Agenda

- Introductions
- RPA – what’s it all about?
- Transformation utilizing RPA & the GRC environment
- Use Cases – Impacts & Implications
- Conclusions
- Open Discussion/Q&A
Fred Albright – Leads the TCS GRC Intelligent Process Automation Center of Excellence

Over 25 years experience as both a management consultant and a senior executive within Diversified Financial Services & Insurance. His focus covers the interaction of “NextGen” Intelligent Process Automation (IPA) tools & techniques within Operations and Technology and the impact and implications within Governance, Risk, and Compliance.

Fred has strategic and tactical experience as a ‘Trusted Advisor’ to numerous Tier-1 global entities by directly leading and also advising on global initiatives in “NextGen” IPA/digitization, business transformation, forensic analysis, business stabilization, and crisis management, as well as having an extensive background within practice management and relationship management.

- Fred’s previous experience encompasses both direct Line of Business Management within Diversified Financial Services entities and Management Consulting at both Big 4 and Boutique firms. Fred developed and led Management Consulting/Advisory practices at KPMG Consulting/BearingPoint and TowerGroup. Additionally, he also served as the CFO and Executive Committee Member of a Consumer Finance entity, a Risk Management executive at an international global bank, and held various Audit roles at Deloitte and Bank of America.
- Fred possesses an MBA from Duke University and a BA in Economics from UCLA. Additionally, he is a California CPA (inactive status).

Pran Banerjee – Practice Head, RPA, TCS BPS NA

19+ years of industry experience in Banking and Financial Services functions in areas covering RPA, Process Re-engineering and Business Transformation

- Has led multiple strategic customer initiatives and set up Transformation frameworks for Banking, Mortgages and Insurance verticals across Back-end Data processing, Customer Care and Collections
- Has chartered transformation journeys for multiple customers using levers like RPA, Intelligent Process Automation tools and Lean Six Sigma
- Enabled an industry award in 2016 for Digital BPO Innovation, Best Outsourcing Thought Leadership, for transforming a large Mortgage Service provider in NA
- Is an Engineering graduate, a certified Six Sigma Master Black Belt, COPC RCT, Lead Auditor ISO 9001:2000 and has also worked with certification bodies like ISO/IEC JTC1 in developing ITeS-BPO Standards
RPA...what’s it all about?
What’s the opportunity...

- Paper Based Transactions
- Broken IT Systems
- Complex Legacy Systems
- Exceptions Transaction and Judgmental Decision
- Unstructured Information

Resulting in Repetitive Manual Processes

- Data Entry
- Hoping across multiple screens to read or update relevant customer details
- Verification, validation and comparison of data across multiple sources
- Decision making - Rule or Judgment
- Letter Generation and Email communications
What is Robotic Process Automation...point of view

**Chatbots**
- Machine Learning
- Cognitive Capabilities (AI)
- Robotic Analytics
- Natural Language Processing
- Robotic Cloud
- Bots Farm
- Virtual Personal Assistants
- Virtual Customer Assistants

**CORE IT-BPO FUNCTIONS**
- Unstructured data
- Data volatility
- Cognitive intelligence
- High judgement based process
- Dynamic Case Management
- Master data Management
- Back-office automation
- Data Aggregation Requirement
- OCR Integrated Data Capture
- Desktop Automation
- Front-office automation

**CORE RPA FUNCTIONS**
- Data Rich Transformations
- Complex Integrations
- High Complexity Decision Making
- Basic Decision Making
- Low Data Transformation
- High Volume
- Repetitive tasks

**RPA As a Service**
- Technology co-existing with BPM, Analytics, Machine Learning
- RPA CoE (Distributed – Federated – Enterprise)
- Multiple RPA product adoption strategy
- Central Governance model (Ops & IT Team)
Maximizing automation savings... RPA & beyond

**LEVEL 3**

RPA + Cognitive Solutions + Digital enabled STP

- Digital platform / solutions to enable Straight Through Processing (STP) without changes to the core systems
- Reduction in transactions moving to back-office for manual touch points
- Faster cycle time, enhanced CSAT through digital experience

**LEVEL 2**

RPA + Machine Learning

- Natural Language Processing to read and understand the unstructured messages
- Make Judgmental decisions based on training and historical data using cognitive techniques
- Handle complex exceptions using Machine Learning Technology

**LEVEL 1**

RPA

- Integrated RPA and BPM strategy
- Recurring additional maintenance expenses due to large number of robots deployment
- Not amenable to RPA for unstructured or hand-written, requires judgmental decisions, has voice steps and exception handling

LEVEL 1 BENEFITS 25%

LEVEL 2 BENEFITS 40%

LEVEL 3 BENEFITS 60%

Maximizing automation savings... RPA & beyond

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RPA Suitability Assessment...

**Technology Considerations**
- Static Business Rules
- # of Systems, IT Subsystems involved
- Stability of the Current systems
- % of exception handling
- Level of process documentation
- Faulty systems – Downtimes

**Business Considerations**
- # of Transactions
- # of Process steps / FTEs involved
- AHT/TAT for the Process
- Upfront Investment
- Maintenance cost
- Cost per Transaction

**Technical Complexity of Implementation**
- Low
- Medium
- High

**Process Complexity**

- **Statistical Model**
  - (Not a RPA Candidate)
  - Analysis or Judgment Based
  - Low

- **Cognitive Adaptable Systems**
  - (RPA Evolution)
  - Business Rules & Analysis Based Data Entry
  - Limited Business Rule Based Data Entry
  - Dynamic Business Rule Based Data Entry
  - High
<table>
<thead>
<tr>
<th></th>
<th>Front-office Automation</th>
<th>Back-office Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>• Also called as “Attended” / “Assisted” / “Desktop” automation</td>
<td>• Also called as “Virtual Workforce”</td>
</tr>
<tr>
<td></td>
<td>• Involves mashups or reskinning applications for real-time</td>
<td>• Use techniques like workflow, prioritization and scheduling to process large volumes of work securely</td>
</tr>
<tr>
<td><strong>Execution of work</strong></td>
<td>• Partial automation, involving human to intervene</td>
<td>• Straight-thru processing with no human intervention</td>
</tr>
<tr>
<td></td>
<td>• Runs on each associate’s desktop</td>
<td>• Runs on servers and not on associate’s desktop</td>
</tr>
<tr>
<td><strong>Decision Making</strong></td>
<td>• Non-judgmental, rule-based, assisted by human where needed</td>
<td>• Non-judgmental, rule-based, minimal to human intervention</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>• Increases efficiency of existing workers</td>
<td>• Large-scale unattended processing without human intervention</td>
</tr>
<tr>
<td></td>
<td>• Helps to consolidate information and provide consistent customer experience</td>
<td>• Secure, reliable and scalable, and can’t be interrupted by human staff</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td><img src="image1" alt="Pega" />, <img src="image2" alt="OpenSpan" />, <img src="image3" alt="UiPath" />, <img src="image4" alt="Automation Anywhere" /></td>
<td><img src="image5" alt="WorkFusion" />, <img src="image6" alt="UiPath" />, <img src="image7" alt="Automation Anywhere" />, <img src="image8" alt="Blue Prism" /></td>
</tr>
</tbody>
</table>
RPA implementation... impacts & implications

"Sure, it seems harmless, but you hire one human and the next thing you know, they're taking your job."
RPA Transformation – Typical Service Approach

**Assess | Suitability Analysis | Attribute & Sample**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Complexity</td>
<td>To gauge Process Flows, complexity, RPA and business case complexity</td>
</tr>
<tr>
<td>Output Quality</td>
<td>To assess test type</td>
</tr>
<tr>
<td>Organization</td>
<td>To understand expertise, Profit/Cost center and Talent management</td>
</tr>
<tr>
<td>Systems Integration</td>
<td>To determine number of user interfaces</td>
</tr>
<tr>
<td>Risk</td>
<td>To gauge lifecycle financials, regulations and cost of remediation</td>
</tr>
<tr>
<td>Stability</td>
<td>To determine number of PTEs, Average handling time</td>
</tr>
</tbody>
</table>

**Assessment | Financial Benefit Analysis**

- **Total Investment vs Savings**
- **Cumulative Cash Flow**

**Typical Assessment Framework**

**Prioritize | Criteria & Framework**

- **Business Value (BV)**
- **Effort (Et)**
- **Time to Reap (TTR)**
- **Data Quality**
- **Process Selection – Scoring Methodology**

**RPA Deployment Topology vs. Controls**

- **Controlled control**
- **Enterprise features**
  - Manage user permissions, auto backup and disaster recovery
  - Remote deployment of robots
  - Scheduling and versioning of robots

**Roadmap | Criteria Sample**

- **Year 1**
- **Year 2**
- **Year 3**

**Tata Consultancy Services**

Experience certainty.
Typical Assessment Framework

1. Process Heat Map
   - Receive Physical Application
   - Verify Information completeness
   - Send images & physical docs to back office
   - Enter predefined codes
   - Verify completeness

2. Extract Details
   - L4 Activity Name
   - L5 Task Name
   - L5 Task Type
   - L6 Steps
   - Time and Motion
   - Daily Volume

3. Decision Matrix
   - Screen hopping and data read
     - Rule Based validation
     - Rule based decision
     - Calculation
   - Document/Letter Generation
     - Data Entry
     - Data Entry (From Image)
     - Judgmental Decision
   - Investigation
     - Free Formatted Text Read
     - Free Formatted Text Write
     - File Upload
   - Voice
     - Manual Workflow
     - Scanned Image Read (Typed)
     - Scanned Image Read (Handwritten)

4. Automation Levers
   - RPA
   - Cognitive/ML
   - Digital
   - Analytics

5. Opportunity Buckets
   - RPA Amenable

6. Assessment Report
   - RPA PoC
   - RPA Roadmap

7. RPA PoC
   - SPECS

8. RPA Roadmap
RPA Transformation – Typical Service Approach

Assess | Suitability Analysis | Attribute & Sample

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<td>To gauge Process Reengineering, M2M rate and Business role complexity</td>
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<tr>
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<td>To assess test type</td>
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<tr>
<td>Organization</td>
<td>To understand expertise in management</td>
</tr>
<tr>
<td>System Integration</td>
<td>To determine number of users</td>
</tr>
<tr>
<td>Risk</td>
<td>To gauge direct financial impact</td>
</tr>
<tr>
<td>Scalability</td>
<td>To determine number of IT</td>
</tr>
</tbody>
</table>

Assessment | Financial Benefit Analysis

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Investment / vs Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$10,000</td>
</tr>
<tr>
<td>Revenue</td>
<td>$12,000</td>
</tr>
<tr>
<td>Net</td>
<td>$2,000</td>
</tr>
</tbody>
</table>

Typical Assessment Framework

Roadmap | Controls

- Managing permissions, auto
- Backup and disaster recovery
- Remote deployment of robots
- Scheduling and versioning of robots

Mandatory GRC Involvement Throughout Every Aspect!
Related News...

HSBC voice recognition security system duped by customer's twin brother

HSBC says its Voice ID system can analyse a customer's voice "in seconds".

By Hyacinth Macarenhas
May 20, 2017 11:17 BST

HSBC's much-touted voice recognition software, used by half a million customers to verify their identity and secure their bank accounts, has successfully been duped by the brother of one of its customers....After seven repeated attempts to mimic his brother's voice print, the bank granted him access on his eighth try.

The Economist – Quote from May 6, 2017 Special Report on Banking, Ten Years On:

The number of people working directly on "controls" at JPMorgan Chase, America’s biggest bank, jumped from 24,000 in 2011 (the year after the Dodd-Frank act, the biggest reform to financial regulation since the 1930s) to 43,000 in 2015. That works out at one employee in six.

Banks’ AI plans threaten thousands of jobs
Financial Times January 25, 2017 by: Martin Arnold, Banking Editor

Automated compliance systems set to wipe out post-crisis regulatory roles

Thousands of jobs will be put at risk as the world’s biggest banks harness artificial intelligence systems to the wave of roles created in recent years to meet ever-growing regulatory demands, industry experts have warned.

New technologies mean that banks could make vast savings in compliance, according to Richard Lumb, head of financial services at Accenture, who estimated that “thousands of roles” in the banks’ internal policing could be replaced by automated systems.

"We are seeing work with clients today which is very much around big data and robotic process automation, where in compliance — take anti-money laundering — you can take out thousands of roles," Mr. Lumb told the Financial Times at last week’s World Economic Forum in Davos.
"That is coming quite quickly now and that will sweep across the industry.

Robots Help in Banking at The Swiss Bank - Credit Suisse, Reuters Up, dated: May 2, 2017

Credit Suisse AG has deployed 20 robots within the bank, some of which are helping employees answer basic compliance questions, the Swiss bank’s global markets chief executive, Brian Chin, said on Monday. The technology may help reduce the number of calls coming into the bank's compliance call centre by as much as 50 percent.

The technology works like Amazon.com Inc’s Alexa voice system. "You ask it questions and it spits out the appropriate regulation, rather than going to a manual or a website," Chin said. Although technology has allowed Credit Suisse to cut back and middle office staff, headcount has remained flat because the bank has hired a large number of programmers.

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Experience certainty.
Best Practices...

Never automate a broken process

• Ensure the process is stable and mature before automation is applied.

RPA should always sit with the Process owner

• Run by Business stakeholders with support from IT
• Grow in house RPA CoE of a mixture of Operations and IT people.

Involve GRC throughout the entire process

• RPA will impact the entire Internal Control environment along with the dynamic interaction across all 3 Lines of Defense

RPA is not a project. RPA is a journey

• Don’t be tempted of quick wins by deploying RPA in siloed units
• Use pilots to remove roadblocks and align RPA strategy to business objectives
• Multi-skill the robots

The success of RPA depends on an institutionalized Sponsor

• RPA needs an institutionalized Robotic Team led by a Sponsor - who initiates the idea of automation, underwrites resources and protects progress into business adoption

Bring IT, Risk and Information Security onboard early

• RPA deployment has an impact on Infra, Security, Business Continuity and Disaster Recovery.
• RPA must comply with the technology function’s governance and architecture policies.

Communicate, Communicate, Communicate!

• Engage a dedicated team of Change and Communication for awareness in the business of the benefits of automation
• Keep all stakeholders up to speed with the progress of the automation journey
### RPA Architecture...the Control Room

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Web App</th>
<th>Mainframe</th>
<th>Desktop App</th>
<th>Database</th>
<th>MS Outlook</th>
<th>MS Excel</th>
<th>PDFs, Scanned Images</th>
</tr>
</thead>
</table>

**BOT Creator (BOT Development Client System)**
- Create BOT
- Edit BOT
- VM / Desktop (Windows OS)

**BOT Runners (Runtime System)**
- BOT 1
- BOT 2
- BOT 3
- BOT n
- VM / Desktop (Windows OS)

**Control Room**
- Dashboard
- Work Load Manager
- Operations Room
- User Mgmt.
- Audit Trail
- BOT Scheduler
- **BOT Farm
- Reports

**RPA DB**

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* BOT commands – Object Recorder, Database command, excel command, app integration command, OCR command etc.
** BOT Farm – View of all bots with user, IP address, application path and schedule credentials
*** RPA (Robotic Process Automation) Database for audit trail and reporting
Use Cases

“My team has created a very innovative solution, but we’re still looking for a problem to go with it.”
Use Case: Reimagining Operational Risk Controls Testing via RPA

Current Process

Deliverable requirements

Go-To Process

Business Transactions

Automation deployed as Business Control

Test procedure review

Test Execution

Documentation

Automated Control Execution

Exception reporting for Manual controls

100% Business population coverage

Eliminates Manual Review

Cost Reduction
Use Case: Intelligent Process Automation (IPA) applied to KYC AML

Brining together various NextGen enabling tools & techniques & applying them in novel ways
The utilization of intelligent Process Automation tools and techniques in Operations and Technology is well underway…

These same tools & techniques are being applied directly within the Risk & Control environment - planning, assessment, monitoring, and reporting become the logical progression in the evolution of GRC

... providing increased collaboration and knowledge sharing amongst involved stakeholders - namely: Operations, Technology, Risk, Compliance, Internal Audit, Business & Sr. Management, and Executive & Board-level committees

Stage I
RPA introduction within Ops & Tech

Stage II
Leverage RPA within Risk & Control Environment

Stage III
Transform (Reimagine) 3 LOD

Communicate
Coordinate
Collaborate

Experience certainty.
Conclusion…

“I failed my grammar test. I used the wrong emoticon at the end of a tweet.”
Waves of technology revolutions...

1. COMPUTER
   - 1985 - 1995
   - Reengineering
   - Digital replacing manual
   - Word processing & Spreadsheets

2. INTERNET
   - 1995 - 2005
   - Digital infrastructure
   - Networking
   - Telecom

3. CONNECTEDNESS
   - 2005 - 2015
   - Mobility
   - Peer-to-peer networks
   - Social networking

4. ROBOTICS
   - 2015 - 2025
   - Artificial Intelligence, Machine learning
   - Rapid automation
   - Internet of things
   - Blockchain technology
“The future is already here; it’s just not evenly distributed.” - William Gibson, science fiction writer
Thank You

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