial Intelligence — Business Process Automation — Machine Learning — Optical Character Recognition
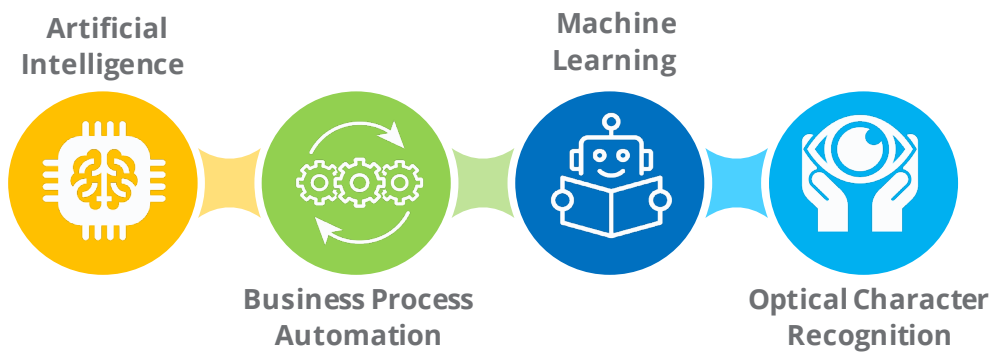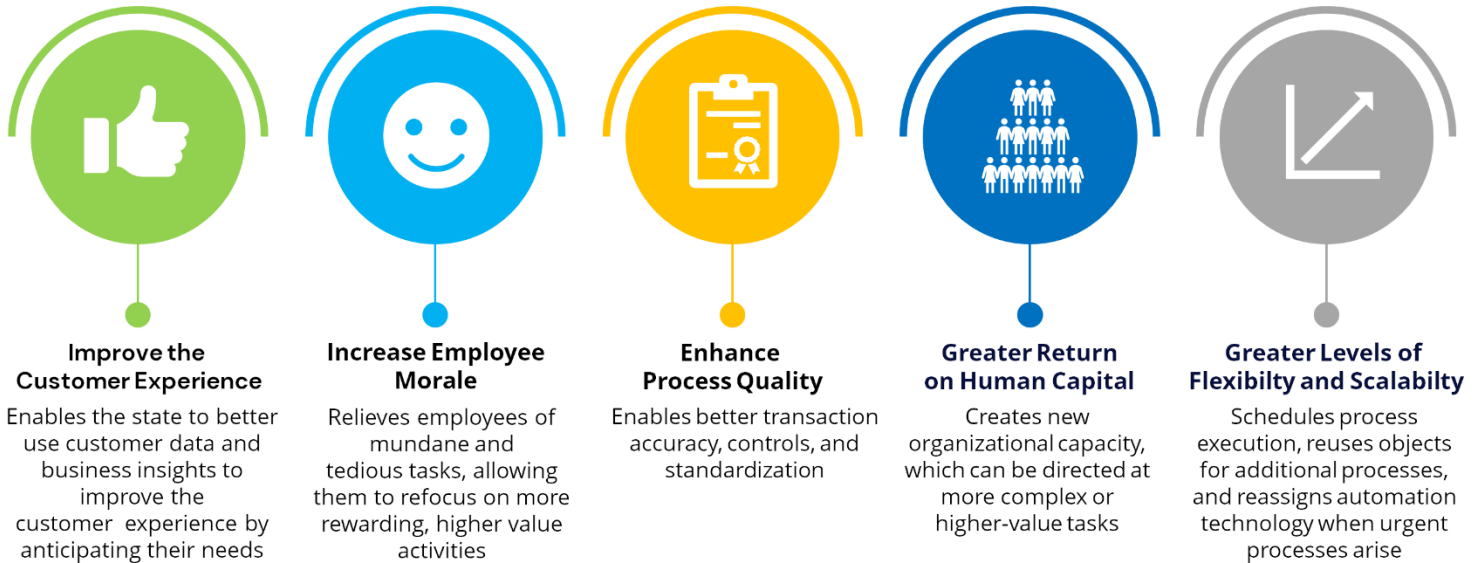
There is significant enthusiasm and excitement for the potential of process automation to transform state agencies. It is essential for the program to quickly convert excitement into results while ensuring continued momentum and investment. Setting and communicating aggressive goals will bolster the ongoing business case for process automation as it is an inexpensive and low-complexity solution for many operating challenges.

Implementation

The PA Initiative infrastructure fits into the enterprise architecture seamlessly. It is comprised of Amazon Elastic Compute Cloud (AWS EC2) virtual machines (VMs) and connects to other software as a service (SaaS) components. The enterprise BOTs work across all agencies and are managed by a centralized center of excellence that resides in the same infrastructure and is managed by the enterprise team.

The initiative is assessed across several measurable metrics. The success will be the deployment of process automation across the enterprise (all 23 Executive Branch agencies) by FY27. It will bring the expected saved hours, cost avoidance, increased worker and citizen experience, and other business metrics.

Tennessee state leadership aspires to go from "good to great" in serving the state's citizens and providing their employees with an enriched quality of work. Research revealed the two largest thematic areas of opportunity for Tennessee to be customer experience and business process efficiency. The state is leveraging process automation by:

Improve the Customer Experience	Increase Employee Morale	Enhance Process Quality	Greater Return on Human Capital	Greater Levels of Flexibilty and Scalabilty
Enables the state to better use customer data and business insights to improve the customer experience by anticipating their needs	Relieves employees of mundane and tedious tasks, allowing them to refocus on more rewarding, higher value activities	Enables better transaction accuracy, controls, and standardization	Creates new organizational capacity, which can be directed at more complex or higher-value tasks	Schedules process execution, reuses objects for additional processes, and reassigns automation technology when urgent processes arise

The PA Initiative is highly inclusive horizontally and vertically within the enterprise. State leadership provided initial funding for the initiative and is informed of progress quarterly. Biweekly, there is a steering committee meeting with our vendor, business and technical sponsors, and program manager. The engagement is across all supporting divisions within Strategic Technology Solutions. The following diagram depicts the cross-organizational support within STS.

We are on track to engage all 23 Executive Branch agencies to determine if there are process automation opportunities in the timeline below. The Process Automation Program is one of the Top 5 priorities for the state of Tennessee.

23 Executive Branch Agencies

Agriculture
Children's Services
Commerce & Insurance
Corrections
Economic & Community Development
Education (FY24)
Environment & Conservation
Finance & Administration

General Services
Health
TennCare (FY24)
Human Resources
Human Services
Intellectual & Developmental Disabilities
Labor and Workforce Development

Mental Health & Substance Abuse
Military
Revenue
Safety & Homeland Security
Tourist Development
Transportation (FY24)
Veterans Services

FY22 – 2Q / FY23 – 2Q   FY23 – 3Q   FY24 – 1H

The PA Initiative covers various communications/awareness approaches.

Cross-Organizational Support: Senior Project Manager supporting financial/scope alignment, Domain Director assisting with coordination across sponsoring agencies and policies

- **Reviews:** Monthly budget reviews, quarterly business metrics reviews, biweekly steering committee meetings, quarterly customer focus group reporting

- **Within the state IT Community:** IT Professionals Association (ITPA), Business Analysts Community of Practice (BACoP), Coffee & Conversation (Quarterly), and PA Demos

- **Across Agencies:** Dashboard, demonstration video, PA website, agency-specific demonstrations, agency kickoff events.

STS worked with EY to facilitate the discovery process across agencies, and EY provided the design, deployment, and support staff. STS staff included: an executive technical leader, a program manager, and participation from the supporting organizations as depicted above. Agency support consisted of two to four hours per week per agency/division. Within 18 months, the teams collaborated to bring 15 state agencies to production with process automation.

The solution footprint leverages leading-edge technology and concepts and is entirely cloud-based, where unattended BOTs run on EC2 VMs within AWS. The Robotic Process Automation (RPA) orchestration and attended BOTs run in a SaaS model operated on Azure. There are no on-premises servers, thereby avoiding any environmental or carbon footprint. The solution adheres to the cyber security compliance required by the state. The technology used is: Remote Desktop Sessions (RDS), Robotic Process Automation (RPA), Machine Learning (ML), Artificial Intelligence (AI), and Optical/Intelligent Character Recognition (O/ICR). A diagram below depicts the technical architecture.
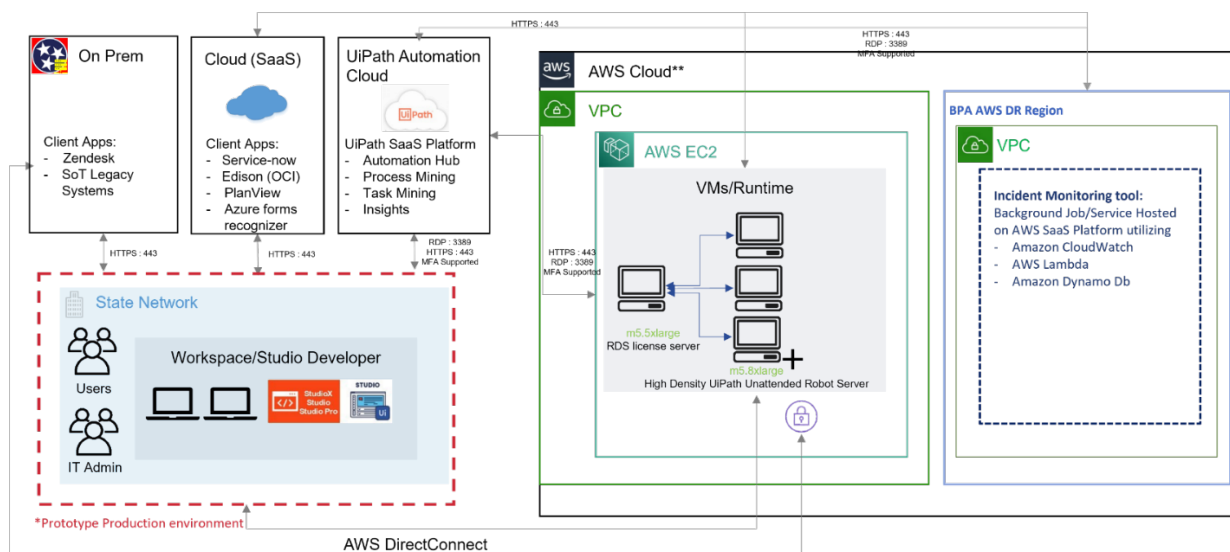

The PA Initiative caused no disruption or variance to the current state infrastructure. EC2 VMs provide secure, resizable computing in the cloud, offering the broadest choice of processor, storage, networking, OS, and purchase model added to the existing AWS infrastructure. BOTs proactively monitor the health of the connections between AWS and the SaaS used by UiPath.

Impact

The PA Initiative demonstrates to the public sector that complex transformations can be completed and executed in a nimble, agile approach to minimize costs and attain the desired business metrics. Our infrastructure (HW/SW) continues to reduce due to the reusability of the BOT design. The initiative will leverage the BOT design across the enterprise to provide a reduction in managing the health of the connections between AWS and SaaS. The project team can engage multiple agencies simultaneously, enabling the reuse of BOTs 40-fold. The PA Initiative provides the best practices and solution approach to delivering complex transformation across the enterprise with unprecedented scope in a fraction of the time and cost.

(High density robot)
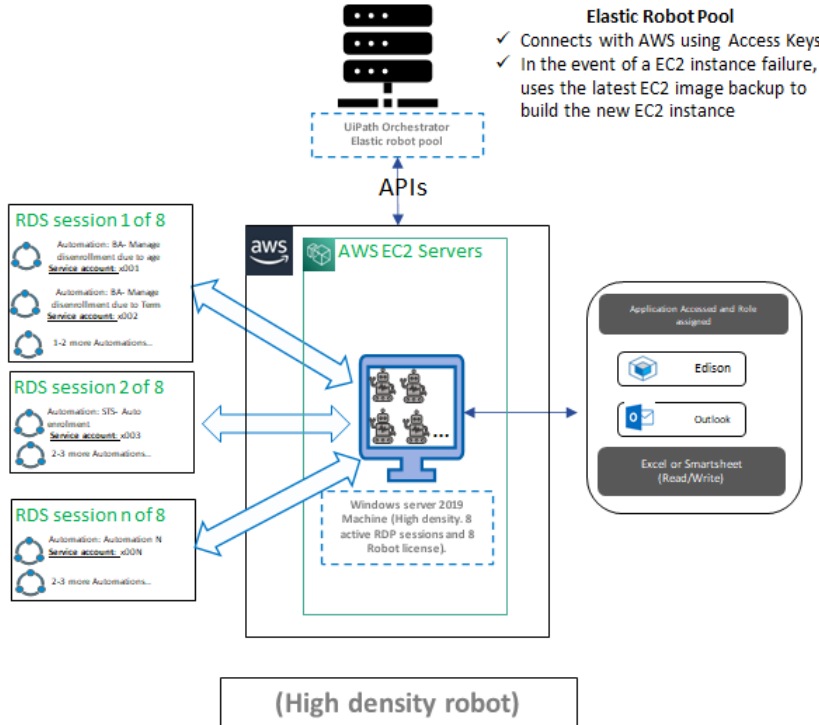
The project team defined metrics specific to this initiative. The snapshot of the operational dashboard below depicts the cost avoidance/savings:
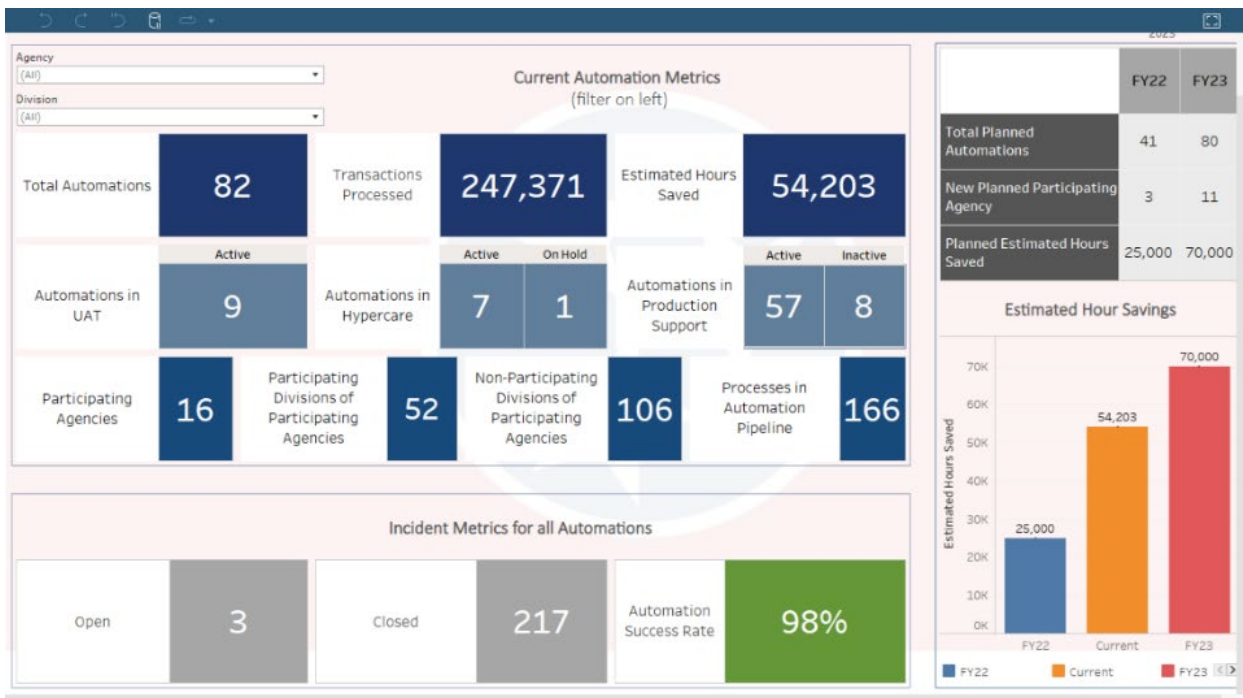
Customer Feedback and Metrics

Customer testimonials and metrics are provided below.

Employee Satisfaction*

Pre - Automation: **5.7**
Post - Automation: **9.3**

Employee Testimonials

"The automation that is being done has eased frustrations with finishing monthly progressions in the given time period with slow response times that can curb productivity." – April Romero

"There were about 30 timesheets that were all processed successfully a few days ago. It brought an actual smile to my face." – Albina Kapshtica

"Once this automation was in production, I was most excited and thankful that I no longer have to waste my time on tedious time-consuming tasks and can now refocus my time and energy on more important things required of my job!" – Casey Allen

"This automation has significantly decreased the amount of manual work needing to be performed to correct time and labor exceptions. It has made the process much more manageable and allowed us to focus our energy on higher priority responsibilities." – Amanda Treat

Customer & Citizen Satisfaction*

Pre - Automation: **6**
Post - Automation: **9.5**

Customer & Citizen Testimonials

"The automation significantly reduced the number of panicked phone calls we receive from F&A Employees and their Lenders wondering where their Employment Verifications are." – Amanda Treat

"Employees receive notices in a timelier manner as they no longer wait for a Benefits Analyst to process their requests." – Stephanie Tracey

"The amount of phone calls our call center receives regarding employees with errored disenrollments has decreased significantly since we implemented the automation." – Ian Harris

"We used an agile solution to creatively solve a problem that seemed impossible. Without this automation and the tremendous team effort all around, we would have missed a strict legislative mandate. This was the highlight of my year and a big win story for us all!" – Jerry Imsand

* Average of scores collected

Looking Forward

The PA Initiative strategic roadmap is provided below and is a snapshot in decision making time.

FY22 – Establish Automation Program Foundation

- CoE Foundation
- Established fully cloud based UiPath SaaS and SoT AWS infrastructure
- **40** Automations across 3 Executive Branches
- Create reusable code library
- Scale program & increase velocity
- Establish UiPath ELA
- Centralized Deployment Model

FY23 – ELA/SaaS UiPath, HD AWS Arch, Establish 25/80 Rule

- **80** Automations across 13 Executive Branches
- Enterprise PAs introduced
- Executive dashboard
- Implement Automation Hub
- Robust support incident monitoring
- Adding OCR/ICR, ML, AI capability

FY24 – Expand beyond Agencies

- **30** Automations across 3 Executve Branches
- Support beyond Executive Branches
- Back Office Services
- Expansion of Intelligent Automation components

FY25 – Cost Sharing Model, State 25% Staff

- **30** automations across 3 agencies
- Introduce Citizen Facing Services
- Mature PA+ Components

FY26 – State 25% Staff

- **50** Automations
- Support beyond Executive Branches
- PA+ Candidates
- Introduce State PA staff

FY27 – State 50% Staff

- **50** Automations
- Mature State PA staff structure

Cross Executive Branch Involvement, STS Centralized Automation, Executive Collaboration, Awareness, & Sponsorship