Robotics Process Automation (RPA) & Intelligent Automation Track

October 12, 2018

Contents:

Ed Burrows, GSA RPA Lead

Robotics Process Automation (RPA) & Intelligent Automation Track

Host for the RPA & Intelligent Automation Track:
Ed Burrows - *GSA OCFO*

Robotics Process Automation (RPA) Implementation Life Cycle Panel
10:00 AM - 10:50 AM
Moderator: Bob Grabowski - *Deloitte*
Panelists: **Christopher Rose** – *Deloitte;* **Curtina Smith** – *OMB;* **Alicia Saucedo de Flores** - *GSA OCFO;* **Jia Jian (JJ) Shen** – *FDA;* **Christine Gex** - *Office of the Deputy Assistant Secretary of the Army (DASA)*

Build-a-Bot Demos
11:00 AM - 11:50 AM
Workshop Leaders: **Brian Diederich** – *Deloitte* - **Jim Walker** - *UiPath*

Intelligent Automation Panel: Beyond RPA
12:00 PM - 1:00 PM
Moderator: Bob Dunmyer - *Guidehouse*
Panelists: **William Carroll** – *Navy;* **Marina Fox** – *GSA;* **Mallesh Murugesan** – *Abeyon;* **CDR Thomas Sampson** - *Joint Strike Force;*

Robotics Process Automation (RPA) Implementation Life Cycle Panel

10:00 AM - 10:50 AM

Key Outcome: The audience will understand OMB's guidance for shifting from low-value to high-value work and the steps and requirements for successfully implementing bots and running operations.

Description: This panel will begin with OMB's guidance on automation to move from low value to high-value work, and explain how to navigate the major phases of the RPA life cycle: candidate process assessment, IT platform and security, and ongoing operations management.

Moderator: *Bob Grabowski - Deloitte*

Panelists:
Christopher Rose - *Deloitte*
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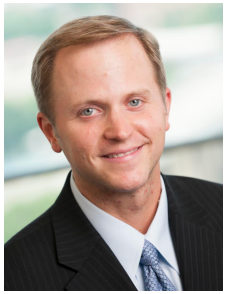
Moderator



Bob Grabowski
Deloitte

Bob Grabowski – *Deloitte*

Bob is a Senior Manager with Deloitte Consulting, supporting finance organizations across the Federal Government for over 16 years. He has extensive Robotic Process Automation (RPA) and Cognitive experience, delivering bots and automation across multiple departments and agencies. Most notably, he was the lead for Deloitte in supporting NASA with the deployment of process robotics – the first Federal Agency to deploy a bot in production. He also has extensive experience with Federal Financial Management and is a leader of digital transformations for CFOs and finance organizations.

Panelist

Christopher Rose
Deloitte

Christopher Rose – *Deloitte*

Christopher is a Principal with Deloitte Consulting's Strategy & Analytics practice specializing in the execution of complex strategy, enterprise cost reduction, and service delivery model transformation engagements. Chris currently practices in Robotic and Intelligent Automation offering for Deloitte's Government and Public Services practice. Chris' robotics and cognitive automation experience includes program strategy, client process and readiness assessments, and bot development/sustainment in the Federal Government, State Government, and Higher Education sectors.

Robotics Process Automation (RPA) Implementation Lifecycle Panel

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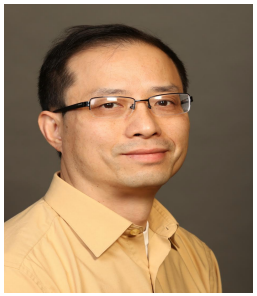

Jia Jian "JJ" Shen
FDA

Alicia Saucedo de Flores – *GSA OCFO*

Alicia was named the Zone 1 Director of the OCFO's Regional Financial Operations Division in 2015. In this role, she administers the comprehensive regional financial management program and advises senior regional officials on all PBS budget-related matters for Regions 1, 2, 3 & 5.
Alicia joined GSA in 1993 as an Financial Program Analyst and has served as an Asset Manager, Portfolio Financial Advisor, Revenue Manager, Budget Branch Chief and from 2011 till her Zone Director appointment she served as Director of the Budget and Financial Management Division in Region 5. Alicia also serves as a budget subject matter expert to several GSA national teams. Alicia earned her Bachelor's Degree in Finance from the University of Illinois at Chicago and her Master's in Business Administration from DePaul University. She is also a graduate of GSA's Advanced Leadership Development Program and a Senior Government Fellow.

Jia Jian "JJ" Shen – *FDA*

JJ has been with the FDA for over 4 years. He is currently a Project Management Officer with Office of Business Informatics where he manages service delivery for Integrity Service Master Data Management. JJ provides recommendations and facilitates the improvement of Master Data quality through a several initiatives within CDER.

Robotics Process Automation (RPA) Implementation Lifecycle Panel

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Panelist

Curtina Smith
OMB

Curtina Smith – *OMB*

Curtina is a senior procurement policy analyst in the Office of Federal Procurement Policy (OFPP), Office of Management and Budget (OMB). Ms. Smith joined OFPP in January 2008 and has worked in areas such as: high risk oversight, interagency contracting, and program/project management. She holds a Bachelor of Arts degree in Business Management with a concentration in Economics and a Master of Science in National Resource Strategy.

Panelist

Christina Gex
Office of the Deputy Assistant Secretary of the Army (DASA)

Christina Gex – *Office of the Deputy Assistant Secretary of the Army (DASA)*

Christine has been responsible for the development, deployment, and sustainment of two federal robotic process automation (RPA) programs. As the Chief Information Security Officer (CISO) at the NASA Shared Services Center (NSSC), she spearheaded the effort to issue credentials to robots; she was instrumental at NSSC in issuing common access cards (CACs) for robots to perform their work.
A leading innovator at DASA-FIM, she has been reaching across Department of Defense (DoD) organizations to expedite an infrastructure partnership allowing DASA-FIM to integrate their robots into customers' daily workflows. Ms. Gex holds a Master of Business Administration degree from William Carey University and is a Certified Authorization Professional (CAP).

Build-a-Bot Demos
11:00 AM - 11:50 AM

Key Outcome: The audience will leave the session with a good feel for what bots are and how they are built.

Description: This session will demonstrate construction of two process robots and include audience participation!

Leaders:

Brian Diederich – *Deloitte*

Jim Walker - *UiPath*

Build-a-Bot Demos

This session will demonstrate construction of two process robots and include audience participation!

Leader

Brian Diederich
Deloitte

Leader

Jim Walker
UiPath

Brian Diederich – *Deloitte*

Brian currently serves as the lead developer for GSA OCFO RPA activities. In his current role, he developed the first automated process at GSA OCFO. In past efforts, Mr. Diederich has supported RPA efforts at multiple agencies including GSA, USDA, ICE, and HUD.

Jim Walker – *UiPath*

Jim is a former Army Artillery Officer and federal employee. He served at the Deputy Chief Information Officer and Services Portfolio Manager at the National Aeronautics and Space Administration's Shared Services Center (NSSC). It was in this role as Services Portfolio Manager that he incubated new business for the NSSC. He designed and deployed the first RPA bot on a production system in the Federal government.
Currently, Walker is the global Director of Public Sector Marketing at UiPath focused on evangelizing RPA and other intelligent technologies across all levels of government. In addition to NASA's RPA deployment he was responsible for bot deployments at the Treasury's ARC and has assisted with 13 other agency deployments.
He is a member of the class of 2018 for Federal Computer Weekly "Federal 100", and recognized as runner up at the Government Computer News "DigIT 2017" award for Robotics, Automation and Unmanned Systems.

Intelligent Automation Panel: Beyond RPA
12:00 PM - 1:00 PM

Key Outcome: The audience will gain an understanding of some important advanced automation tools. Those already using RPA will learn how data generated by bots can be used in intelligent applications.

Description: This panel will provide those involved with RPA exposure to advanced automation technologies such as machine learning, extraction of information from unstructured documents, neural network models, RPA generation of data sources for use by Artificial Intelligence applications.

Moderator:
Bob Dunmyer - *Guidehouse*

Panelists:
William Carroll - *Navy*
Marina Fox – *GSA*
Mallesh Murugesan – *Abeyon*
CDR Thomas Sampson - *Joint Strike Force*

Intelligent Automation Panel: Beyond RPA

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Moderator

Bob Dunmyer
Guidehouse

Panelist

William Carroll
Navy

Bob Dunmyer – *Guidehouse*
Bob is a Guidehouse Consulting leader focused on applying artificial intelligence and automation solutions to our client's most complex problems. He leads Guidehouse's AI and Automation efforts supporting all sectors of the Federal Government. His team specializes in deploying AI and Automation solutions for fraud detection, supply chain optimization, and program evaluation using both RPA and machine learning techniques. Bob has more than 17 years of experience leading projects that use data discovery and advanced modeling techniques to separate the signal from the noise in both structured and unstructured data sets.

William Carroll – *Navy*
William works in the Engineering Directorate of the Military Sealift Command (MSC), he has worked in the engineering maintenance management branch for 20 years. He has training and experience in maintenance and reliability analysis as well as Information technology management. He has assisted with the development and implementation of the command's maintenance management systems in support of the ashore maintenance management processes. He is the lead engineer for the implementation of RCM at the MSC. He is now working to establish maintenance data analysis tools and processes within the Military Sealift Command's Engineering Directorate. One of his current projects is the implementation of Artificial Intelligence-based text analysis tool to assist with data reduction to facilitate more efficient data analysis by MSC Engineering support staff. William has a B.S. degree in Marine Engineering Systems from the U.S. Merchant Marine Academy.

Intelligent Automation Panel: Beyond RPA; cont.

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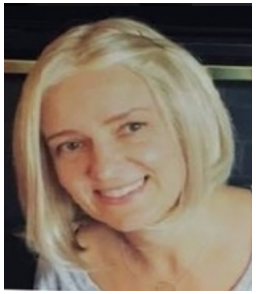
Panelist



Mariana Fox
GSA OCFO

Mariana Fox – *GSA OCFO*
Marina is a subject matter expert in the areas of data analysis, Business Intelligence (BI), enterprise reporting and KPI management. Her nearly twenty year tenure includes managing mid- to large scale business intelligence and analytics programs in the government and private sectors, from General Services Administration and USPTO to Deloitte, AOL, Booz Allen Hamilton, and The Wall Street Journal/Dow Jones & Co. In her previous role at GSA, she led a government-wide Digital Analytics Program (DAP), spanning across 5,000+ of .gov/.mil websites and supporting 2000+ agency customers as part of the President's Digital Strategy. Marina is currently leading the .Gov Domain Services team at the Office of Government-wide Policy of GSA, providing a marketplace for secure connectivity, best practices and analytics to support .Gov domain customers.

Panelist

Mallesh Murugesan
Abeyon

Mallesh Murugesan – *Abeyon*
Mallesh is the Founder and CEO of Abeyon, is an innovative leader with 20+ years of experience in Technology and Design. He has been working with the Navy for 15 years in executing strategic IT initiatives and providing innovative technology solutions. His latest being Artificial Intelligence-based text analysis tool that recently won the Government Innovation Award.
Under his leadership, Abeyon has been working on several advanced AI technologies including Text Analysis, Category Management, NLP and more. His latest creation, chirrp.ai is a multi-channel chatbot platform that is powered by cognitive technology. And he has a patent pending on his intent identification methodology in a cognitive conversation.
Mallesh has a Masters in Information Systems from George Mason and an MBA from University of Maryland, College Park

Intelligent Automation Panel: Beyond RPA; cont.

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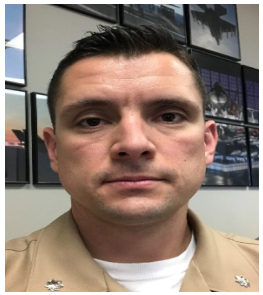


CDR Thomas Sampson
Joint Strike Force

CDR Thomas Sampson – *Joint Strike Force*
CDR Sampson is a 1999 graduate of the State University of New York at Buffalo with a Bachelor of Arts in Political Science. He holds a Master of Information Technology Management and a Master of Business Administration, both from The American University in Washington, D.C.
Sampson enlisted and was designated a Naval Aircrewman serving as an Aviation Warfare Systems Operator on the P-3C Orion from 1999 to 2001. He deployed with Patrol Squadron One (VP-1) in support of western pacific (WESTPAC) operations and on his return, he selected for Officer Candidate School and was commissioned on 21 September 2001. Sampson was designated a Naval Aviator at Naval Air Station (NAS) Whiting Field in May 2003. His flying assignment was with Helicopter Anti-Submarine Squadron Light Four Four (HSL-44) embarked in USS OSCAR AUSTIN (DDG 79) deploying in 2005 to support Operation Iraqi Freedom, and in 2006 conducting Anti-Piracy Operations off the Horn of Africa. Sampson's shore tour was on the Navy Staff, Air Warfare Division (OPNAV N88) as an Aviation Training Systems Requirements Officer and Program Manager Aviation Training Systems (PMA205) as an Integrated Product Team Lead for Common Simulation Products and Support.
Sampson affiliated with the Naval Reserve in May 2010 and his assignments include the Office of Naval Research / Navy Research Lab (ONR/NRL) as a Science and Technology Liaison Officer, Commander Submarine Forces Pacific as a Theater Anti-Submarine Warfare Watch Officer and Deputy Operational Planning Team Lead, and United States Fleet Forces Command Maritime Operations (MOC) as a Crisis Action Team MOC Watch Officer. He is currently on active duty and assigned to the F-35 Lightning II Joint Program Office as the Enterprise Data Strategy and Management Lead.
His awards include Navy Commendation Medal, Navy Achievement Medal, unit and service awards. He is certified as a Project Management Professional (PMP), and holds multiple Defense Acquisition Workforce certifications.

Host for the RPA & Intelligent Automation Track

This track provides practical guidance on the RPA project life cycle, from candidate process assessment to ongoing bot operations management. See how a bot is constructed and run! Learn about automation beyond RPA - Intelligent Automation, including a Navy project that won a Government Innovation Award!

Host

Ed Burrows
GSA OCFO

Ed Burrows – *GSA OCFO*

Ed is a Senior Advisor at GSA leading Robotics Process Automation (RPA) for the Office of the Chief Financial Officer. He is also the liaison to the U.S. Department of Agriculture as the financial management shared service provider to GSA, leads GSA's 's implementation of Treasury's Invoice Processing Platform (IPP) and led the migration of GSA's child care subsidy administration programs to a commercial provider and the Department of Agriculture. Prior to joining GSA in 2015 Ed led financial operations and programs in the telecommunications industry, including senior leadership positions at MCI, Concert Communications, BT Group, and Telarix. Ed holds a B.A. degree in Economics from The Pennsylvania State University and a M.A. in Economics from University of Virginia.

Deloitte.

Process Robotics

A Digital solution to automating transactional work that empowers valuable labor and improves operational efficiency

October 2018

Process Robotics can transform back office and mission-focused transactional work to achieve cost savings and operational efficiencies

Process Robotics is a rules-based software application. It is quick and inexpensive to implement and sustain, and it does not require configuration of existing IT infrastructure.

Process robotics tools are programmed to perform repeatable tasks: programmed to replicate repetitive human tasks using recorders and easy programming language

Process robotics operates effectively in the U/I layer: able to automate rules-based work without compromising underlying IT infrastructure

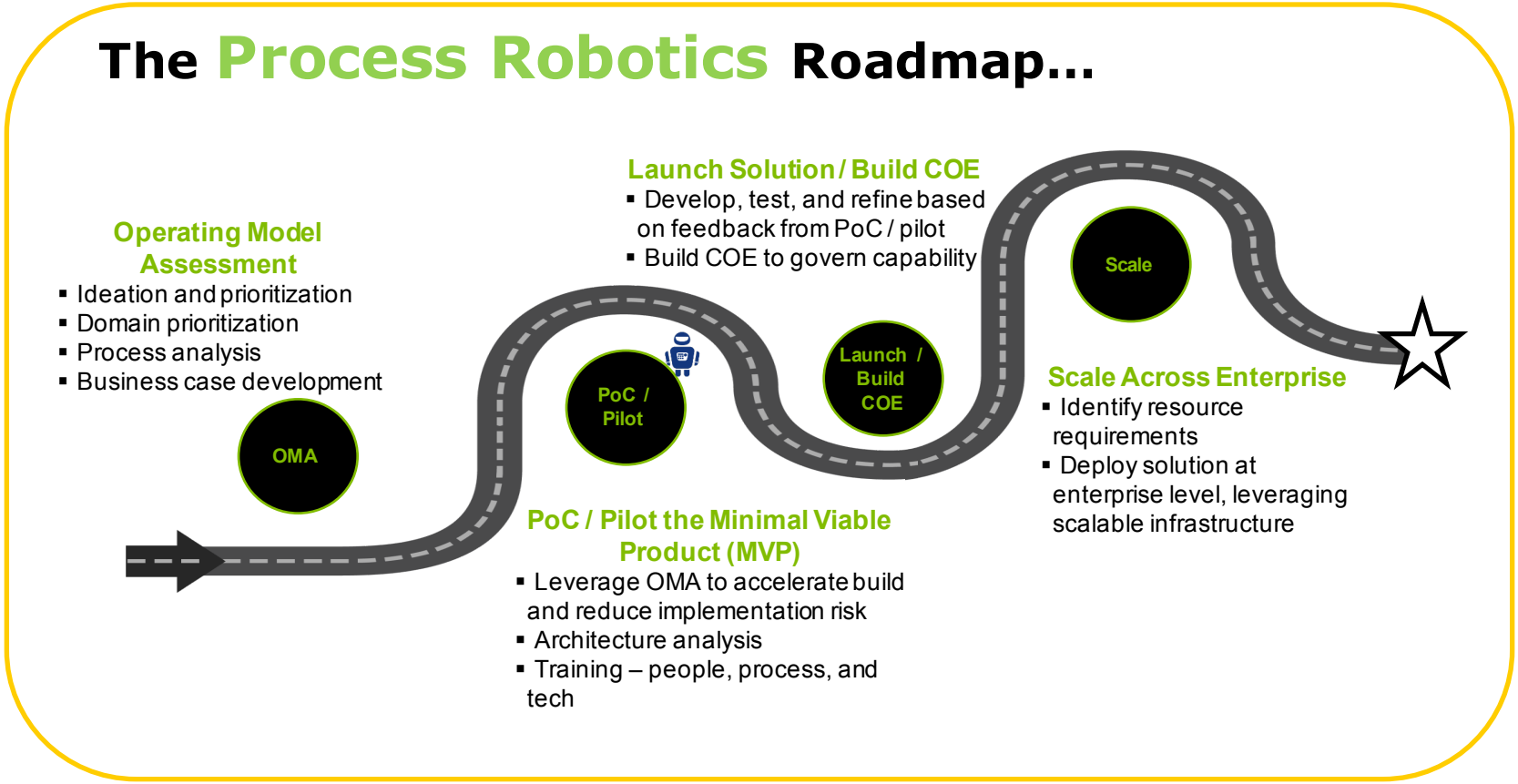
Process robotics replicates human interactions with proven technology: mimics common tasks such as queries, emailing, merging information, and button clicks

Process robotics can be implemented at the desktop or in the virtual environment: flexibility to quickly deploy robots directly onto existing desktops or virtually to save on additional hardware costs

By mimicking human actions, process robotics can quickly enable organizations to build a cost-effective, digitally-enabled workforce

The Process Robotics Roadmap guides your organization's automation

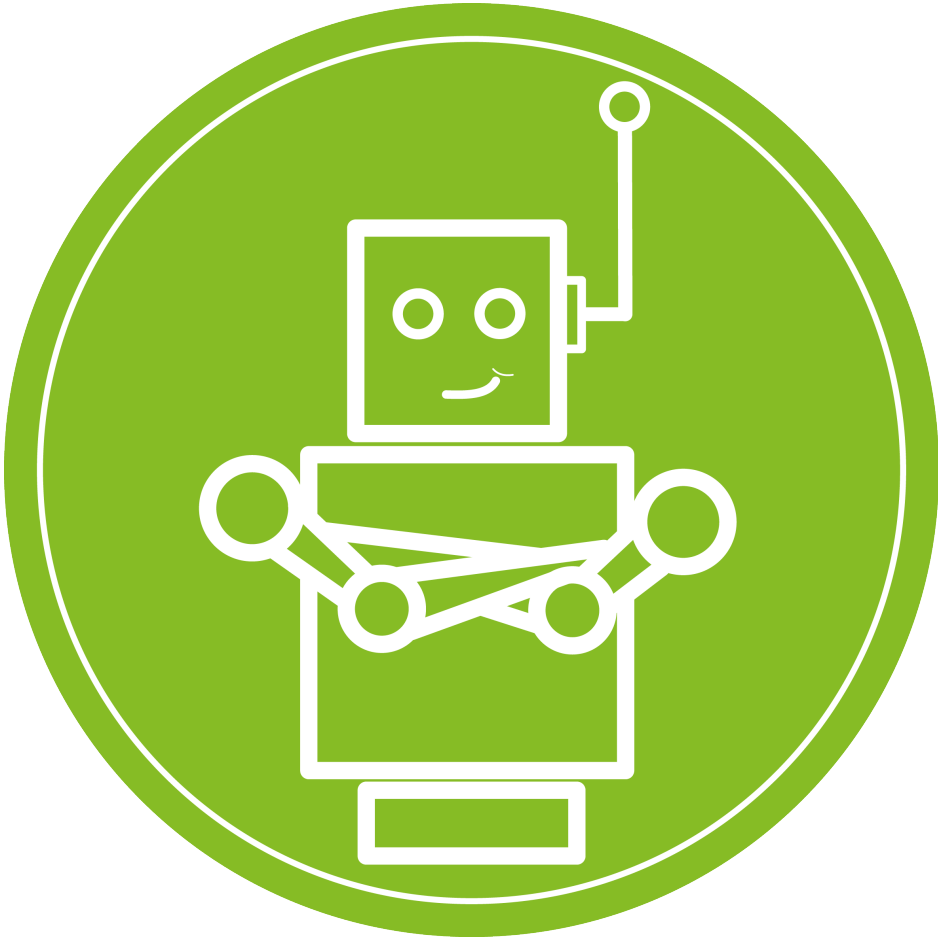
A deliberate path starts with an assessment followed by a pilot project, and sets the stage for enterprise scalability.



Eight evaluation criteria can be used to identify strong process candidates

Criteria	Description	Sub-Criteria
Number of Systems Used	A process should typically require employees to **access multiple independent systems** to complete the process	List of Systems Used Ease of Access / Integration
Transaction Volume	A process need not be limited to high-value transactional processes. Any process that is **labor intensive, time-consuming, or has high-cost impact errors** qualifies	Annual Volume Subject to Spikes
Prone to Errors or Re-Work	Manual activities in the process today result in **errors due to human operator mistakes** (e.g. complexity of work or infrequency of activity)	Error Frequency Error Impact
Process Predictability	A process needs to be defined in terms of a set of **unambiguous business rules**	Size of Decision Trees Business Logic Complexity Business Rule Documentation
Rules-Based Exception Handling	**Simpler processes with little exceptions in delivery** are excellent candidates in the beginning. With experience, there is potential to expand to processes that are more complex	Number of Exceptions Business Rules for Exceptions
Manual Work Involved	A process should have little automation support today and **large amounts of manual work**	Number of Keystrokes Number of FTEs
System Upgrade Timing	A process should be **avoided if it interacts with a system scheduled for a major planned upgrade within 6 months.** Major upgrades beyond minor enhancements need to be planned for in order to prevent rework	Date of Upgrade System Importance to Workflow Enhancement Scope
Controls Importance	A process that is **high-risk or has sensitive data that requires strong oversight** and set of internal controls	Process Risk Levels Audit Data Requirements Regulatory Demands

Panelists



Robotic Process Automation

Getting Started

October 12, 2018

Alicia Saucedo de Flores, OCFO Zone 1 Director

Getting Started

Identifying Projects –

- Any high-volume, business rules driven, repeatable process
- Processes with high error rates
- Processes containing manual data entry
- Processes dealing with multiple systems & associated screens
- Repetitive and mindless processes

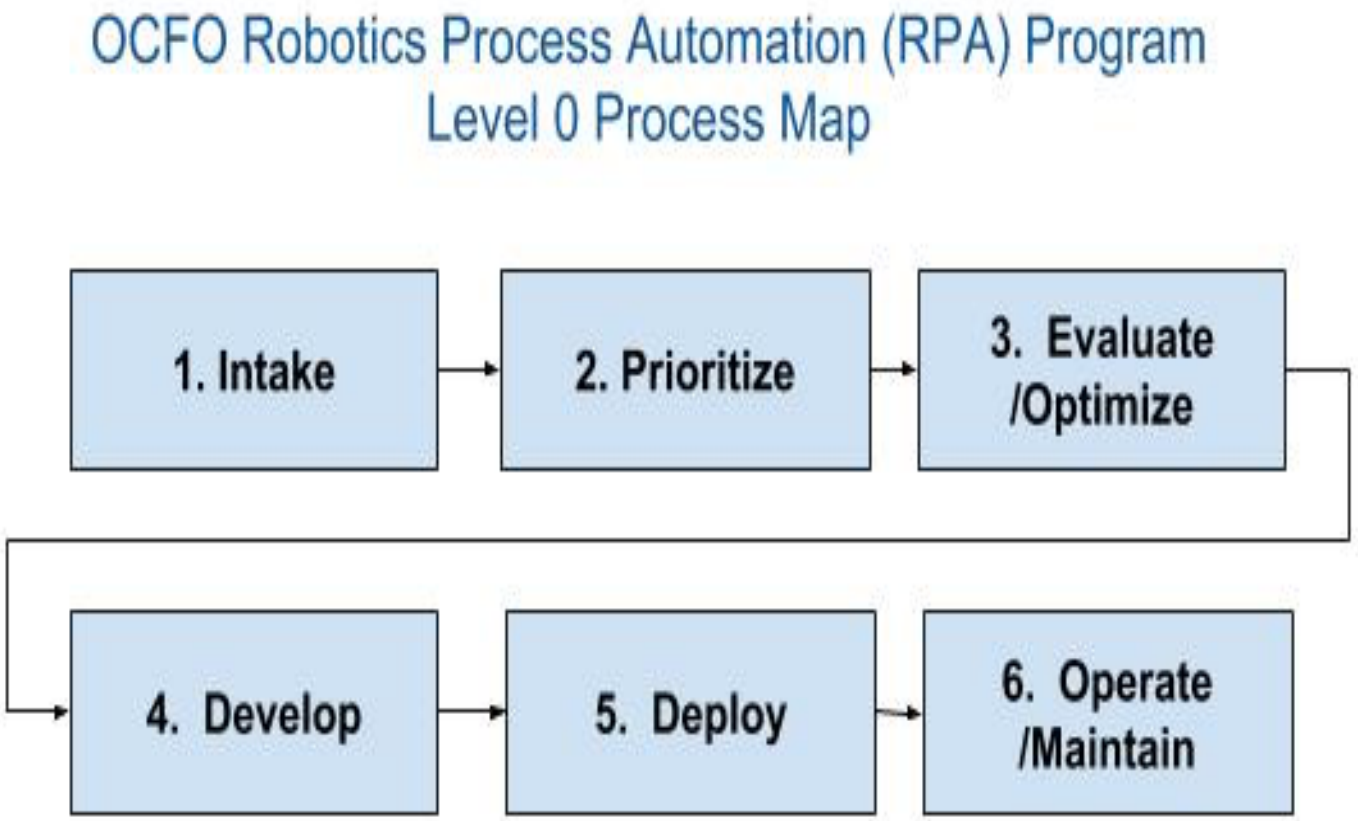
(Frequency of re-keying and collating data)

–Processes which are composed mainly of copy and paste of information from one system to another or data validation (comparing data from one application to another), benefit greatly from automation, as well as increase employee satisfaction since these processes are very clerical, time consuming, prone to errors, and not very fulfilling to do.

Getting Started

Project Selection

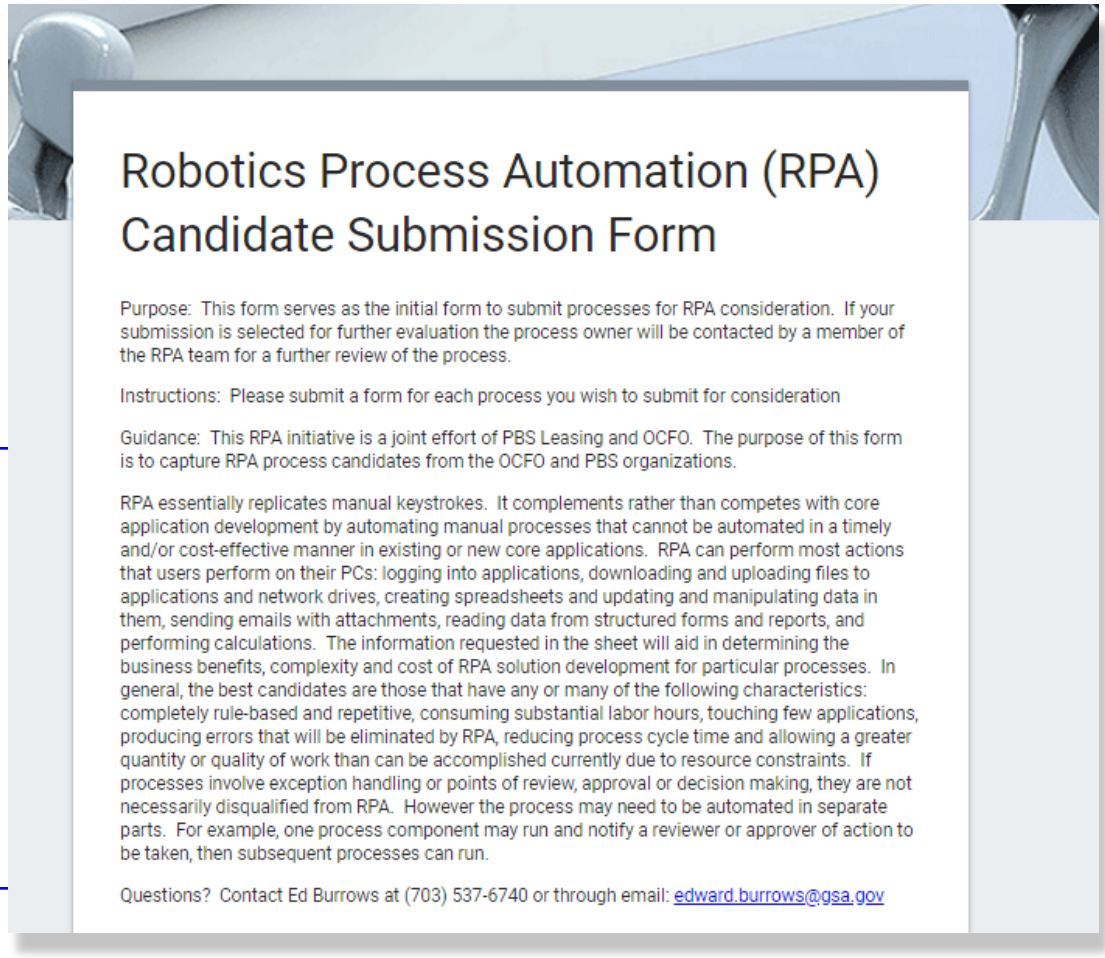
GSA OCFO RPA Program



RPA Candidate Intake Process

1. Intake

- Open intake process
- Anyone in organization can submit a process for consideration
- Using a web based Form (Google)
- Initial screening conducted



Robotics Process Automation (RPA) Candidate Submission Form

Purpose: This form serves as the initial form to submit processes for RPA consideration. If your submission is selected for further evaluation the process owner will be contacted by a member of the RPA team for a further review of the process.

Instructions: Please submit a form for each process you wish to submit for consideration

Guidance: This RPA initiative is a joint effort of PBS Leasing and OCFO. The purpose of this form is to capture RPA process candidates from the OCFO and PBS organizations.

RPA essentially replicates manual keystrokes. It complements rather than competes with core application development by automating manual processes that cannot be automated in a timely and/or cost-effective manner in existing or new core applications. RPA can perform most actions that users perform on their PCs: logging into applications, downloading and uploading files to applications and network drives, creating spreadsheets and updating and manipulating data in them, sending emails with attachments, reading data from structured forms and reports, and performing calculations. The information requested in the sheet will aid in determining the business benefits, complexity and cost of RPA solution development for particular processes. In general, the best candidates are those that have any or many of the following characteristics: completely rule-based and repetitive, consuming substantial labor hours, touching few applications, producing errors that will be eliminated by RPA, reducing process cycle time and allowing a greater quantity or quality of work than can be accomplished currently due to resource constraints. If processes involve exception handling or points of review, approval or decision making, they are not necessarily disqualified from RPA. However the process may need to be automated in separate parts. For example, one process component may run and notify a reviewer or approver of action to be taken, then subsequent processes can run.

Questions? Contact Ed Burrows at (703) 537-6740 or through email: edward.burrows@gsa.gov

Prioritizing Candidates

2. Prioritize

- OCFO Leadership Team reviews candidate processes
- High level look at the following project attributes
  - Current process
  - Staff hours per month
  - # of Systems involved
  - Exception Handling
  - Error Frequency
- Prioritizes based on strategic and benefit merits

Evaluating & Optimizing

3. Evaluate /Optimize

RPA Process Assessment

Process:	**Date:**
Assessment Questions	**Y/N/#**

Prone to human error: - Is there a high rate of error or high impact if errors occur? *Automated processes will operate with zero human error and this provide significant benefit*	
Unfulfilling: - Is the process repetitive, mundane and unsatisfying *Removing low-end human work improves employee satisfaction and makes better use of human skills*	
High volume / low to medium complexity: - Is there a high volume of activity? *Supports a return on investment for the solution*	
Low volume / high complexity: - Is there a lower volume but high complexity/long execution time? *Supports a return on investment for the solution*	
24 hour operation: - Does the process (or could the process) run 24 hours a day? *Automations can run 24/7 so are well suited to processes requiring 24 hour operation – or those that could be 24/7 given an unlimited workforce*	
How many applications does this process access/use? - email, Excel, Word, Google, Business Objects, etc)	
Who are the customers of this process? Enter Customers here:	
What customer need does this process fulfill?	
Legacy or external applications: - Does the process use legacy applications and/or external systems (i.e. owned by a provider or customer?) *Automation can manage processes using legacy or external systems which could not be automated using other methods*	

Food and Drug Administration (FDA)

The FDA's Office of Business Informatics is building a new Robotics Process Automation (RPA) capability to automate part of the drug application intake process and assist in large-scale data quality remediation efforts. This improves the speed and accuracy of data entry, improves data quality, and helps reduce the total time of drug review.

	Issue	Action	Impact	
Company Bot	• CDER receives thousands of applications for new original drugs (NDA), generics (ANDA), and biologics (BLA). FDA's legacy state included paying a team of nearly 20 full-time personnel to perform manual data entry of application PDFS into the reviewer system. • Declining top line budgets and pressure to improve the speed and accuracy of application review has led FDA to rethink this process.	• ***Conducted Operating Model Assessment*** • ***Candidate Process Evaluation:*** Identified manual, high-transaction processes. • ***Process Robotics Vendor Analysis***: Conducted an analysis of eight RPA vendors. • ***Proof of Concept and Implementation:*** Developed a prototype in a test environment similar to the client's live system.	**60%** **8,000**	Improvement in average processing time Hours of manual work saved
Data Quality Bot	• CDER maintains a large repository of sponsor-submitted data that is used during the regulatory review process for drugs. However, data discrepancies hinder the efficiency of the review process and impact agency performance against user fee commitments by delaying official correspondences, facility inspections or product quality reviews.	• Developed data quality bots that locate, validate, cleanse, and compile large volumes of data related to company, product, and supply chain. • The information that the bots cleans and validate is handed off to Analysts to complete additional analysis. In some cases the Analysts hand the information back to the bots to write updates directly to the database	**98%** **5,498**	Reduction in cycle time Hours of manual work saved

Solicitation Review Tool (SRT)

October 2018

Presented By: Marina Fox, OGP

What is SRT?

What is Solicitation Review Tool (SRT)?

- It is an automated predictive analysis application that performs scans of the Federal Business Opportunities /FedBizOpps website and delivers:
  - a report containing all of the new solicitations for the previous day,
  - a report of flagged solicitations that require manual review for specific regulatory requirements and compliance, and
  - a web-based portal for agency SMEs to perform manual reviews of flagged solicitations and to communicate with contracting POCs for improvement, and
  - analytics and trending of flagged solicitations overtime by agency and gov-wide

- SRT uses **natural language processing**, **text mining**, and **machine learning algorithms** to automatically identify whether a solicitation contains sufficient compliance requirements for a particular use case (e.g. Section 508 Technical Requirements).

SRT - Long-Term Goal

Long-term Goal - Automated Review of Solicitations for **ANY specific** contract requirements

- Scan all of the solicitations on FedBizOpps for the presence of different requirements (e.g. cyber security)
- Use a series of prediction algorithms and text data mining to generate a list of solicitations flagged for manual review
- Present the flagged solicitations in the SRT web portal for manual review, communication with solicitation POCs and progress tracking.
- Present usage analytics and progress/history trends of flagged solicitations (pre and post review)

SRT - Short-Term Goal

Short-term Goal - Automated Review of Solicitations for **Section 508 Requirements**

- Scan all of the EIT/ICT solicitations on FedBizOpps for the presence of Section 508 requirements
- Use a series of prediction algorithms and text data mining to generate a list of EIT solicitations flagged for manual review by agency 508 coordinators due to missing 508 requirements
- Present the flagged solicitations in the SRT web portal for manual review, communication with solicitation POCs and progress tracking.
- Present usage analytics and progress/history trends of flagged solicitations (pre and post review)

What's the Big Deal?

Why is identifying EIT solicitations with missing Section 508 technical requirements so **important?**

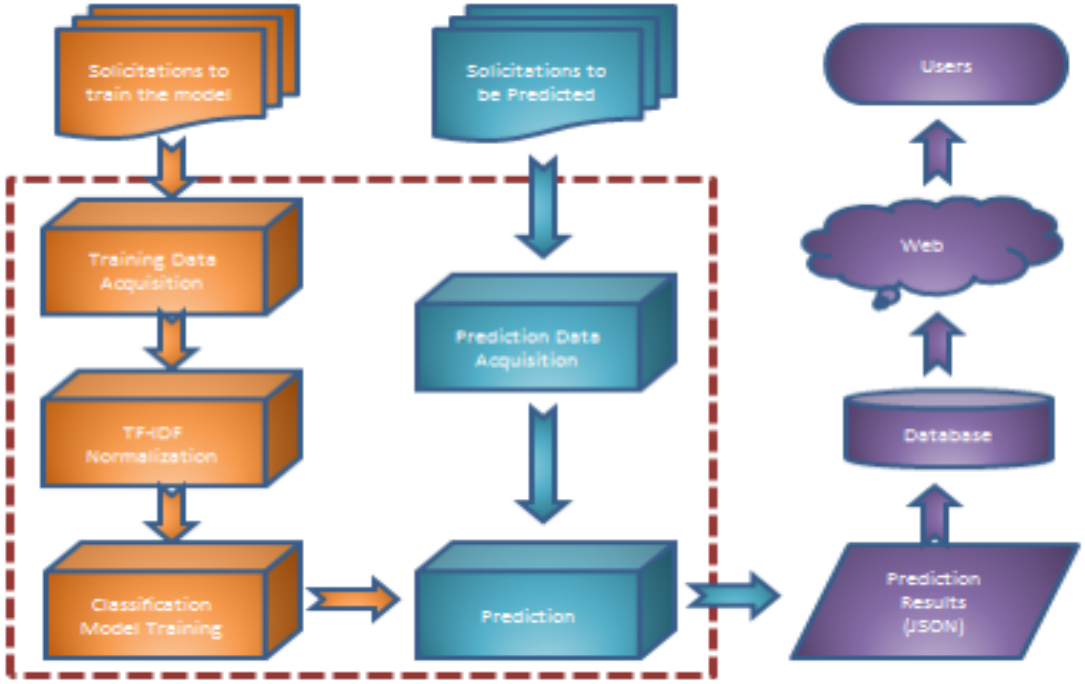
- **Lawsuits are becoming more common** - according to a 2012 DoJ report, since 2001, 140 administrative complaints and 7 civil actions had been filed against Agencies over Section 508.
- **It is not just lawsuits** - for the past 10 years, "people have often used arbitration to enforce the provision in cases filed through unions and other organizations. Some arbitration cases result in large fines, which agencies must pay" - FCW, Jan 22, 2007
- **Failing to specify 508 technical requirements in your procurement**, and not developing to the standard from the beginning of the process, or accepting a partially compliant or non-compliant product can lead to remediation ***costing a lot of money***.

Source: GSA, Section 508 Event at NSF, April 4, 2017

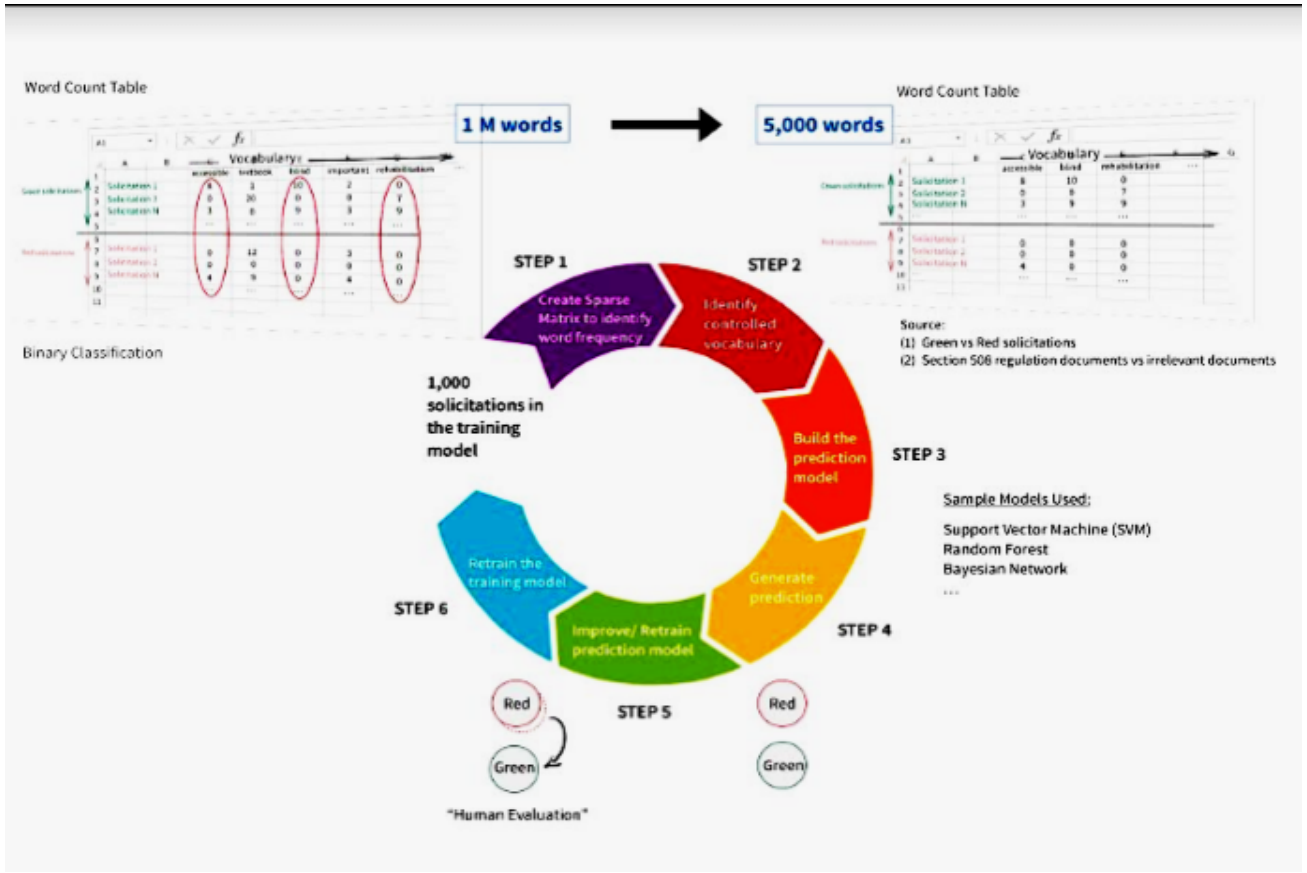
What's Under the SRT Hood?

- SRT has four major components in its prediction system: **data acquisition, data pre-processing, classification model training, and prediction.**

- Classification models are trained by machine learning algorithms using training datasets, and trained models are used to conduct the prediction on whether a new solicitation contains sufficient the section 508 compliance requirements.



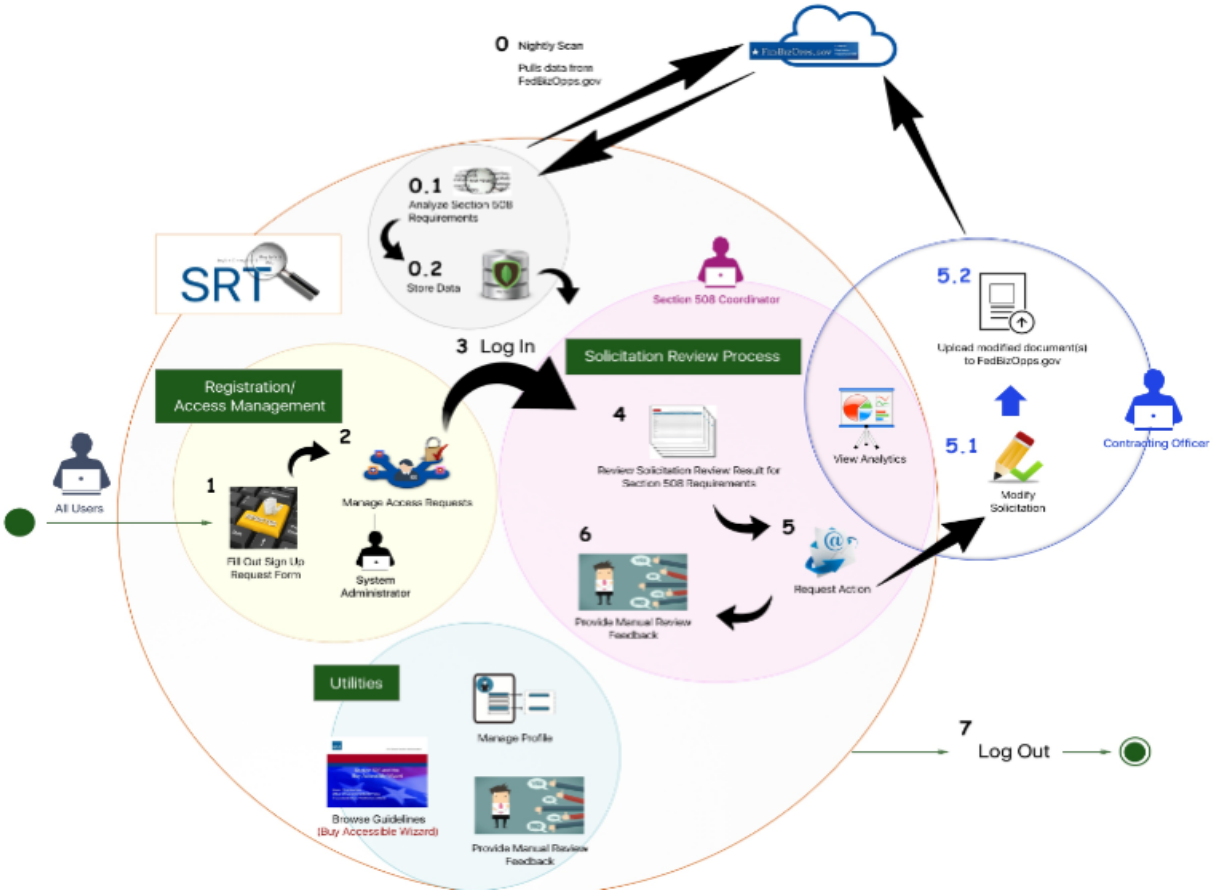
SRT - Data Science



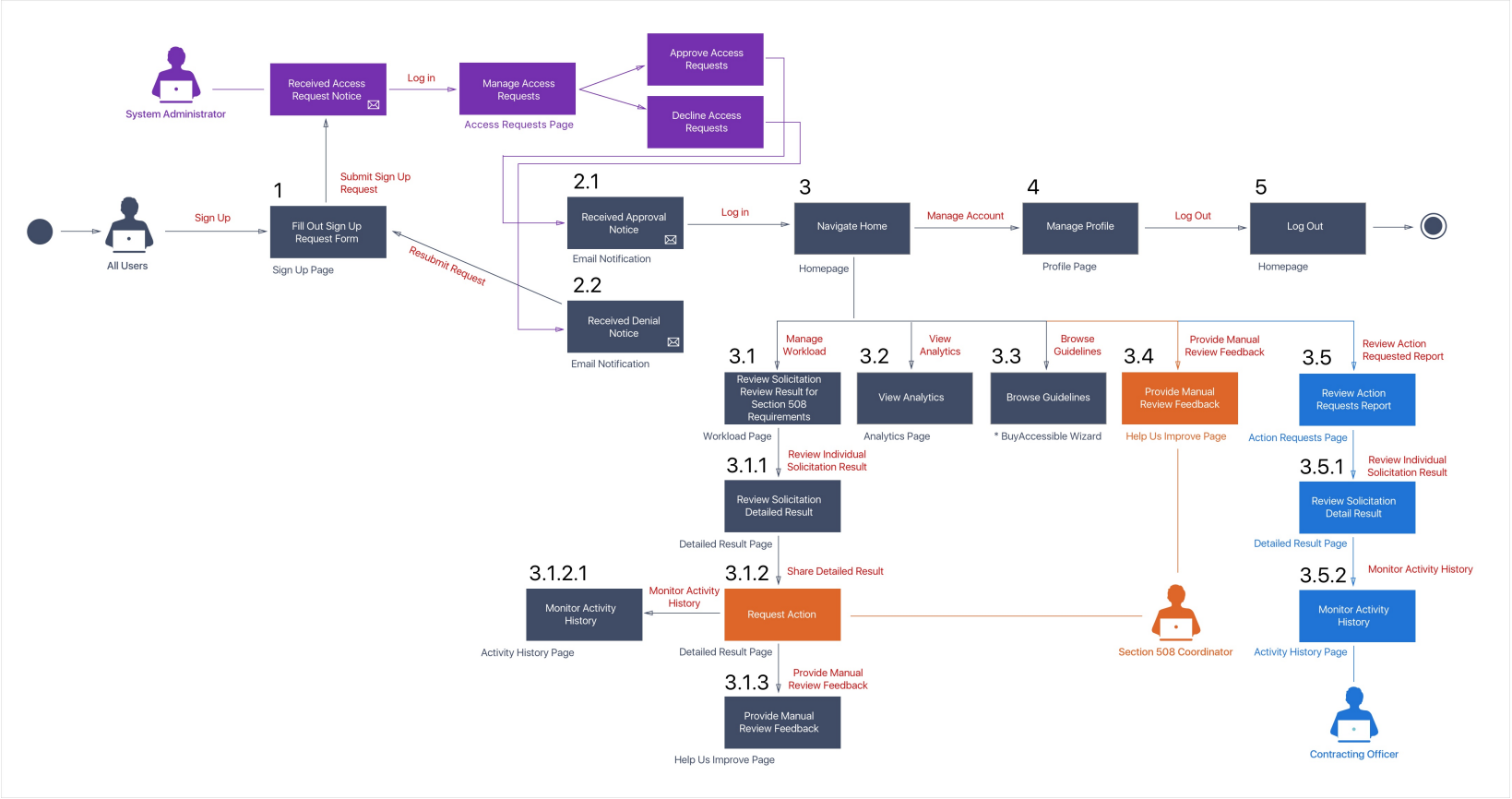
SRT - Architecture (Dev)

- **Python** - used for data parsing, ingestion. and big data model creation
- **Node.js** - application framework (Express) and for I/O operations (REST operations and MongoDB interface)
- **MongoDB** - a database for storing raw, cleansed solicitations data and prediction data

SRT Activity Diagram

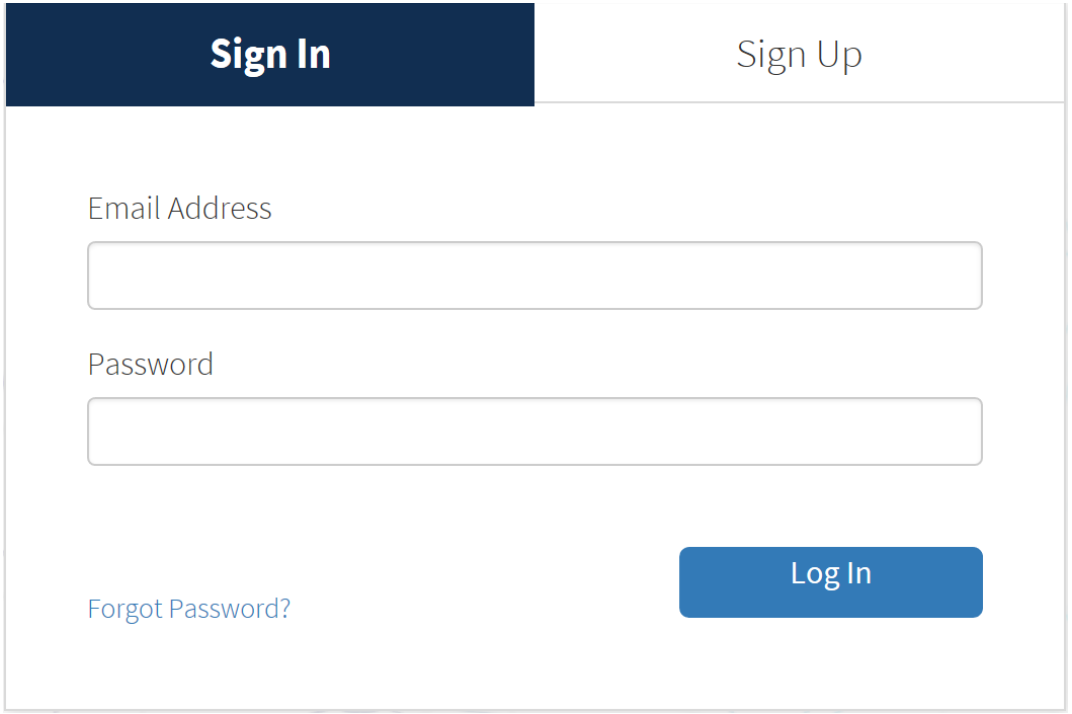


SRT Information Architecture



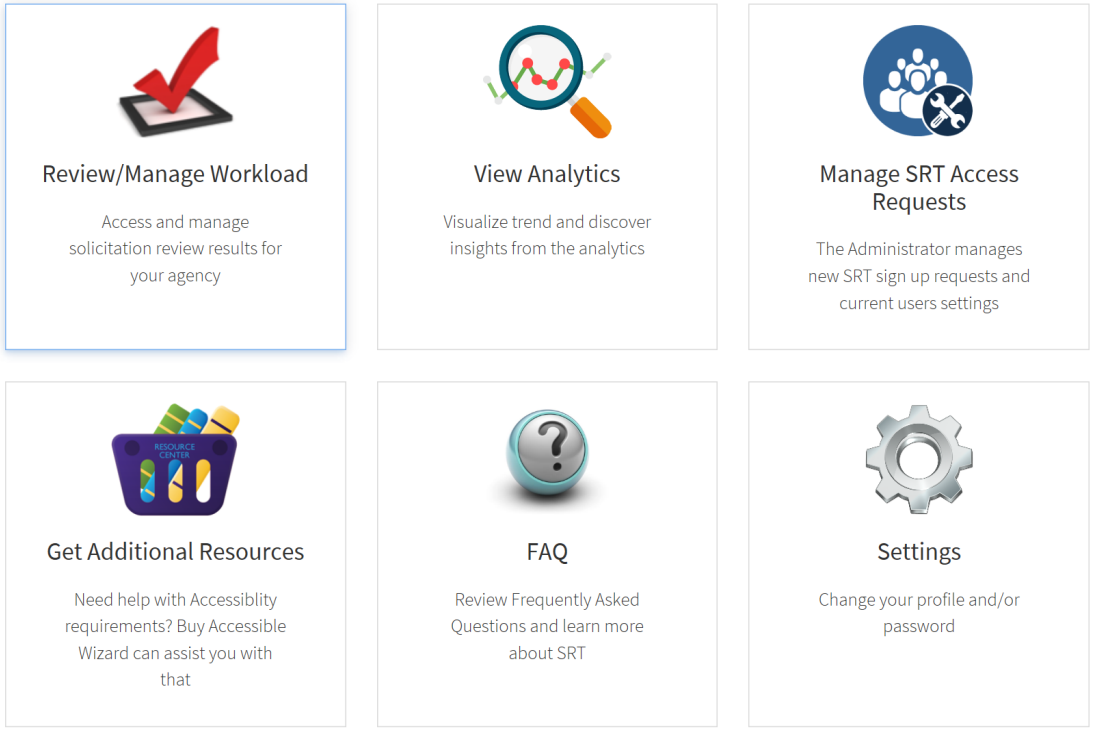
SRT Web Portal Sign In / Sign Up

- Sign in using single factor authentication.
- Or sign up for an account, which requires approval from the System Administrator.



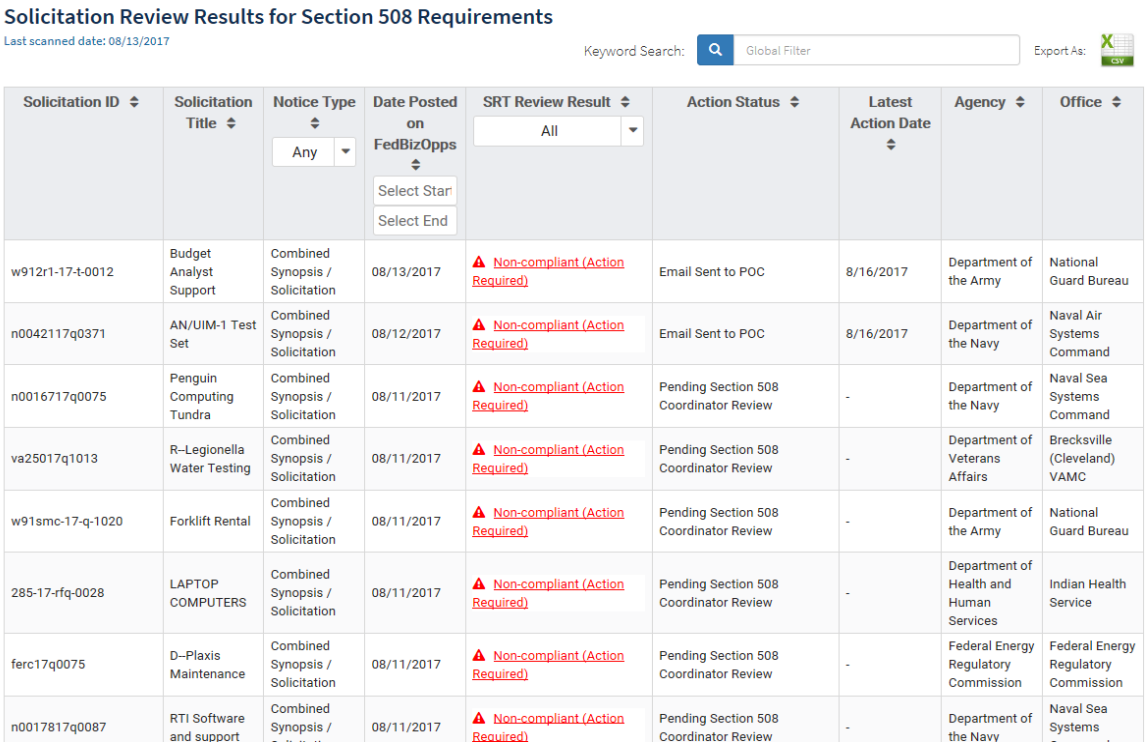
SRT Home Page

- Users manage workload, views predictions of non-compliant solicitations, edits profile, and gets resources.
- System Administrator approves and manages user accounts and access.



Review / Manage Workload Module

- Reviewer manages ICT / E&IT solicitations that his/her agency posted on the FBO.gov website.
- Reviewer inspects solicitations that the machine predict to be non-compliant.



Solicitation Review Results for Section 508 Requirements

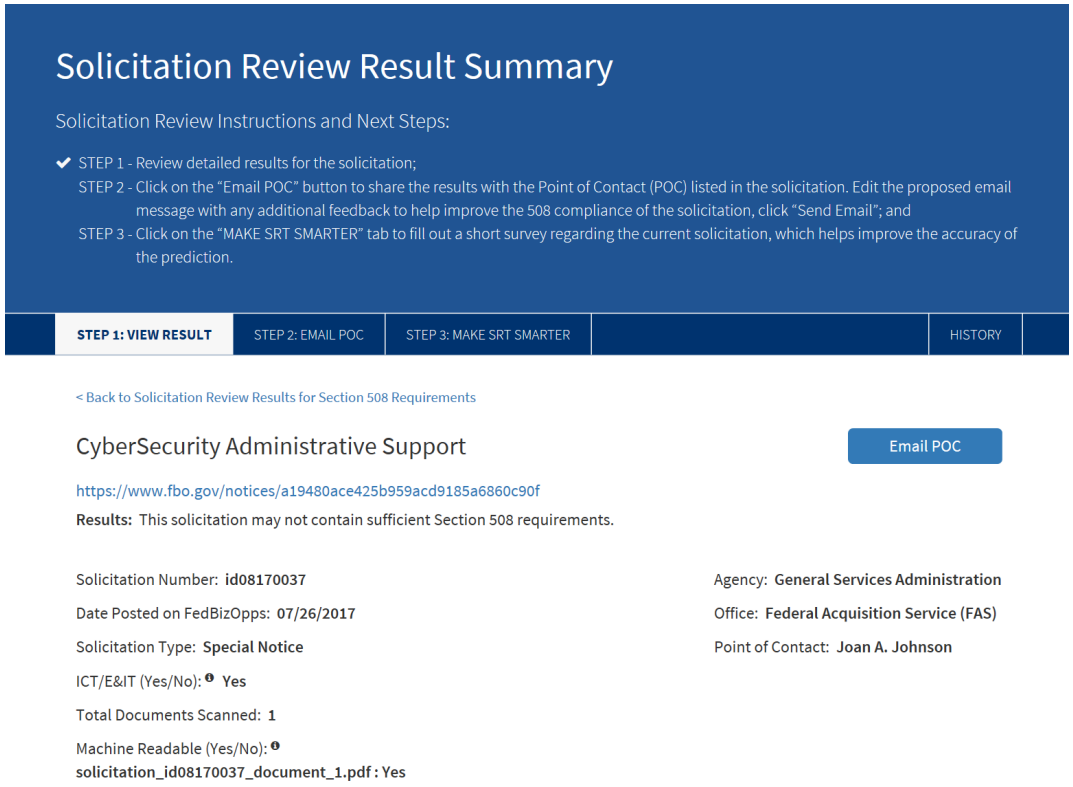
Last scanned date: 08/13/2017

Keyword Search: Global Filter Export As:

Solicitation ID	Solicitation Title	Notice Type (Any)	Date Posted on FedBizOpps (Select Start / Select End)	SRT Review Result (All)	Action Status	Latest Action Date	Agency	Office
w912r1-17-t-0012	Budget Analyst Support	Combined Synopsis / Solicitation	08/13/2017	Non-compliant (Action Required)	Email Sent to POC	8/16/2017	Department of the Army	National Guard Bureau
n0042117q0371	AN/UIM-1 Test Set	Combined Synopsis / Solicitation	08/12/2017	Non-compliant (Action Required)	Email Sent to POC	8/16/2017	Department of the Navy	Naval Air Systems Command
n0016717q0075	Penguin Computing Tundra	Combined Synopsis / Solicitation	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Department of the Navy	Naval Sea Systems Command
va25017q1013	R--Legionella Water Testing	Combined Synopsis / Solicitation	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Department of Veterans Affairs	Brecksville (Cleveland) VAMC
w91smc-17-q-1020	Forklift Rental	Combined Synopsis / Solicitation	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Department of the Army	National Guard Bureau
285-17-rfq-0028	LAPTOP COMPUTERS	Combined Synopsis / Solicitation	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Department of Health and Human Services	Indian Health Service
ferc17q0075	D--Plaxis Maintenance	Combined Synopsis / Solicitation	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Federal Energy Regulatory Commission	Federal Energy Regulatory Commission
n0017817q0087	RTI Software and support	Combined Synopsis /	08/11/2017	Non-compliant (Action Required)	Pending Section 508 Coordinator Review	-	Department of the Navy	Naval Sea Systems

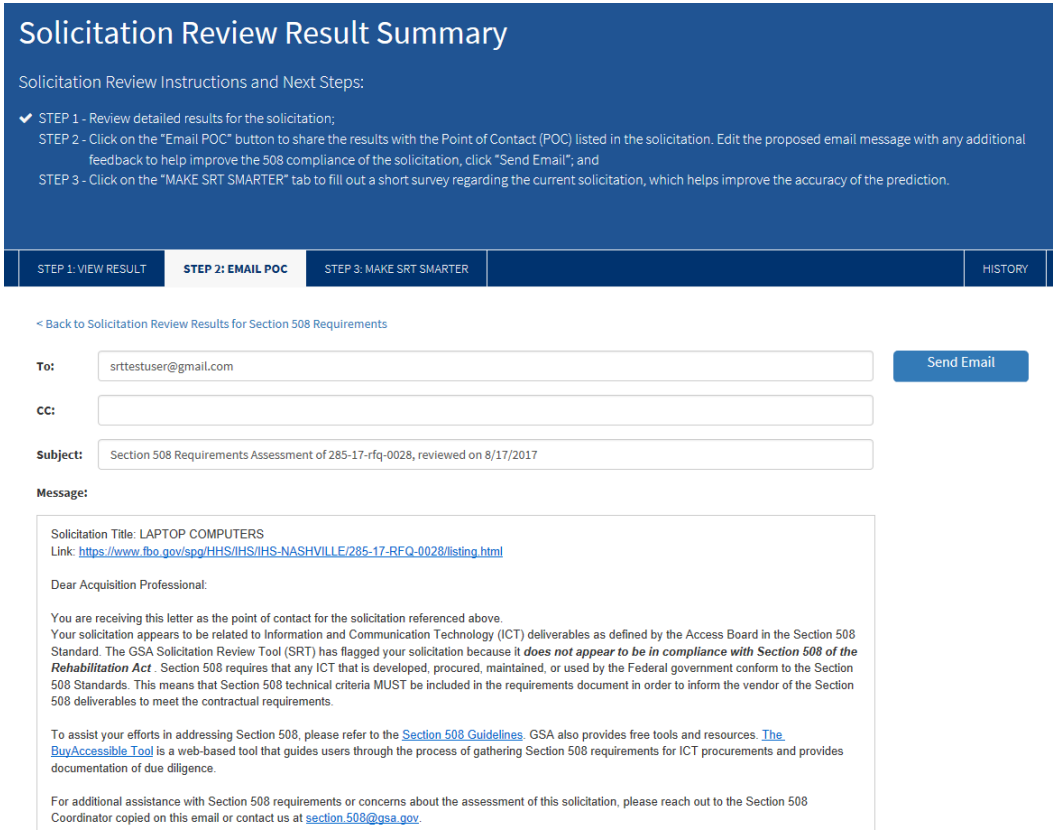
Review Solicitation – Step 1

- Reviewer analyzes the detailed results of the selected solicitation to determine whether the prediction is accurate.



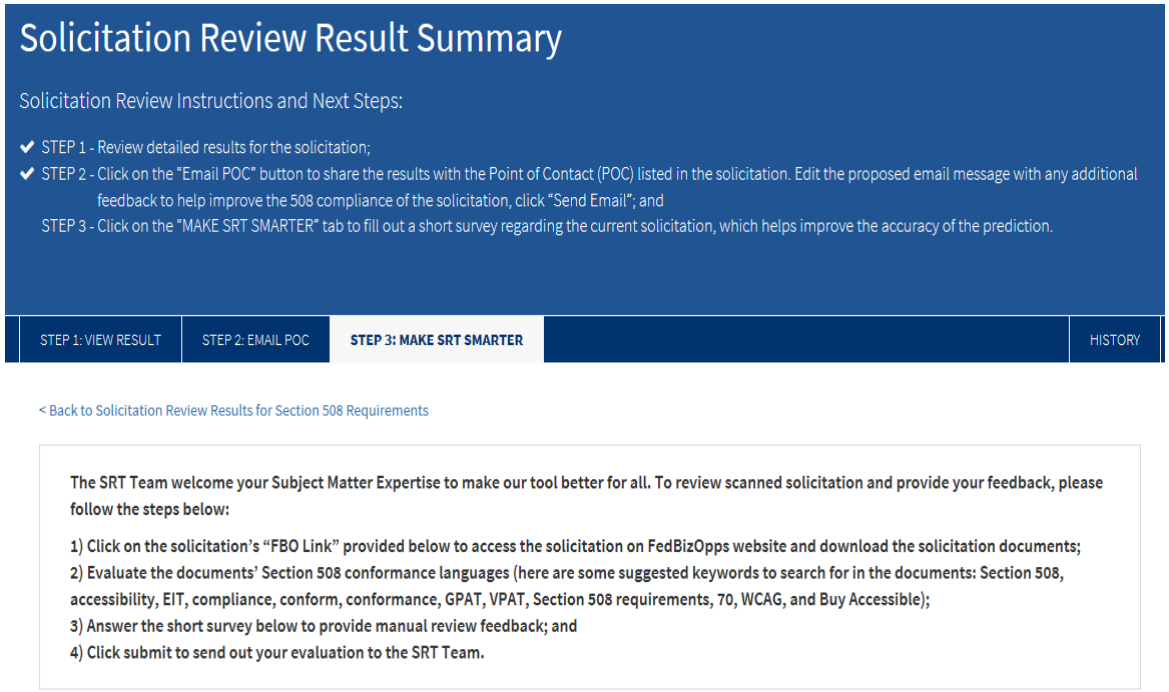
Review Solicitation – Step 2

- Reviewer emails the Point of Contact (POC) to inform him/her that the solicitation is non-compliant.
- Reviewer can edit the proposed email with any additional feedback to help improve the 508 compliance of the solicitation.

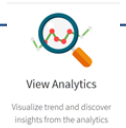


Review Solicitation – Step 3

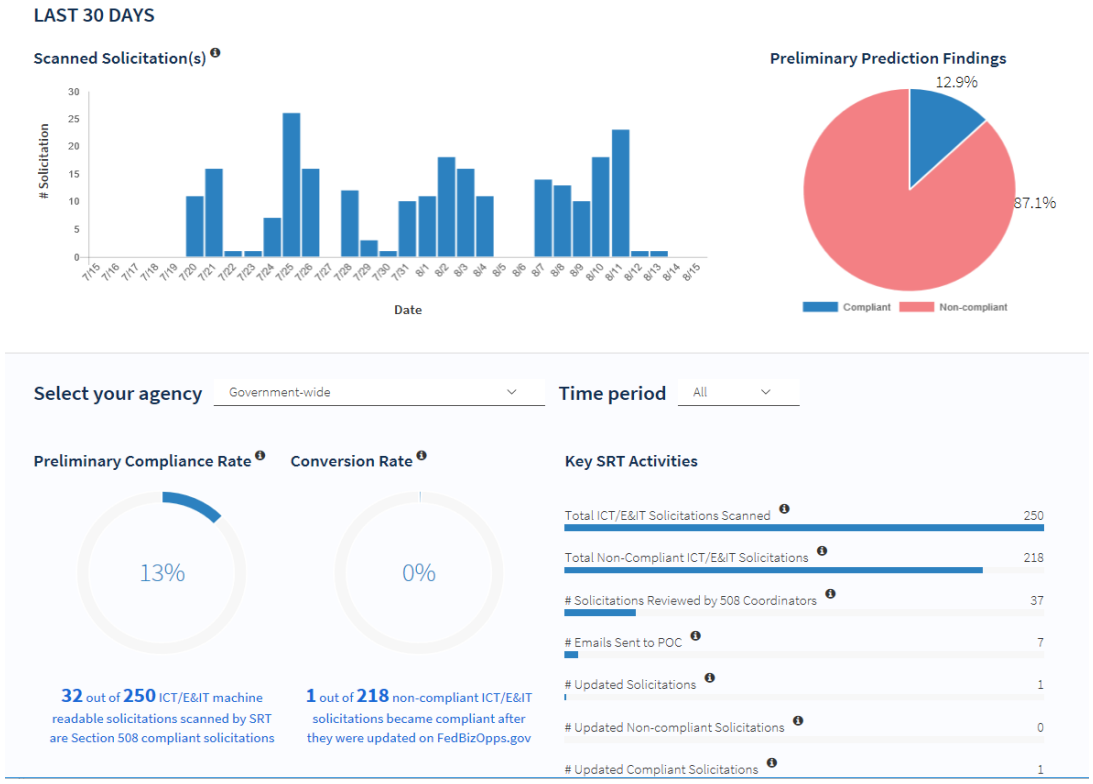
- Reviewers fill out a short survey to help make the machine learning algorithm smarter by telling it whether the prediction is correct.



Analytics Module



- View the total number of scanned ICT / E&IT solicitations and preliminary predictions of non-compliance.
- Track the activities undertaken to convert non-compliant solicitations into compliant ones.



Manage Access Requests

- System Administrator reviews pending access requests.
- System Administrator is empowered to approve or reject pending access requests.

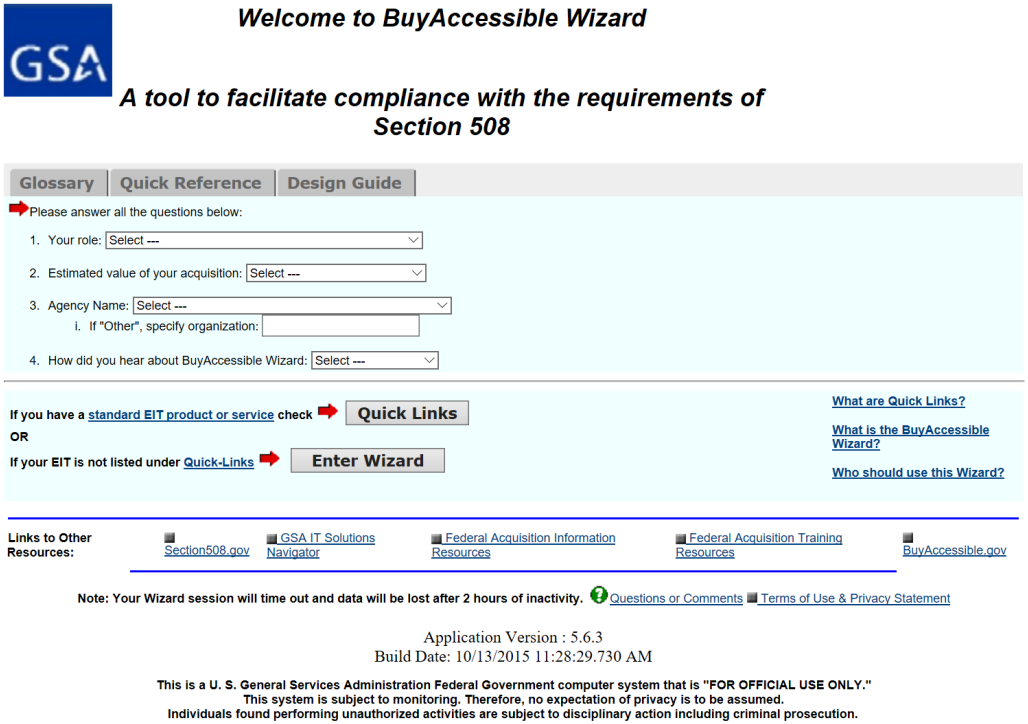
User Access Requests

PENDING APPROVED DENIED

Name	Position	Agency	Office	Email	Request Date/Time	Action
Charles Royster	Customer Relationship Manager	General Services Administration (GSA)		Charles_Royster@unitedsolutions.biz	6/22/2017	Approve Deny
Melven Kit	Section 508 Manager	General Services Administration (GSA)		melven@gsa.gov	7/17/2017	Approve Deny
Val Woodson	Section 508 Manager	Corporation for National and Community Service (CNCS)		val@gsa.gov	7/18/2017	Approve Deny

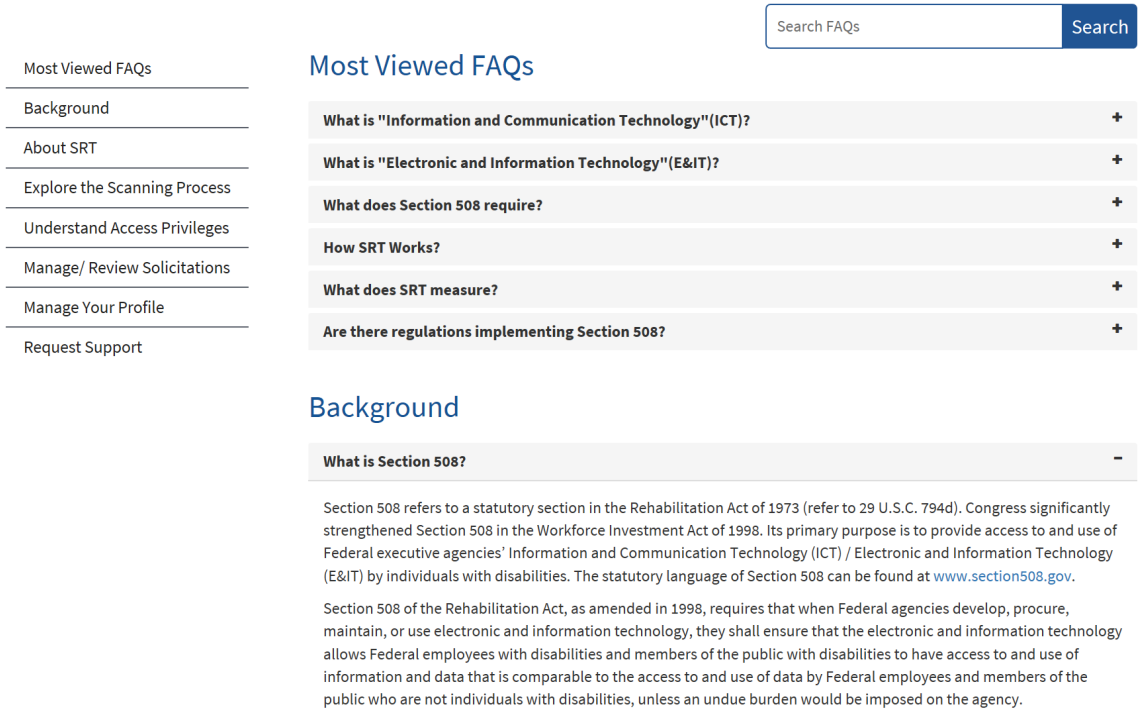
Get Additional Resources

- Users have access to additional resources from complementary systems such as the BuyAccessible Tool.



FAQ

- Users have access to Frequently Asked Questions (FAQ) carefully organized and searchable by keyword.
- FAQs are strategically linked to different parts of the system.



US NAVY – Military Sealift Command

Machine Learning to Improve Reliability Centered Maintenance (RCM) Analysis

Abeyon

Strategic Goal

Preventive, condition monitoring based maintenance

Proactive, reliability based maintenance

Military Sealift Command

Division of US Navy: Own and operate over 100 ships

MSC Engineering N7 exercises Technical Authority over maintenance and repair decisions for the fleet.

Problem

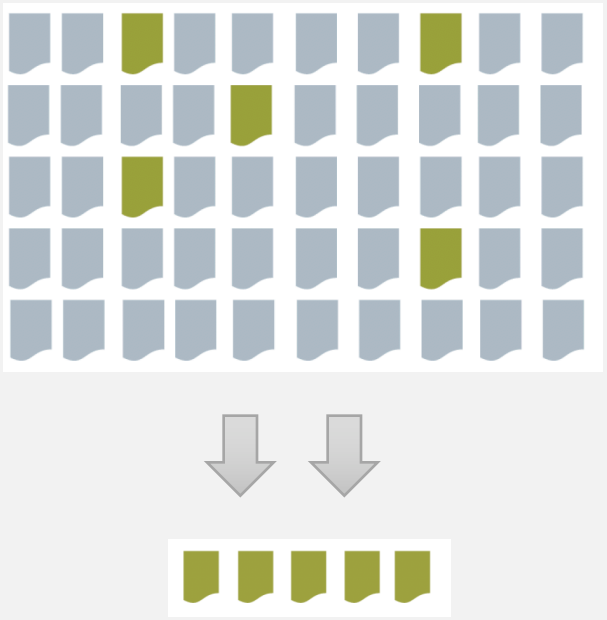
800,000+ maintenance documents in unstructured format with valuable information

Task

Need to extract the information

Combine it with other meta data in the MSC Maintenance Management database

So efficient analysis could be performed



Why AI?

Manual review

Human enhanced AI review

Scalable

Long term

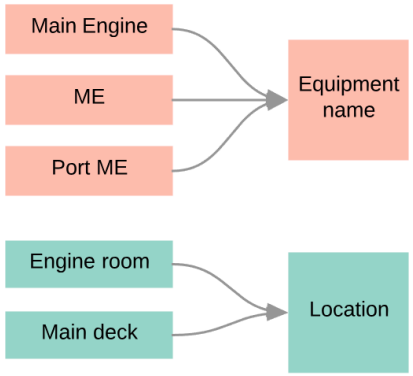
Automated

Solution

Step 1

Annotate documents on sample set of 600 documents

Train and build model to identify key entities

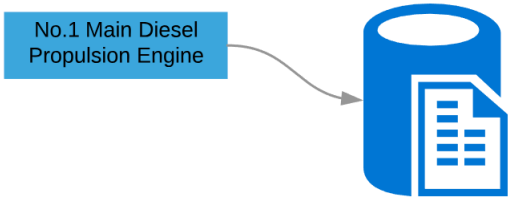


Step 2

Map entities to fields in Database using Text classification

Compared CNN, RNN, Siamese, SVM and other neural network models

Built UI for SME's to verify



3000+ eq. for a single ship

Technologies

IBM Watson

Google TensorFlow

Scikit

IBM Watson

Keras

Result

Cost Savings from manual extraction of information

Visibility into full equipment and maintenance history for more focused maintenance analysis

Lessons Learnt

Involve & Provide SME's with basic training on understanding AI and the expected outcome

Provide SME's guidelines and approach to annotation of documents to ensure consistency

Integrate with existing systems so that the learning and benefits are continous

What's next

Expand this to other maintenance documents

Predicting need for parts based on Failure modes

and more...

THANK YOU

william.s.carroll@navy.mil
mallesh.murugesan@abeyon.com

Abeyon

Strategic Goal

Move from a **preventive, condition monitoring based maintenance** approach to a **proactive, reliability-based maintenance** approach that uses data analysis in support of maintenance decision making