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- Image Recognition
- Machine Vision

Volume, Variety & Velocity of data
ML allows banks to extract insight, reduce risks, automate processes and improve customer engagement through the automated analysis of thousands of data points compared to traditional analysis of 20-30 variables.

Summarize, reduce & categorize data
Overcome data overload by simplifying and reducing the amount of qualitative information to support decision making processes. Chatbots are implementations of NLP with Speech.

Identification & qualification
Machine Vision technology has supported our RPA processes through the use of Optical Character Recognition.

Knowledge Based Systems
Applying rules to known facts to deduce new facts.

Smart Automation
The Future of Digital Business

Future Digital Business Models requirements

- Contextual, Personalized Digital-Physical Experiences
- Intelligent System of Insights, driven by 360-degree Big data
- Adaptive & Resilient Digital Platforms Driving Ecosystem-engagement

How AI enables

- Contextual Personalization
- Conversational Engagement
- Next Best Offers/Actions
- Real time Predictive Insights
- Smart Automation
- Real time Resilience
- Value Added Models

How Smart Automation + AI enables embedding an enhanced risk management process

A combination of consistent and repeatable processing, ability to generate more and granular data, identify complex & nonlinear patterns sets the scene for enhanced risk management across the transaction flow.

Reliable, Accurate, Predictable
Execution that is based on elimination of manual touchpoints, repeatable actions and with data logging

Detect and Predict
register and learn behavioral habits of transaction initiation and detect possible abnormal behaviors
Detect violation of security data related to usage, entitlements and irregular transactions.

Learn and Comply:
non-supervised learning processes to detect AML, other compliance breach patterns by real time data analysis and monitoring
TTS Operations Automation Strategy

TTS Automation Strategy has **four transformation pillars** at various stages of the journey that is built on developing a solid foundation and delivering **significant improvements over 3 years**

1. **Zero Operations**
   - Core Enhancements
   - Application Rationalization
   - Strategic Infrastructure
   - Target Operating Model
   - Straight Through Processing

2. **Product Elimination**
   - Cash & Coins Handling
   - Manual Payments Instructions
   - Branch Rationalizations
   - Targeted process Eliminations

3. **Process Re-engineering**
   - Process Standardization
   - Eliminating Process Exceptions
   - LEAN Reviews

4. **Ops Automation**
   - OCR
   - Process Analytics
   - Robotics [RPA]
   - Name Entity Recognition
   - Natural Language Processing
   - Machine Learning/AI
   - Crowd Sourcing

**Systematic & sustained Smart Automation roadmap is crucial to achieve maturity to drive client value**
Smart Automation Solutions

The use of software with Artificial Intelligence and machine learning capabilities to handle high-volume, repeatable tasks that previously required a human to perform.

Evolution of Process Automation

1st Generation
- Screen scraping

2nd Generation
- Replay of mouse and keystrokes

3rd Generation
- Scripting Languages and Windows standard control recognition

4th Generation
- Flow Chart Defined Workflows – Rule Based

5th Generation
- Cognitive/ Artificial Intelligence

Manual touchpoints through Transaction Journey

Pre Processing
- Free Format Email Receipt
- Handling Documents

Processing
- Transaction Inputs
- Transaction repair
- Queues Management

Metrics /& Analytics
- Manual data collation
- Manual reports /scorecards generation

Service & Investigations
- Enquiry response
- Case management Reports / scorecards

Governance / Control
- ‘Dipstick’ Checks
- Data analytics
- In-Flight controls

Solution Set and Tools

- Workflow tools
- OCR/NER/NLP with RPA
- Artificial intelligence
- Process Analytics
- Targeted RPA
- Systemic Enhancements
- RPA Tools
- Self Service Solutions
- Data Analytics
- Self Service Tools
- RPA & Machine Learning
- Chat Bots, Virtual Agents
- Systemic Controls
Smart Automation – Considerations and Lessons

To ensure sustainability of the automation programme, key checkpoints & feedback loops from the current stages of the journey will enable ongoing success that is built on developing a solid foundation.

### Organisational Considerations

- **ROI** – what is the real ROI of Smart Automation Investment
- **Risk Framework for Smart Automation** - what is the new risk profile of the process
- **Business Continuity for Automation**
  Automation Free Processing – What is required?
- **Automation + Human Integration**
  New KPIs to manage the hybrid Auto-Human workforce

### Execution Considerations

- **Implementing Automation – How simple is the development process**
- **Agile Project cell** driven approach required - Traditional development cycles do not work
- **E2E process automation** is critical for replicability and cross geography automation
- **Automation Adaptability**
  Agility to react to System/Process Changes in the ecosystem
- **Automation Performance** – faster than Humans
  Can the hybrid workforce work
Automation in Action — *Smart Automation examples*

**OCR in TRIMS**
Trade Operations Capabilities

Automation in classification, data entry and identification of proper nouns in Trade documents

Solutions use OCR & Named Entity Recognition

**RPA Solution**
Cross Border Investigations

Leveraging **Digital Services** for Payment Investigation, case management and investigations. Solution uses **Hybrid of Workfusion RPA & Human workflow**

**Citi Trade Service Professional (TSP) RPA/Workflow**

Achieving an E2E workflow for Trade Service functions.

Solution leveraging **Re-engineering, RPA, Workflow**

**Automation of data entry via OCR**

- **Auto Doc Classification**
- **Auto Data Extraction**
- **Auto Populate Data in TRIMS**

**NER (Named entity recognition)**

- NLP Library
- Process Digitized documents with NLP Library
- Identified Proper Nouns
- Show the auto-extracted proper nouns for Validation

**Products commercialized for OCR**
- Export collection
- Import Collection
- Import Bill
- Export Bill
- Import LC Issuance
- Guarantee Issuance

**Products commercialized for NER**
- All scanned documents in TRIMS

**Automation**

- 80%
- 10%

**Cycle time**

**Effort**

- 10+
- 14

**Countries**

**Benefits envisaged through this automation**

- Integrated view of transaction lifecycle transparency
- Structured input with differentiated service
- Efficient Capacity and case management
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