Prodapt powering global telecom

Go Beyond RPA to Speed Up Transaction Processing Time

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Most Organizations Consider RPA Implementation as a One-time Solution and Do Not Adopt Continuous Improvement Methods for Further Enhancement

75%-85%
Estimated **Straight-through Processing rate (STP)** in any DSPs' process
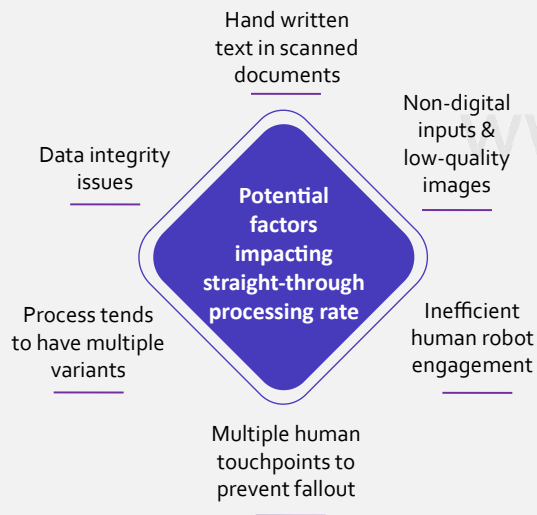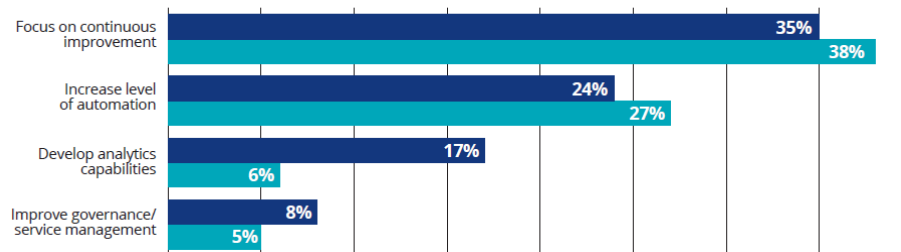
However, the actual realization is
30%-50%

Figure 1: What is the top strategic priority for your operation today?

Focus on continuous improvement	35% / 38%
Increase level of automation	24% / 27%
Develop analytics capabilities	17% / 6%
Improve governance/ service management	8% / 5%

As per **Deloitte's** report '**Untapped advantage in your digital workforce'**, the top strategic priority for DSPs' operation today is to **focus on continuous improvement**

Potential factors impacting straight-through processing rate

Hand written text in scanned documents

Non-digital inputs & low-quality images

Data integrity issues

Process tends to have multiple variants

Inefficient human robot engagement

Multiple human touchpoints to prevent fallout

Major RPA Continuous Improvement methods are not effective

- Most DSPs are exploring various continuous improvement techniques such as occasional improvement, analytics-driven continuous improvement, etc., to improve the speed and value proposition.
- However, these techniques are not effective to achieve expected straight-through processing rate.
- This creates an increasing demand for DSPs to strategize on intelligent and automated continuous improvement techniques to reduce fallouts.

This insight elaborates on leveraging **Automation Optimizer Framework** to accelerate the straight-through processing rate.

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Leveraging Automation Optimizer Framework - Improves Straight-through Process (STP)
Get more value from the existing RPA implementation

DSPs need to focus on an efficient continuous improvement strategy before embarking on the next stage of the RPA automation journey. It should enable DSPs to identify the automation inefficiencies, root causes, solutions for the identified gaps, and continuously monitor STP rate - all in an automated way.
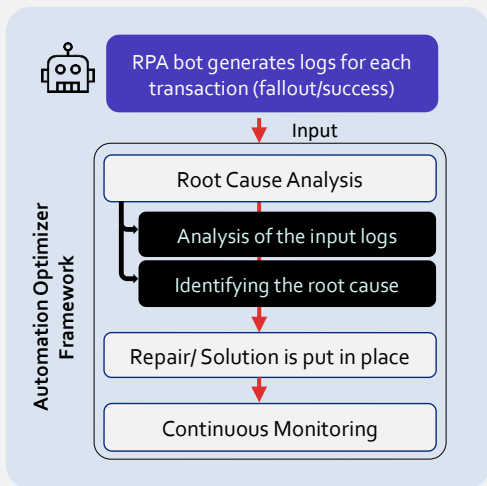
Automation Optimizer Framework

RPA bot generates logs for each transaction (fallout/success)

↓ Input

Root Cause Analysis

Analysis of the input logs

Identifying the root cause

Repair/ Solution is put in place

Continuous Monitoring

Fig.1 : Functional workflow of Automation Optimizer Framework

Key Components of the Automation Optimizer Framework

Intelligent RCA (root cause analysis) Engine

- Investigate the exception path to discover inefficiencies
- Intelligent root cause engine to derive possible causes for fallouts

Integrated Solutionizer

- Real-time updates to get proactive insights
- Quick-fix engine for automated repair
- Triggers the required action in third party application

Continuous Monitoring Tool

- Define objectives, KPIs and milestones
- Continuously track the progress over time

This insight elaborates on leveraging **Automation Optimizer Framework** to accelerate the Straight-through Processing rate.

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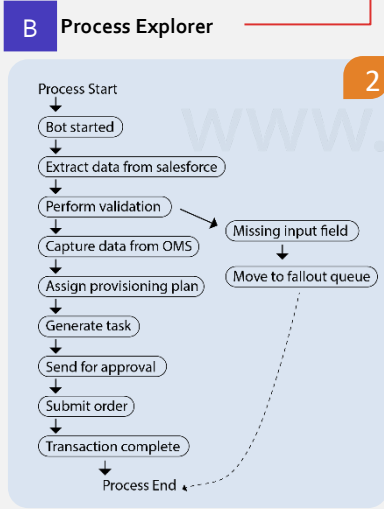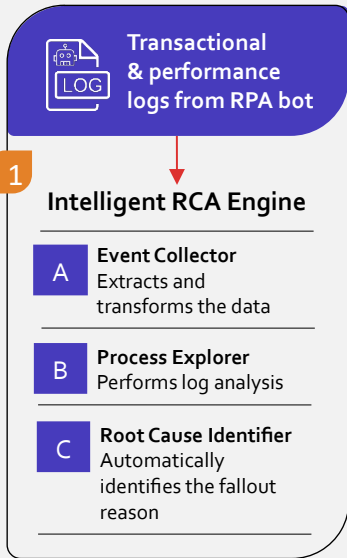# Intelligent RCA Engine - Provides near real-time insights

Drilldown to transaction-level information and automatically identify the root cause

Sample process flow showing DSL Order processing

Fallout trend analysis with instant root cause using process mining based Intelligent RCA Engine during order processing workflow

1

Intelligent RCA Engine

A Event Collector
Extracts and transforms the data

B Process Explorer
Performs log analysis

C Root Cause Identifier
Automatically identifies the fallout reason

Transactional & performance logs from RPA bot

LOG

B Process Explorer

2

Process Start
↓
Bot started
↓
Extract data from salesforce
↓
Perform validation → Missing input field
↓ ↓
Capture data from OMS → Move to fallout queue
↓
Assign provisioning plan
↓
Generate task
↓
Send for approval
↓
Submit order
↓
Transaction complete
↓
Process End

C Root cause identifier

22% of cases
Missing input field is an undesired activity
View cases in...
Effect on throughput time — 0 Days shorter
Effect on steps per case — -4.0 steps per case

19% of cases
System exception is an undesired activity
View cases in...
Effect on throughput time — 0 Days shorter
Effect on steps per case — -1.9 steps per case

11% of cases
No data extracted is an undesired activity
View cases in...
Effect on throughput time — 0 Days shorter
Effect on steps per case — -4.0 steps per case

8% of cases
Junk data extracted is an undesired activity
View cases in...
Effect on throughput time — 0 Days shorter
Effect on steps per case — -4.0 steps per case

Intelligent RCA engine does drill down to showcase the top fallout reasons **3**

Further drill down option to showcase "where fallouts are happening" **4**

Missing input field is an undesired activity
View cases in... | Add to whitelist

PI Possible root causes for violation
PI configuration

22 Violations	**Business unit** Enterprise, Resale
20 Violations	**User** Amanda
24 Violations	**Location** ORLANDO, ROCKVILLE

No data extracted is an undesired activity
View cases in... | Add to whitelist

PI Possible root causes for violation
PI configuration

5 Violations	**Business unit** Retail, SMB
5 Violations	**User** Amanda, Oren, Lara, Taylor
10 Violations	**Location** PORTLAND, ROCKVILLE, PHOENIX

Top 2 fallout reasons

Missing / Invalid Inputs

Handwritten Input or images with poor resolution

5

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Integrated Solutionizer - Provides automated action trigger for repair

This Solutionizer constantly analyzes the output from Intelligent RCA Engine and triggers respective action based on the identified root cause

The following sample workflow represents the trigger execution for the required repair action:

Intelligent RCA Engine

Integrated Solutionizer
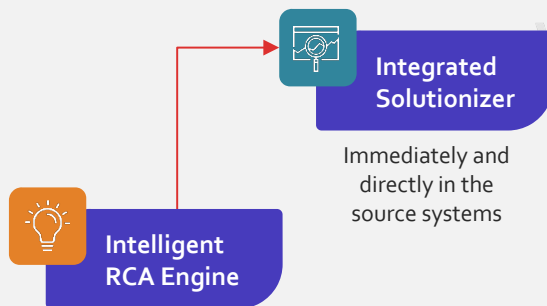
Immediately and directly in the source systems

Executes Actions

1 Fallout

Sample screenshot represents the action trigger from Integrated Solution Engine for a specific transaction with **"missing input field"**

Trigger action	
Creation date	Feb 3, 2020, 7:01:02 PM
Sales order	18902938903
New expression	Trigger interactive robot solution
Activities count	1

Interactive robot solution with Human-in-loop

Obtains missing input field through collaboration between human and digital workforce

Smart data capture bot

Extracts content from images with poor resolution and handwritten text

2 Fallout

Sample screenshot represents the action trigger from Integrated Solution Engine for a list of transactions with **"no data extracted, low confident score"**

← **Signals for tigger smart data capture**

Preview	Filters	Limit / Sorting
Sales order `123`	Action `ABC`	
1890298303	Trigger image analysis by CV	
1897290384	Trigger image analysis by CV	
1885900384	Trigger image analysis by CV	

Execution of action is explained with comprehensive workflow in the following slides

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In the event of a missing input field, sSolutionizer triggers interactive robot solutions to improve the collaboration between human and digital workforce. This turns attended fallout scenarios to unattended RPA automation scenario which increase the straight-through processing rate

With Attended RPA solution
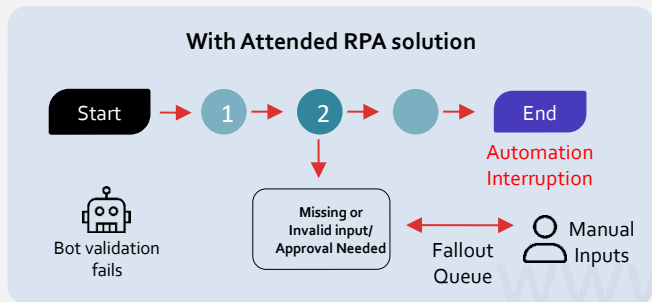
- Traditional RPA bot stays stuck in one transaction until the human dependency is resolved

- Each attended RPA bot comes with a **license** and till the time it is stuck at one transaction, DSPs lose revenue by not utilizing the bot to its full capacity.

- Attended bots provide **interruption to the automation process** allowing a human to intercede and make decisions.

- However, agent intervention when RPA bot is processing in the foreground causes it to fail.

Interactive Robot Solution with Human-in-loop
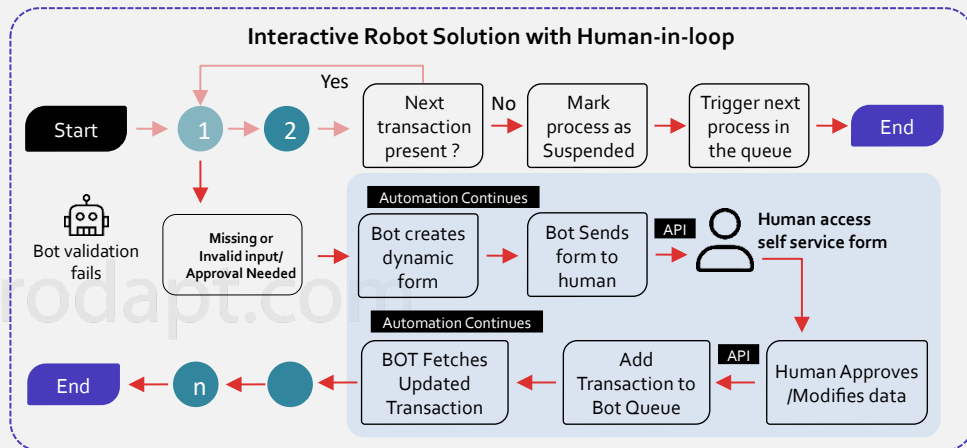
Interactive Robot Solution marks the process as suspended. The robot becomes free and executes other processes in the queue rather than waiting for a human to intervene

- When a robot encounters an issue that requires human attention, the bot will generate dynamic content specific to the issue and creates forms
- Agent validates dynamic content at his convenience, provides input or approval and triggers bot with the click of a button
- Suspended task resumes in any available robot and completes processing with updated input from the agent
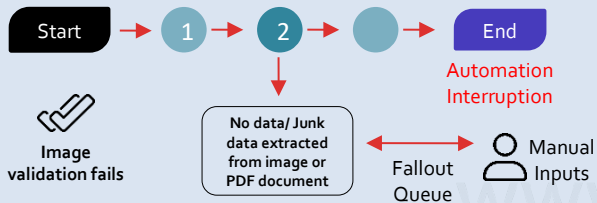
An interactive robot solution with Human-in-loop enables DSP to create dynamic web forms in real-time using a "no-code" RPA bot solution. Business users are presented with transactions in the digital front end to key in missing input data, approval and allow the robot to continue.

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Integrated Solutionizer Handling Top Fallout-2:
Smart data capture Bot powered by Computer Vision (CV)

For transactions with "no data or junk data extracted", Integrated Solution Engine triggers Smart Data Capture Bot powered by CV. Accelerator in CV BOT extracts handwritten text and content from poor resolution images turning fallout scenarios to straight-through processing flow.
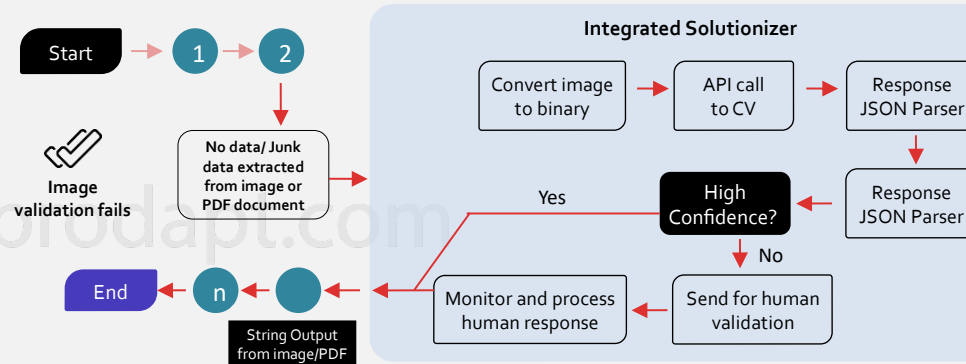

With Standard OCR* based RPA solution

Start → 1 → 2 → ● → End
Automation Interruption

Image validation fails

No data/ Junk data extracted from image or PDF document ↔ Fallout Queue / Manual Inputs

- The existing OCR features present in most of the RPA tools poses a serious challenge in extracting the handwritten text and printed text with various font size, multiple languages, squeezed characters.

- This causes a high number of fallouts and the entire transaction ends up being processed manually which drastically impacts straight-through processing rate.

*OCR – Optical Character Recognition

RPA Solution Integrated with Smart Data Capture

Start → 1 → 2

Image validation fails

No data/ Junk data extracted from image or PDF document

Integrated Solutionizer

Convert image to binary → API call to CV → Response JSON Parser → Response JSON Parser → High Confidence?

High Confidence? → Yes → Monitor and process human response
High Confidence? → No → Send for human validation → Monitor and process human response

End ← n ← ● ← Monitor and process human response
String Output from image/PDF

- Smart data capture Bot helps to improve accuracy in data extraction from image and processing hand-written text by encapsulating CV for auto-scaling, auto-detection of language, tag generation, and text extraction.
- Reusable plug and play component which can be leveraged for integrating vision API with any RPA tool making it a no-code solution.
- Available as macro and DLL for ease of integration.
- Routes low confidence input to human, polls for response and processes it.

Smart data capture RPA bot powered by CV consumes image or PDF file path as input and provides extracted string enabling DSP's to automate transactions involving handwritten text or poor resolution images as source data.

Continuous Monitoring Tool to Track Straight-through Processing rate (STP)
Empower RPA CoE with improved processing rate driven by customized monitoring

1 2 **3**

Even after achieving the desired STP rate, continuous monitoring is recommended to mitigate the process changes or seasonal issues

Set objectives and monitor progress

- Define process-specific STP objective
- Import existing KPIs from process analytics and define new KPIs as well
- Monitor how each KPI developed over time
- Set milestones for each KPI as a Key Result
- Assign ownership, manage tasks and discuss the course of action
- Receive email alerts on the development of objectives and KPIs

Sample email screenshot showcasing the happenings on Feb 2nd

What happened on **February 2?**

KPI Increased by 0.54%

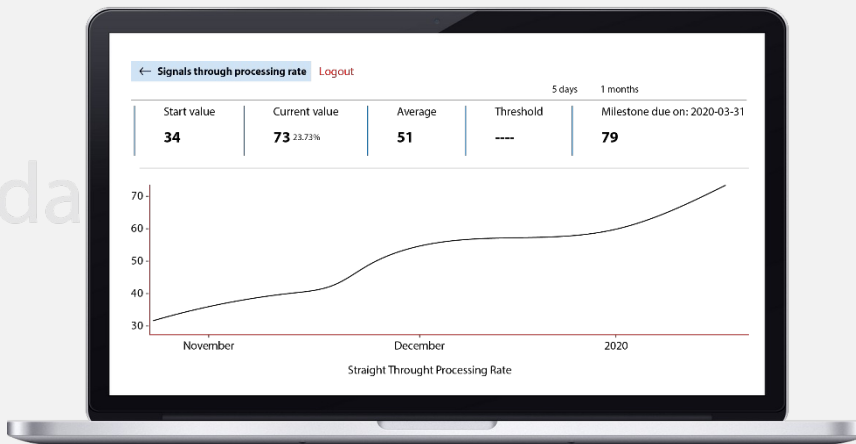| (1) **Straight Through Processing Rate** Unassigned KPIs	**73**

KPI Descriptions
1) Straight Through Processing Rate
Milestone due on: 2020-02-28
Milestone: 80

← **Signals through processing rate**   Logout

5 days   1 months

Start value	Current value	Average	Threshold	Milestone due on: 2020-03-31
34	**73** 23.73%	**51**	----	**79**

Straight Throught Processing Rate

The continuous monitoring tool will validate the fallout percentage. If the percentage is more than the limit, then alert will be sent to the Process Owner/CoE Team.

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Benefits Of Using Automation Optimizer Framework

Intelligent Root cause Analysis   Time saved in automated Root cause Analysis as compared to manual one

Manual root cause analysis	**24** hours — Small process	**48** hours — Medium process	**72-96** hours — Complex process
Bot enabled automated root cause analysis	**Near real-time**		

Interactive robot solution with Human-in-loop

- Average handling time reduced by **50%**
- Eliminates need for individual license in agents' machine

Smart data capture adapter

Integrating CV with RPA - **5 days** of development effort
- Conversion of the image to binary format
- Building wrapper class for sending binary data to API
- Creating methods to parsing the response

With Smart data capture adaptor it got reduced to few hours **(1.5 hours)** - all using plug and play component

The initial Straight-through Processing rate of 34% is increased to 56% using an Interactive robot solution. Further with smart data capture, the STP rate is accelerated to 73%. Overall, this Automation Optimizer Framework sets up the stage for improvement in automated processes using a sustainable approach.

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