Creating a Digital Workforce: Implementing Intelligent Automation in Hospital Operations

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The Leadership Institute, February 2019

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Agenda

Innovation at Houston Methodist

Understanding RPA

Applying RPA in the Healthcare Environment

RPA in Action: Case Study

Learning from Implementation: Challenges and Benefits

Open Mic and Group Discussion

Houston Methodist

Paula and Joseph C. “Rusty” Walter III Tower

Houston Methodist Research Institute

MITIE^{SM}

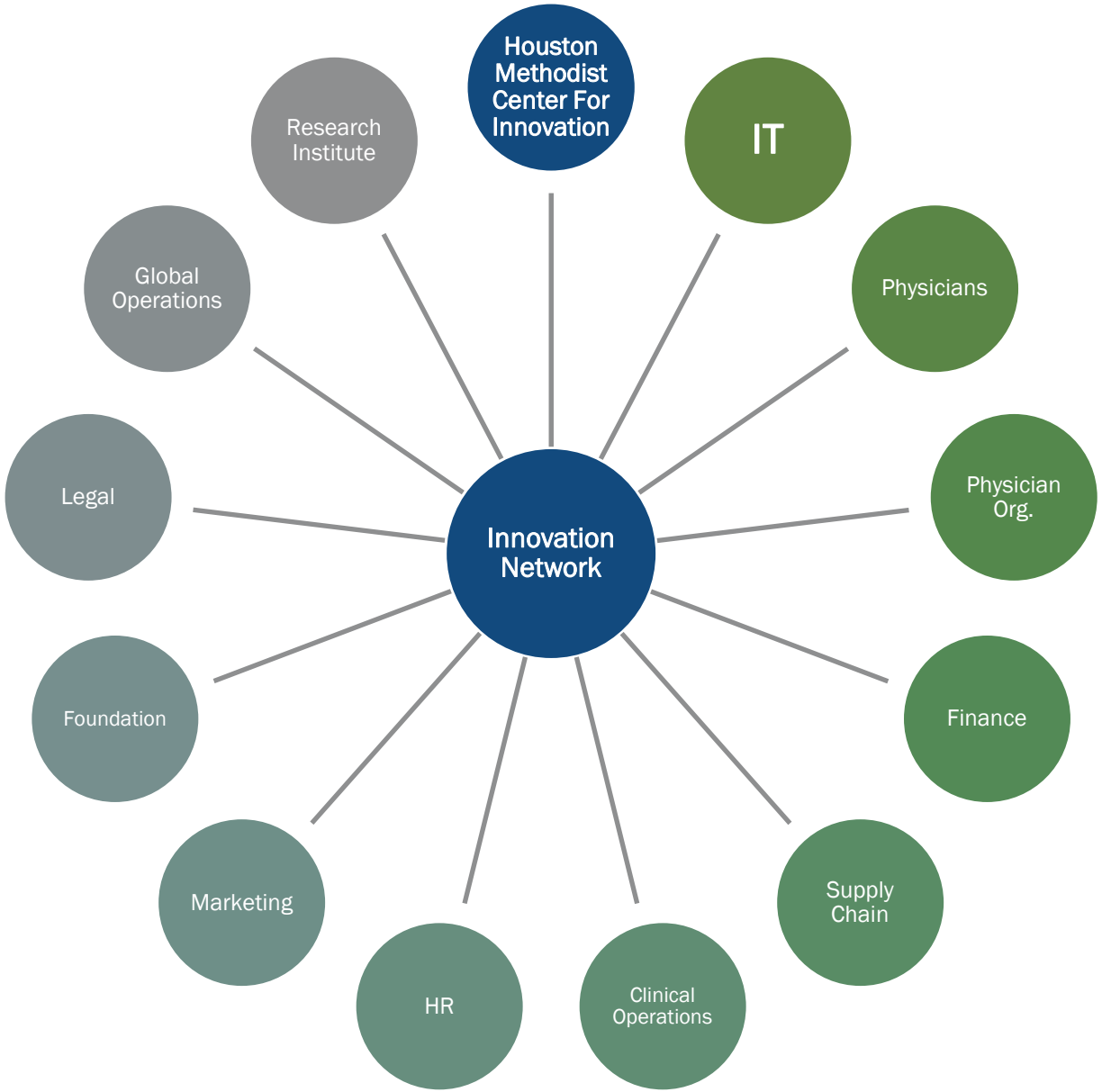
Houston Methodist

- Academic Medical Center at Texas Medical Center
- Six Community Hospitals
- Continuing Care Hospital
- +2,200 operating beds
- +23,000 employees

Dedication to Innovation at Houston Methodist

- Houston Methodist Research Institute
- The Houston Methodist Institute for Technology, Innovation and Education (MITIE^{SM})
- Houston Methodist Center for Innovation

A Perspective in Establishing Digital Innovation within Hospital Operations



Digital Innovation Principles at Houston Methodist

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EVERYONE'S RESPONSIBILITY

Innovation is everyone's job and responsibility.

TRANSFORMATIVE

Focus on initiatives that will transform the way you do business.

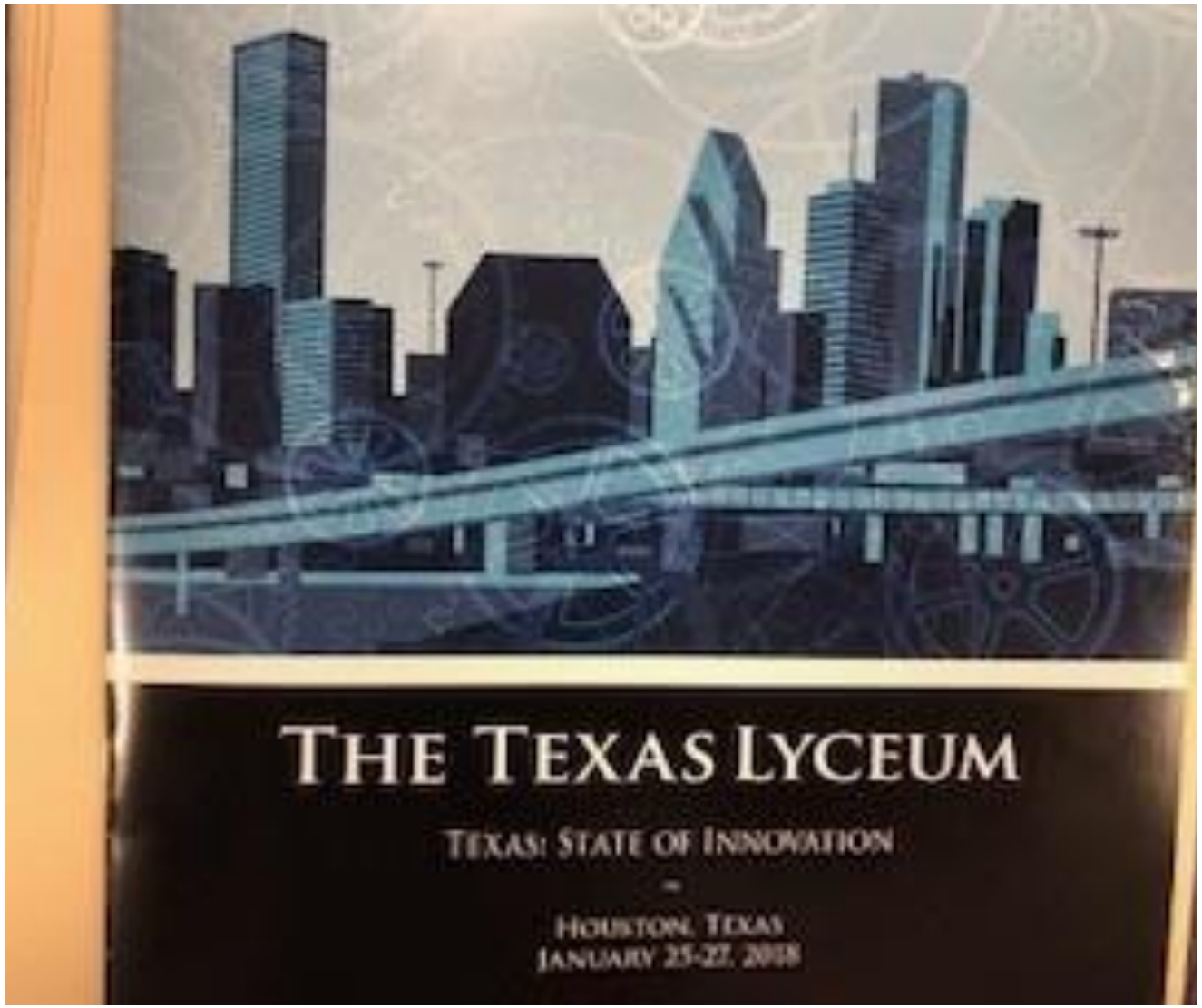
RESEARCH & DEVELOPMENT

Embrace new technologies and new ideas

AGILE

Succeed fast or fail fast.

Where Our Story Begins



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What is RPA?

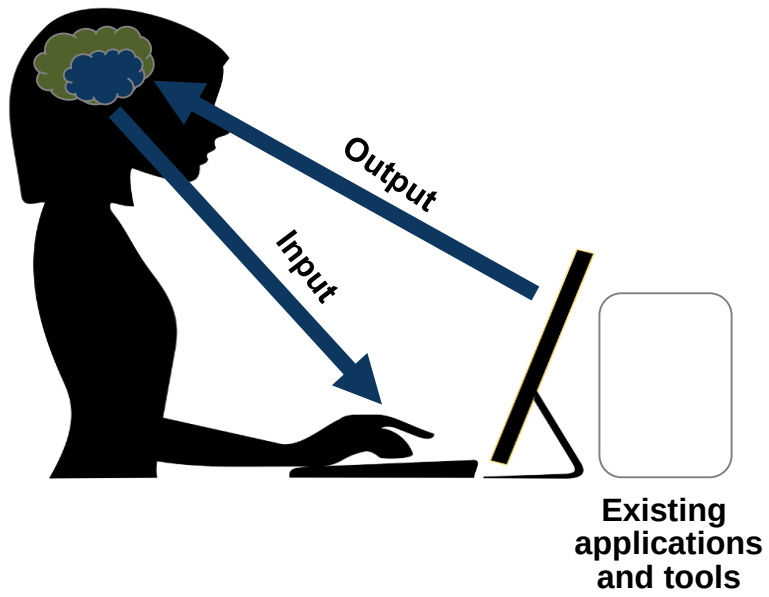
Robotic Process Automation (RPA) is software that mimics human interaction with core systems, web, and desktop applications to execute processes; working through the same interface that humans use. "Robotics enables a virtual workforce."

Human or AI

- Empathy & Sympathy
- Judgement
- Complex problem solving
- Modeling
- OCR, image interpretation
- Natural Language Processing
- Process orchestration
- Policy driven decisions

Robotics

- Rules based execution
- Procedural compliance
- Repetitive, discrete tasks
- Deterministic actions
- Swivel chair integration
- Email communications



"Robotics takes the robot out of the human"

Characteristics and benefits of RPA:

1. RPA robots enable "fast IT" because they sit on top of existing systems leveraging data and controls in place
2. The Robots work 24/7, with consistency and accuracy, but at a speed much faster than humans (1 robot = 4-5 human FTEs of work).
3. Benefits can include
   - Cost reduction
   - Increased productivity for high value employees
   - Scalability
   - Improved accuracy
   - Enhanced revenue

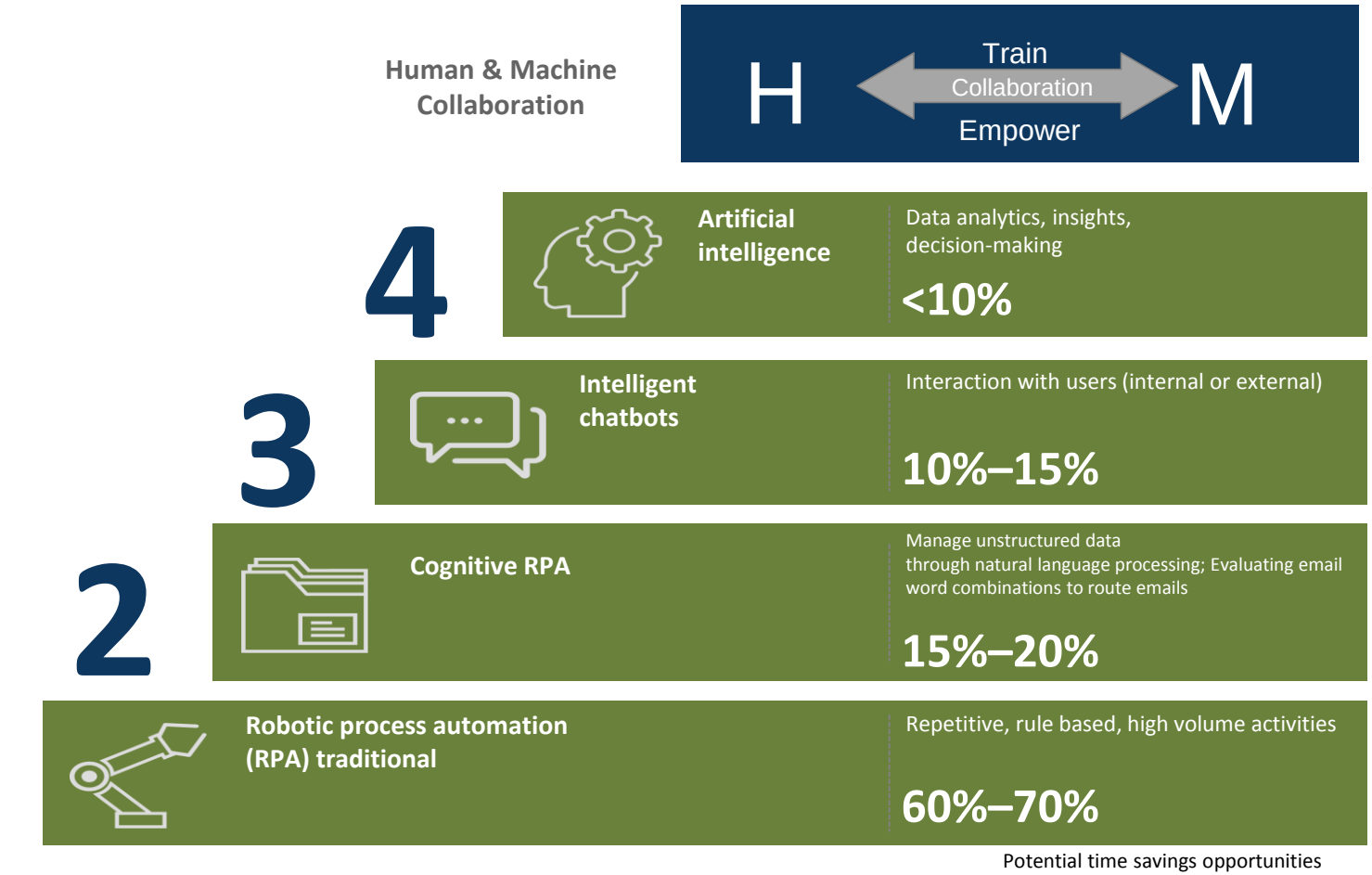
Intelligent automation (IA)

A spectrum of techniques and overlapping technologies - RPA is usually the best place to start because it impacts > 60% of enterprise processes

Characteristics of RPA:

1. **Focus is on eliminating manual, repetitive, rules-driven activity** that can be anticipated and programmed.
2. **The bots work 24/7, with consistency and accuracy, and at a speed much faster than humans** (one RPA robot typically performs **4-5 human FTEs of work**).
3. Benefits can include cost reduction (FTE and hard dollars), increased productivity for high value employees, scalability, and improved accuracy.

Defining your "purpose", with specific goals, will drive how RPA is implemented and provide the tenacity to keep going when transformation gets difficult.

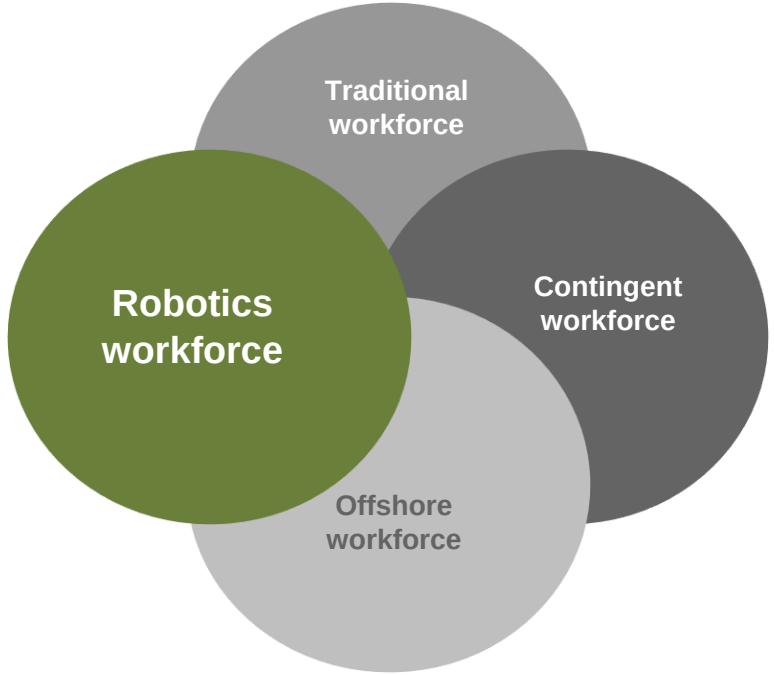


The “hybrid” workforce model

The operating model needs to support future workforce

Humans and robots teaming together, creating a powerful virtual workforce

Robots do the “***what”***, freeing up humans to focus on the ***“why”***



“Our goal is to take the *robot* out of the human and put the *human* into the robot”

- EY RPA client

Potential impact of the Robotics workforce

- Easily and quickly scale up and down potentially eliminating the need for contingent labor during peak periods
- Consider insourcing tasks previously outsourced
- Reduce cost without moving more jobs offshore
- Top grade onshore workforce to provide:
  - Advanced analytics & insights
  - Process improvements
  - Decision support

Robotic Process Automation

Automated Manual Journal Entry processing

BLOOMIN' BRANDS INC.

EY

Building a better working world

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Knowledge work automation has begun to transform functions

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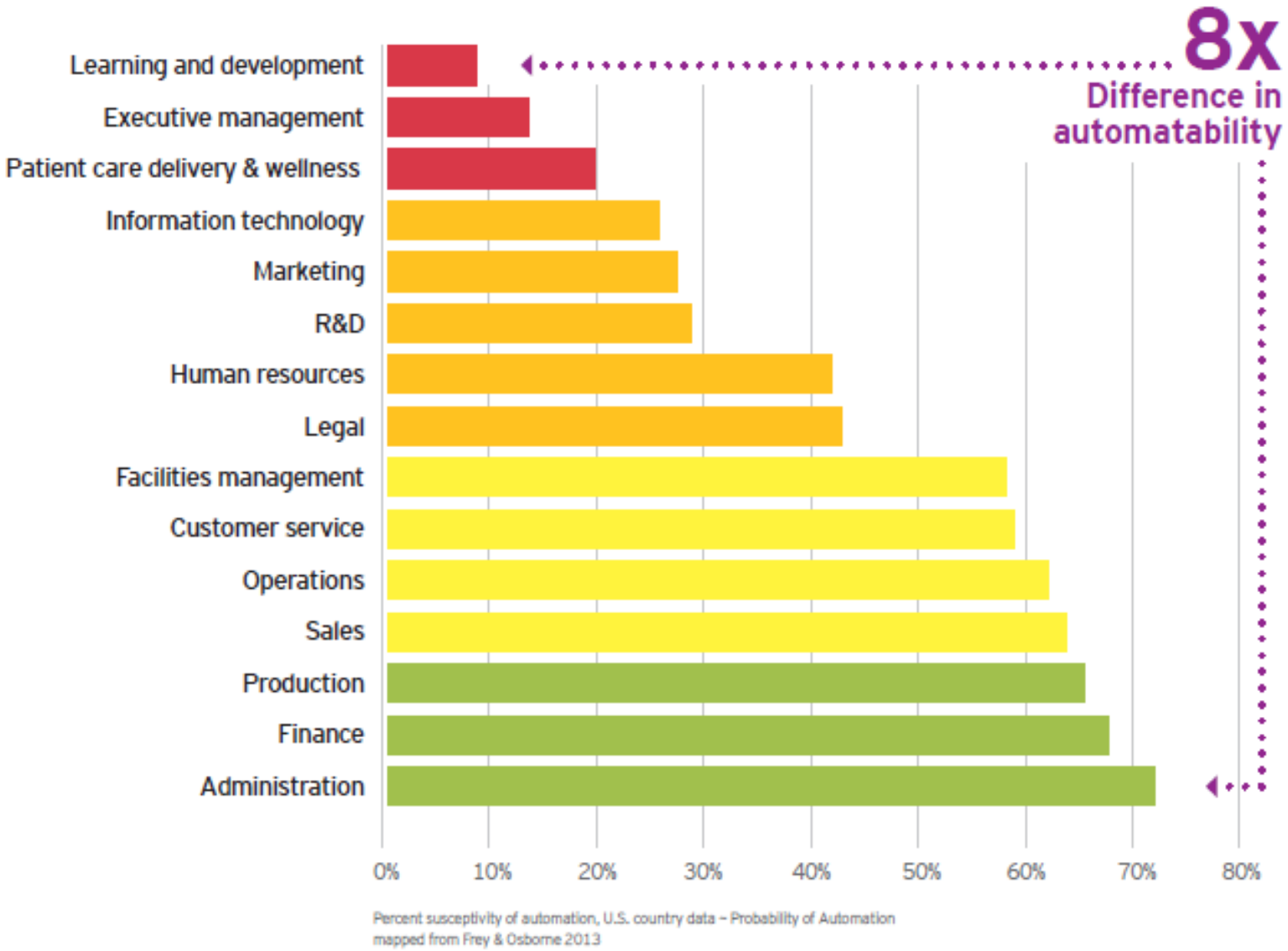
Some functions are more automatable than others

Different levels of applicability of automation by business function, cross-sector average



Realizing Opportunities with Intelligent Automation: Healthcare Applications

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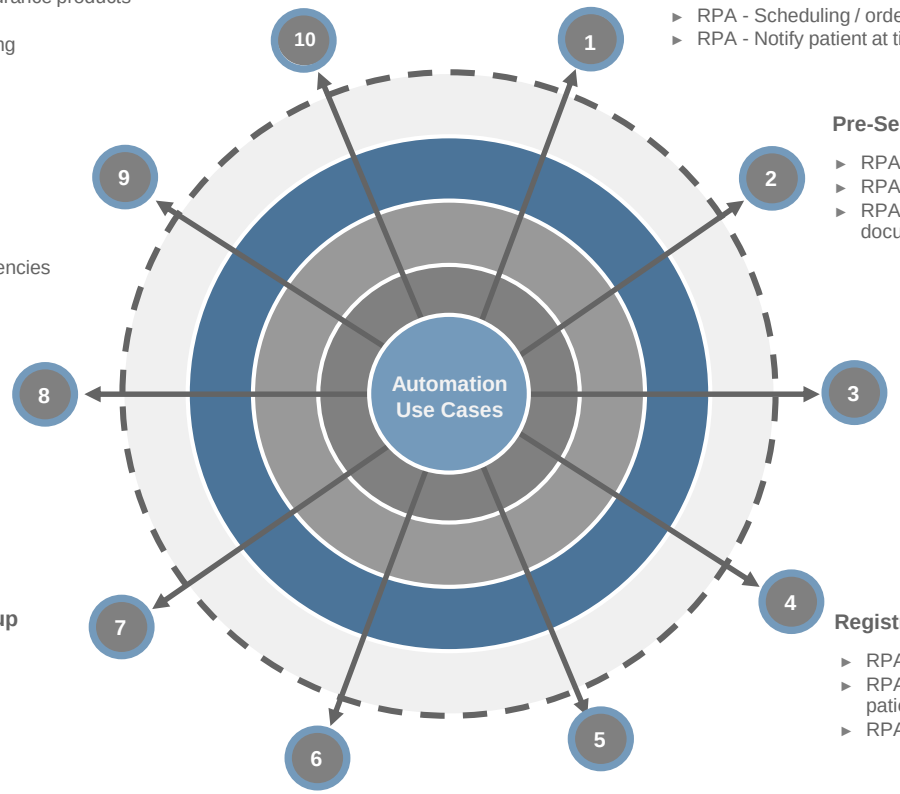
Illustrative

Automation "Hot Spots" in the Provider Revenue Cycle



Scheduling

- RPA - Address and insurance verification
- RPA - Scheduling / order entry from clinics
- RPA - Notify patient at time of scheduling covered services based on health plan

Pre-Service & Pre-Registration

- RPA – Capture full medical, dental and prescription benefits
- RPA – Direct data entry into electronic medical records
- RPA – Notification of appointment reminders and additional documentation required

Financial Clearance & Financial Counseling

- RPA - Pre-Authorization of services and procedures
- RPA - Patient estimate for entire episode of care based on diagnosis and treatment
- RPA - Upload and verify demographic / insurance information

Registration & Admission

- RPA / AI – Patient self register via portal, mobile device or kiosk
- RPA – Leverage OCR technology to scan information / data from patient ID, insurance card etc.
- RPA - Address and insurance verification at check-in

Clinical Documentation & Coding

- RPA – Collect statistics on patient diagnosis and treatment for trending
- RPA - Advanced software to facilitate coder accuracy and production
- RPA – Automating coding based on clinical

Pricing, CDM & Charge Capture

- RPA – Charge master, fee scheduled and dictionary updates
- RPA – Materials management
- RPA – ICD-10 to ICD-9 crosswalk testing

Billing, Claims & Follow-up

- RPA – Automating claims processing and statusing
- RPA – Accelerated secondary billing
- RPA - Generate reports based on trends and issues identified during claim adjudication process

Self-pay / Customer Service

- RPA - Placing accounts on hold
- RPA - EOB downloading
- RPA – Modifying / Adding late or missing charges

Denials Management / Adjudication

- RPA - Placing accounts on hold
- RPA - Bad debt / low balance write-off
- RPA - Use logic to assign accounts to collection agencies

Contract Strategy

- RPA - Utilizing integrated data to rate effectiveness of insurance products
- RPA - Identify in real-time if contracts are profitable
- AI – Predictive financial forecasting using Machine Learning

Realizing Opportunities with Intelligent Automation: Healthcare Applications

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Illustrative

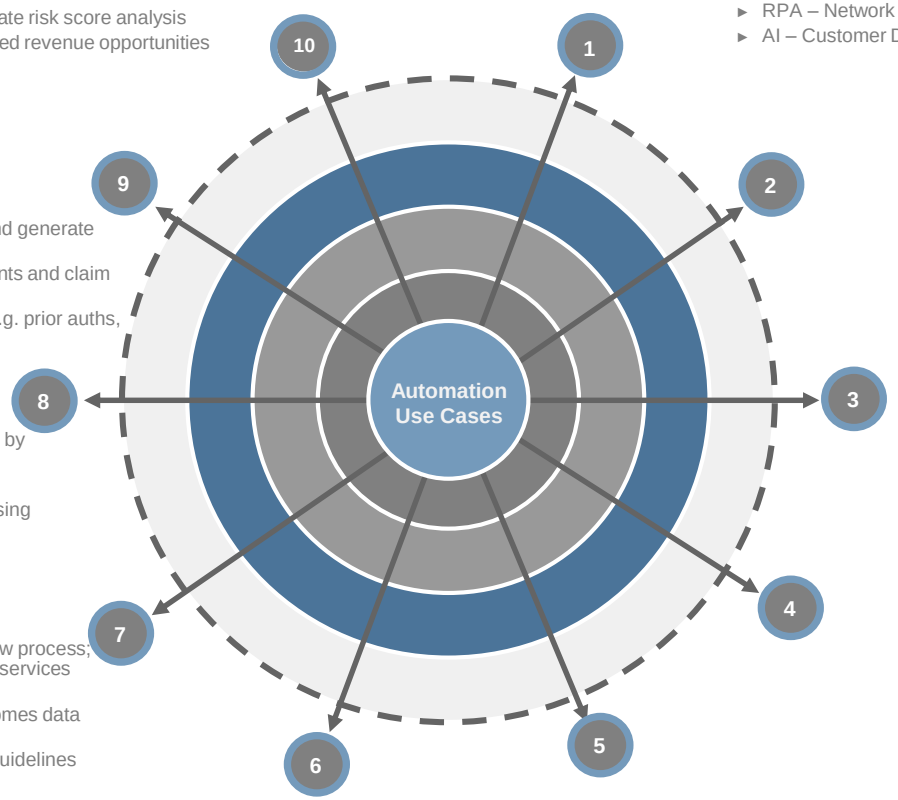
Automation "Hot Spots" for Payers

Risk Adjustment and Revenue Management

- RPA – Aggregating data from disparate systems to facilitate risk score analysis
- AI – Reviewing clinical documentation to identify overlooked revenue opportunities

Strategic, Market, Product planning

- RPA – Network Adequacy data validation and Regulatory Filing
- AI – Customer Data Aggregation and Reporting to support strategic planning



Appeals and Grievances

- RPA – Process claim appeals from the provider and generate correspondences per outcome of appeal
- RPA – Automating claim reversals, claim adjustments and claim refunds
- RPA – Process coverage determination appeals (e.g. prior auths, quantity limits, step therapy etc.)

Network Development and Management

- RPA – Automating the provider credentialing process
- RPA – Leverage automation to collect health population statistics for predictive analytics
- RPA – Automating the fee structure implementation
- RPA – Manage and update provider directory

Claims

- RPA - Automating the claims adjudication process performed by back-office personnel
- RPA – Manage and update claim edits
- RPA – Automating reimbursement for manual clean claims using OCR technology

Sales

- Chatbot - Direct to Consumer sales for Individual and/or Medicare products RPA - Calculation and processing of rebates
- RPA – Download detailed sales data and calculation of commissions
- RPA – Production and e-fulfilment of contracts

Clinical Management

- RPA - Automating the utilization management review process; evaluate medical necessity and appropriateness of services and treatment
- RPA – Leverage automation to collect clinical outcomes data for reporting purposes
- RPA – Managed and updated health plan clinical guidelines

Case Installation

- RPA – Data validation from sales, product, and benefits platforms to confirm sold specifications
- RPA - Data transfer from sales, product, and benefits platforms into operations systems

Customer Service

- Chatbots – Provide answers for most common inquiries (e.g., benefits, claims)
- AI – Integration of customer interaction points with health care system to anticipate member / provider needs to reduce inbound inquiries

Enrolment and Eligibility

- RPA – Perform real-time eligibility and benefits updates to master file to prevent member reimbursement for lapsed coverage
- RPA – Automating eligibility verification of supplemental coverage to determine COB
- RPA – Production of e-fulfilment of enrolment materials

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Intelligent Automation Roadmap

Use Case Identification

Initial use cases for automation were selected with consideration given the **feasibility** of the opportunity and the **enthusiasm** and willingness of Process Owners to participate

Technology Platform Selection

An **RFP** for Intelligent Automation vendors was issued to identify the appropriate platform for use case automation; ultimately resulting in the selection of a **single vendor**

Implementation Partner Selection

Simultaneously an **RFP** for Implementation partners was issued to support the initial design and development activities; ultimately resulting in the selection of **EY**

Use Case Implementation

Selection of the appropriate use cases, technology and implementation enabled the **launch of the Intelligent Automation Program**

Selecting Processes for Intelligent Automation

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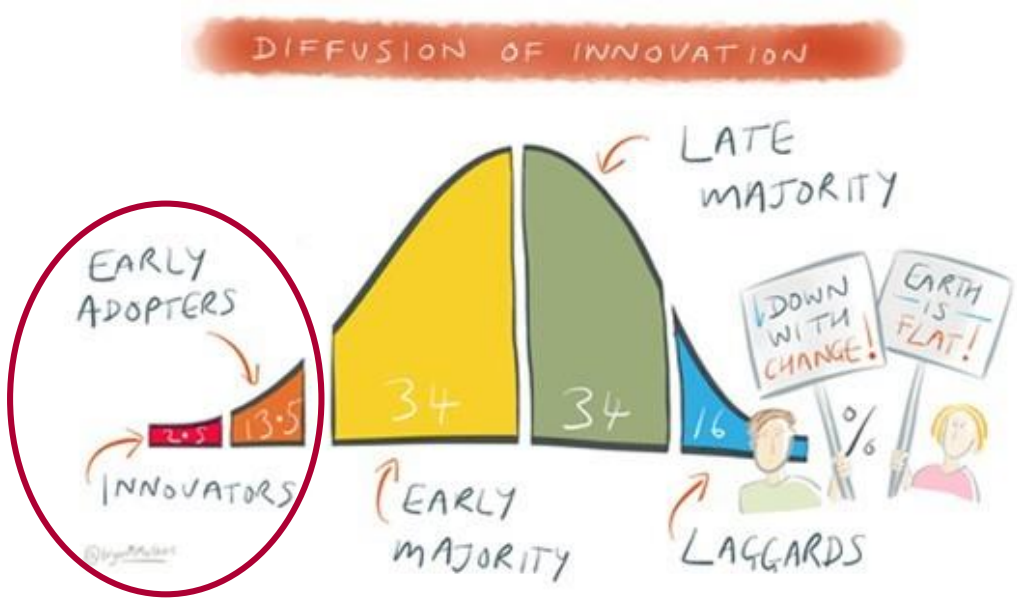
Intelligent Automation Roadmap

Use Case Identification → Technology Platform Selection → Implementation Partner Selection → Use Case Implementation



Target Innovators and Early Adopters

- Supply Chain Order Management
- Insurance Verification for Government Payers
- Time Card Management for Centralized Scheduling Office
- Centralized Physician Credentialing
- ~~Overpayments - Underpayments~~

Selected Process Details

Supply Chain Order Management

Goal: Remove the manual order entries for supply requests attached to equipment orders

Stakeholders	Systems
• Supply Chain Management • IT Business Systems • Nursing	• Epic • PeopleSoft

Insurance Verification for Government Payers

Goal: Reduce Initial Denials for government payers at the front office

Stakeholders	Systems
• Patient Access Services • Hospital Finance • Internal Audit • Legal & Compliance • IT Operations	• Epic • MyAbility

Time Card Management for Centralized Scheduling

Goal: Remove manual exception handling process for missed time card entries (based on specified criteria)

Stakeholders	Systems
• Centralized Scheduling Office • Hospital Finance • Nursing Management • Human Resources – Payroll • Internal Audit • Legal & Compliance • IT Operations	• API Laborworkx • Outlook

Centralized Physician Credentialing

Goal: Reduce the time it takes for credentialing, free credentialing staff to invest face-to-face time with providers

Stakeholders	Systems
• Physician Credentialing Office • Medical Staff Office • Hospital CEOs and Business Development Directors • Physicians	• Outlook • Echo • Web Browser

Houston Methodist Methodology in Selecting the RPA Platform

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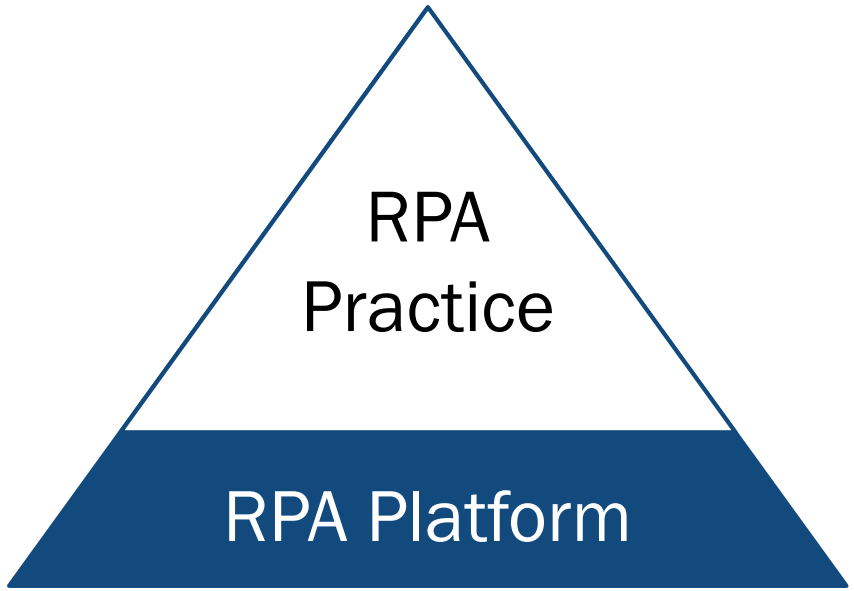
Intelligent Automation Roadmap

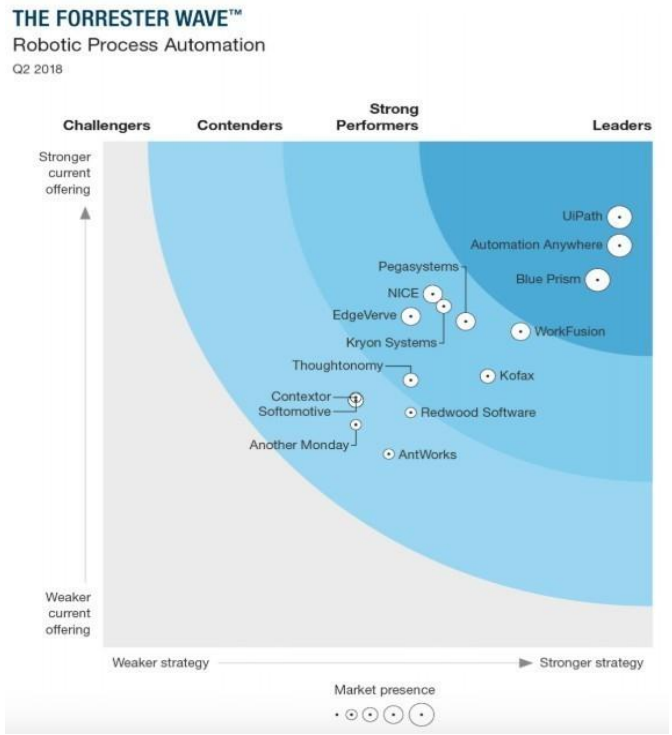
Use Case Identification → **Technology Platform Selection** → Implementation Partner Selection → Use Case Implementation

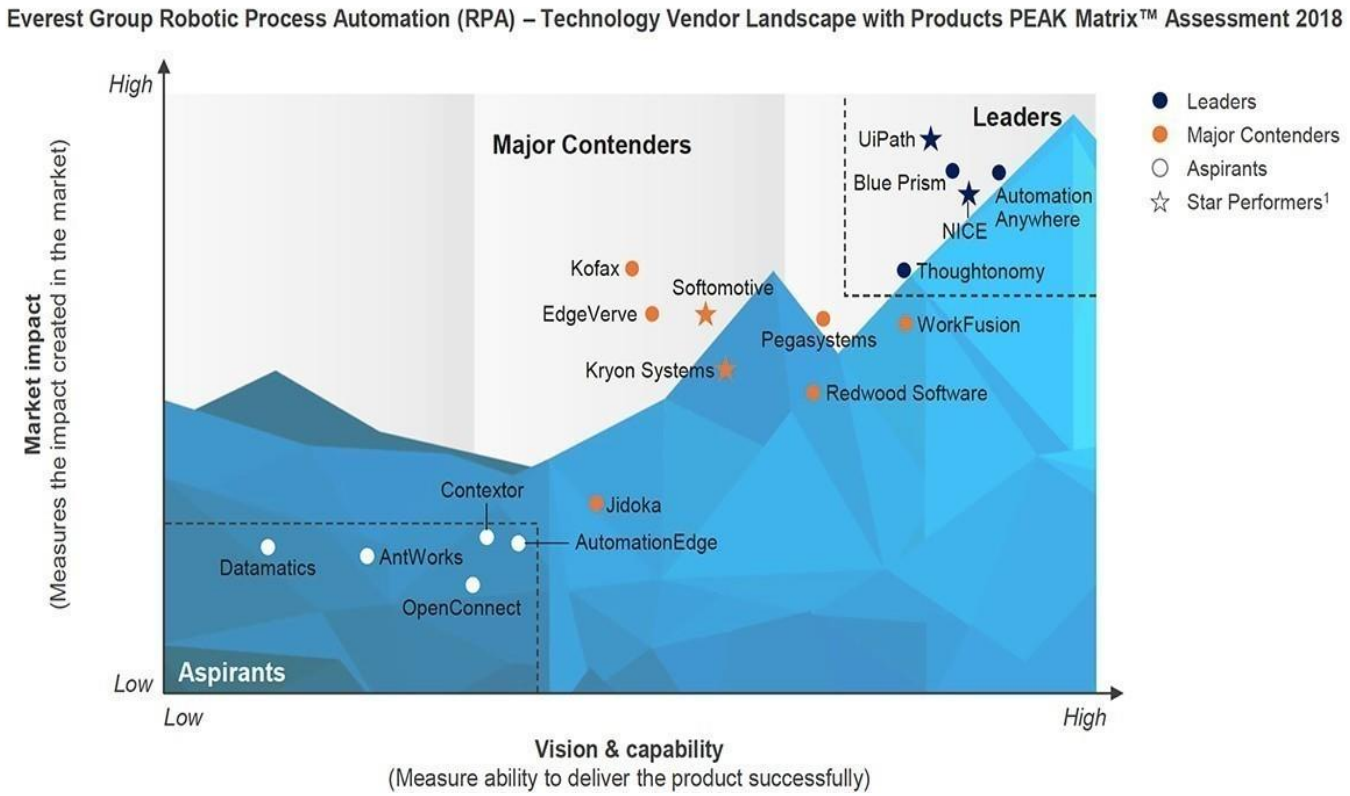


Technology platform is the foundation of RPA Practice

- "Where the puck is going to be"
  - Machine Learning & Artificial Intelligence
- Versatile Platform
  - OCR, Machine Learning, Standard RPA, …
- Secure architecture
  - Close screening by IT Security Team
- Mature auditing and reporting capabilities

Who Are These Folks that I have Never Heard Of. . .





Key points of view on the current state of the RPA market:

- The landscape is **rapidly developing**,
- An **innovative, high growth technology**: we expect to see the marketplace continue to change as it reaches maturity in the coming years
- The software **bots will grow increasingly smarter and more capable** as artificial intelligence and machine learning become more mainstream
- Tools fall into **two main categories**:
  - **Attended automation,** where bots prompt humans to take actions in a workflow, such as next best action in a call center
  - **Unattended automation,** where bots operate independently in 'lights out' style

Machine Learning Opens the Door to Intelligent Automation

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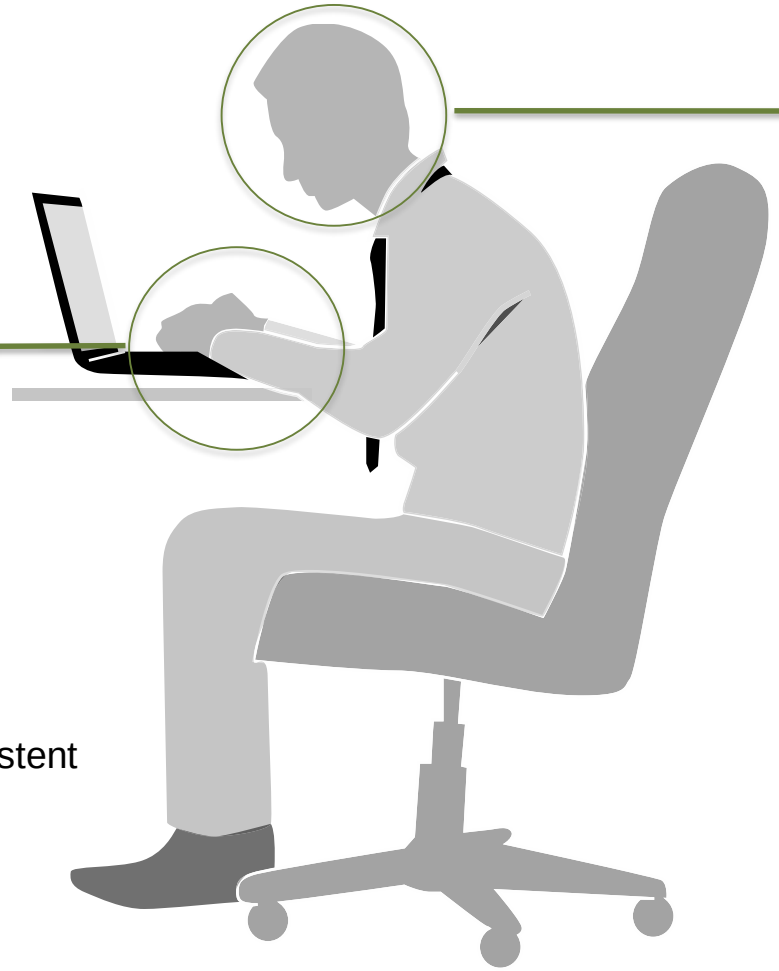

Hand work

e.g. entering data from one application into another

Robotics

"aka" RPA

Inputs: Well known, Structured, Consistent

- *Copy-paste*
- *Look-'n-type*
- *Search-'n-match*

Head work

e.g. extracting information from unstructured sources

Machine Learning

Inputs: Varying, Unstructured, Unpredictable

- *Copy-**think**-edit-paste*
- *Look-**think**-type*
- *Search-**think**-match*

*Robotic functions still exist, but they have some **think** in the middle*

WorkFusion

Go It Alone? Get Some Help?

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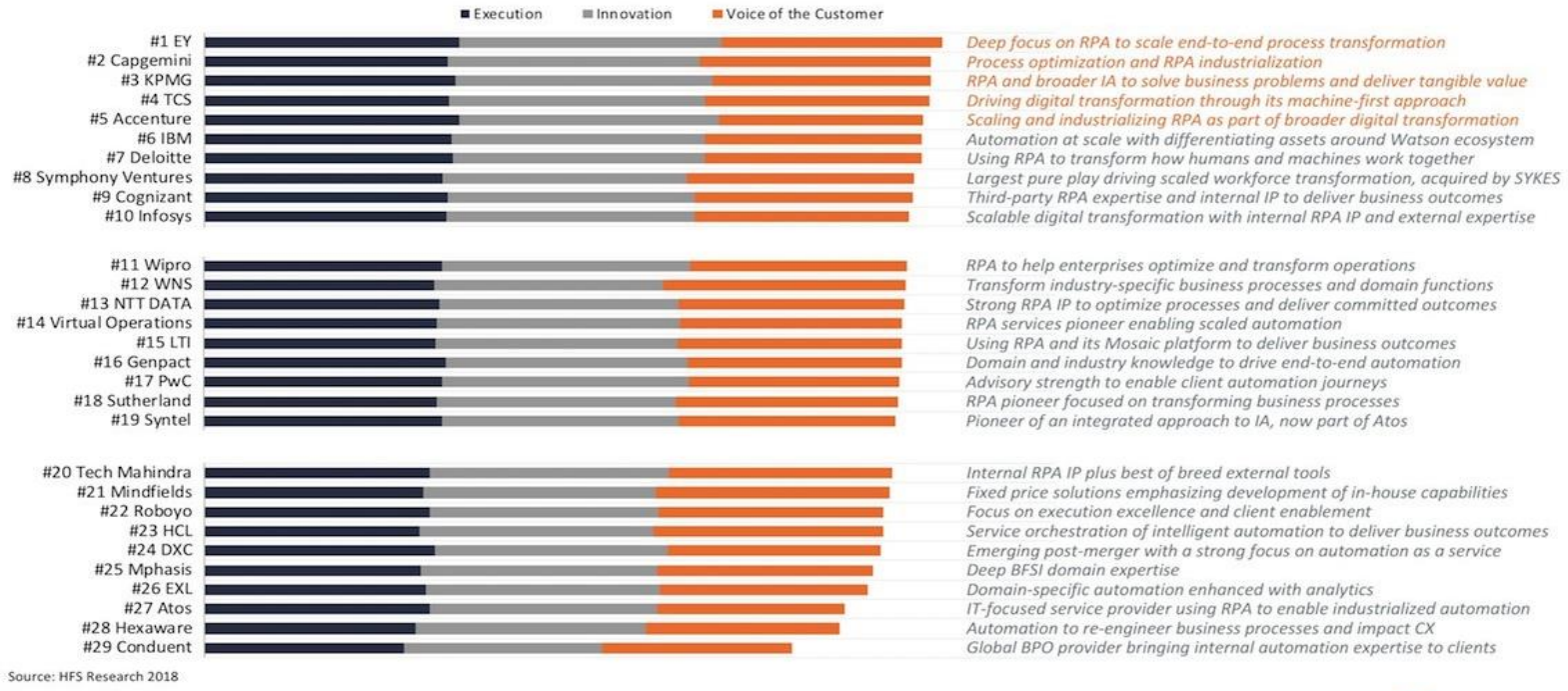
Intelligent Automation Roadmap

Use Case Identification → Technology Platform Selection → **Implementation Partner Selection** → Use Case Implementation

HFS Top 10 RPA service providers 2018

TOP 10

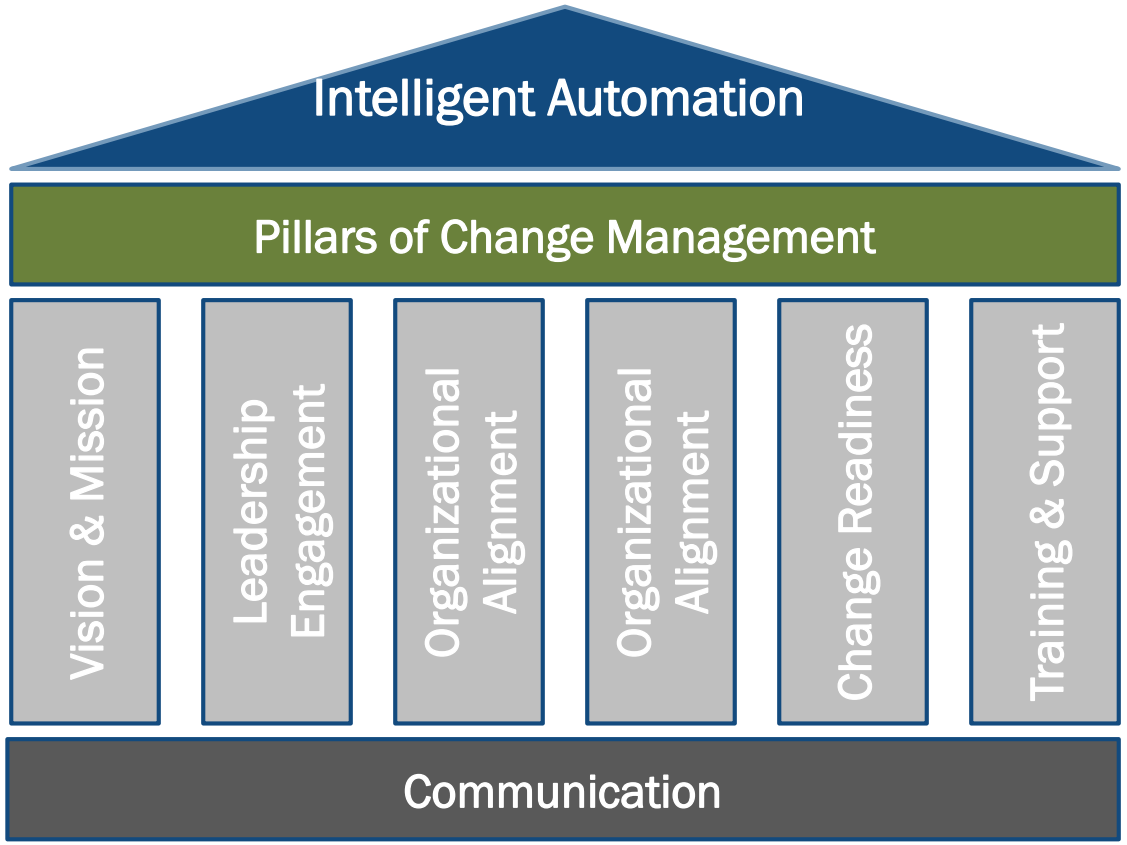


#1 EY	*Deep focus on RPA to scale end-to-end process transformation*
#2 Capgemini	*Process optimization and RPA industrialization*
#3 KPMG	*RPA and broader IA to solve business problems and deliver tangible value*
#4 TCS	*Driving digital transformation through its machine-first approach*
#5 Accenture	*Scaling and industrializing RPA as part of broader digital transformation*
#6 IBM	*Automation at scale with differentiating assets around Watson ecosystem*
#7 Deloitte	*Using RPA to transform how humans and machines work together*
#8 Symphony Ventures	*Largest pure play driving scaled workforce transformation, acquired by SYKES*
#9 Cognizant	*Third-party RPA expertise and internal IP to deliver business outcomes*
#10 Infosys	*Scalable digital transformation with internal RPA IP and external expertise*
#11 Wipro	*RPA to help enterprises optimize and transform operations*
#12 WNS	*Transform industry-specific business processes and domain functions*
#13 NTT DATA	*Strong RPA IP to optimize processes and deliver committed outcomes*
#14 Virtual Operations	*RPA services pioneer enabling scaled automation*
#15 LTI	*Using RPA and its Mosaic platform to deliver business outcomes*
#16 Genpact	*Domain and industry knowledge to drive end-to-end automation*
#17 PwC	*Advisory strength to enable client automation journeys*
#18 Sutherland	*RPA pioneer focused on transforming business processes*
#19 Syntel	*Pioneer of an integrated approach to IA, now part of Atos*
#20 Tech Mahindra	*Internal RPA IP plus best of breed external tools*
#21 Mindfields	*Fixed price solutions emphasizing development of in-house capabilities*
#22 Roboyo	*Focus on execution excellence and client enablement*
#23 HCL	*Service orchestration of intelligent automation to deliver business outcomes*
#24 DXC	*Emerging post-merger with a strong focus on automation as a service*
#25 Mphasis	*Deep BFSI domain expertise*
#26 EXL	*Domain-specific automation enhanced with analytics*
#27 Atos	*IT-focused service provider using RPA to enable industrialized automation*
#28 Hexaware	*Automation to re-engineer business processes and impact CX*
#29 Conduent	*Global BPO provider bringing internal automation expertise to clients*

Source: HFS Research 2018

HFS Research

Don’t Forget, Change Management Is Hard!



I. Vision & Values: Does this change reflect our **vision** for the future, and does it change our organizational **values**?

II. Leadership Engagement: Is our leadership engaged, and accountable for driving change?

III. Organizational Alignment: Is our **organization aligned**, and mission ready for change?

IV. Change Readiness: What is our organization’s level of **change** readiness?

V. Training and Support: What new **training** and **support** functions will be required to support this change?

VI. Communication: What **message** we will send to our organization regarding the changes ahead?

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~~Roberta~~

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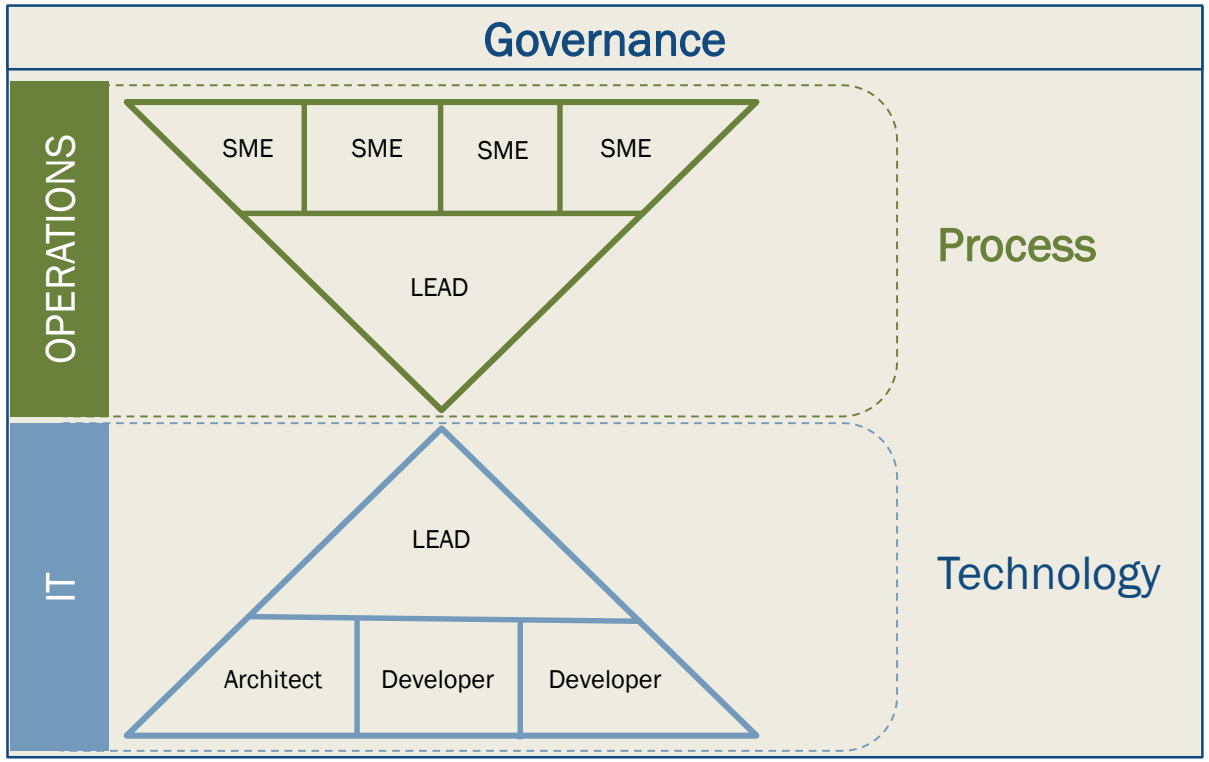

Will The Bot Take My Job?

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7 Lessons. . . So Far!

1. Only a Few are Enthusiastic about RPA. . . And, It Isn't Necessarily The Ones You Expect
2. At Some Point, Employees Will Figure Out That Efficiency Does Mean Their Jobs
3. Ongoing Maintenance Requires Coders; Coders Need to Be Hired; Coders Aren't Easy to Find
4. Someone Has To "Own" the Bot—Central Control Vs. Decentralized Control Must Be Decided
5. Those Who Were Enthusiastic May Change Their Minds and So May Those That Weren't Enthusiastic
6. Quality Control Is Critical; So Is Bot Failure
7. At This Point, I Still Have More Questions Than Answers

Creating a Digital Workforce is a Journey

Pilots Use Cases

Prove Intelligent Automation works in Houston Methodist IT ecosystem

Establish Intelligent Automation business and governance structure

Digital Workforce

Create digital workforce, enable business to focus on value added tasks

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