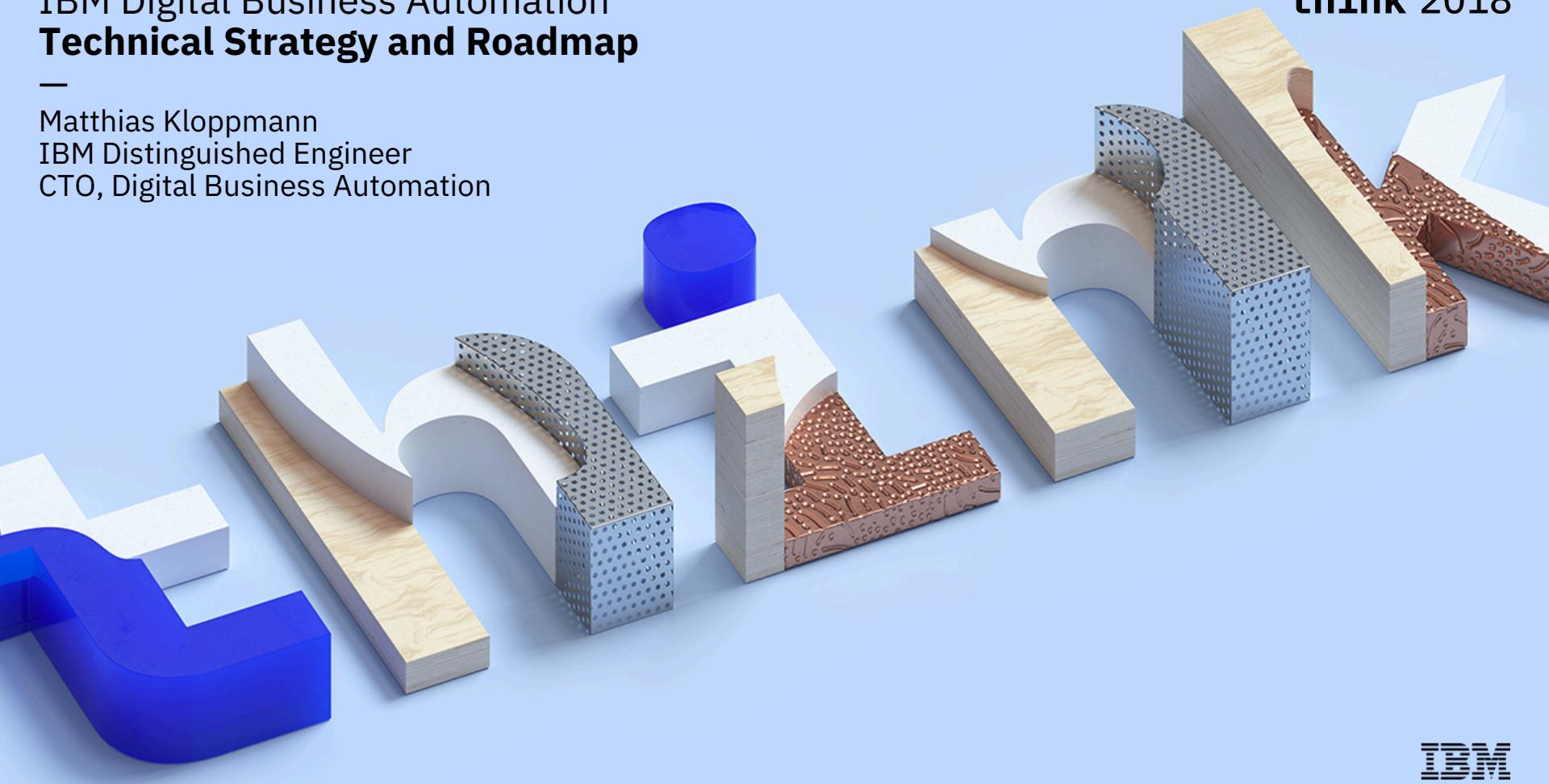


# IBM Digital Business Automation Technical Strategy and Roadmap

think 2018

—  
Matthias Kloppmann  
IBM Distinguished Engineer  
CTO, Digital Business Automation



IBM

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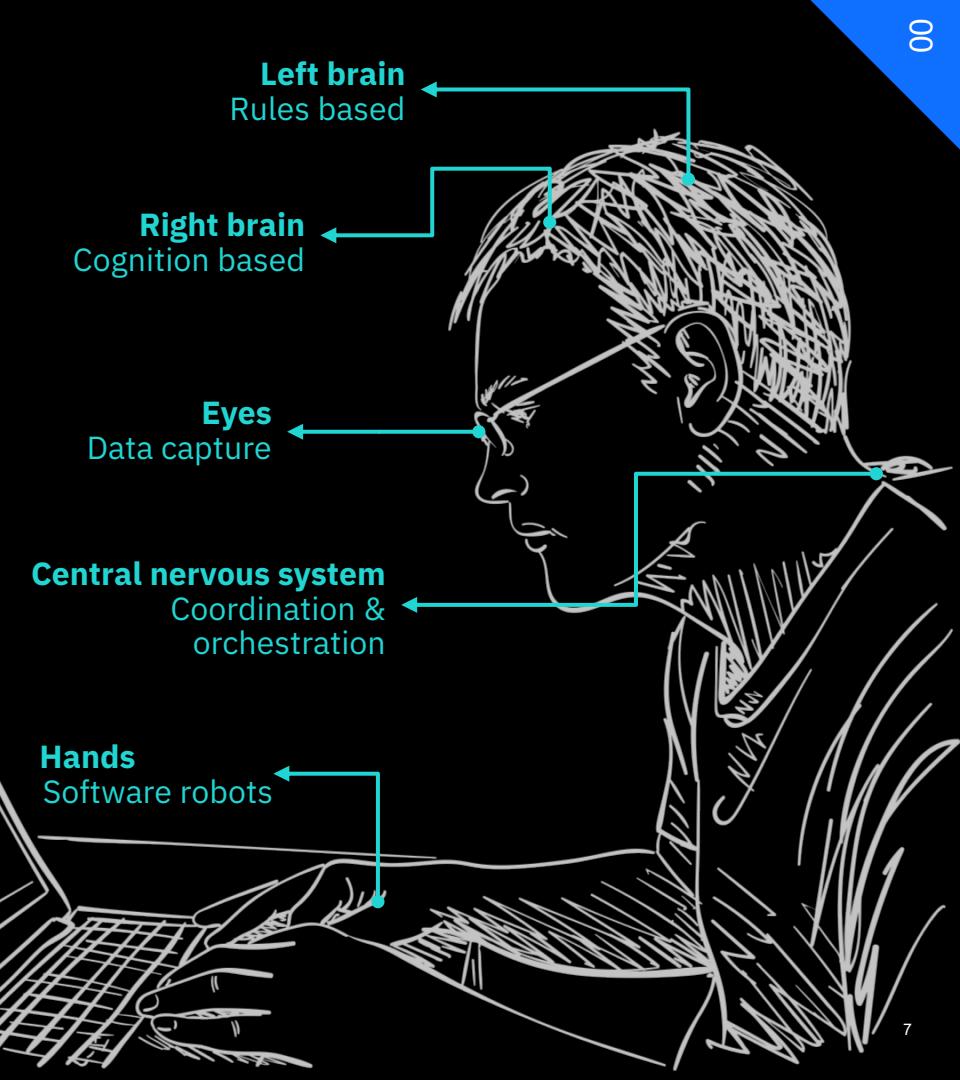
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Content	Core	00	Cross cutting	10	Using	20
	Tasks	01	Discovery	11	Robotics	21
	Content	02	Low Code	12	Blockchain	22
	Capture	03	Operational Intelligence	13	Chatbots	23
	Workflow	04				
	Decisions	05	Artificial Intelligence	14		

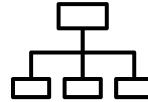
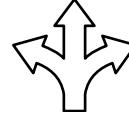
# Content

<b>Core</b>	<b>00</b>	Cross cutting	10	Using	20
Tasks	01	Discovery	11	Robotics	21
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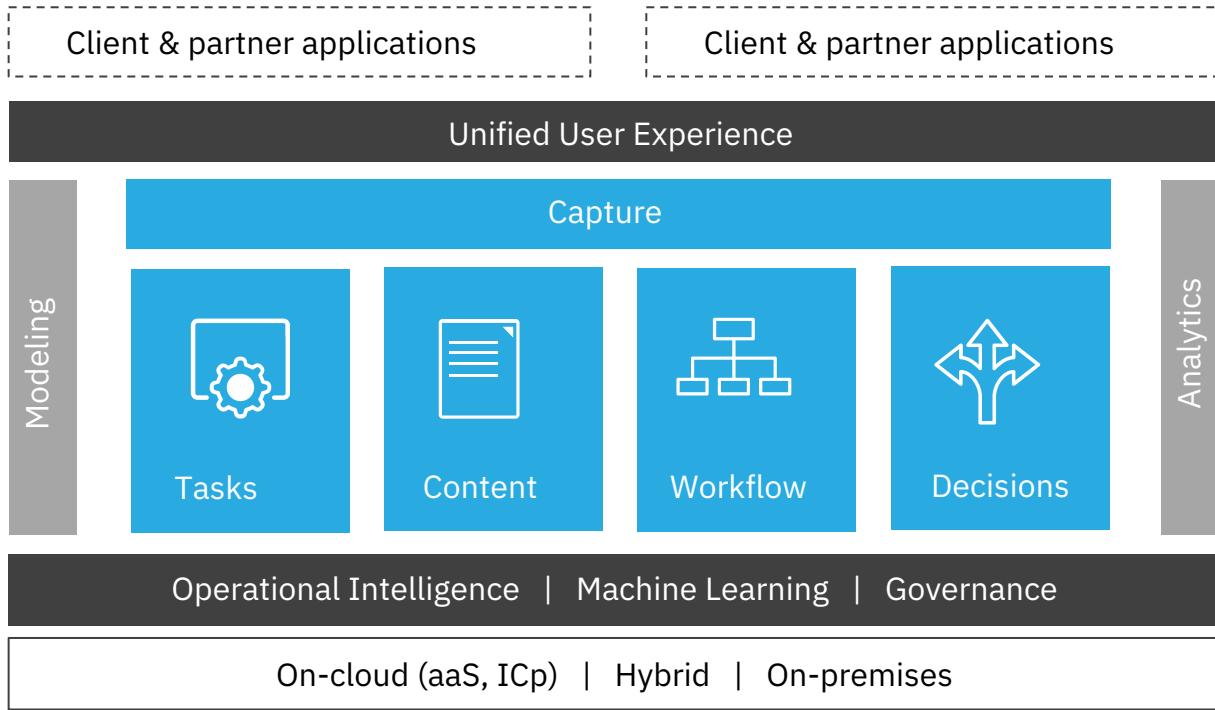
Our mission is to extend humans with **digital labor** to enable businesses to scale



# Digitize all aspects of your operations

					
What is automated	Tasks	Content	Workflow	Capture	Decisions
Representative outcome	<ul style="list-style-type: none"> <li>• Computerized human tasks</li> <li>• Reduces human tasks from 20 minutes to one minute &amp; errors to almost zero</li> </ul>	<ul style="list-style-type: none"> <li>• Content lifecycle management</li> <li>• Enables users to focus on their work &amp; collaborate internally or externally</li> </ul>	<ul style="list-style-type: none"> <li>• Processes &amp; cases</li> <li>• Provides agility, visibility &amp; consistency across hundreds of processes</li> </ul>	<ul style="list-style-type: none"> <li>• Data extraction from documents</li> <li>• Scans large numbers of documents &amp; extracts relevant data</li> </ul>	<ul style="list-style-type: none"> <li>• Policies &amp; decisions</li> <li>• Manages millions of rules &amp; enables rapid business change</li> </ul>

# IBM Automation Platform for Digital Business

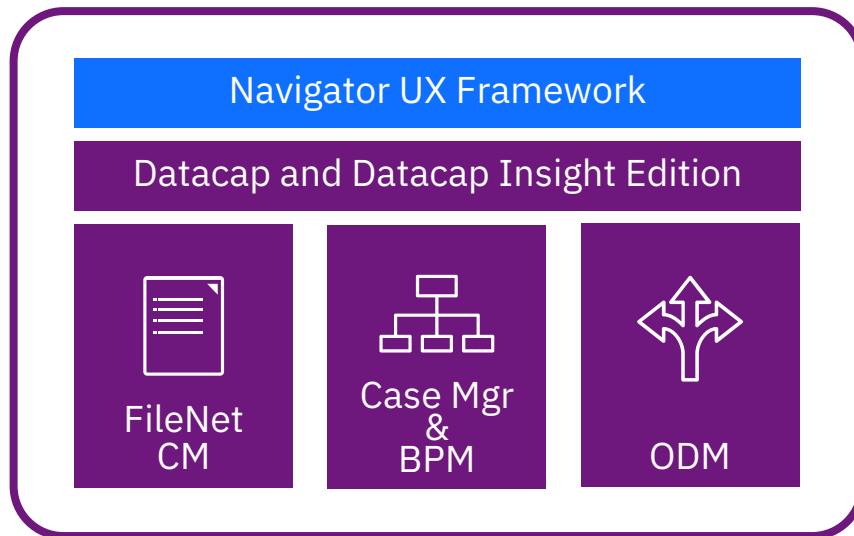


## Automation Platform powered by

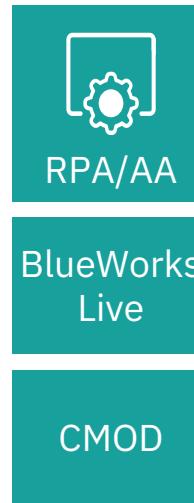
- FileNet content platform
- Navigator UX framework
- Merged Case Manager + BPM providing end-to-end workflow
- Datacap for cognitive capture
- ODM for rules
- Automation Anywhere RPA for Task Automation

# IBM Automation Platform for Business Automation

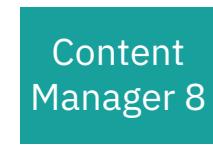
## Single PID with Flexible PVU pricing



## Add-ons



## Alternate for Content



## ROBOTIC PROCESS AUTOMATION (RPA)

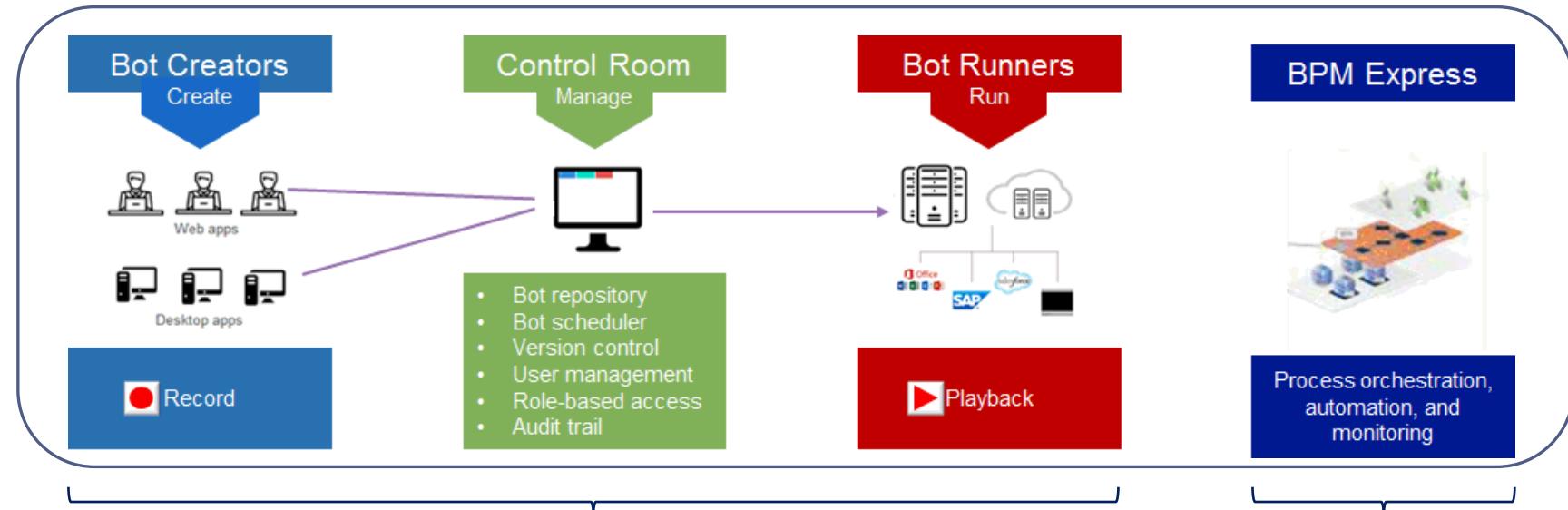
enables companies to easily automate mundane, repetitive tasks in order to free up employees to perform higher value work

### HOW RPA WORKS:

RPA ‘bots’ replicate the actions of humans interacting with application user interfaces

- No changes to existing interfaces
- Reduces swivel chair integration
- Efficiently execute high volume work

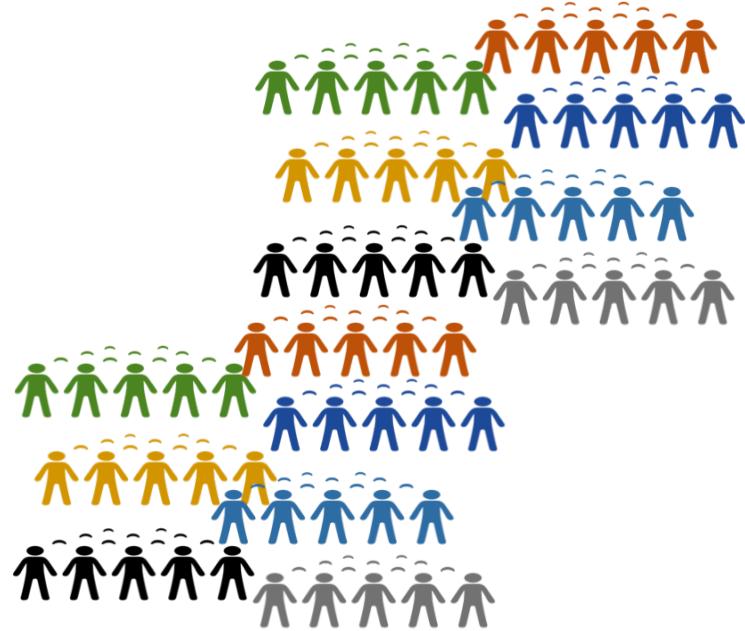
# IBM RPA with Automation Anywhere



- Front-end automation
- Multi system integration
- Structured data
- Enterprise scale
- End-to-end (human, system and bot) task orchestration
- Human based exception management
- Limited IBM BPM license

# Modern Content Services

-  **Deliver Content In context**
-  **Enable Collaboration**
-  **Flexible Business Processing**
-  **On Mobile**
-  **On Cloud**
-  **Embedded machine learning**
-  **Embedded analytics**



Front Office Users, Field workers,  
Customers, Agents, Citizens,  
knowledge workers, ...

FileNet 5.5 - Released Dec 2017



## Theme: Cloud Services

Ease of Cloud Deployment

- ✓ Docker Containers and WAS Liberty
- ✓ Elasticity with Kubernetes

Cheaper storage options

- ✓ IBM Cloud Object Storage
- ✓ Amazon S3 Connector

Other enhancements

- ✓ Enhanced object model and APIs - Role and Business objects
- ✓ Advanced Console (ACCE) enhancements



# IBM Content Navigator



**Continuous Delivery;  
Four releases  
delivered in 2017**

- ✓ User experience updates
- ✓ Office 365/Online integration
- ✓ Dynamic Role-based redaction
- ✓ Document merge & split
- ✓ Edit and Print Services
- ✓ Role-based admin and role object support
- ✓ Mobile enhancements
- ✓ Viewer enhancements
- ✓ React framework
- ✓ Replaced applets with HTML solutions

# Capture, auto-classify, and extract business data from documents



High Speed Scanner



Fax Server



Email & Attachments



Mobile Devices



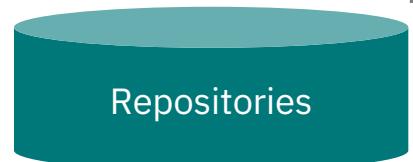
Multi-Functional Printers



Network Folders Content Repositories



Datacap



Repositories



LOB 1

...

LOB n

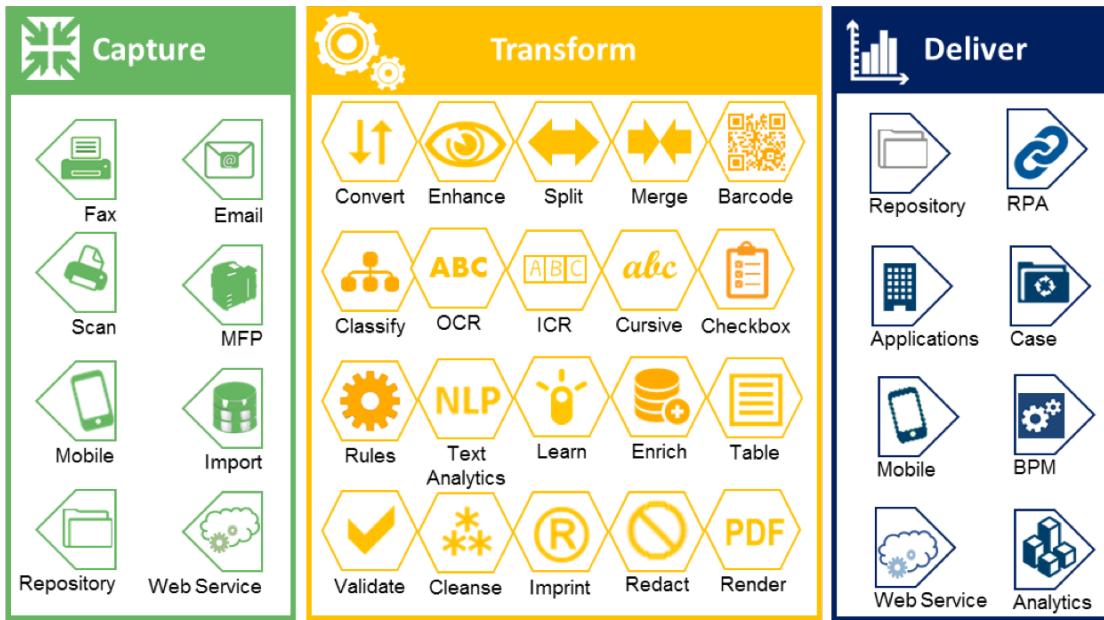


Workflow Solutions

on cloud,  
on premise,  
or hybrid

# Datacap at a Glance

- Orchestrates the capture process
- Monitors progress of capture operations
- Reports on capture operations and statistics on performance



## Datacap Mobile

- iOS and Android apps
- Auto-capture with video camera
- Real-time edge detection
- On-device OCR, barcode, form identification
- ID and passport capture



# Innovation with Cognitive Capture

Patient Information			
Case # D00001726951	Pt Type OP	FE# SSN	M# Birthdate 03/01/1960
Patient Name and Address ROBIN ANDERSON 808 4TH AVE S MINNEAPOLIS, MN 55311	Relationship M	Race CAUCASIAN	Religion METHODIST
Employee Information Name ROBIN ANDERSON 256-70-0100 BROOKS MEDICAL CENTER 4852 MAIN ST MINNEAPOLIS, MN 55311 Phone (612)757-3000			
Relative and Emergency Contacts			
Relationship to Patient Husband		Relationship to Patient	
Relative Name and Address RALPH ANDERSON 808 4TH AVE S MINNEAPOLIS, MN 55311	Phone (612)757-3000	Relative Name and Address Alternate Phone	Phone Alternate Phone
Guarantor Information			
Relationship to Patient D001/1980 SAME			
Guarantor Name and Address ROBIN ANDERSON 808 4TH AVE S MINNEAPOLIS, MN 55311	SSN 256-70-0100	Employment Information BROOKS MEDICAL CENTER 4852 MAIN ST MINNEAPOLIS, MN 55311	Phone (612)757-5544
Insurance Information			
Insurance Plan 1 454AA USAA SELECT PLUS POS PO BOX 1234567 MINNEAPOLIS, MN 55311	Group Number 8901234	Insurance Plan 2	Group Number
			Policy Number 255700100A
Insurance Plan 3	Group Number	Insurance Plan 4	Group Number
Subscriber	Policy Number	Subscriber	Policy Number
Physician Information			
Physician Name Advisory DR. JOHN SMITH	Address 4032 MAIN ST	City/State/Country MINNEAPOLIS, MN 55311	
Preliminary Diagnosis			
Code Numbers V76.10	Principal and Secondary Diagnoses SCREENING, UNSPECIFIED		
ANDERSON, ROBIN 03/01/1960 44Y F CAUCASI DR. J. SMITH 03/01/2001			

Easy

*Robert Hansen*  
1234 Oak St.  
Anytown, CA 90210

*Pete Ponda*  
A Insurance Inc.  
PO Box 123457  
New York, NY 10024

March 13, 2018

Dear Sirs,

This is with reference to my letter dated January 18, 2018 where I submitted my claim letter and documentation and you assigned 543234 as the number under my policy number 1000234567.

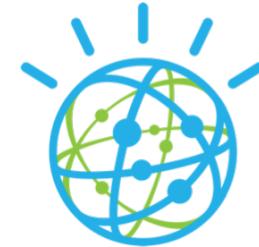
I am aware this is the same experience I have ever had. I have to do this but I also called the New York State Insurance Commission and I am sending them a letter to them about this situation. I also contacted the Better Business Bureau and the Chamber of Commerce. I know that you expect that a recall should pay for the damage my Toyota Camry but I read in the Wall Street Journal that this will not occur. You should be including the staff of the service and service who were in there when I was in there.

I have received a payment from you. I am not satisfied with the amount of \$1,000.00. I want to know why I have received less than the entitled amount. Per the policy terms, the amount is calculated at the day when the replace for cancellation of the policy is issued. In desperation, I called my insurance company. They have no 1000234 and they told me that this is correct. On January 18, 2018 when I had entered the request, according to that, the total amount that should be paid against my policy should be \$1,43,525. Please send me an immediate explanation along with a new claim so that an increase in your legislation.

Sincerely,

*Robert Hansen*  
1234 Oak St.  
Anytown, CA 90210

Hard

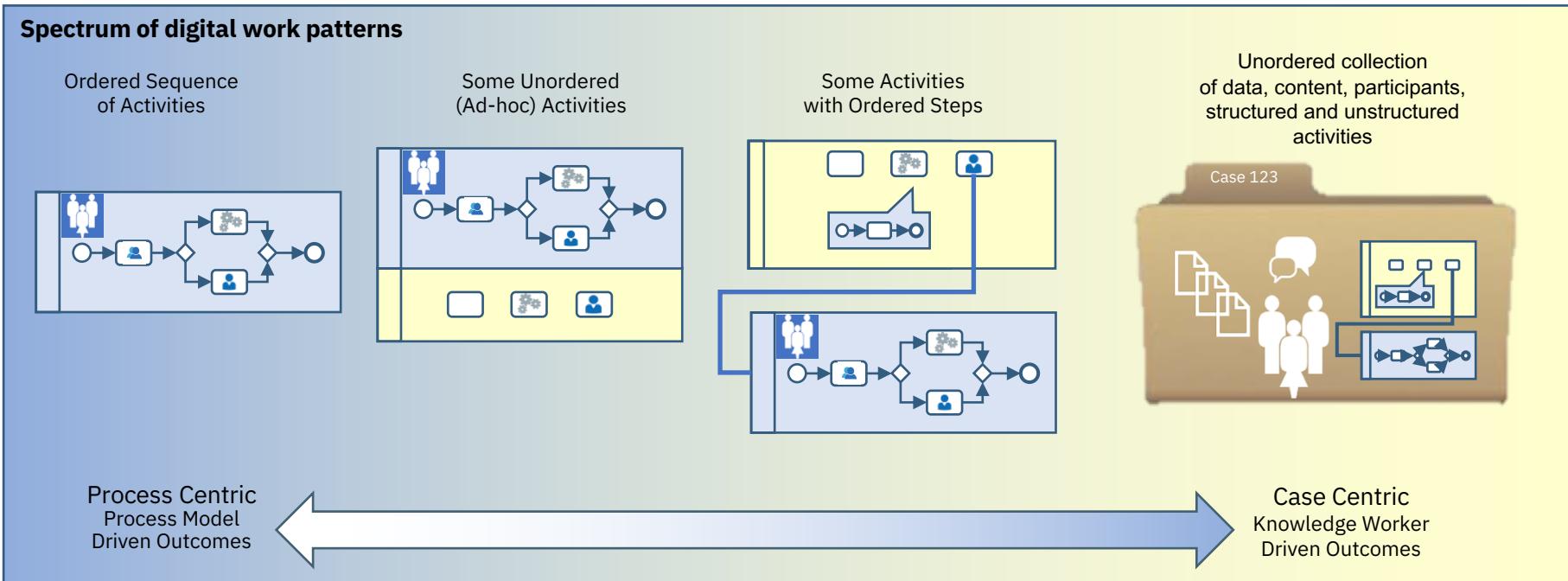


## Datacap Insight Edition ...

A new generation of document capture enhanced by:

- Machine learning
- Natural language processing
- Advanced imaging

# Workflow – Combining Case and Process



Any of these patterns can be the entry point for creating solutions that solve business problems.

# Workflow – Combining BPM and Case

A single **IBM Workflow offering** combining BPM and Case Manager

BPM directly integrates with Case Manager when case style workloads are needed

Case Manager leverages BPM for its embedded taskflow engine and authoring tools

- Provides a common technology platform and process asset investment

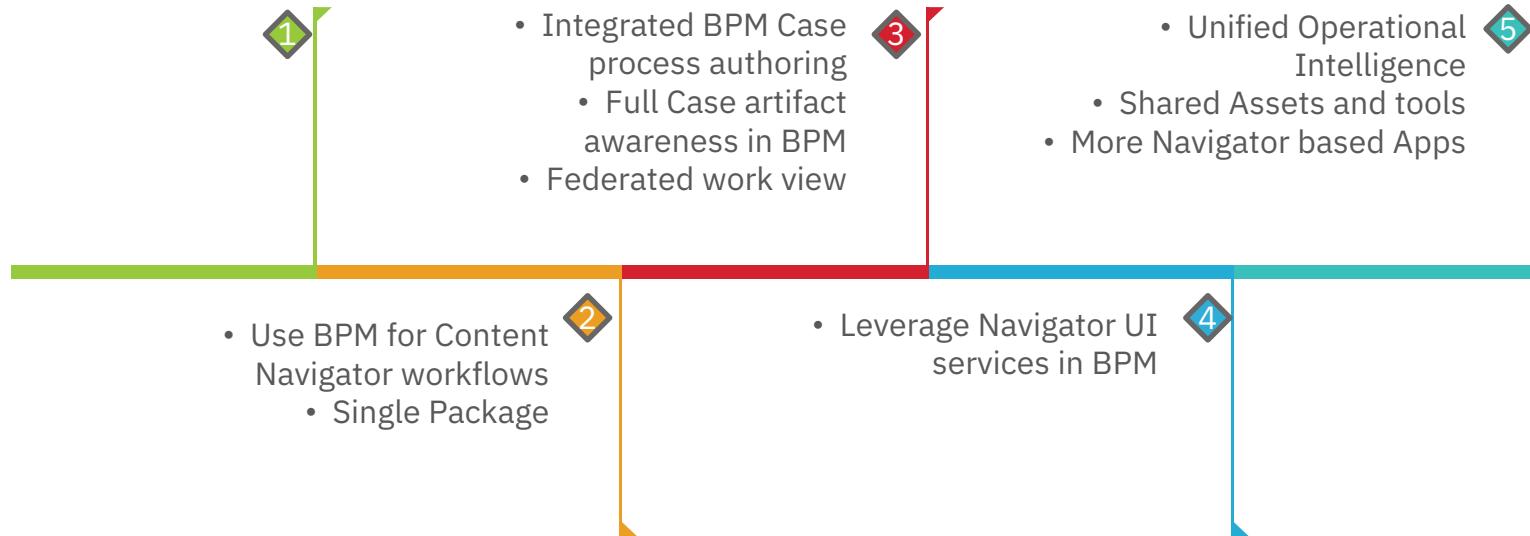
Knowledge and task workers have a unified view of their work

- Workflow-based solutions can include rapidly assembled and customized user interfaces

BPM has full ECM content and case awareness

- Ability to attach, manipulate metadata, respond to events

# Workflow Progression



## IBM BPM 8.6 + 8.6 CF 2017.12

### What's New

- ✓ New UI and Content Management Toolkits with 90+ controls
- ✓ Enhanced robot-friendly Coaches for RPA
- ✓ New low-code Inline User Task – create process and customizable coaches with minimal/no coding
- ✓ New web-based Business Rules editor
- ✓ Java 8 support with improved performance
- ✓ ... and many



## What's New

### IBM Case Manager 5.3.2

- ✓ Business Objects
- ✓ Case Stages
- ✓ Case Calendars and Subscriptions
- ✓ Case Owners and Team Membership
- ✓ Case Health
- ✓ Refreshed Case Builder Home Page



# Case Health

- Display of a Case Health Indicator for each case
- Ability to see insights into why the health is what it is
- Uses due dates from case stages, case tasks, and process as well as looking at historical cases for comparison
- Indicator can be displayed on the case list as well

The screenshot shows the IBM Case Manager interface. At the top, there's a navigation bar with 'IBM Case Manager' and a 'Cases' dropdown. Below it, a secondary navigation bar has tabs for 'Work', 'Cases', and 'Case Cases'. The 'Cases' tab is selected, showing 'Case Number 1434-32'. Underneath, there's a detailed view of a case for 'Robert Jones' (Incident ID: INCID\_Incident\_000000100001). The status is 'Modified: 2017-12-08, 11:45 AM | Incident'. Below the status, there are buttons for 'Comments', 'Meeting', 'Add Task', 'Split Case', and 'Actions'. Further down, two stages are listed: 'Triaging' and 'Investigating'. At the bottom, a table displays a list of cases with columns for 'Title', 'Case Identifier', 'Case Type', and 'Case Stage'. The table includes rows for Robert Jones (Investigating), Dave (Investigating), Chris (Investigating), and Lannie (Investigating).

Title	Case Identifier	Case Type	Case Stage
Robert Jones	INCID_Incident_000000100001	Incident	Investigating
Dave	INCID_Incident_000000100002	Incident	Investigating
Chris	INCID_Incident_000000110001	Incident	Investigating
Lannie	INCID_Incident_000000120001	Incident	Investigating

# Decision Automation

## The Need

- Specify and maintain flexible decisions as part of daily activities
- Simple and consistent methodology to author, collaborate and manage decisions

## The Solution

- A common capability for decision automation
  - Consistent approach and skill sets used across all automation components within IBM's Digital Business Automation Platform
- Decision automation everywhere
  - A simplified methodology, inspired by standards, to inject flexible decisions into all automation projects
- Deliver consumable decisions in minutes
  - Start quickly with a lightweight experience, and add actionable decision points to any automation service
- Grow with your needs
  - When needed, advanced projects can expand and leverage full governance capabilities in the platform

# Capturing Decisions with easy-to-use tools

A simple way for business people to easily define the decision model...

The screenshot shows the IBM Decision Composer interface. On the left, there's a sidebar with fields for 'Type' (set to 'product'), 'Edit decision logic', and 'Description' (with placeholder 'Describe the node (optional)'). The main area displays a decision tree diagram. At the bottom are two green ovals labeled 'client' and 'requirement'. Arrows point from these ovals up to a blue rounded rectangle labeled 'card selection'. From 'card selection', three arrows point up to three blue rectangles: 'ives airline miles', 'card gives cash back', and 'card gives free ube'. These three rectangles all have arrows pointing up to a blue rectangle labeled 'pitch'. Finally, an arrow points from 'pitch' up to a blue rectangle labeled 'card recommendation'. On the right side of the screen, there's a panel titled 'Requirement' with fields for 'Name:' (set to 'Requirement') and 'Values:' (listing 'cash\_back\_credit\_card', 'non\_foreign\_transaction\_fee\_card', and 'none'). A red box highlights the 'Requirement' panel, and a red arrow points from it down to a pink box containing the text '... and the data model'.

IBM Decision Composer Experimental

Chat with us on Slack

Help

gulhem.molines@fr.ibm.com

Credit Card Product Recommendation

Type: product

Edit decision logic

Description: Describe the node (optional)

card recommendation

pitch

ives airline miles

card gives cash back

card gives free ube

client

requirement

Requirement

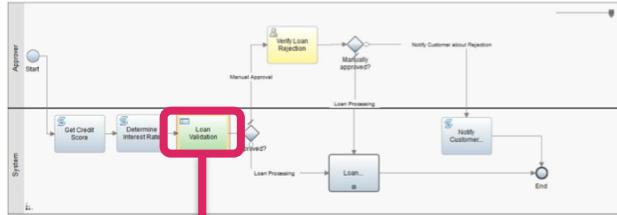
Name: Requirement

Values:

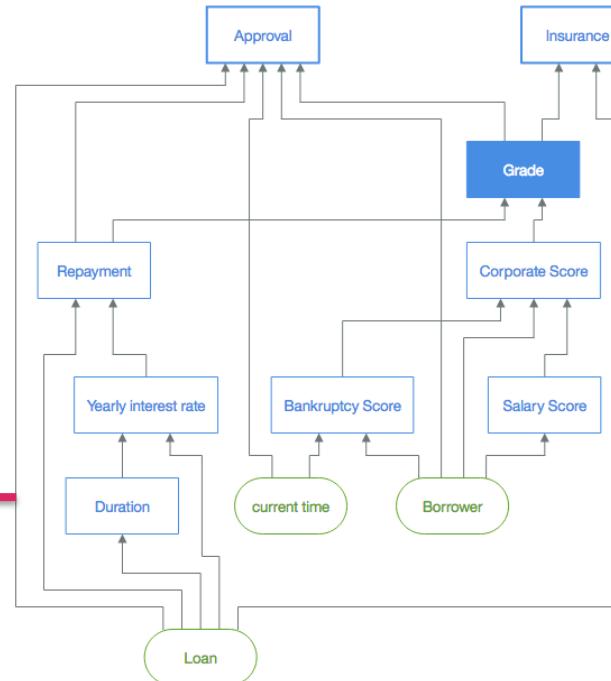
- cash\_back\_credit\_card
- non\_foreign\_transaction\_fee\_card
- none

... and the data model

# Embedded Rules: Build decisions in the context of platform capabilities



Embedded rules for designing & executing decision tasks within workflows



Visually define decision details & specify decision inputs

	Repayment		Corporate Score		Grade message
	min	max	min	max	
1	0	10,000		$\geq 900$	A Very low risk loan
2	0	10,000	600	900	A Very low risk loan
3	0	10,000	300	600	B Low risk loan
4	10,000	30,000		$\geq 900$	A Very low risk loan
5	10,000	30,000	600	900	B Low risk loan
6	10,000	30,000	300	600	C Average risk loan
7	30,000	60,000		$\geq 900$	B Low risk loan
8	30,000	60,000	600	900	C Average risk loan
9	30,000	60,000	300	600	D Risky loan
10	$\geq 60,000$			$\geq 900$	C Average risk loan
11	$\geq 60,000$		600	900	D Risky loan
12	$\geq 60,000$		300	600	E Very risky loan

Drill into decision logic with decision tables & business rules

# Cognitive Decisions

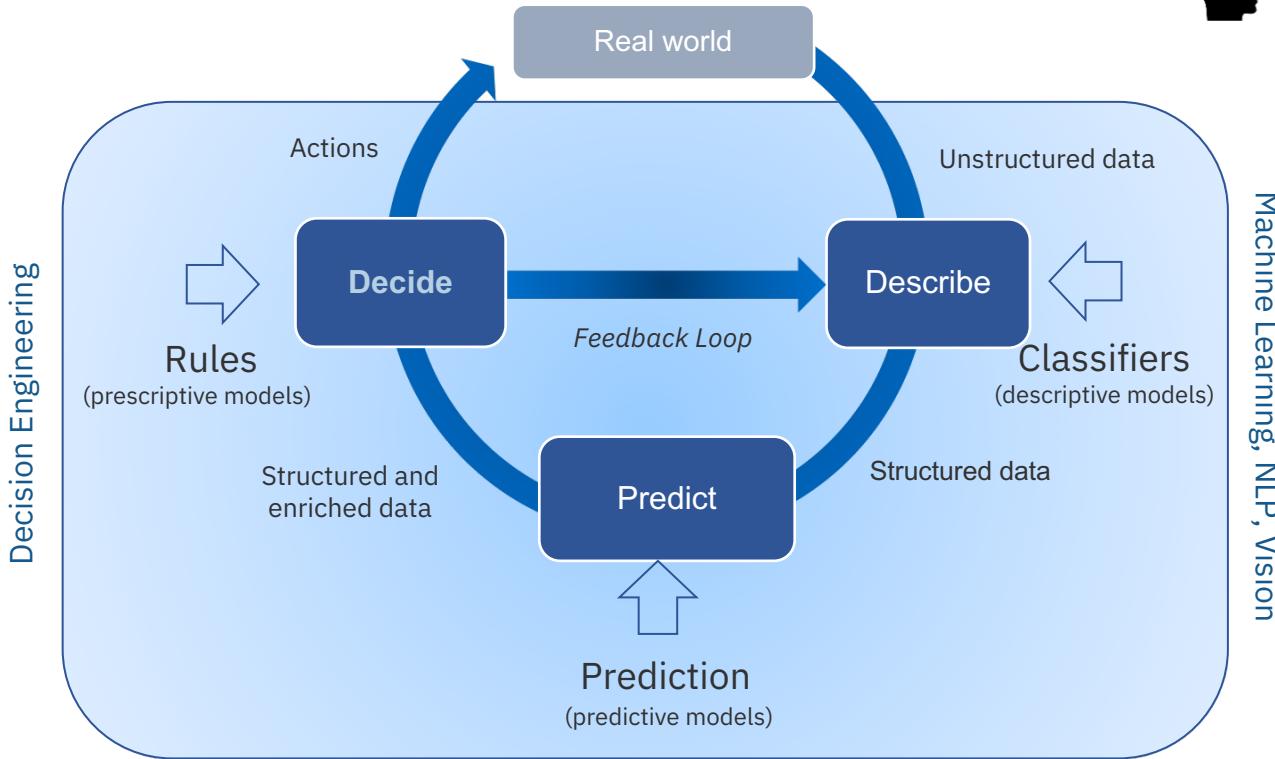
- Enhance Decisions with Machine Learning
- Action insights from Big Data analytics with Rules
- You need to explain the Decisions

Learning



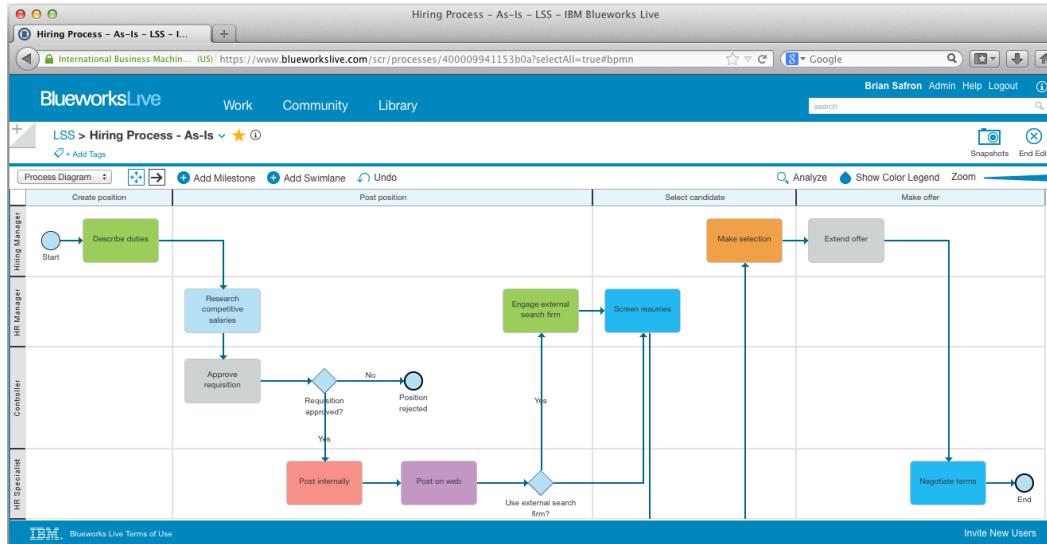
Reasoning

Machine Learning create Insights from your past data.  
Use rules to apply your business policies and influence the outcome.



Content	Core	00	<b>Cross cutting</b>	<b>10</b>	Using	20
	Tasks	01	Discovery	11	Robotics	21
	Content	02	Low Code	12	Blockchain	22
	Capture	03	Operational Intelligence	13	Chatbots	23
	Workflow	04				
	Decisions	05	Artificial Intelligence	14		

# IBM Blueworks Live: Process Made Simple



IBM Blueworks Live is a **simple, cloud-based process & decision modeling environment** that allows organizations to:

- ▶ **Capture** process and decision knowledge
- ▶ **Collaborate** across teams
- ▶ **Analyze** and **improve** business operations

# 4 Reasons Business Users Like Using Blueworks Live

1

Easy and intuitive to use

2

Single source of the truth for all process models

3

Team collaboration built-in

4

Easily add details to document & analyze models

# Low Code

Vision:

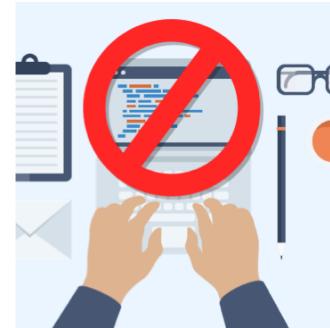
Light-weight authoring that empowers a business user to discover capabilities of the unified Automation platform for Digital Business and visually intermix them to create seamless business solutions, and refine them through iterative assembly and playback.



# New Inline User Tasks (Low / No Code)

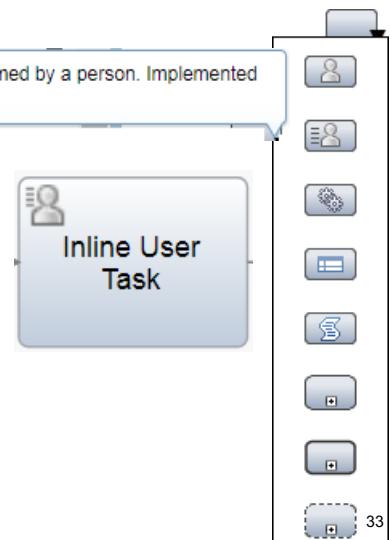
## New **Inline User Tasks**

- Coaches are generated automatically (according to *Inline User Task Template*)
- Coach views required for input and output data are automatically generated
- Default template can be customized
- Can be converted to user task to use a stand-alone implementation



**New**

**User Task:** A task that is performed by a person. Implemented by a client-side human service.



# New Inline User Task Type

The screenshot shows the IBM BPM Designer interface. At the top, there's a toolbar with icons for camera, refresh, undo, redo, and search, followed by a user dropdown 'tw\_admin' and a help icon. Below the toolbar, the main area has tabs for 'Process' (selected), 'Overview', 'Definition', 'Variables', 'Folders', and 'Views'. A 'CREATE NEW +' button is on the right.

The central workspace displays a process flow: 'Start' node → 'Inline User Task' node (highlighted with a yellow border) → 'End' node. To the left is a palette with icons for Team, Overview, Definition, Variables, Folders, Views, and other process-related functions. On the right is a palette of activity icons.

The 'Properties' panel on the left is open, showing tabs for General, Implementation (selected), Data Mapping, Assignments, Pre & Post, Tracking, and Conditions. Under 'Implementation', the 'Activity Type' section shows 'Type: Inline User Task'. The 'Implementation' section contains a note about inline user tasks being an extension of regular user tasks and a link to 'Learn More'. It also includes fields for 'Coach view template:' (with options 'New', 'Select...', and 'X') and a button 'Create Stand-alone Implementation...'. The 'Priority Settings' section is also visible.

Annotations with red boxes and arrows highlight specific features:

- A box points to the 'Inline User Task' node in the process flow with the text: "Created Automatically when a new Process is created".
- A box points to the 'Implementation' tab in the Properties panel with the text: "Create new template".
- A box points to the 'Implementation' section in the Properties panel with the text: "Select from a user authored template".
- A box points to the 'Create Stand-alone Implementation...' button in the Properties panel with the text: "Create a stand-alone Human Service from a template".

# New Inline Task Template to customize UI generation

**DESIGNER**    **INSPECTOR**

**Process**    **CREATE NEW** **+**

Views    Overview    Definition    Variables    Folders    Views    Tracking

**Views**

**User Interface: Inline Tasks Coach View Template**

The coach view template that is used to generate the user interface of all inline user tasks. Tasks can override this template in the implementation configuration. If a coach view template is not specified, the Default Inline User Task template is used instead (when it is available). [Learn More](#)

Coach view template: **JK Bank Task Coach Template** **New...** **Select...** **X**

**Properties**    Validation Errors

**Implementation**

**Activity Type**

Type: **Inline User Task**

**Implementation**

An inline user task is an extension of a regular user task. Its interface is automatically defined by the data that is exposed to it and an implementation is not required. [Learn More](#)

Coach view template: **JK Bank Task Coach Template** **New...** **Select...** **X**

**Create Stand-alone Implementation...**

**1. Click New to create  
2. Use Coach Editor to modify**

Inline User Task - Google Chrome

about:blank

JK Bank Ltd.

**Input**

Customer Name  
Customer Status

**Output**

Customer ID

**Done**    **Postpone**

JK Bank LTD. @ 2018

**3. Click New to select the new template**

# Business Rules Editor based on ODM BAL

**Eligibility** ✖️ ✖️  ⓘ  ↗

CREATE NEW + ✖️

Overview Diagram Variables Decisions

Calculate Risk Establish Eligibility

**Establish Eligibility**

*if the age of CustomerIn is between 18 and 25  
and the gender of CustomerIn is "MALE"  
and the state of CustomerIn is "WA"  
then set the program status of the program eligibility of CustomerIn to "NWYA";  
set the program message of the program eligibility of CustomerIn to "North West Young Adult";*

Severity	Line	Message

*if the age of CustomerIn is between 18 and 25  
and the gender of CustomerIn is "MALE"  
and the state of CustomerIn is "NY"  
then set the program status of the program eligibility of CustomerIn to "NEYA";  
set the program message of the program eligibility of CustomerIn to "North East Young Adult";*

Severity	Line	Message

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# Single Analytics Infrastructure: Operational Intelligence

## What is Operational Intelligence?

Business Automation Analytics that helps you make better day to day operational decisions and improve process and decision outcomes to meet operational goals

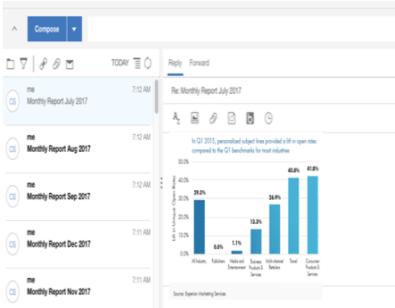
## What does it do?

- Captures reliable operational data
- Business Managers – Provides **real-time insights** into business operations & employee productivity to make insight-driven decisions
- Knowledge Workers – Assists with completion of **tasks** & provides **feedback** and **recommendations** to make goal-oriented decisions
- Enables Continuous Process Improvement by **automatically optimizing processes and decisions** to meet operational goals

## Why Operational Intelligence?

- **Real-time insights** into business operations & employee productivity
- **Proactive notifications** on key situations.
- **Recommendations** for better operational outcomes.
- **Autonomous** continuous process improvement
- Increases user **productivity**

## Insights to tune your business



Business Manager  
Vision

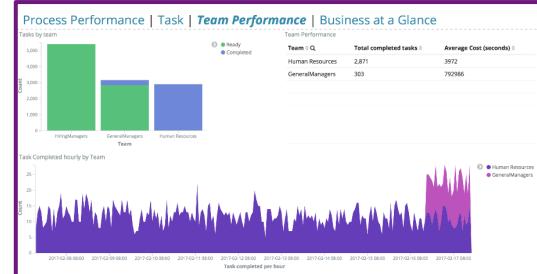
## Proactively notified on key situations of interest



## Recommendations when in doubt

OK, I see we're behind on queue3 and arrival rates are growing. If I don't do something SLA will be missed. What to do?

Recommend you re-allocate three resources from queue1 to queue3



Visibility into business operations / employee productivity – starting points for root cause



A lightbulb icon with the text "Two of your team members have worked on a similar task." Below this, there are two blue links labeled "Result1" and "Result2".

Recommendation  
when in doubt



Knowledge Worker Vision

The dashboard has a top navigation bar with the IBM logo, a gear icon labeled "WORK", and a "DASHBOARDS" dropdown. The main area is titled "My Tasks" with a search bar and an "Open" button. Below is a section titled "Overdue (2)" with two items:

- Task: Submit requisition (Standard Employee Requisition for (61))
- Step: Select candidate for interview (Advanced Employee Requisition NG (List) for Roland Peisl (73))

At the bottom, it says "Showing 2 of approximately 2 results".

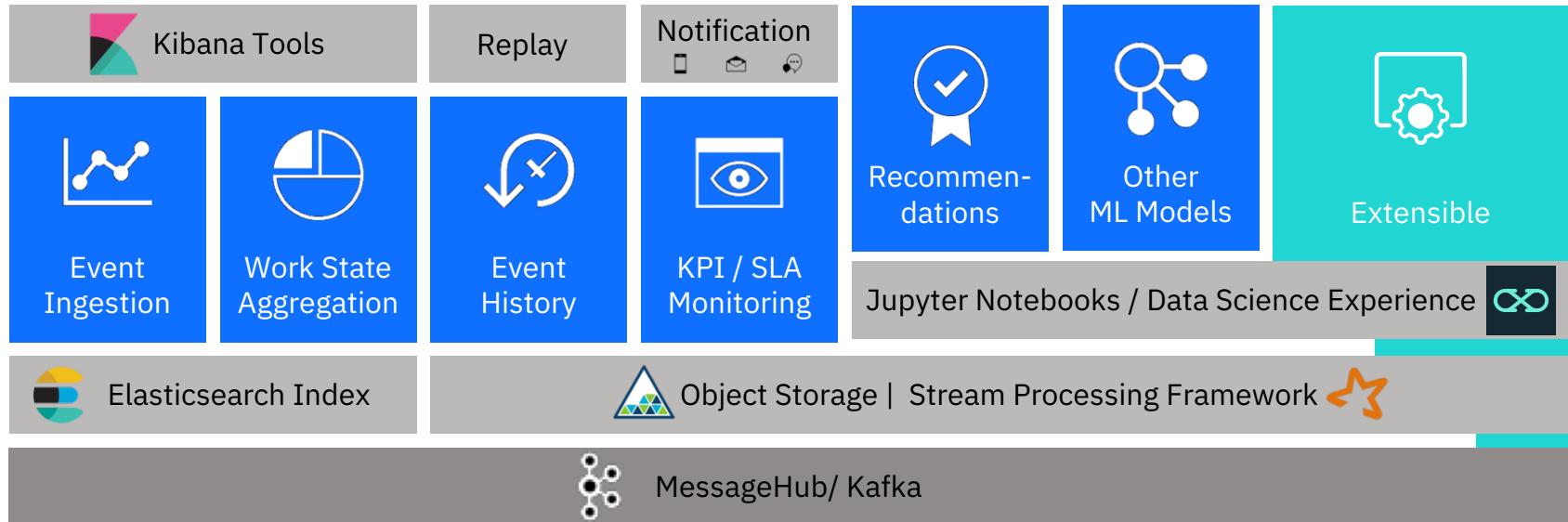
Automatic task prioritization

The dashboard has a "Activities" section with a "Filter" button and a list of tasks:

- Arbitrate Claim (selected)
- Check Credit Score
- Refund Customer
- Request Letter
- Review Dispute Item
- Review Legal Status
- Edit Letter
- Send Rejection Letter

To the right, a teal box contains the text "Next Best Task".

# Operational Intelligence: Envisioned Architecture



# Operational Intelligence: Types of Results

## Descriptive Analytics

*Show current state*

- Current data – for knowledge worker  
*tasks completed, tasks overdue*
- Current data – for business manager (aggregated, with ability to drill-down)  
*number of tasks overdue, number of processes overdue*

## Predictive Analytics

*Show future state*

- Future data – for business manager  
*case/process health – will an individual instance reach its goals*  
*number of tasks / processes completed / overdue at end of day/week/month*

## Prescriptive Analytics

*Suggest action*

- Task recommendation – for knowledge worker  
*approve this request*
- Policy recommendation – for business manager  
*delay these instances (so that an overall maximum can meet their SLAs)*

<b>Content</b>	Core	00	Cross cutting	10	<b>Using</b>	<b>20</b>
	Tasks	01	Discovery	11	Robotics	21
	Content	02	Low Code	12	Blockchain	22
	Capture	03	Operational Intelligence	13	Chatbots	23
	Workflow	04				
	Decisions	05	Artificial Intelligence	14		

## Workflow + RPA

- Coordination across repetitive work & knowledge work creating full customer journeys
- Ramping capacity to manage variable demand for end-to-end processes

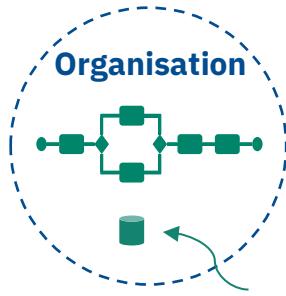
## Decisions + RPA

- Compliance scenarios where actions match regulatory mandates
- Calculation scenarios such as pricing & sales compensation

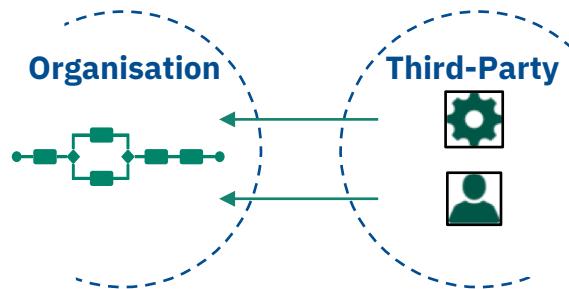
## Data capture + RPA

- Automatic extraction of business data from unstructured content and invoking follow on actions
- Data entry & validation scenarios across systems

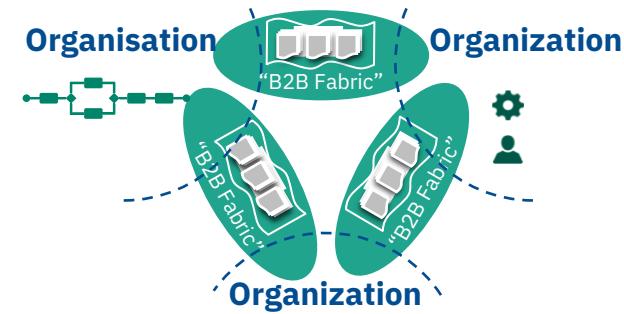
# Spectrum of Multi-Enterprise Processes



Private processes



Private process with external participants



Inter-organisation process

# Adding Blockchain as “B2B fabric” ...

Send a message to another participant

→ update an asset on the ledger

Receive a message from  
another participant

→ call a Blockchain transaction

Multiple bi-lateral contracts

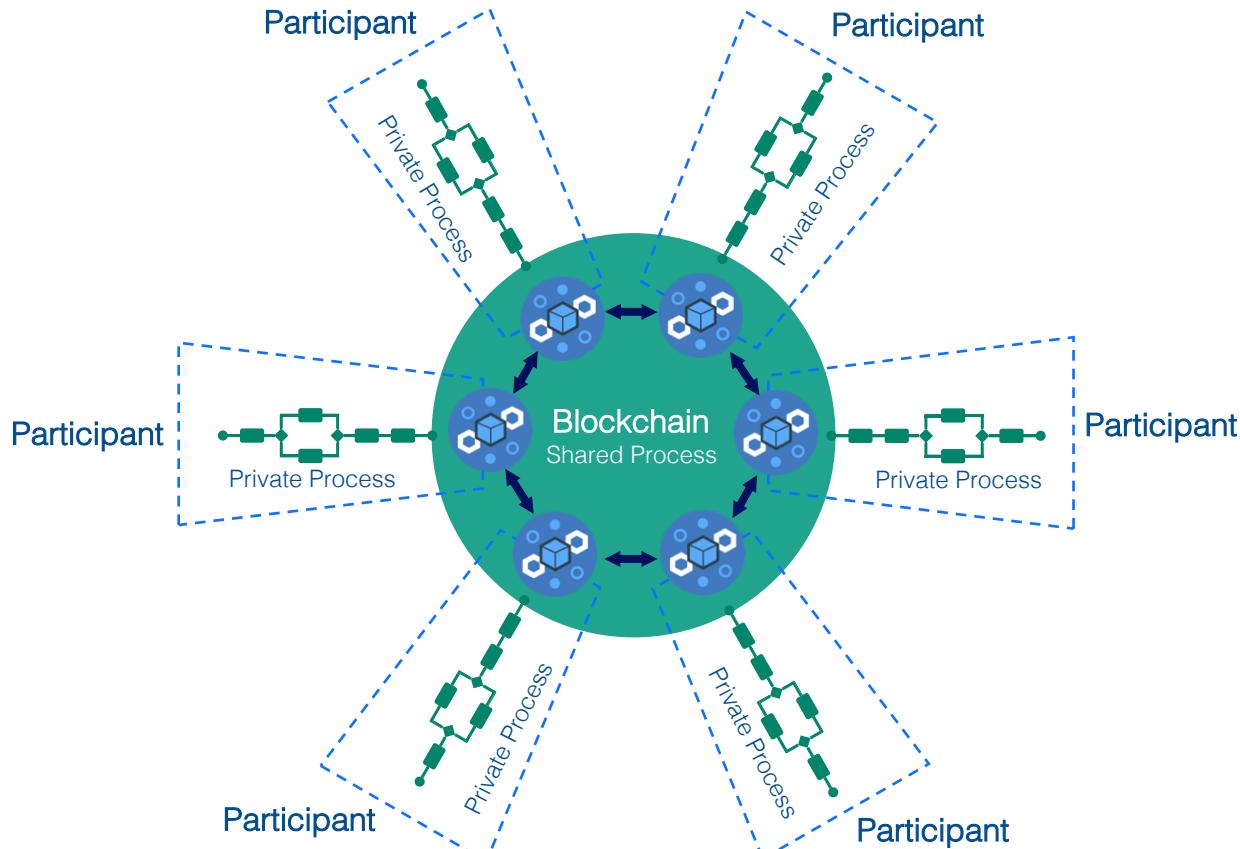
→ react to an asset change on the  
ledger

→ subscribe to a Blockchain  
transaction event

→ set of Smart Contracts in the ledger  
restricting possible transactions on  
the ledger

Result: A choreography of participant processes interacting through  
Blockchain transactions to form a Shared Process, guided by Smart Contracts

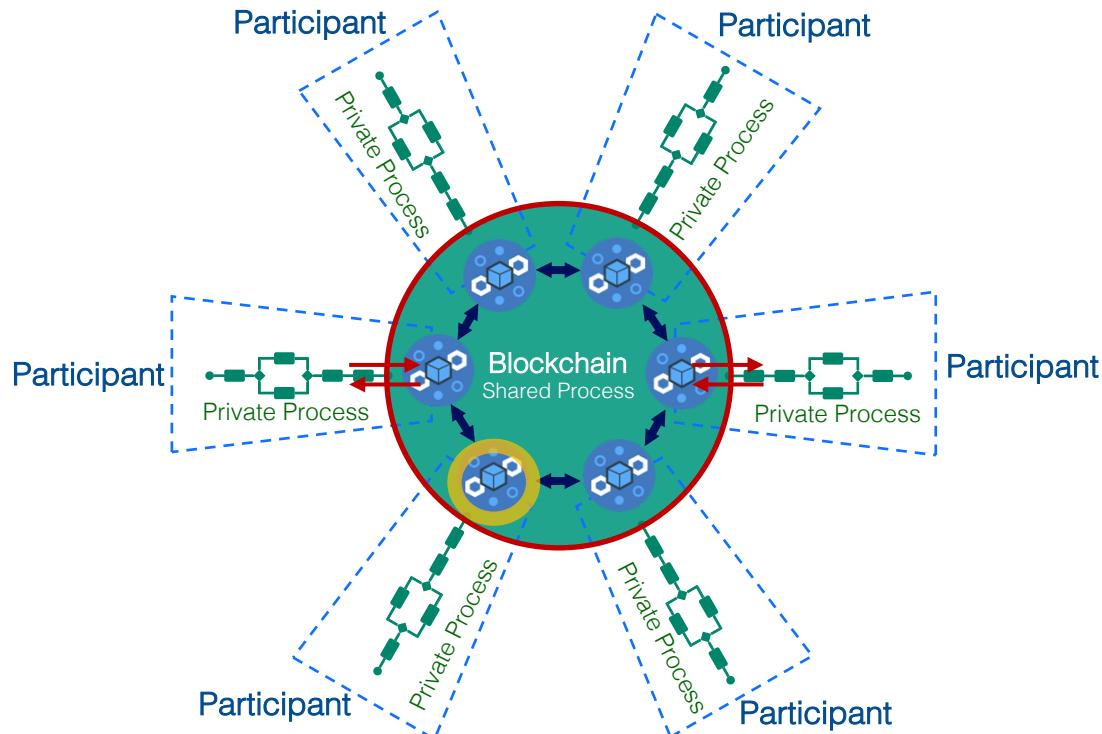
# Participant “Orchestrations” and Shared Process – “Choreography”



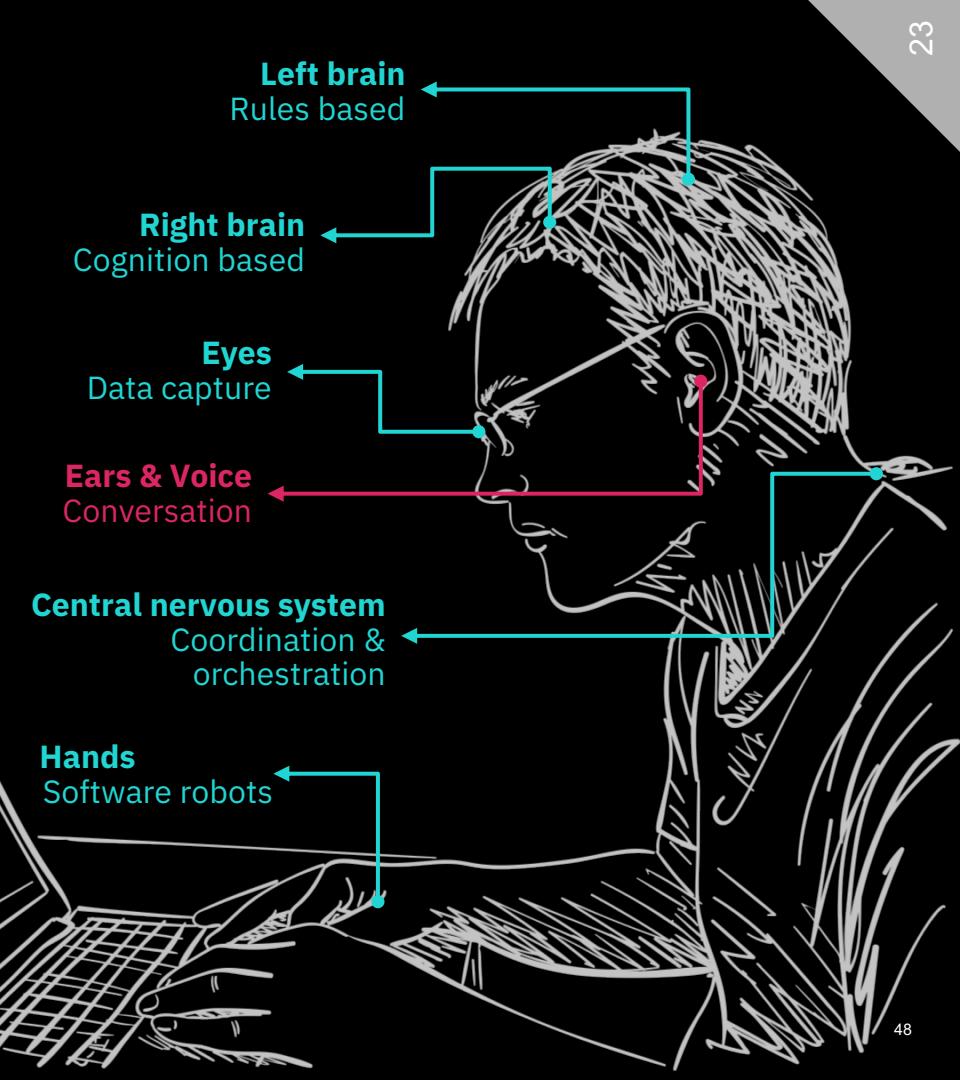
# From discovery to implementation

## Implementation Checklist

1. Assets
2. Participants
3. Transactions
4. Events
5. Participant processes
6. Smart Contracts



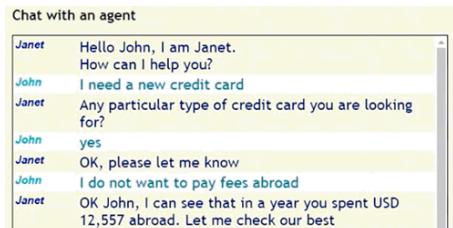
# Adding chatbot capability for an all-in-one Automation platform



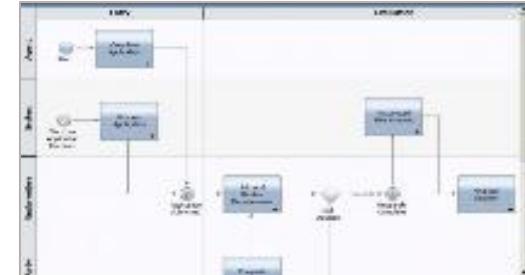
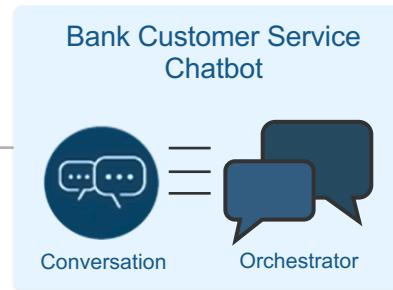
## Watson and DBA help a credit card provider to scale his Customer Service

### Use-Case

#### Conversation to open a new Credit Card



Client interaction with cognitive conversation bot which leverages external Rules, policies and recommendations



Card  
Opening  
Process



BPM

Different  
Card  
Policies &  
Recommendations



ODM

## Summary

IBM Automation Platform for Digital Business provides everything needed to help with digital labor.

The platform roadmap addresses both vertical capability as well as horizontal integration.

Artificial intelligence is used in various places across the system.

# Thank you

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—  
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