RPA (Robotic Process Automation) promises to automate various complex tasks for healthcare organizations – payers and providers – to improve member experience, lower costs and relieve employees from rising pressure of work. But when it comes to actual applications of RPA, most companies are having a difficult time. This brief eBook outlines the benefits, challenges, tools and key healthcare use cases of RPA that can help healthcare organizations boost their productivity.
What is Robotic Process Automation?

**Robotic**
An entity capable of being programmed by a computer for doing complex tasks is known as a Robot.

**Process**
A sequence of actions or steps taken in order to achieve a task.

**Automation**
Performing a task or activity without human intervention.

“*It can do repetitive stuff more quickly, tirelessly than humans, freeing them to do other tasks requiring human strengths such as emotional intelligence, reasoning, judgment, and interaction with the customer.*”

- Leslie Willcocks, London School of Economics
RPA: Value Proposition

1. Low Risk, Non-Invasive
   Fills the gaps between existing systems

2. Cost Savings
   Anywhere from 20-60% of baseline FTE cost

3. ROI
   RPA projects include multiple functional ‘pilots’ but programs complete ~9 to 12 months with a ROI >1 year

4. Super Scalable
   Instant ramp-up and down to meet demand peaks/troughs

5. Accuracy
   Double digit reductions in error rates

6. Consistency
   Identical processes & tasks eliminating output variations

7. Reliability/Compliance
   Services available 365 days; regularly maintained logs to ensure compliance

8. Increased Speed & Productivity
   Remove non-value-add activities to focus on areas that require judgement

RPA eases the administrative burden by automating patient data migration and processing, reporting for doctors, medical bill processing, insurance data automation and claim processing, triggering emails from medical billing systems, claim status and eligibility automation, and patient record storage.
RPA: How it Works

Manual Activity

Claims form received from customer in email → Attach claim form to claim processing system → Verify customer details in the system → Copy paste data from claim form to the system → Notify customer that claim is processed

Large volume of claims data

Slow, error prone manual verification, reconciliation and notification process

Post RPA Implementation

Bot opens email application → Bot downloads claim form → Bot attaches claim form to claim processing system → Bot verifies customer details → Bot copy pastes data from claim form to system → Bot notifies customer about processed claim

Automate high-volume, repetitive tasks

Reduction in errors

Quick response time
Although flexible and easy to implement, RPA occasionally lacks the ability to automate certain aspects of process management.

<table>
<thead>
<tr>
<th>Process Parameters</th>
<th>Favorable for RPA</th>
<th>Unfavorable for RPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision Making</td>
<td>Rule-based</td>
<td>Judgement-based</td>
</tr>
<tr>
<td>Input Data</td>
<td>Structured</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Data Format</td>
<td>Digitized</td>
<td>Non-digitized</td>
</tr>
<tr>
<td>Output Consistency</td>
<td>Standardized</td>
<td>Multiple expectations</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable over time</td>
<td>Frequent changes</td>
</tr>
<tr>
<td>Management</td>
<td>Centralized</td>
<td>Decentralized</td>
</tr>
<tr>
<td>Errors</td>
<td>Frequent</td>
<td>Rare</td>
</tr>
<tr>
<td>Frequency</td>
<td>Continuous</td>
<td>Periodic</td>
</tr>
</tbody>
</table>
### RPA: Implementation Barriers

#### 7 Key Challenges

<table>
<thead>
<tr>
<th>Non-standardized Processes</th>
<th>Unstructured Data</th>
<th>Legacy Technology</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current RPA bots can’t keep up with rapidly changing scenarios and may be best suited for repeatable, predictable use cases such as patient registration, claims, billing errors etc.</td>
<td>RPA works best with structured data due to the nature of interfacing and bot workflow design. Healthcare has lots of challenging unstructured data.</td>
<td>Healthcare systems have a lot of legacy systems often operating in siloes. These systems pose a challenge to RPA in terms of data extraction, flow control and command execution.</td>
<td>Some scenarios will require bots to access and transmit ePHI information. This would need HIPAA compliance for the bot and RPA framework.</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Defining Use Cases</th>
<th>Communication &amp; Interfacing</th>
<th>Employee Buy-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use cases will vary significantly, i.e. RPA claims management will have a greater ROI for a large hospital than a small clinic.</td>
<td>Healthcare use cases may have multiple input methods i.e. images, IVR, voice, OCR, API, HL7, etc. Leveraging RPA for such scenarios is currently challenging.</td>
<td>Use of RPA bots to automate certain processes will affect human interaction and affordability of resources. This can create conflict.</td>
</tr>
</tbody>
</table>
RPA: Tool Selection Factors for Healthcare

- Usability
- Security
- Deployment
- Vendor Record
- Data Capture
- Scalability
- Reliability
- Governance
- Cost of Ownership
- Tech Compatibility

6
RPA: Key Tool Selection Factors For Healthcare

**Usability**
- Ease of use & documentation
- Bot design (GUI, script, code)
- Human interaction recorder (Macro)

**Security**
- Support encryption, Veracode, etc.
- Bot & process files restricted access
- Audit trails, logging & alerts

**Scalability**
- Handling volume & variability
- Automated versioning/deployment
- Code provisioning templates

**Governance**
- Analytics tools to assess performance
- Bot management controls
- Scheduled activities

**Reliability**
- Exception handling features
- Error management & logging
- Notifications & alerts
RPA: Key Tool Selection Factors For Healthcare

**Technology Compatibility**
- Integration methods (API, Citrix)
- Compatibility with current apps
- Support of OS (W7/10, Linux etc.)

**Data Capture**
- Support data formats (CSV, HL7)
- Other methods (OCR, NLP, IVR, etc.)
- Accuracy of captured data

**Vendor Record**
- Product roadmap & growth
- Financial/operational stability
- Customer testimonials

**Deployment**
- Ease of bot configuration / replication
- Ease of using bot orchestrator
- Client-server or web-based

**Costs**
- Setups costs & license fees
- Easy bug fixes / maintenance
RPA: Healthcare Use Cases

- New Patient Registration
- Appointment Scheduling
- Care Coordination
- Payment Posting
- AR (Accounts Receivable) / PAR (Patient AR)
- Claim Validation
- Claim Adjudication
- Claim Logging
- Claim Denials & Appeals
- Reports & Dashboards
- Supply Chain
- Data Management
- R&D
**RPA: Healthcare Use Cases (1/3)**

<table>
<thead>
<tr>
<th>Use Cases</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Patient Registration</strong></td>
<td>▪ Checking and updating patient details</td>
</tr>
<tr>
<td></td>
<td>▪ Capturing Demographic details, location details, insurance details to create new account</td>
</tr>
<tr>
<td></td>
<td>▪ Capturing / Retrieving account related medical history &amp; charts</td>
</tr>
<tr>
<td><strong>Appointment Scheduling</strong></td>
<td>▪ Scheduling &amp; rescheduling appointment</td>
</tr>
<tr>
<td></td>
<td>▪ Managing appointment based on workload, specialty etc.</td>
</tr>
<tr>
<td><strong>Care Coordination</strong></td>
<td>▪ Following up with patient for prescriptions, scheduled visits etc.</td>
</tr>
<tr>
<td></td>
<td>▪ Helping implement patient’s discharge instructions i.e. medication,</td>
</tr>
<tr>
<td></td>
<td>recommendations, etc.</td>
</tr>
<tr>
<td><strong>Payment Posting</strong></td>
<td>▪ Accessing ERA / EOB received from payer</td>
</tr>
<tr>
<td></td>
<td>▪ Accessing and checking payment received</td>
</tr>
<tr>
<td></td>
<td>▪ Posting application data entry and reconciliation</td>
</tr>
<tr>
<td></td>
<td>▪ Creating AR updates and follow up</td>
</tr>
<tr>
<td><strong>AR (Accounts Receivable) / PAR (Patient AR)</strong></td>
<td>▪ Retrieving follow-ups from Billing / PP / other teams</td>
</tr>
<tr>
<td></td>
<td>▪ Follow-up for claims with nearing TFL via IVRS / mail</td>
</tr>
<tr>
<td></td>
<td>▪ Allocation of follow ups / outreach</td>
</tr>
</tbody>
</table>
# RPA: Healthcare Use Cases (2/3)

<table>
<thead>
<tr>
<th>Use Cases</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td><strong>Claim Validation</strong></td>
<td>▪ Membership checks</td>
</tr>
<tr>
<td></td>
<td>▪ Eligibility checks</td>
</tr>
<tr>
<td></td>
<td>▪ Entitlement checks</td>
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<tr>
<td></td>
<td>▪ COB checks</td>
</tr>
<tr>
<td></td>
<td>▪ DRG / pricing assignment</td>
</tr>
<tr>
<td><strong>Claim Adjudication</strong></td>
<td>▪ Adjudication rules</td>
</tr>
<tr>
<td></td>
<td>▪ Eligibility</td>
</tr>
<tr>
<td></td>
<td>▪ DRG</td>
</tr>
<tr>
<td></td>
<td>▪ Payment Limit</td>
</tr>
<tr>
<td></td>
<td>▪ Claim authorization - policy segment</td>
</tr>
<tr>
<td></td>
<td>▪ Audit: Logging, Denial</td>
</tr>
<tr>
<td><strong>Claim Logging</strong></td>
<td>▪ Manual claims entry</td>
</tr>
<tr>
<td></td>
<td>▪ Electronic claims</td>
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<td></td>
<td>▪ Direct data entry</td>
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<tr>
<td></td>
<td>▪ Verify in/out network, diagnosis</td>
</tr>
<tr>
<td><strong>Claim Denials &amp; Appeals</strong></td>
<td>▪ Denial management</td>
</tr>
<tr>
<td></td>
<td>▪ Appeals based on denial type</td>
</tr>
</tbody>
</table>
**RPA: Healthcare Use Cases (3/3)**

<table>
<thead>
<tr>
<th>Use Cases</th>
<th>Activities</th>
</tr>
</thead>
</table>
| **Reports & Dashboards** | ▪ Automating report generation such as Daily Outstanding Report, Daily Productivity Report, etc.  
▪ Automating audit reports generation |
| **Supply Chain**         | ▪ Order processing  
▪ Returns management  
▪ Sourcing and procurement  
▪ Inventory management |
| **Data Management**      | ▪ Retrieving details, forms from website, IVR or API  
▪ Running validation and quality checks on data  
▪ Uploading files (Public Health, MACRA, etc.) to govt. portals  
▪ Extracting & collating data from multiple applications |
| **R&D**                  | ▪ Site initiation documentation  
▪ Investigator payments  
▪ Enrollment tracking  
▪ Monitoring visit reporting  
▪ Clinical and medical writing |
With over 4,000 professionals worldwide, CitiusTech enables healthcare organizations to drive clinical value chain excellence, across integration & interoperability, data management (EDW, Big Data), performance management (BI / analytics), AI/ML (predictive analytics, Machine Learning, AI) and digital engagement (mobile, IoT).

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