HEALTHCARE AUTOMATION: CHALLENGES & OPPORTUNITIES

HEALTHCARE TODAY

In the past two decades, the healthcare industry has undergone tremendous disruptions in technology, science, and business models.

Intelligent Robotic Process Automation (RPA) is one of the most powerful tools you can use to address the toughest challenges in healthcare. This eBook provides an overview to some of the major trends and challenges reshaping healthcare today, along with the opportunities for automation.

CONTENTS

Healthcare challenges covered in this eBook include:

CHALLENGE: DATA EXPLOSION

Electronic health records (EHRs), wearable sensors, environmental monitoring, and online activities have generated big data that promise new insights and predictive capabilities through advanced analytics, such as computer vision (optical character and image recognition), natural language processing (NLP), and machine learning (ML). The resulting data tsunami has driven different and sometimes conflicting agendas, such as biopharma's need for access to patient data repositories for research purposes vs. increasing regulatory requirements for tighter security around personal health information (PHI).

What has not kept up is the ability to scale the processing and analysis of massive data. The result is an inability to fully leverage data to understand internal operations, meet regulatory requirements, demonstrate positive outcomes to customers and payers, or inform business strategy. To deal with increasing data, most healthcare organizations have simply continued to add headcount—one of the most expensive ways to perform manual, repetitive, and rule-based work. The associated opportunity cost is that employees are not doing work that would be more valuable to the company and personally fulfilling.

Solution:

Intelligent RPA can access, read, understand, collate, structure, and analyze multi-channel data from internal and external sources. Software robots (bots) deliver speed, accuracy, capacity, and monitoring, operating 24/7/365 if needed. This frees up employees to provide actual patient care. From a business perspective, it enables strategic end-to-end enterprise automation for efficiency and competitive advantage.

In addition, automation can be used to monitor the operational and business performance of an organization's internal processes, which can be very useful when changes, such as new functions, are introduced. The near real-time reporting that a dashboard provides can enable an organization to be more flexible, adaptable, and experimental in dynamic business environments.

Bots

Internal Sources

External Sources

CHALLENGE: RISING COSTS

Worried about escalating healthcare costs, payers have used insights from big data to negotiate a shift from a traditional fee-for-service model to capitated, bundled, value-based, and risk-sharing reimbursement models. Under the new arrangements, providers are facing tremendous pressure to maintain or increase the quality of care while holding down costs or boosting revenues[i]. Inventive revenue streams aside, there is a clear need for new technologies that measure, analyze, and report on both quality and costs.

Solution:

Intelligent automation addresses this need by exploiting the monitoring and analytic capabilities of bots. Quality targets might be, for instance, adherence to oral diabetes medications and level of glycemic control in diabetics; international normalized ratio (INR) monitoring in post-stroke patients on anticoagulants; and adherence to antipsychotic medications in patients with schizophrenia. RPA bots can be used to collect data for quality indicators by examining clinical notes for patient adherence, recording ordered and fulfilled lab tests, extracting incidents of nonadherence, tracking refill frequencies, following visits and hospitalizations, tracking different providers, and so on. Bots can also be inserted into best practices for compliance tracking and regulatory auditing.

To control costs, bots can relieve employees of mundane, repetitive tasks and perform them faster, more accurately, and around the clock if needed. This boosts efficiency and productivity and reduces the costs of low-value activities. Expensive human resources can then be redeployed on uniquely human activities such as creativity, problem-solving, and improving the patient care experience.

Bots

Monitoring

Analyzing

Problem-solving
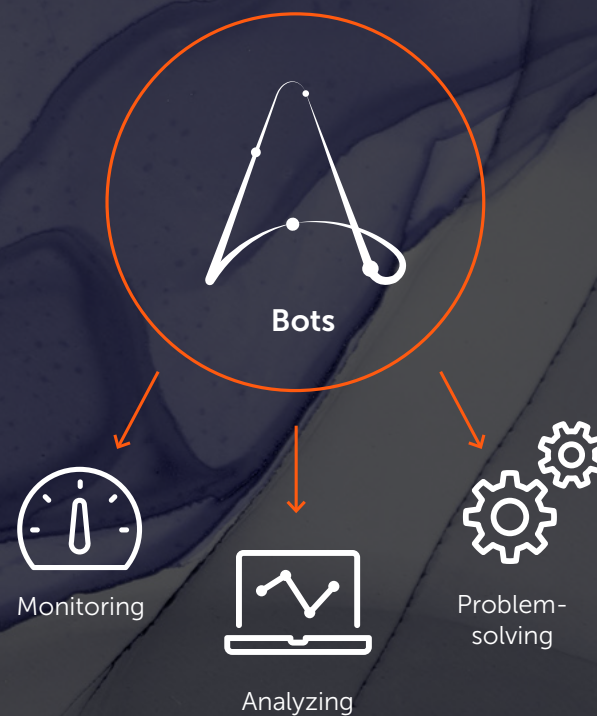
CHALLENGE: CYBERSECURITY

Healthcare data has also brought privacy and confidentiality concerns and challenges. On the black market, each patient record can sell for up to $1,000[II], compared to $10 for a credit card number and $1 for a Social Security number. In 2018, 18 large data breaches each exposed at least 100,000 medical records; by December 2018[III], a total of more than 13M records had been breached for the year. Most security incidents were hacking or IT incidents where humans were involved in the security chain.
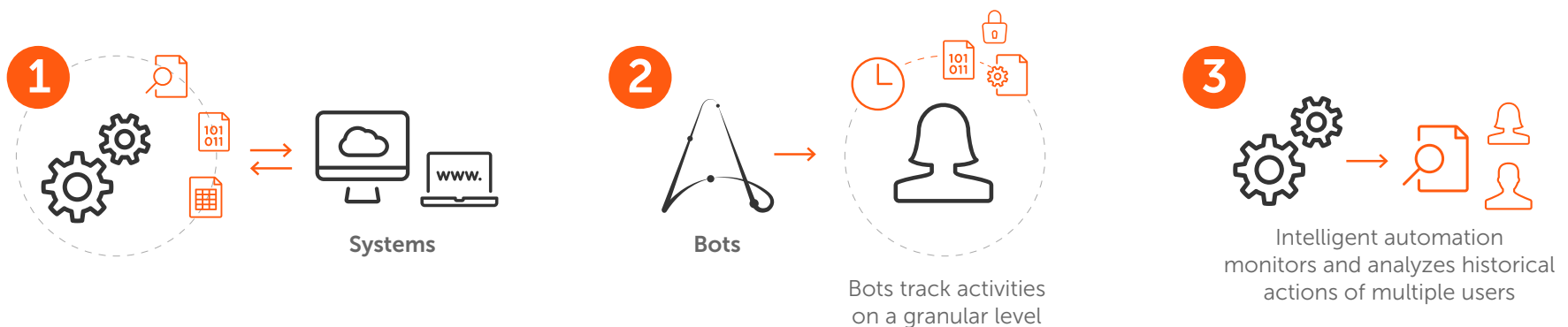
Solution:

Automation offers several ways to address cybersecurity.

First, automating data handoffs between different systems reduces the need for human intervention. This reduces the potential for exposure of sensitive information such as PHI and the risk of security breaches, either intended or unintended.

Second, bots not only perform tasks but also track activities on a granular level. This means bots can be inserted into any process that requires new or expanded monitoring. Bots collect data on users, date/time of access, time and number of tries it takes to complete tasks, and other parameters. Acting as an invisible gatekeeper, a bot placed at the interface to a sensitive database affords an additional security layer to track or filter users and detect suspicious behavior.

Third, using machine learning, intelligent automation makes it possible to monitor and analyze the historical actions of multiple users over a period of time in order to identify and flag questionable anomalies. Over time, a learning system would continually improve its ability to predict high-risk scenarios before a breach can occur.

1 **Systems**

2 **Bots**

Bots track activities on a granular level

3 Intelligent automation monitors and analyzes historical actions of multiple users

CHALLENGE: INTEROPERABILITY AND INTEGRATION

Another issue related to data is the inability to share information across multiple incompatible and older, legacy systems. Healthcare organizations have addressed lack of interoperability through manual data transfer; employees read or copy data from one system or document and key it into another system.

Former Vice President Joe Biden[IV], meeting with healthcare leaders in 2017, had this to say about the inability to share medical information as he tried to transfer his son's medical records from one hospital to another:

"

I was stunned when my son for a year was battling stage 4 glioblastoma... I couldn't get his records. I'm the vice president of the United States of America... It was an absolutely nightmare. It was ridiculous, absolutely ridiculous, that we're in that circumstance. "

Solution:

Automation carries out this type of work efficiently, quickly, cost-effectively, and accurately, allowing disparate systems to exchange data. The benefit is that a company can continue to use proven legacy systems alongside newer, more advanced technologies. When the time is right, automation can even help migrate legacy data to new systems that would otherwise be incompatible. Automation is a strategic tool that facilitates the stepwise evolution of a company's information systems.

Automation allows disparate systems to exchange data efficiently, quickly, accurately, and cost-effectively

CHALLENGE: ARTIFICIAL INTELLIGENCE (AI)

AI is one of the hottest trends in healthcare today. The spectrum of AI ranges from traditional rule-based deterministic decision support to newer machine learning techniques that have advanced dramatically in the last decade. Learning machines are computing models that learn more, faster, and better than humans can. Insights from neural networks now power predictive algorithms in many industries, giving humans the ability to explore beyond former analytic limits.

Even highly regulated, conservative, and complex industries like healthcare are now taking the first steps toward AI, using simple rule-based automation for low-risk, nonclinical back-office processes. However, the real power of AI in healthcare will only become evident when it is applied to healthcare-specific tasks and processes, such as those in the areas of care quality, safety, compliance, security, and patient care experience.

Next-generation capabilities like computer vision allow for more sophisticated handling of faxes, signatures, handwriting, and images. NLP handles unstructured text, which represents 80% of the electronic health record. Fuzzy logic allows matching of similar records for data cleansing. Machine learning builds domain expertise over time, delivering progressively better performance and new capabilities like predictive analytics. These expand the potential for current and future applications in healthcare.

Healthcare payers and providers are interested in AI. However, with few exceptions, the crowded AI market has generally failed to deliver on the potential of AI. Not enough value has been generated to justify cost and disruption.

Solution:

Intelligent RPA is a different approach. It offers a well-reasoned, staged, low-risk approach to AI where every stage can have an acceptable level of risk, clear objectives, and measurable benefits. Initial stages focus on simple rule-based automation that increases efficiency immediately. As a side benefit, the company gains a better understanding of its own business processes. Later stages expand the scope of automation to include intelligent data extraction and analysis. Ultimately, new insights and expertise in AI can lead to an enterprise automation roadmap that delivers a sustainable competitive advantage.

Company gains better
understanding of its
own business processes

Roadmap that
delivers a sustainable
competitive advantage

**Intelligent
Automation**

Businesses

Roadmap

CHALLENGE: REGULATION

The regulatory landscape has been in flux and that trend will continue into 2020. Government is driving adoption of value-based care, greater transparency into high drug prices, and expansion of coverage options in the individual health insurance market. The concept of the value of a therapy has evolved from efficacy and safety into real-world benefits like fewer sick days or better quality of life. The Centers for Medicare and Medicaid Services (CMS) is adjusting payments to reflect value under the Medicare Access and CHIP Reauthorization Act (MACRA) for the first time this year. The move from volume to value means prioritizing the standardization and monitoring of processes that support MACRA's new Quality Payment Program.

Solution:

Regulatory requirements are meant to ensure compliance with standards set by regulatory agencies for quality of care, patient privacy and confidentiality, patient rights, infection control, environmental safety, staff training, accounting standards, ethics, and many other domains. In healthcare, all areas and all staff are subject to regulatory review.

Intelligent automation can be used to collect compliance data and issue alerts in a variety of scenarios, such as verifying required isolation orders for highly contagious diseases, tracking access to protected health information, and monitoring staff credentialing requirements. Depending on design, bots can generate detailed data that meets auditing requirements.

Bots

Verifying required isolation orders for contagious diseases

Tracking access to protected health information

Monitoring staff credential requirements

CHALLENGE: SHORTAGE OF HEALTHCARE WORKERS

Anticipated shortages are due to a growing, aging population expected to live longer than before. The nation's population is projected to grow more than 10% by 2032, with those over age 65 increasing disproportionately by 48%[VI].

Nurses make up the largest group of professionals in healthcare. More registered nurse (RN) jobs will be available through 2022 than in any other profession in the United States. 1.1M more nurses will be needed to avoid further shortages, according to the U.S. Bureau of Labor Statistics[V]. Similarly, the U.S. will face a shortage of up to 122,000 physicians[VI] by 2032 as demand continues to grow faster than supply.

In addition, 44% of physicians feel burned out or depressed[VII], citing factors like paperwork, redundant and administrative tasks, and working with EHRs.

Solution:

RPA can help mitigate healthcare worker shortages by freeing up those workers from low-value work and allowing them to focus on what motivated them to enter healthcare in the first place.

According to PwC[VIII], 63% of U.S. health workers say the work they do requires a great deal of manual entry or analysis. Employing a Digital Workforce to take on automatable tasks would allow healthcare workers to be more productive in areas important to patients and workers, such as improving the patient care experience and developing trust relationships that motivate patients to adhere to treatment regimens.

Bots

Digital Workforce
to take on automatable tasks

Healthcare Workers

More productive and
positive patient care experience
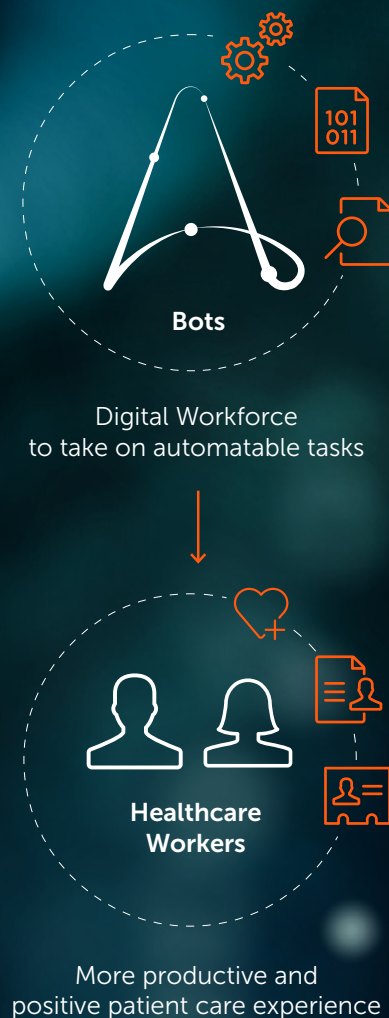
CHALLENGE: HEALTHCARE CONSUMERISM

Access to the internet and the rise of an instant-feedback economy have amplified healthcare consumerism, particular as the consumer is being asked to assume greater responsibility for healthcare costs and decisions. This has highlighted the importance of delivering value in ways that are meaningful to the consumer: an excellent patient care experience (sometimes reported online); compassionate staff whom they trust; timely access to appointments, advice, and services; and good outcomes. Both social skills and time spent are key to meeting these expectations.

Solution:

Besides allowing healthcare workers to focus more on patient care, attended automation (bots triggered by a customer service agent) can improve the patient's call center experience by enabling the agent to rapidly access relevant data and make rule-based decisions that resolve issues quickly. Similarly, new patient registrations take less time as insurance coverage is verified quickly along with other relevant data. Bots can also generate customized rules-based follow-up patient messages automatically as well as schedule clinic and home visits, relieving the patient and their family of administrative burden.

Attended Automation → **Bots** → Rapidly access relevant data and make rule-based decisions
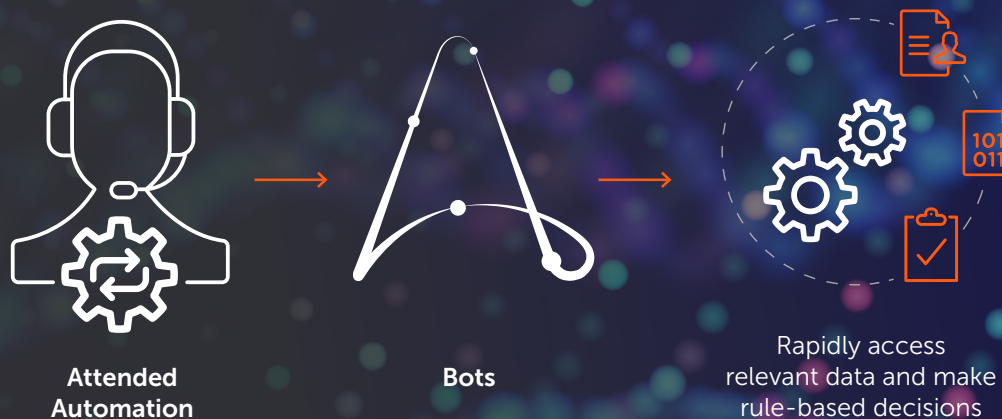
SUMMARY

Healthcare is being disrupted on many fronts, from big data, escalating costs, new reimbursement schemes, and a changing regulatory environment to staffing shortages and increasing consumer demands. On the IT front, security breaches continue to be worrisome while the lack of multi-system interoperability and integration reduces visibility into enterprise performance, making strategic planning challenging.

As healthcare organizations ride this tidal wave of change, they are finding that traditional operating models, structures, and processes are being stretched to their limits. To meet these unprecedented challenges, many forward-thinking enterprises are now going through a digital transformation. Creating a flexible, profitable, and sustainable healthcare enterprise in today's environment will require strategic resource planning and business process reengineering.

A robust, intelligent RPA platform is a key enabler of digital transformation. Its broad spectrum of capabilities addresses diverse needs across the healthcare enterprise, delivering cost savings, increased productivity and quality, higher service levels, and greater employee job satisfaction. More fundamentally, it gives the strategic healthcare organization a way to reshape itself to compete and thrive in the 21st century.

THRIVE WITH INTELLIGENT AUTOMATION

To get started with RPA, visit our website or schedule a demo with our experts.

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