Scaling Humans with Artificial Intelligence

Realizing the Benefits of AI and a Hybrid Workforce in Federal Healthcare

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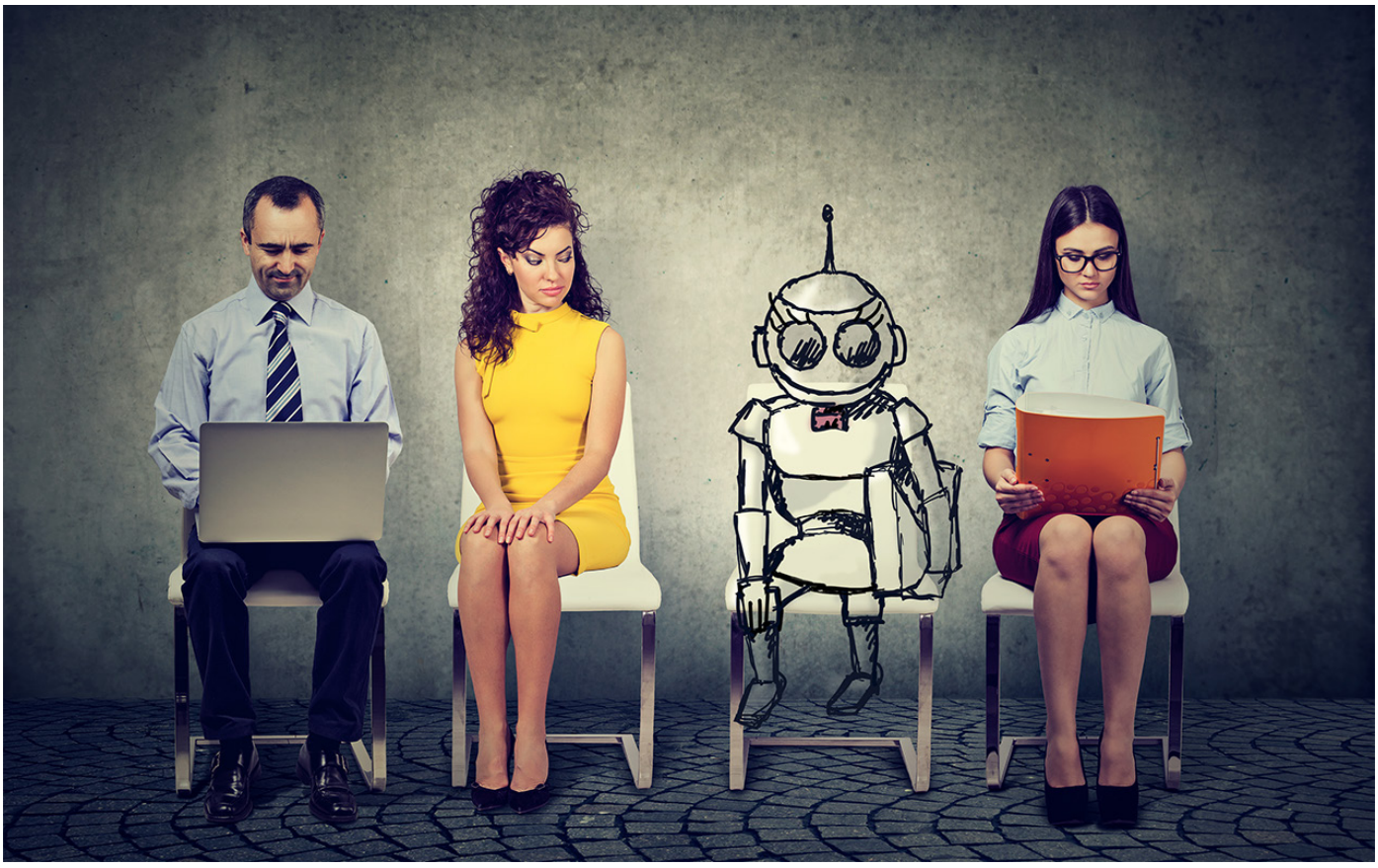
Artificial intelligence (AI) is often associated with futuristic pursuits or movies like Terminator or 2001: Space Odyssey. But AI is not a product of the future, in fact, AI is already having an impact on the daily lives of many people. Three great advancements are making AI a true reality: 1) the ability to store massive amounts of data cheaply, 2) the availability of advanced machine learning algorithms, and 3) intense computing power. We have seen exponential growth in each of these areas, progressing AI faster than we can even imagine, and setting in motion irreversible momentum for operational artificial intelligence.

According to International Data Corporation (IDC), worldwide spending on AI is expected to grow to $46 billion by 2020. At the same time, the U.S. federal government has an opportunity to save as much as $40 billion within 5-7 years by implementing AI to shift people into higher-value work, helping us overcome resource constraints, cutting down on paperwork and improving our accuracy.

AI is already a reality in the daily lives of most people. From social media and product recommendations to digital assistants, we are witnessing an explosion in AI usage. Enterprise organizations across all industries are starting to deploy AI in various forms, or at least are considering their roadmap for it. We're going to discuss what we're seeing in the federal healthcare environment, where AI is being used to augment human workforces committed to improving the Triple Aim of better outcomes, reduced costs and increased accessibility.



There is no doubt about it: AI is coming to the enterprise—not as a replacement for the human workforce, but as an advanced tool that can help enterprise organizations scale their human talent.

Where AI is Retooling Federal Healthcare

Many agencies are starting to look at how AI can help their organization work more efficiently and improve operational results, so their human workforce can focus on what matters most—delivering unprecedented mission outcomes. In fact, healthcare and clinical settings present significant opportunity to automate administrative processes that are repetitive and often time-intensive tasks that take clinicians away from improving healthcare for patients. Here are some examples.

- **Easing Provider Burden**
  Artificial Intelligence will be leveraged in a number of ways to ease provider burdens—a priority for agencies such as the Centers for Medicare and Medicaid Services (CMS) and Department of Veterans Affairs (VA). For example, AI will cut down on the number of hours it takes providers to fulfill prior-authorization requests by reading and auto-populating large amounts of patient data. Other types of administrative tasks will be simplified, if not automated altogether, such as medical record review and its role in addressing interoperability challenges. An increasing number of providers will begin applying AI-based algorithms to continually learn from structured and unstructured data, ultimately making care interventions even more applicable, and perhaps even more predictable.
- **Identifying High-Risk Prescribers/Patients**
  The efforts to combat opioid abuse are prevalent across the federal healthcare environment. CMS, for example, is championing statistical modeling to identify high-risk prescribers of opioids, as well as patients with the highest risk for substance abuse. These types of efforts are becoming more sophisticated with AI, as pathways open for an increased data exchange across clinical and pharmacy, both public and private, and the reduction of data silos. The volume of data which can be accessed, aggregated, and analyzed will lead to an acceleration in analytics and actionable intelligence as AI models are able to be deployed. There will be an acceleration in the confluence of predictive intelligence and the application of scientific literature in claims data analysis to surface individual risk scores that can be used to intervene at the patient, provider and pharmacy levels.
- **Improving Fraud, Waste and Abuse Detection**
  Predictive denial management is a critical component in the revenue cycle. The American Medical Association (AMA) estimates up to seven percent of Medicare patients may be denied services. With AI, a predictive system will be able to highlight problems before they are submitted by tracking the entire patient billing record from authorization through claims. AI will flag problem areas, suggest interventions and then learn and adapt from the feedback of insurers.

- **Optimizing Scheduling**
  Smarter scheduling will be managed more proactively through the use of AI. AI solutions will become more prominent in ingesting scheduling and patient data to generate insights, allocate the right amount of time for care, suggest the most ideal schedule and remove gap time. AI capabilities will also be used to understand patient demands and plan for the unexpected, while improving patient access to predict no-shows / cancellations and determine the appropriate appointment length.
- **Ensuring Directives and Policies**
  Under today's administration and value-based pay mandates, new legislation will be frequently developed, released and updated across federal agencies. Provider, payer, and federal organizations will have to keep pace with these new policies and AI can help read documents at machine speeds to ensure compliance and provide a deep understanding of the rules and guidance.

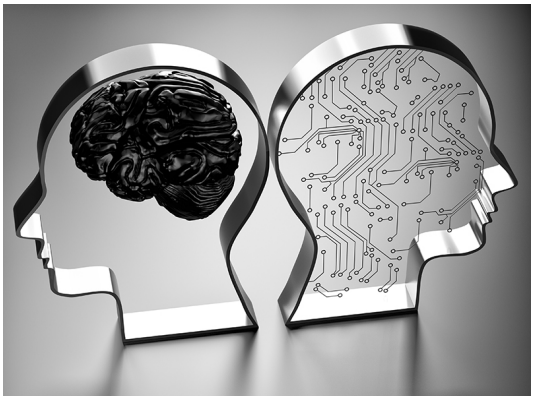
  These are just some examples of AI in a federal healthcare setting. Other areas, such as customer service, will also benefit from AI-driven chatbot interactions. Whether it is narrow AI adoption, or a more aggressive approach to machine learning, artificial intelligence will continue to be applied in the federal healthcare enterprise. With an abundance of data and the current landscape of AI solutions, federal healthcare organizations should be assessing where they are in the AI value chain of adoption.

NCI's Shai™ Automates Repetitive, High Volume Tasks to Meet Federal Healthcare Missions

Shai™, which stands for "Scaling Humans with AI," is NCI's AI solution to alleviate administrative burdens and scale human talent to deliver unprecedented results. Shai™ accelerates, automates and augments repeatable processes and then quickly turns data into actionable intelligence. Federal customers can combine the power of Shai™, which can be quickly and continuously trained to solve high-volume and complex pattern recognition problems, with the creativity, empathy and passion their human workforce brings to meet their mission requirements. Shai's AI capabilities were designed to meet federal mission requirements including:

- **Operating within Federal Security Requirements:** Shai™ was designed with sensitive data as a core tenant. She operates in a fully secure environment, is adherent to NIST 800, HIPAA, the HITECH Act and is ISO certified as well as FISMA compliant.
- **Adapting to Complex Federal Workflows:** Every workflow is different and Shai™ trains quickly to understand the nuances. Shai™ operates within an agency's already-established federal workflows, requirements and environments—and continues to learn as she ingests more data, information and processes.

- **Creating Little Impact on Agency Infrastructure:** Shai™ accesses an agency's systems and tools already in place by using login credentials, just as any other employee.
- **Saving Precious Resources:** Shai™ creates significant cost reductions which can be harvested and reinvested to meet your mission.
- **Increasing Speed and Dependability Overtime:** Shai™ can be operational in as little as a month and only gets better over time. Shai™ works 24/7, 365 days a year on a path to become a subject matter expert in perpetuity.



An Example of Shai™ in Action

Shai™ has been trained to manage elaborate workflows being used to log and organize big unstructured data sets as a starting point, categorize the data and query additional public data sources to build a complete picture of the individual.

In this instance, additional functionality included the ability to read and understand typed and written entries of scanned documents, correct text typos as necessary, confirm the correct formatting, check for additional text, spellchecking entry fields, decide if certain text was relevant or not, and determine the language used. If the language used was not English, the workflow was packaged and sent to a corresponding translator. After sorting all the entry fields, the next document was queued up for processing.

After reviewing all of the steps involved, NCI saw a clear opportunity for Shai™ to automate this exceedingly repetitive, high-volume task. Using the existing workflows already established by the customer, Shai™ was trained with the customer's business rules and able to sort, code and organize their data. With proper workflows and historical data, Shai™ is able to perform this function entirely free of human interaction.

During the workflow scoping process, NCI determined that Shai™ could save this organization more than 180 hours per week, performing a minimum of 3,662 actions per day. After initial testing, NCI reached a confidence level of 85 percent with access to 100k data points and was able to quality improve to 96 percent and counting with additional data. This allows Shai™ to automate an important data function for the customer and places her in a position where her error rate will be better than her human colleagues.

Why AI?

AI can help your organization automate repetitive tasks and uncover more meaningful relationships amongst large data sets, all so your human workforce can scale their talents and focus on completing more complex and important tasks. Together, AI and humans are creating a hybrid workforce focused on achieving unprecedented outcomes and ultimately improving healthcare delivery.

To learn more about Shai™, please visit getshai.com and join the conversation with our chief AI officer, Brad Mascho.

About the Author

Brad Mascho leads NCI's transformational AI initiatives and strategy, helping federal agencies accelerate, automate and augment repeatable processes, and quickly turn data into actionable intelligence. Before joining NCI, Brad was the co-founder and past president of CrossChx, Inc., the industry leader in building meaningful AI that empowers and scales humans.

Navigate, Collaborate, Innovate

NCI is a leading provider of enterprise solutions and services to U.S. defense, intelligence, health and civilian government agencies. The company has the expertise and proven track record to solve its customers' most important and complex mission challenges through technology and innovation.

With core competencies in delivering cost-effective solutions and services in areas such as:

- Advanced analytics
- Agile digital transformation
- Artificial intelligence
- Cybersecurity and information assurance
- Engineering and logistics
- Fraud, waste and abuse detection
- Hyperconverged infrastructure

Coupled with a refined focus on strategic partnerships, NCI is committed to bringing commercial innovation to missions of critical importance.

Headquartered in Reston, Virginia, NCI has approximately 2,000 employees operating at more than 130 locations worldwide.

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