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Robotic Process Automation in Healthcare

Introduction | Tools | Use Cases

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 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

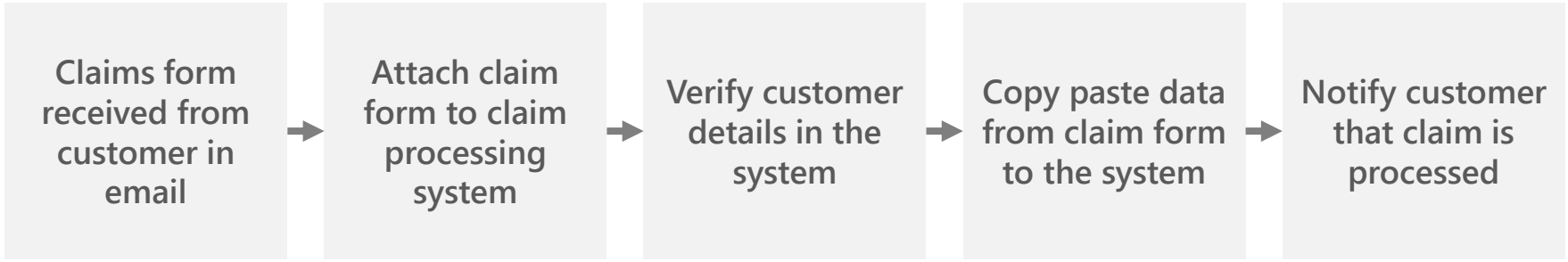
RPA: Value Proposition

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

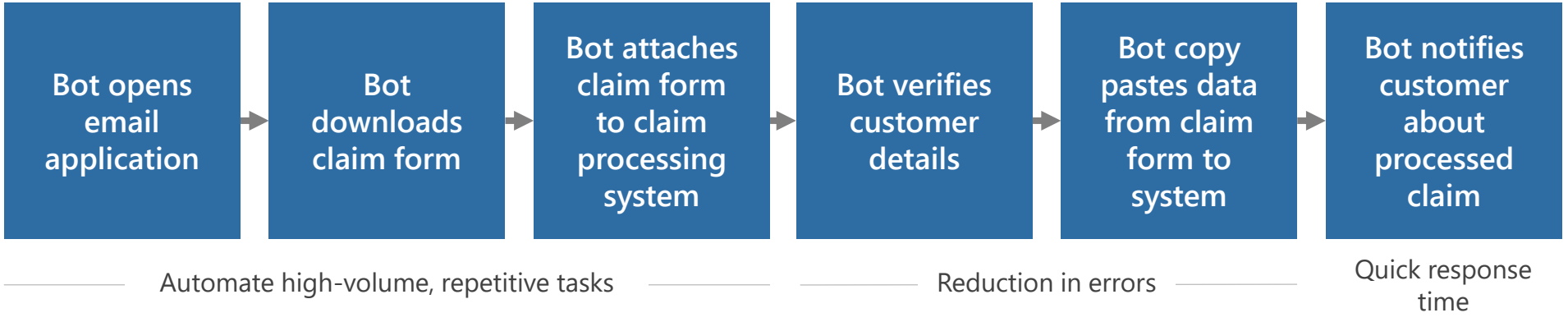
RPA eases the administrative burden by automating patient data migration and processing, reporting for doctors, medical bill processing, insurance data automation and claim processing, triggering emails from medical billing systems, claim status and eligibility automation, and patient record storage.

RPA: How it Works

Manual Activity



Post RPA Implementation



RPA: How it Works

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

Process Parameters	Favorable for RPA	Unfavorable for RPA
Decision Making	Rule-based	Judgement-based
Input Data	Structured	Unstructured
Data Format	Digitized	Non-digitized
Output Consistency	Standardized	Multiple expectations
Stability	Stable over time	Frequent changes
Management	Centralized	Decentralized
Errors	Frequent	Rare
Frequency	Continuous	Periodic

RPA: Implementation Barriers

7 Key Challenges

Defining Use Cases

Use cases will vary significantly, i.e. RPA claims management will have a greater ROI for a large hospital than a small clinic.

Communication & Interfacing

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.

Employee Buy-in

Use of RPA bots to automate certain processes will affect human interaction and affordability of resources. This can create conflict.

Non-standardized Processes

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.

Unstructured Data

RPA works best with structured data due to the nature of interfacing and bot workflow design. Healthcare has lots of challenging unstructured data.

Legacy Technology

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.

Security

Some scenarios will require bots to access and transmit ePHI information. This would need HIPAA compliance for the bot and RPA framework.

RPA: Tool Selection Factors for Healthcare

Usability

Security

Deployment

Vendor Record

Data Capture

Scalability

Reliability

Governance

Cost of Ownership

Tech Compatibility

RPA: Key Tool Selection Factors For Healthcare

Usability

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

Scalability

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

Governance

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

Security

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

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.)

Vendor Record

- Product roadmap & growth
- Financial/operational stability
- Customer testimonials

Data Capture

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

Costs

- Setups costs & license fees
- Easy bug fixes / maintenance

Deployment

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

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

Data Management

- Reports & Dashboards
- Supply Chain

R&D

RPA: Healthcare Use Cases (1/3)

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

RPA: Healthcare Use Cases (2/3)

Use Cases	Activities
Claim Validation	▪ Membership checks ▪ Eligibility checks ▪ Entitlement checks ▪ COB checks ▪ DRG / pricing assignment
Claim Adjudication	▪ Adjudication rules ○ Eligibility ○ DRG ○ Payment Limit ○ Workflow ○ Payment ○ Denial ▪ Claim authorization - policy segment ▪ Audit: Logging, Denial
Claim Logging	▪ Manual claims entry ▪ Electronic claims ▪ Direct data entry ▪ Verify in/out network, diagnosis
Claim Denials & Appeals	▪ Denial management ▪ Appeals based on denial type

RPA: Healthcare Use Cases (3/3)

Use Cases	Activities
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

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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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