

# Cloud Pak for Business Automation

Foundational Services

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Developer Advocate



# Cloud Pak for Business Automation

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# Cloud Paks: AI-powered software for hybrid cloud

Accelerate outcomes by enabling automated, intelligent, and secure workflows



## Complete integrated solutions

- Services for business and IT operations, development, data science, security, and management
- Accelerators for use cases, blueprints by industry
- Delivered as a service with a modular architecture

## Applies AI for business with IBM Watson

- Understands the language of business and code
- Explains AI outcomes and builds trust
- Automates AI that builds AI

## Built on an open hybrid cloud platform

- Build once, deploy anywhere
- Leading Linux, container and Kubernetes platforms
- Richest open-source ecosystem

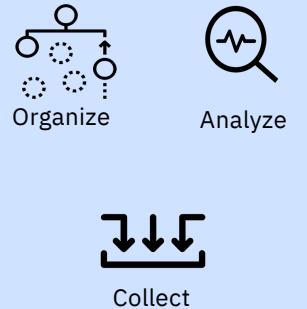
# Cloud Paks – Pre-integrated for cloud use cases

Today, IBM offers clients *the first six Cloud Paks...*

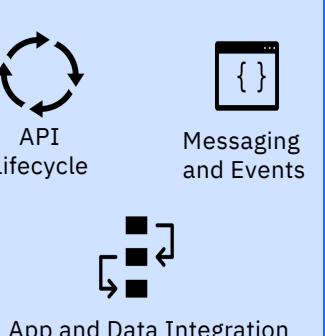
## Cloud Pak for Applications



## Cloud Pak for Data



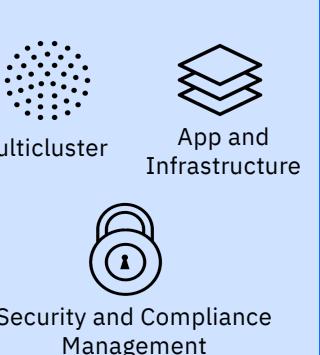
## Cloud Pak for Integration



## Cloud Pak for Automation



## Cloud Pak for Multicloud Management



## Cloud Pak for Security



IBM public cloud



IBM and Partner Use Only

AWS



Microsoft Azure



Google Cloud



Private



IBM Z  
IBM LinuxOne  
IBM Power Systems



End points

# IBM Cloud Pak for Automation

Integrate and transform business processes, decisions and content



## Services like

- IBM BACA
- IBM FNCM
- IBM BAW
- IBM ODM
- IBM RPA
- IBM Process Mining
- IBM BPC

**On OpenShift, as containers!!**

# Automation with AI transforms business operations

Automation with AI  
will deliver  
**\$134B**  
**in labor value**  
in 2022

IBM Institute for Business Value

**90%**

of COOs whose organizations *are scaling* intelligent automation tell us it creates higher-value work for their employees.

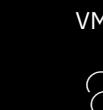
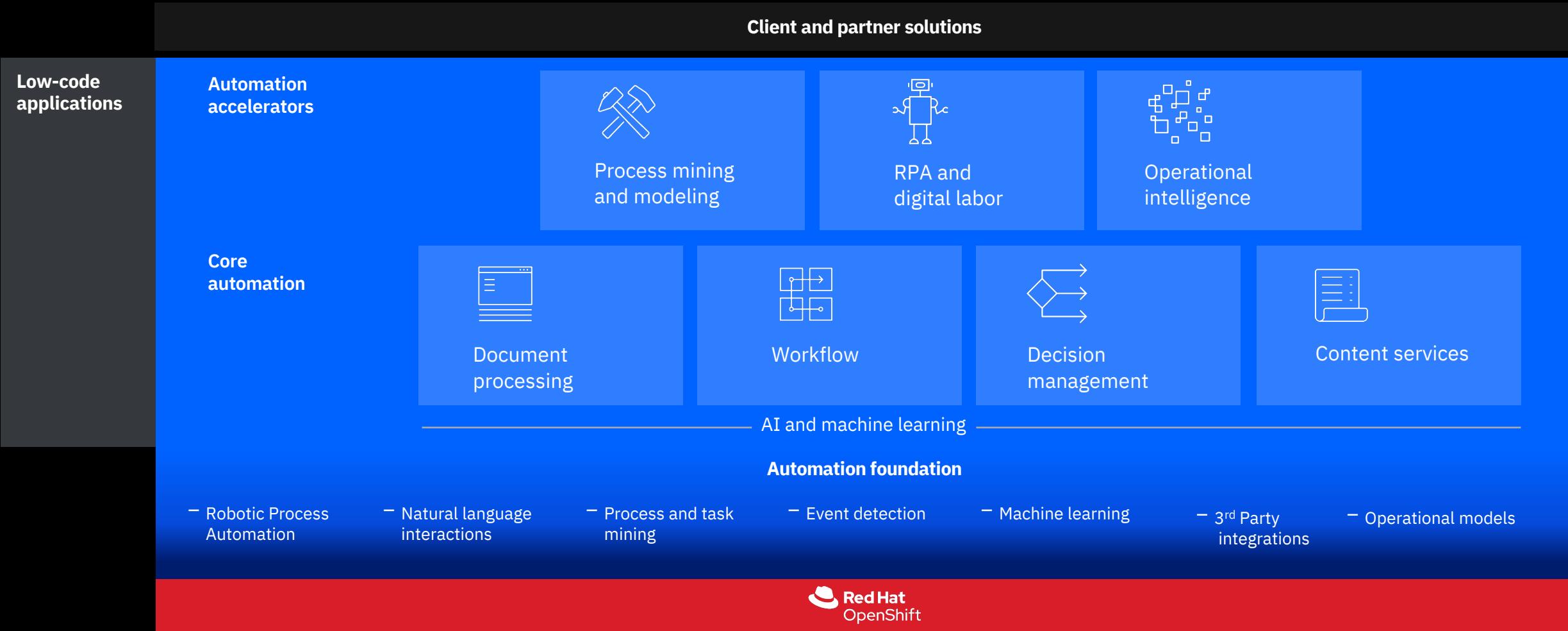
**84%**

of global executives say they won't achieve their growth objectives *without scaling* AI.

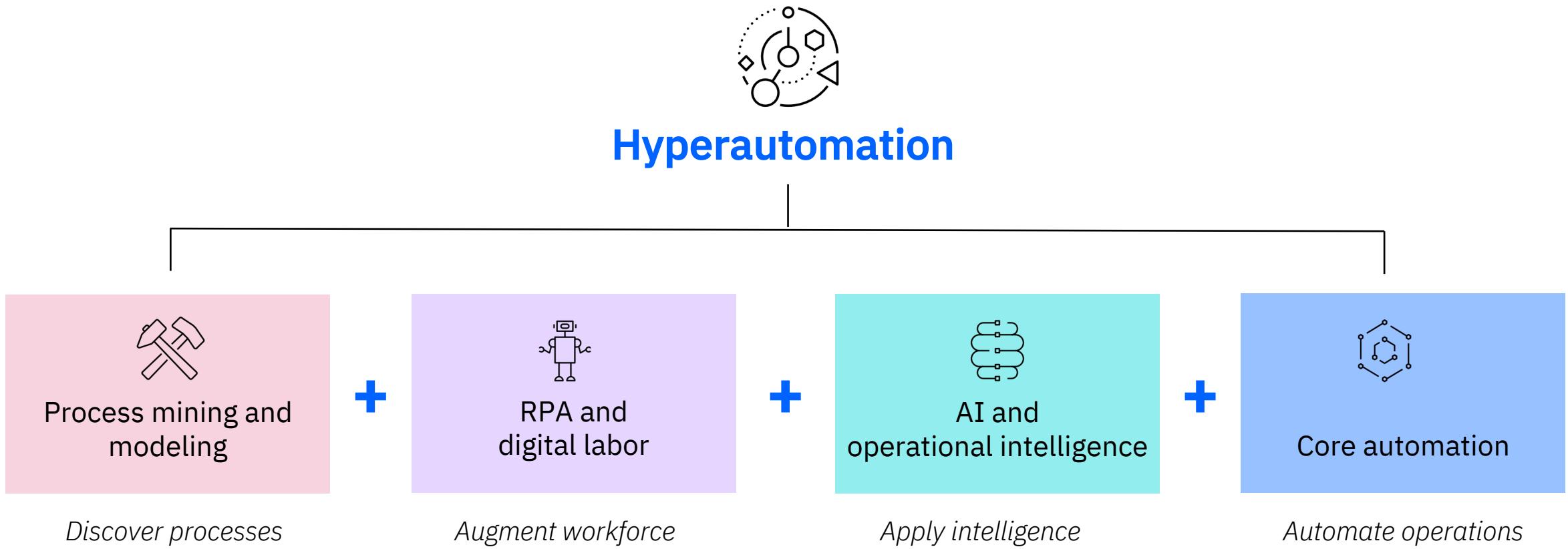
*Hyperautomation*

*was named by Gartner as a top strategic technology trend for both 2020 and 2021*

# IBM Cloud Pak for Business Automation



# IBM hyperautomation



# Components of IBM hyperautomation



## Process mining and modeling

- Understand existing process and task flows
- Generate process models
- Analyze impact on KPIs
- Simulate future processes using “what-if” analysis



## RPA and digital labor

- Perform repetitive tasks
- Act on data extracted from unstructured documents
- Automate systems that do not have APIs



## AI and operational intelligence

- Classify and understand content
- Prioritize tasks
- Make predictive decisions
- Build intelligent chatbots
- Apply AI to operational data



## Core automation

- Capture and process documents
- Manage work
- Automate decisions
- Digitize content

# IBM Cloud Pak for Business Automation: Capabilities

Start with your highest priority projects and easily expand as needs evolve



## Capture

Capture, classify, and extract data from content

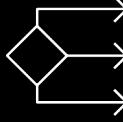
- Speed extraction of information from key documents
- Reduce data entry errors through automated data classification
- Gain insights from unstructured documents



## Content

Share, manage, and collaborate on content

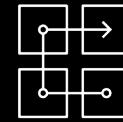
- Secure access to enterprise content from anywhere
- Connect content to digital business applications
- Assure governance and compliance



## Decisions

Automate decisions with business rules

- Rapidly adapt to change with business-friendly tooling
- Increase consistency and auditability of business policies
- Integrate with predictive analytics for real-time response



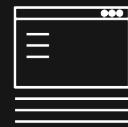
## Workflow

Design and manage start-to-finish workflows

- Choreograph human and automated activities to better manage internal workloads
- Improve consistency across business operations with increased visibility
- Reduce cycle time to increase straight-through processing

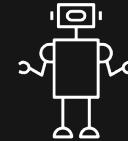
# IBM Cloud Pak for Business Automation: Accelerators

Start with your highest priority projects and easily expand as needs evolve



## Process mining and modeling

Quickly understand your as-is processes to pinpoint inefficiencies and bottlenecks so that you have confidence you are automating the areas of highest priority



## Robotic Process Automation (RPA)

Augment your workforce with digital employees to free humans for higher-value work and innovation



## Operational Intelligence

Gain insights with built-in AI that provides recommended actions for continuous optimization

# Cloud Pak for Business Automation

## Installation

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# IBM Cloud Pak for Business Automation:

## Installation

### Demo Installation

Recommended for PoCs  
and Minor Projects

- DB2 and Open LDAP containers will automatically be installed
- Users and Databases will automatically be created
- Pre-requisites cannot be re-used later

### Enterprise Installation

Recommended for production grade applications

- Gives you the flexibility to setup higher level activities
- Manually define users and databases
- Manual Compilation of Custom resource

# IBM Cloud Pak for Business Automation:

## Prerequisites

### Database (DB2)

To Create Tables

Preferably DB2

- Get the DB scripts to create tables
- Database requirement could change from service to service

### Open LDAP

To create users and enable specified authentication

- Create Admin Groups and User Groups
- Create Admin Users and Users

### Openshift Cluster

Define the resources to deploy

- Use the Patterns
- Run a script to specify requirements and generate custom pattern

# Cloud Pak for Business Automation: Installation Steps

## Part 1: Pre-requisite Installation

Step 1: Create Virtual Server on Classic Infrastructure

Step 2: Install DB2

Step 3: Create databases required for CP4Auto

Step 4: Install LDAP

# Cloud Pak for Business Automation:

## Create Virtual Server on Classic Infrastructure

The screenshot shows the IBM Cloud interface. In the top left, there's a navigation bar with 'IBM Cloud' and a search bar. The main area is titled 'cp4auto-cluster' and shows a summary of the cluster status. On the left, a sidebar menu is open under 'Classic Infrastructure'. The 'Network Security' section is currently selected, showing options like Firewalls and Security Groups. A modal window is open over the cluster summary, specifically for the 'Security Groups' tab, listing several predefined security groups.

Summary

- DNS
- IP Management
- Load Balancing
- Gateway Appliances
- IPSec VPN
- Local Network Status
- Direct Link
- Monitoring
- Security
- Vulnerability Scans
- Security Software
- Network Security
- SSL

Security Groups

Name	Description
<a href="#">allow_all</a>	Allow all ingress traffic.
<a href="#">allow_http</a>	Allow all ingress TCP traffic on port 80.
<a href="#">allow_https</a>	Allow all ingress TCP traffic on port 443.
<a href="#">allow_outbound</a>	Allow all egress traffic.
<a href="#">allow_ssh</a>	Allow all ingress TCP traffic on port 22.

<https://cloud.ibm.com>

A screenshot of the IBM Cloud interface showing the 'Security Groups' page. The URL 'https://cloud.ibm.com' is visible at the top. The page has a search bar and a table listing five security groups. Each group is represented by a row with a link to its details and a brief description.

Name	Description
<a href="#">allow_all</a>	Allow all ingress traffic.
<a href="#">allow_http</a>	Allow all ingress TCP traffic on port 80.
<a href="#">allow_https</a>	Allow all ingress TCP traffic on port 443.
<a href="#">allow_outbound</a>	Allow all egress traffic.
<a href="#">allow_ssh</a>	Allow all ingress TCP traffic on port 22.

Items per page: 10 | 1-5 of 5 items

# Cloud Pak for Business Automation:

## Install DB2



- Supported Databases : DB2, Oracle, MS SQL, PostgreSQL
- Install Enterprise Edition (Prerequisite - Database License)
- DB2 install Options : CLI, Wizard
- Test Command : su db2inst1

# Cloud Pak for Business Automation:

## Create databases required for CP4Auto

```
[db2inst1@cp4auto-vm1 ~]$ db2 list db directory

System Database Directory

Number of entries in the directory = 4

Database 1 entry:

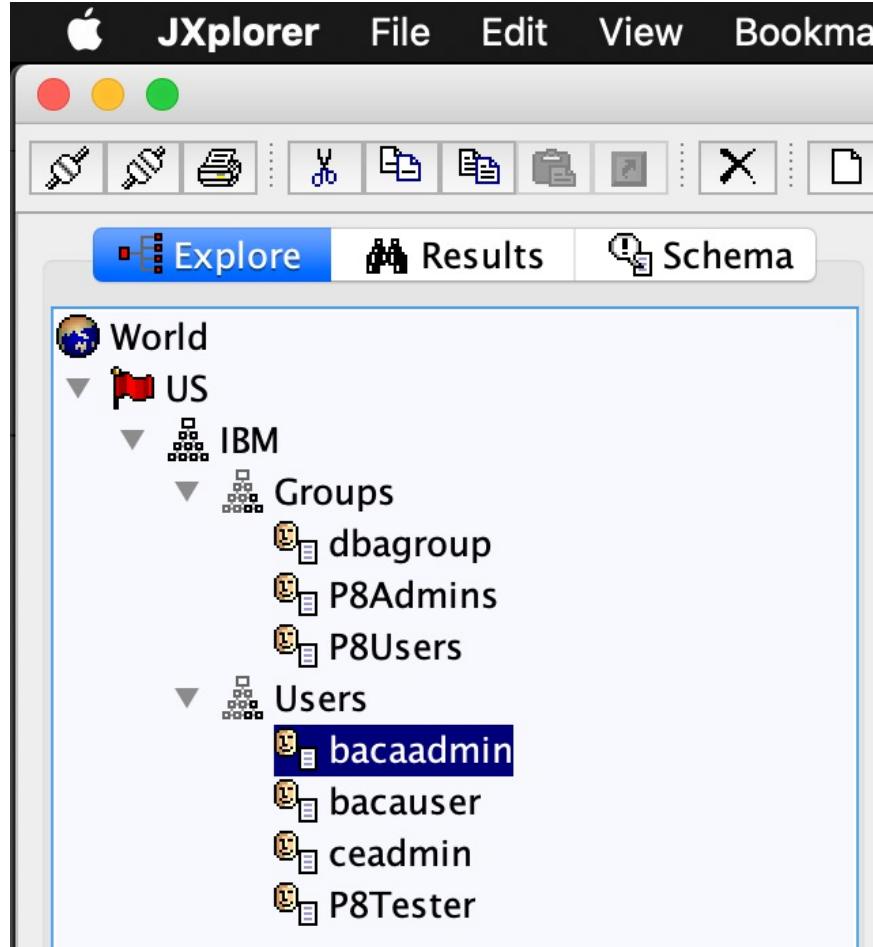
Database alias          = UMSDB
Database name           = UMSDB
Local database directory = /home/db2inst1
Database release level  = 14.00
Comment                 =
Directory entry type    = Indirect
Catalog database partition number = 0
Alternate server hostname = 
Alternate server port number = 

Database 2 entry:

Database alias          = BASECA
Database name           = BASECA
Local database directory = /home/db2inst1
Database release level  = 14.00
Comment                 =
Directory entry type    = Indirect
Catalog database partition number = 0
Alternate server hostname = 
Alternate server port number = 
```

# Cloud Pak for Business Automation:

## Install LDAP and Create LDAP Users



- Supported Identity Providers : OpenLDAP, Microsoft Active Directory, Oauth and SSO
- Create Admin Groups and User Groups
- Create Users within groups

# Cloud Pak for Business Automation: Installation Steps

## Part 2: OCP and CP4Auto Installation

- Provision Open Shift Cluster
- Preparation setup for CP4Auto installation
- Install CP4Auto using YAML file
- Validate the installation

# Cloud Pak for Business Automation: Provision Open Shift Cluster

The screenshot illustrates the process of provisioning an OpenShift cluster on the IBM Cloud catalog.

**IBM Cloud catalog**

**Internal IBM pricing displayed**  
Classic infrastructure services might reflect internal IBM pricing, which should not be shared with external clients. Log out of your internal IBM Cloud account to view external pricing details.

**Works with**

**Provider**

**Pricing plan**  
 Lite  
 Free

**Compliance**  
 IAM-enabled  
 Service Endpoint Supported

**Type**

**Filters:** Containers

**Kubernetes Service**  
IBM • Services • Containers  
Deploy secure, highly available apps in a native Kubernetes experience. IBM Cloud Kubernetes Service creates a cluster of...

**Red Hat OpenShift on IBM Cloud**  
IBM • Services • Containers  
Deploy and secure enterprise workloads on native OpenShift with developer focused tools to run highly available apps. OpenShift...

**Container Registry**  
IBM • Services • Containers  
Securely : their vuln

**Code Engine**  
IBM • Services • Compute • Containers

**Red Hat OpenShift cluster**

**Create** **About**

**Select your setup**

**Manual setup**  
Customize the network and worker node setup for your cluster. You can add integrations such as logging and monitoring after creation.

**Secure** Technical preview  
A multizone, private only VPC cluster with secret encryption, logging, monitoring, and activity tracking

**Orchestration service**  
Select the container platform type and version for your cluster. For more information about versions, including links to the container platform community release notes, see the docs.

**OpenShift** 4.7.23

**OCP entitlement**

**Apply my Cloud Pak OCP entitlement to this worker pool**

You have a Cloud Pak that includes an OCP license entitlement. If you want to use the included OCP license entitlement with this OpenShift cluster, select the "Apply my Cloud Pak OCP entitlement" option. For all other cases you must choose the default "Purchase additional licenses" option.

**Summary**

**OpenShift cluster**

**Worker nodes** b3c.16x64 - 16 vCPUs 64GB RAM **\$6.65/hr**

**Total estimated cost** **\$4,788.00/mo**

Included reductions: Your Cloud Pak entitlement covers the OCP license fee, reducing the cost of your worker nodes. Additional charges for networking and bandwidth might apply. Actual monthly total will vary with tiered pricing.

**Create** **Add to estimate**

# Cloud Pak for Business Automation:

## Preparation setup for CP4Auto installation

- Preparing Storage for Cloud Pak Operator
- Getting Access to container images : Entities Registry
- Setting up the cluster : Creating PVs and Secrets

# Cloud Pak for Business Automation:

Scripts to run - Install CP4Auto using YAML file

## Preinstallation Script/Admin Script

- Login to Cluster and Run the Script
- Provide Entitlement Key and User Email
- This will add new catalog sources to Operator hub and install Operators necessary for cp4ba installation
- Operators installed :

Name	Managed Namespaces	Status	Last Updated	Provided APIs	
 IBM Automation Foundation Core 1.1.0 provided by IBM	NS automation	 Succeeded Up to date	 Aug 10, 0:34 am	Automation UIConfig Cartridge	
 IBM Automation Foundation 1.1.0 provided by IBM	NS automation	 Succeeded Up to date	 Sep 8, 10:40 pm	AutomationBase CartridgeRequirement	
 IBM Cloud Pak foundational services 3.11.0 provided by IBM	NS automation	 Succeeded Up to date	 Sep 10, 2:34 am	CommonService	
 IBM Cloud Pak for Business Automation 21.2.3 provided by IBM	NS automation	 Succeeded Up to date	 Sep 18, 0:24 am	CP4BA deployment	

# Cloud Pak for Business Automation:

Scripts to run - Install CP4Auto using YAML file

## Generate CR Script

- Login to Cluster and Run the Script
- Provide details like the pattern required, components needed, storage gids etc.
- This will create a folder called Generated CR and it will have a .yaml file
- Modify the values of ldap, db2, secrets in the generated yaml file
- Apply the generated yaml to the cluster and a cp4ba deployment will be created within the operator

Installed Operators > Operator Details

IBM Cloud Pak for Business Automation  
21.2.3 provided by IBM

Actions ▾

Details YAML Subscription Events CP4BA deployment

ICP4AClusters

Create ICP4ACluster

Name	Kind	Status	Labels	Last Updated	⋮
ICPA icp4adeploy	ICP4ACluster	Conditions: Running, ReconciliationSuccess	app.kubernetes.io/instan...=ibm-d... app.kubernetes.io/manag...=ibm-... app.kubernetes.io/name=ibm-dba release=21.0.2	Aug 12, 9:54 pm	⋮

# Cloud Pak for Business Automation:

## Validate the installation

- Check for Storage Classes (if all the PVs are bound)
- Check if all the secrets are created and have correct parameter values
- Check if all the pods are deployed and are in ‘running state’

P	icp4adeploy-ads-download-service-5cc4bb56d7-6wc8p	Running	1/1	0	RS icp4adeploy-ads-download-service-5cc4bb56d7	62.1 MiB	0.005 cores	Sep 18, 3:49 am	⋮
P	icp4adeploy-ads-download-service-5cc4bb56d7-mrkdx	Running	1/1	0	RS icp4adeploy-ads-download-service-5cc4bb56d7	57.7 MiB	0.006 cores	Sep 18, 3:50 am	⋮
P	icp4adeploy-ads-embedded-build-service-775f9998db-88tv5	Running	1/1	0	RS icp4adeploy-ads-embedded-build-service-775f9998db	739.4 MiB	0.008 cores	Sep 18, 3:49 am	⋮
P	icp4adeploy-ads-front-6cdc7cc998-b5wt4	Running	1/1	0	RS icp4adeploy-ads-front-6cdc7cc998	167.7 MiB	0.020 co	PV pvc-1d639bb1-7cab-4745-babb-62872c714f89	Bound
								PVC cpe-icmrulesstore	20Gi
								PVC viewone-externalresourcepathst ore	20Gi
								PVC viewone-externalresourcepathst ore	20Gi

# Cloud Pak for Business Automation:

## Scripts to run - Install CP4Auto using YAML file

### Post Installation Script

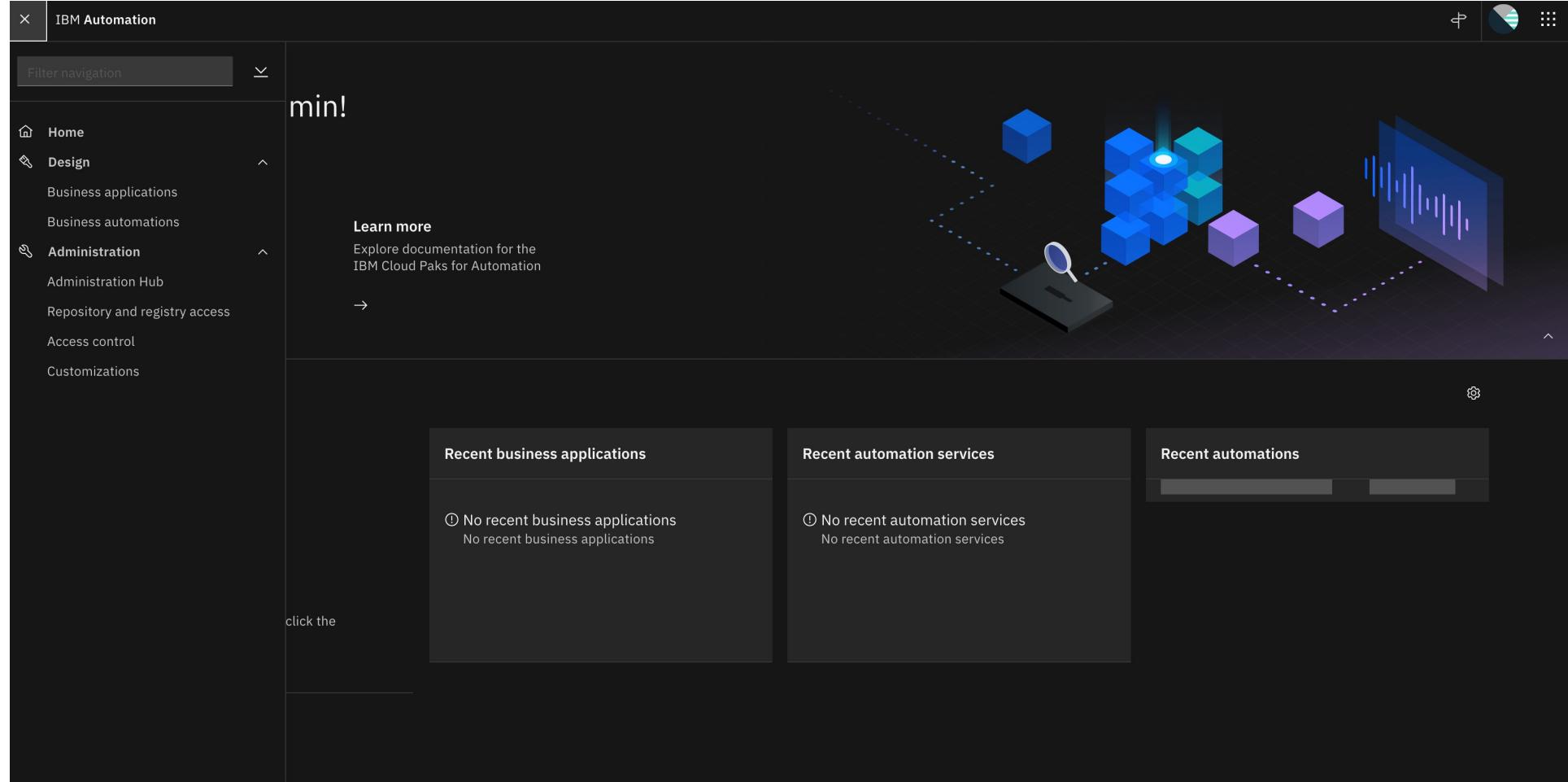
- Run the Script
- This will generate all the URLs through which you can access the components
- Also found in access-info config map

<b>ADS-designer-access-info</b> ADS designer is accessed through Business Automation Studio, use URLs defined in 'bastudio-access-info' section.	
<b>ADS-runtime-access-info</b> Runtime URL: <a href="https://ads-runtime-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/ads/runtime/api/swagger-ui">https://ads-runtime-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/ads/runtime/api/swagger-ui</a>	
<b>UMS-access-info</b> Teams URL: <a href="https://ums-teams-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/teamserver/ui">https://ums-teams-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/teamserver/ui</a> Login with a user who is member of group cn=P8Admins,ou=Groups,0=LTI,C=US to administrate Teams and assign additional admins by maintaining the 3 default teams.	
<b>baa-access-info</b> Business Automation Application: <a href="https://ae-workspace-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://ae-workspace-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a>	
<b>bai-access-info</b> Business Performance Center URL: <a href="https://bai-bpc-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://bai-bpc-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> BAI Desktop: <a href="https://navigator-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/navigator?desktop=BAI">https://navigator-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/navigator?desktop=BAI</a> Management URL: <a href="https://bai-management-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://bai-management-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> Kafka Bootstrap Servers: <a href="https://iaf-system-kafka-bootstrap-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud:443">https://iaf-system-kafka-bootstrap-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud:443</a> Kafka Sasl Mechanism: SCRAM-SHA-512 Kafka Security Protocol: SASL_SSL Elasticsearch URL: <a href="https://iae-system-es-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://iae-system-es-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> Apicurio URL: <a href="https://iaf-system-apicurio-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://iaf-system-apicurio-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a>	
<b>bastudio-access-info</b> CloudPak Dashboard: <a href="https://cpd-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://cpd-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> To access Business Automation Studio, first go to the following URLs and accept the self-signed certificates: <a href="https://bas-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://bas-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> <a href="https://ae-pbk-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://ae-pbk-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> <a href="https://bawaut-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://bawaut-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a>	
<b>cmis-access-info</b> Content Management Interoperability Services: <a href="https://cmis-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/openfnmis_wlp">https://cmis-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud/openfnmis_wlp</a>	
<b>cpds-access-info</b> Content Project Deployment Service: <a href="https://cpds-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud">https://cpds-automation.ocp-automation-a8d1146bebf544cf2e64c559df1437f6-0000.eu-gb.containers.appdomain.cloud</a> (Note: This URL is meant to be used with ADP scripts and not to be accessed as is without context root)	

# Cloud Pak for Business Automation:

## Admin Login and Assign Roles

- After installation, run the admin login command and obtain password.
- Login to cloud pak console with it and Assign user roles for the LDAP users
- Login with User ID and Password



# Cloud Pak for Automation: Components and deployment options

Business Automation Workflow	FileNet Content Manager	Operational Decision Manager	Robotic Process Automation with WDG Automation
Datacap	Enterprise Records	Content Collector	Process Mining
Automation Document Processing	Business Automation Insights	Automation Workstream Services	Business Automation Navigator
Business Automation Studio	Application Designer	Automation Decision Services	User Management Services (SSO)
Automation Foundation	Cloud Common Platform Services		

 Traditional and containerized

 Traditional on-premises

 Cloud native containerized

# Cloud Pak for Business Automation

## Foundational Services

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# Cloud Pak for Business Automation: Foundational Services

- Require the following to run for other components to run
  - UMS (User Management Services)
  - FNCM (FileNet Content Manager)
  - BAN (Business Automation Navigator)
  - BAS (Business Application Studio)
  - BAA (Business Automation Application)
  - RR (Resource Registry)
  - Application Engine

<https://www.ibm.com/docs/en/cloud-paks/cp-biz-automation/21.0.x?topic=capabilities-enterprise-deployments>

# IBM Cloud Pak for Business Automation:

## IBM Cloud Platform Common Services

- Common Web UI Service
- Certificate Management
- Troubleshooting IAM Issues
- License Service
- Metering Service
- Monitoring Service

# IBM Cloud Pak for Business Automation:

## Foundational Services

### IBM BAS

IBM Business  
Automation Studio

- Speed extraction of data
- Reduce data entry errors
- Gain insights from unstructured documents

### IBM UMS

IBM User Management  
Services

- Choreograph human and automated activities
- Improve consistency across business operations
- Increase straight-through processing

### IBM BAN

IBM Business  
Automation  
Navigator

- Rapidly adapt to business change
- Increase consistency and auditability of decisions
- Integrate with predictive analytics

### IBM BAI

IBM Business  
Automation Insights

- Instant access to content
- Connect content to digital business applications
- Assure governance and compliance

# Cloud Pak for Business Automation: IBM UMS

- UMS Single Sign – On
- UMS Teams

The image displays three screenshots of the IBM Cloud Pak for Business Automation interface:

- Main Landing Page:** Shows the logo, the text "IBM Cloud Pak for Business Automation", and the tagline "Digital Automation. Smart. Simple." Below this, there is a brief description: "Work with Business Automation by building assets, organizing work into projects, and quickly compiling applications by using digital transformation technologies."
- Login Screen:** A separate window titled "Log in to your account". It contains fields for "User name" and "Password", and a "Log In" button.
- Logged-in View:** Shows the user is "Logged in" as "ceadmin". It includes a "Log out" button.

# Cloud Pak for Business Automation: IBM FileNet Content Manager

- Business object management
- Application development and business objects
- Events and subscriptions
- Lifecycles
- Property and full-text search capabilities
- Bulk processing
- Versioning
- Classification
- Entry templates
- Managing XML content
- Content storage
- Import and export
- Retention and holds
- Customizable user interfaces
- Configure desktops
- Browse for content that is stored in a repository.
- Search for content by running a text search.
- Save document, folders, and other content as favourites.
- Edit documents.
- Add documents to content servers.
- Organize documents by creating folders and adding content to the folders.
- Use the version control rules that are set on the repository.
- Create teamspaces to provide a focused view of the content and objects in the repository.
- Video viewing

# Cloud Pak for Business Automation: IBM FileNet Content Manager

- Content Management Interoperability Services
- Content Platform Engine administration
- Content Platform Engine health check
- Content Platform Engine ping page
- FileNet Process Services ping page
- FileNet Process Services details page
- Content Search Services health check

# Cloud Pak for Business Automation: IBM FileNet Content Manager

## Content Platform Engine administration

The screenshot displays the IBM Administrative Console for Content Platform Engine, specifically for the CP4BADM domain. The interface is divided into several panels:

- Left Panel:** A navigation tree showing the domain structure. It includes sections for Client API Download, Global Configuration, Administration (Affinity Groups, Content Cache Areas), Database Connections (listing AEOS\_dbconnection, BAWDOCS\_dbconnection, BAWDOS\_dbconnection, BAWTOS\_dbconnection, DEVOS1\_dbconnection), External Repositories, Fixed Content Devices, Rendition Engine Connections, Replication Groups, Sites, Text Search Servers, Data Design, and Object Stores (AEOS, BAWDOCS, BAWDOS, BAWTOS, DEVOS1).
- Central Top Panel:** A main configuration panel for the CP4BADM domain. It has tabs for General, Properties, Security, Directory Configuration, Key Management, Server Cache Subsystem, and Audit Subsystem. The General tab is active, showing the domain name (CP4BADM), ID (225E1953-7BDA-43E2-BAC7-BD789EE3AE16), and Domain type (Standalone). Buttons for Save and Refresh are at the top.
- Central Bottom Panel:** A detailed view of the Database Connections section. It shows a list of connections: AEOS\_dbconnection, BAWDOCS\_dbconnection, BAWDOS\_dbconnection, BAWTOS\_dbconnection, and DEVOS1\_dbconnection. It also lists External Repositories, Fixed Content Devices, Rendition Engine Connections, Replication Groups, Sites, Text Search Servers, Data Design, and Object Stores (AEOS, BAWDOCS, BAWDOS, BAWTOS, DEVOS1).
- Right Panel:** A specific configuration panel for the AEOS\_dbconnection database connection. It has tabs for General, Properties, Object Stores, and Legacy Isolated Regions. The General tab is active, showing the display name (AEOS\_dbconnection), JNDI data source (AEOSDS), JNDI XA data source (AEOSDSXA), and Site (Initial Site). Buttons for Save, Refresh, Actions, and Close are at the top.

# Cloud Pak for Business Automation: IBM FileNet Content Manager

## Content Platform Engine health check

IBM FileNet Content Manager

CE System Health

**CE Instance: [/FileNet/Engine]**

Location: Home

Domain: CP4BADM

- Global Configuration Database
- Directory Configurations: [1]
- PE Connection Points: [1]
- PE Isolated Regions: [1]
- Fixed Content Devices: [0]

Resources:

- Object Stores: [5]
- Storage Areas: [10]
- Content Cache Areas: [0]

Sites:

- Sites: [1]

## Content Platform Engine ping page

Content Engine Startup Context (Ping Page)	
Key	Value
Local Host	icp4adeploy-cpe-deploy-55b6864454-9nm98
Start Time	Thu Aug 05 03:11:42 UTC 2021
Product Name	P8 Content Platform Engine - 5.5.6.0
Build Version	ears-5.5.6-1-115
Build Components	Content Engine 5.5.6-1-29 Process Engine 5.5.6-1-30 ACCE 5.5.6-1-35 Client Download 5.5.6-1-57 .Net API 5.5.6-1-30 Deployment Manager 5.5.6-1-31 REST Provision 5.5.6-1-28 REST Registration 5.5.6-1-30
Startup Message	P8 Content Platform Engine Startup: 5.5.6.0 ears-5.5.6-1-115 Copyright IBM Corp. 2003, 2021 All rights reserved on icp4adeploy-cpe-deploy-55b6864454-9nm98
Operating System	Linux 4.18.0-193.60.2.el8_2.x86_64
Available Processors	1
Classpath	/opt/ibm/wlp/bin/tools/ws-server.jar:/opt/ibm/wlp/bin/tools/ws-javaagent.jar:/opt/ibm/wlp/bin/tools/ws-javaagent.jar
JDBC Driver	IBM Data Server Driver for JDBC and SQLJ 4.29.24
JVM	java.vm.vendor IBM Corporation java.vm.name IBM J9 VM java.runtime.version 8.0.6.20 - pxa6480sr6fp20-20201120_02(SR6 FP20) java.runtime.name Java(TM) SE Runtime Environment java.vm.version 2.9 java.vm.info JRE 1.8.0 Linux amd64-64-Bit Compressed References 20201102_458768 (JIT enabled, AOT enabled) OpenJ9 - 5b31a42 OMR - 6ad3a34 IBM - b7e48f4 java.fullversion 8.0.6.20 - pxa6480sr6fp20-20201120_02(SR6 FP20) JRE 1.8.0 Linux amd64-64-Bit Compressed References 20201102_458768 (JIT enabled, AOT enabled) OpenJ9 - 5b31a42 OMR - 6ad3a34 IBM - b7e48f4
Log File Location	/opt/ibm/wlp/usr/servers/defaultServer/FileNet/icp4adeploy-cpe-deploy-55b6864454-9nm98
Working Directory	/opt/ibm/wlp/usr/servers/defaultServer
J2EEUtil	com.filenet.apimpi.util.J2EEUtilWSL
Server Startup Context	System
Config Values	com.filenet.authentication.wsi.AuthTokenOrder oidc,oauth,ltpa com.filenet.gcd.ProductInstance /opt/ibm/wlp/usr/servers/defaultServer/workarea/org.eclipse.osgi/_76/data/cache/com.ibm.ws.app.manager_175/.cache/APP-INF/lib com.filenet.engine.DocumentationURL http://www.ibm.com/support/knowledgecenter/SSNW2F_5.5.0/ com.filenet.authentication.token.userid sso:ltpa com.filenet.gcd.JNDIXName FNGCDDXA com.filenet.gcd.ProductGuid 8364eb97647e4427b28c3fb0d53a451d com.filenet.authentication.wsi.AutoDetectAuthToken true com.filenet.gcd.JNDIName FNGCDDS com.filenet.gcd.LicenseModel FNCP.VPUNonProd

# Cloud Pak for Business Automation: IBM FileNet Content Manager

Content Search Services health check:

## **Snapshot of the following PCH counters for the previous 60 minutes (Refresh page to update):**

ObjectStore CBR Indexing Batch, Active Indexing Workers Avg - The number of active indexing workers found while dispatching index requests.

ObjectStore CBR Indexing Batch, Batch Duration Avg ms - The total duration of time it takes to process the batch.

ObjectStore CBR Indexing Batch, Batch Size Avg - The size counter of the text extraction batches.

ObjectStore CBR Indexing Batch, Content Storage Retrieval Avg ms - The amount of time spent setting up access to content storage.

ObjectStore CBR Indexing Batch, Indexing Duration Avg ms - The amount of time it takes to transfer text to the CBR engine and index the data.

ObjectStore CBR Indexing Batch, Objects Indexed Per-Minute - The computed rate index requests are being processed per-minute.

ObjectStore CBR Indexing Batch, Text Extraction Duration Avg ms - The amount of time spent performing text extraction for an indexing batch.

Server Based counters CSS Indexing Batch, Objects Indexed Per-Minute - The number of objects indexed for full-text search per minute as calculated by a simple moving average.

ObjectStore CBR Index Creates Submitted - Document indexing submit rate and total.

ObjectStore Document Creates - Document creation rate and total.

## **Server: IBM FileNet Content Platform Engine PVU Non Prod (icp4adeploy-cpe-deploy-55b6864454-9nm98)**

**None of the requested PCH counter values retrieved from IBM FileNet Content Platform Engine PVU Non Prod (icp4adeploy-cpe-deploy-55b6864454-9nm98) for the past 60 minutes.**

## **Server: IBM FileNet Content Platform Engine PVU Non Prod ICF PE (icp4adeploy-cpe-deploy-55b6864454-9nm98)**

**None of the requested PCH counter values retrieved from IBM FileNet Content Platform Engine PVU Non Prod ICF PE (icp4adeploy-cpe-deploy-55b6864454-9nm98) for the past 60 minutes.**

## **Snapshot of the following PCH counters for the previous 60 minutes (Refresh page to update):**

Batches in progress - Number of indexing batches (tasks) that are currently being processed.

Documents currently being indexed - Number of documents in the final stage of CSS indexing pipeline.

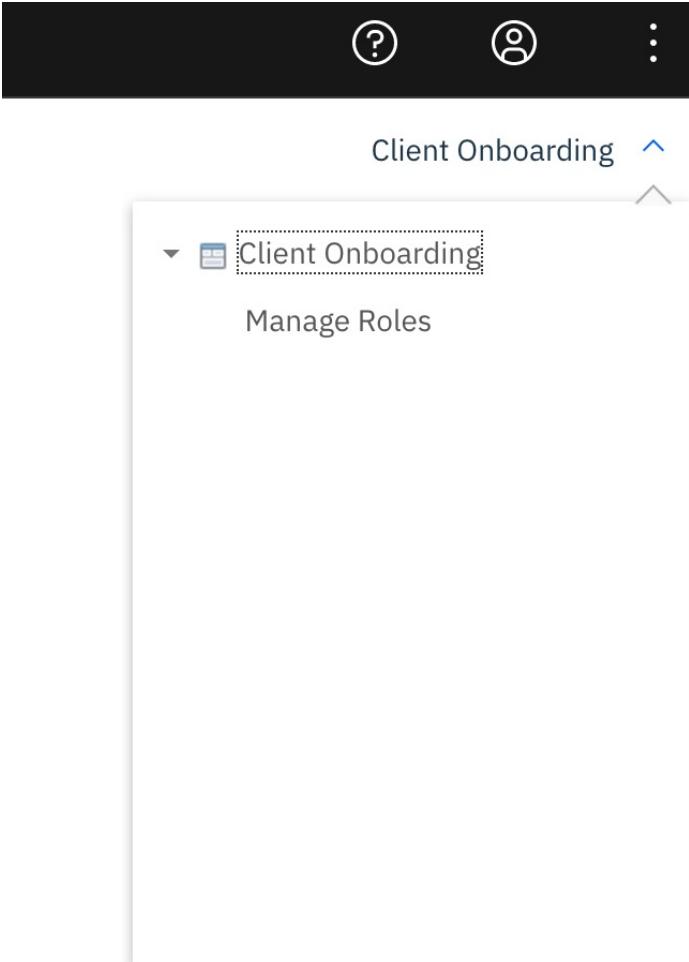
Documents in input queue - Number of documents in the CSS input queue.

Total number of processed documents - Number of documents processed by CSS for all indexes since server startup.

JVM Memory Statistics, Memory usage of the heap for object allocation - amount of heap memory used by the JVM before Java memory garbage collection.

**No CSS listener connection found.**

# Cloud Pak for Business Automation: IBM BAN



Depending on how your desktop is configured, you can use applications for...

- Browsing, searching, and working with content
- Managing work
- Managing cases
- Processing documents

# Cloud Pak for Business Automation: IBM BAS

- Give business owners and subject matter experts a direct role in digitizing their business with
  - A unified landing page for all platform designers
  - Low-code and enterprise designers
  - Common consistency between designers
  - Easy navigation between designers
  - The ability to author user interfaces and automations
- Ensure lifecycle and governance consistency so authors can create and manage their projects
  - Common authorization and project collaboration
  - Project branching and versions
  - Common decision-making and oversight process
- Promote and discover reusable assets
  - Use templates to accelerate building your projects and toolkits to promote reuse
  - Apply configurators that discover deployed services
  - Publish automations, making them discoverable and callable in a consistent way across Business Automation Studio

# Cloud Pak for Business Automation: IBM BAI

## Installed Components

- Business Performance Center
- BAI Desktop
- Admin
- Management
- Elasticsearch
- Apicurio

The screenshot shows a web browser window for the URL <https://business-performance-center.bai.cp4ba.apps.dooku.coc-ibm.com>. The title bar reads "IBM Cloud Pak for Business Automation - Business Automation Insights". The top navigation bar includes links for "Dashboards", "Goals", and "Team permissions". The "Dashboards" tab is selected. Below the tabs, there is a search bar and filters for "Recently updated" and "All dashboards". On the right side of the header, there are buttons for "Import", "Create", and a "+" sign. The main content area displays a list of 8 dashboards:

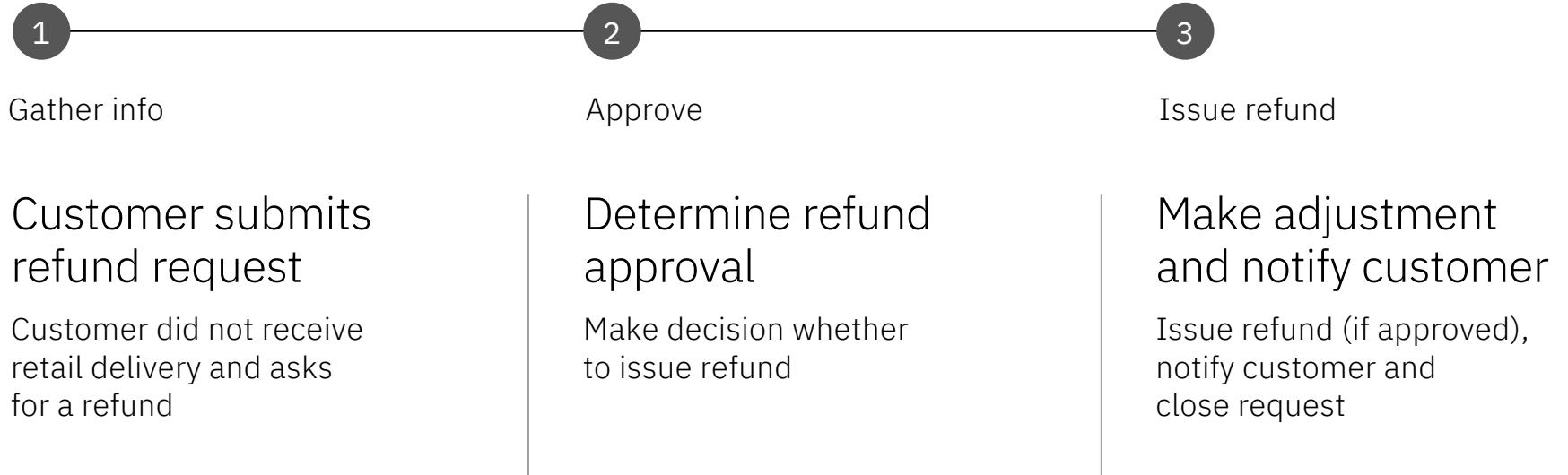
Dashboard Name	Description	Owner	Last Updated	Permissions
Mortgage Application Completed	Dashboards display and track the performance of measurements in a visual way.	cp4badmin cp4badmin	8/7/2021, 12:31:03 AM	Public
Workforce Insights	Get all the measurements related to your workforce performance, from process activities to team analytics.	BaiBuiltIn	3/10/2021, 1:25:56 PM	Public
Workflow - Case Activities	The Workflow Case activities dashboard page displays chart widgets that provide case activities related statistics.	BaiBuiltIn	3/10/2021, 1:25:56 PM	Public
Workflow - Cases	The Workflow Case dashboard page displays chart widgets that provide case-related statistics.	BaiBuiltIn	3/10/2021, 1:25:56 PM	Public
Workflow - Hiring Sample	Workflow - Hiring Sample	BaiBuiltIn	3/10/2021, 1:25:56 PM	Public

# Cloud Pak for Business Automation: Additional Components

- Business Automation Application
- Application Engine
- Resource Registry
- GraphQL

## Scenario

# Refund approvals



**Current metrics:**

0% straight-through processing  
(every refund request requires at least some human handling)

**Challenge:**

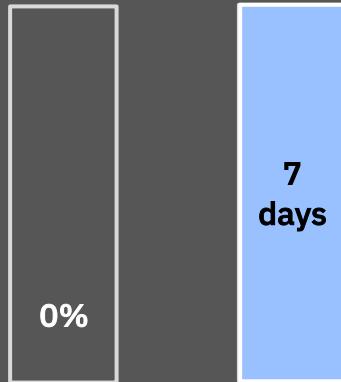
Get to 80% straight-through processing

## Scenario: Refund approvals

Current situation: Core automation combined with manual work

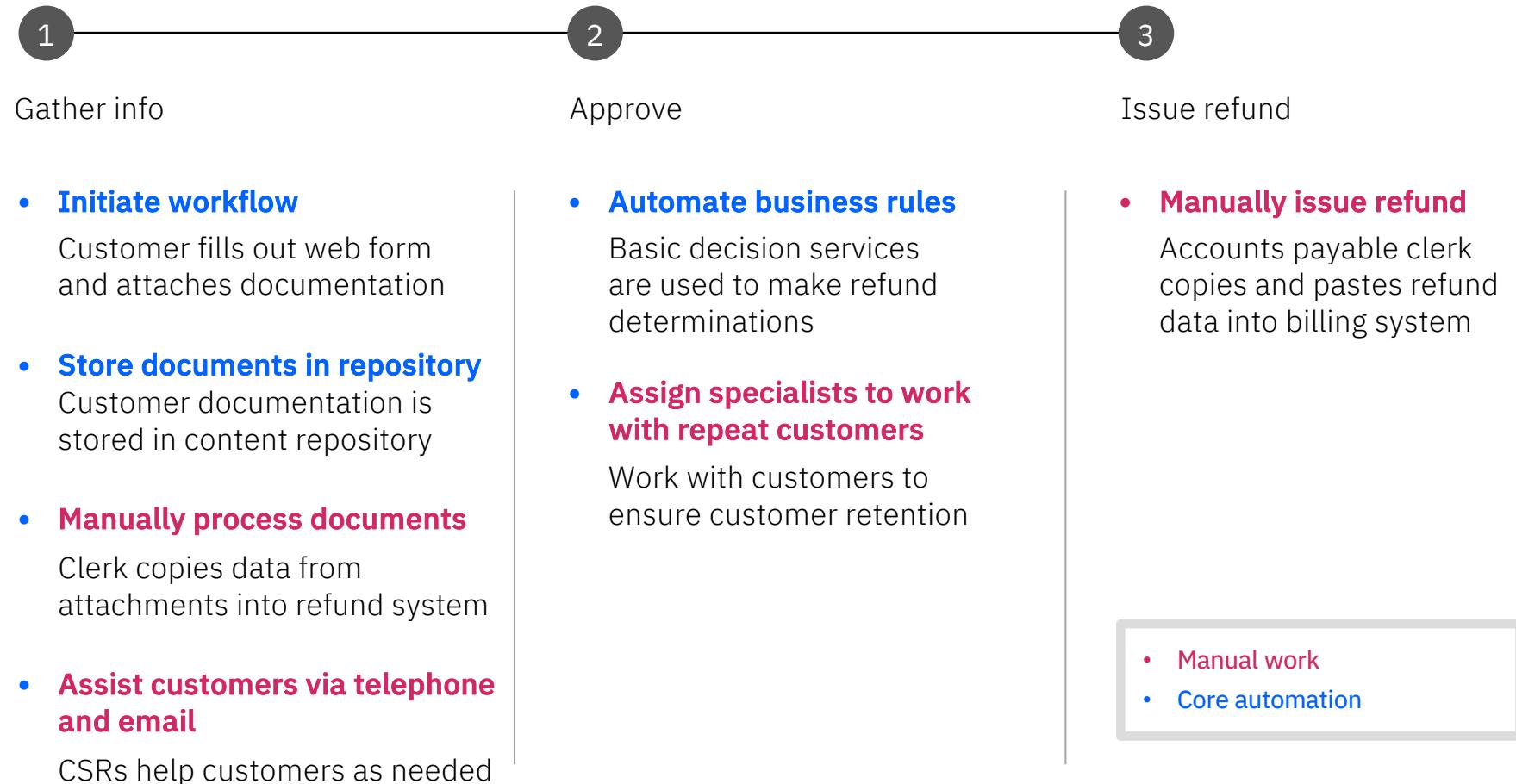
**Current process:**  
Core automation

### Refund metrics



Straight-through processing

Completion time



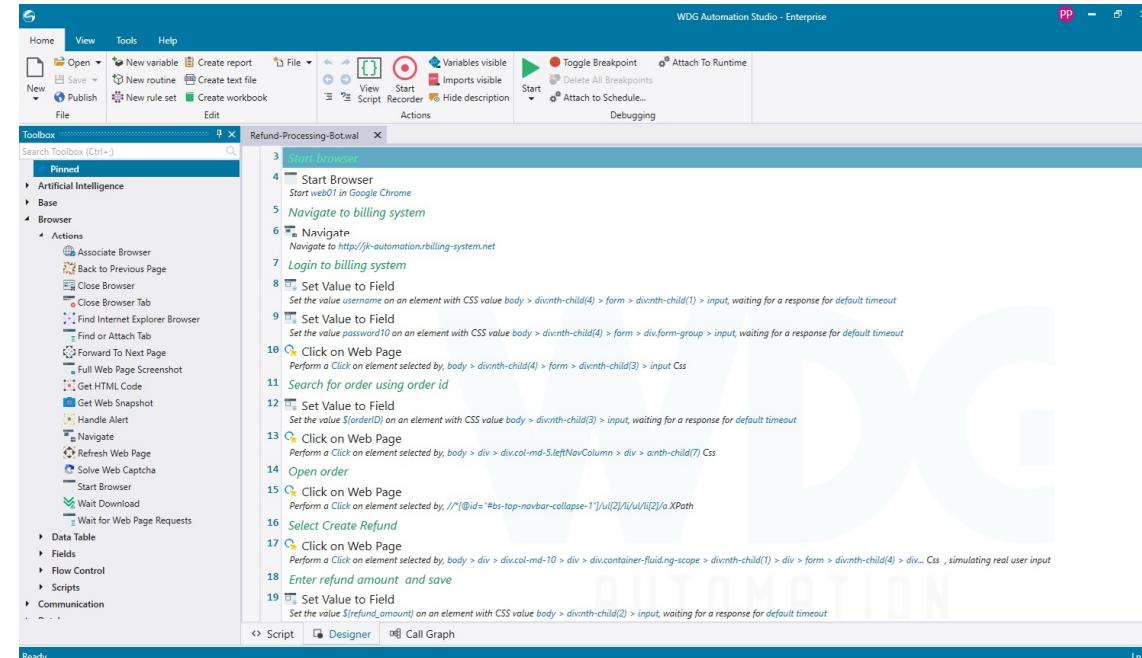
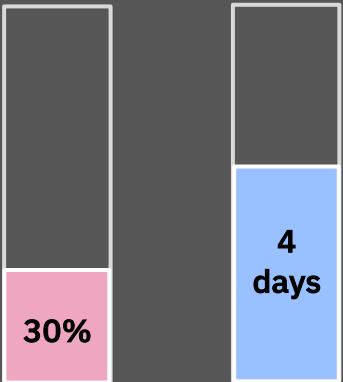
## Scenario: Refund approvals

Add robotic process automation to automatically process refunds

Add:

Robotic process automation

### Refund metrics



### Automatically issue refund

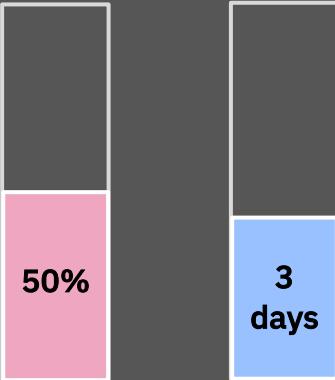
RPA connects to billing system (without APIs) by replicating the interactions with application user interfaces

## Scenario: Refund approvals

Add document processing to automatically capture unstructured data

Add:  
Document processing

### Refund metrics



Straight-through  
processing

Completion time

Invoice for refund 1.pdf  
Document type: Invoice

Invoice

From: Acme Supply, 100 Main Street, Austin, Texas, 78704, United States

To: Sally Smith, 20 Oak Street, Fayetteville, NC, 28301, United States

Invoice No.: INV-1152349  
Date: Sep 30 2020

Description	Quantity	Rate	Amount
GE-395412 Energy efficient electric heater 120V	1	\$825.00	\$825.00
Sub Total			\$825.00
Sales Tax (8.25%)			\$68.06
Total			\$893.06
Paid to Date			\$893.06
Balance			\$0.00

US Street Name: Main Street  
US Zip Code: 78704  
InvoiceNumber: INV-1152349  
InvoiceDate: Sep 30 2020  
Description: GE-395412 Energy efficient electric heater 120V  
SubTotal: \$825.00  
Total: \$893.06  
EmailAddress: Field value

### Automatically analyze incoming documents

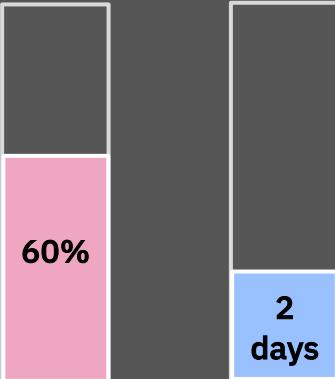
Intelligent document processing finds the customer number and refund amount within unstructured documents

## Scenario: Refund approvals

# Add intelligent chatbots to interact with customers

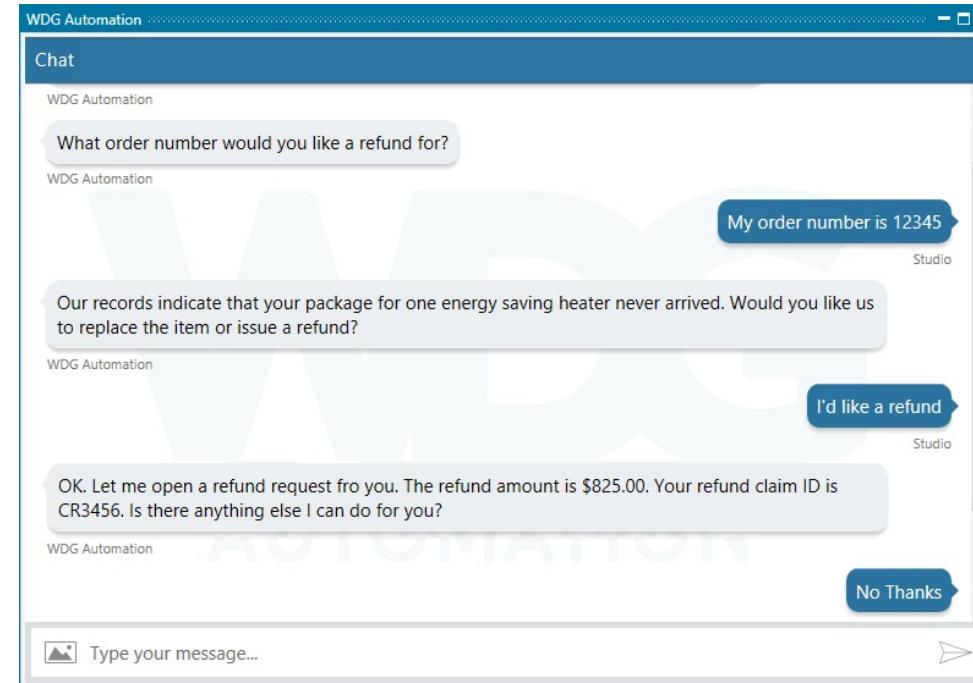
Add:  
Intelligent chatbots

### Refund metrics



Straight-through processing

Completion time



### Converse with customers via intelligent chatbots

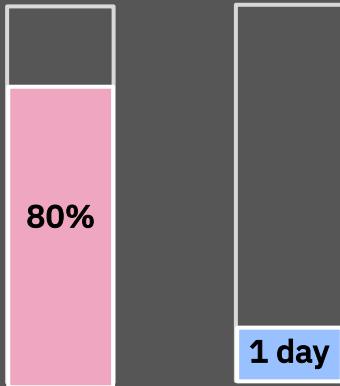
Apply machine learning to automatically handle refunds through text and speech interactions

## Scenario: Refund approvals

Add predictive analytics to make more profitable decisions

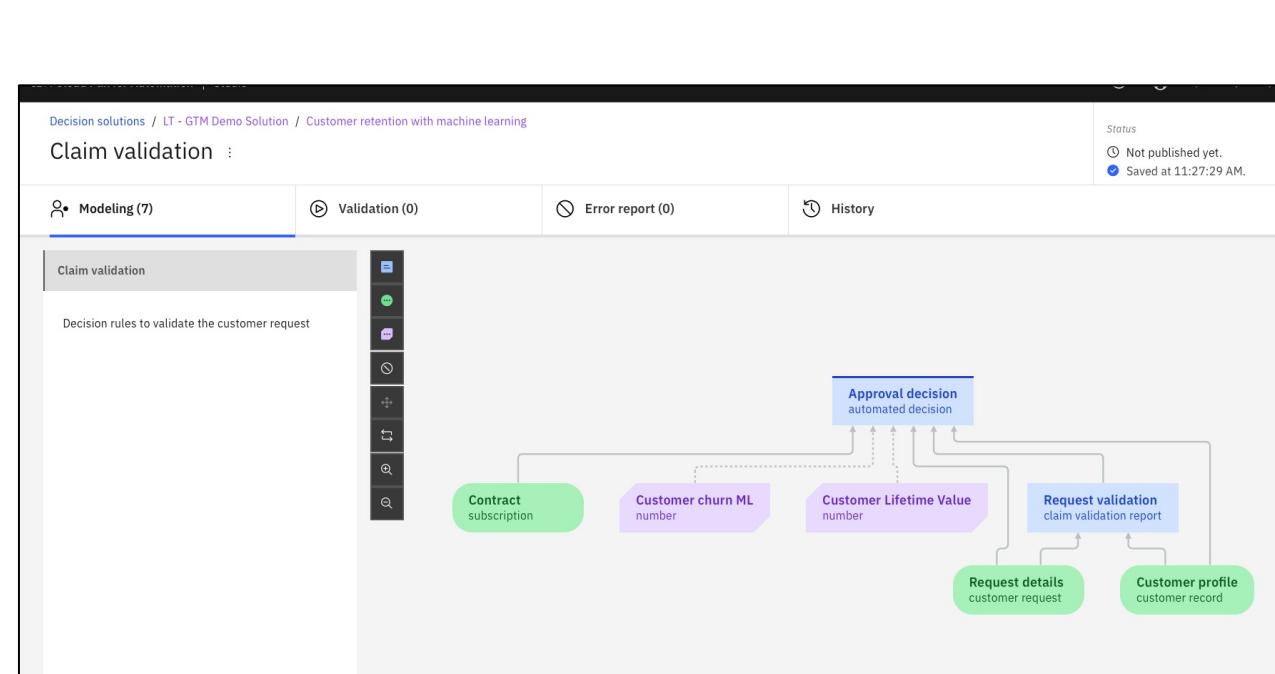
Add:  
Predictive decisions

### Refund metrics



Straight-through  
processing

Completion  
time



### Apply predictive decisions

Incorporate machine learning models that use predictive analysis such as customer propensity to churn

# Thank You

# Hyperautomation in action

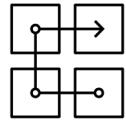
# IBM Cloud Pak for Business Automation: Core automation



## Document processing

Capture, classify, and extract data from content

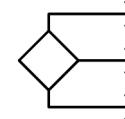
- Speed extraction of data
- Reduce data entry errors
- Gain insights from unstructured documents



## Workflow

Design and manage start-to-finish workflows

- Choreograph human and automated activities
- Improve consistency across business operations
- Increase straight-through processing



## Decision management

Automate decisions with business rules

- Rapidly adapt to business change
- Increase consistency and auditability of decisions
- Integrate with predictive analytics

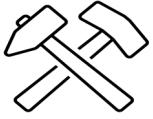


## Content services

Share, manage and collaborate on content

- Instant access to content
- Connect content to digital business applications
- Assure governance and compliance

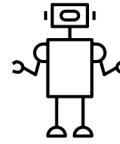
# IBM Cloud Pak for Business Automation: Automation accelerators



## Process mining and modeling

Understand and  
analyze your processes

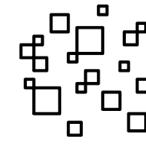
- Understand existing process and task flows
- Analyze impact on key performance indicators (KPIs)
- Simulate future processes using “what-if” analysis



## RPA and digital labor

Use bots to automate  
routine human tasks

- Automate repetitive activities
- Eliminate copy-and-paste and data-entry errors
- Free employees for higher-value work



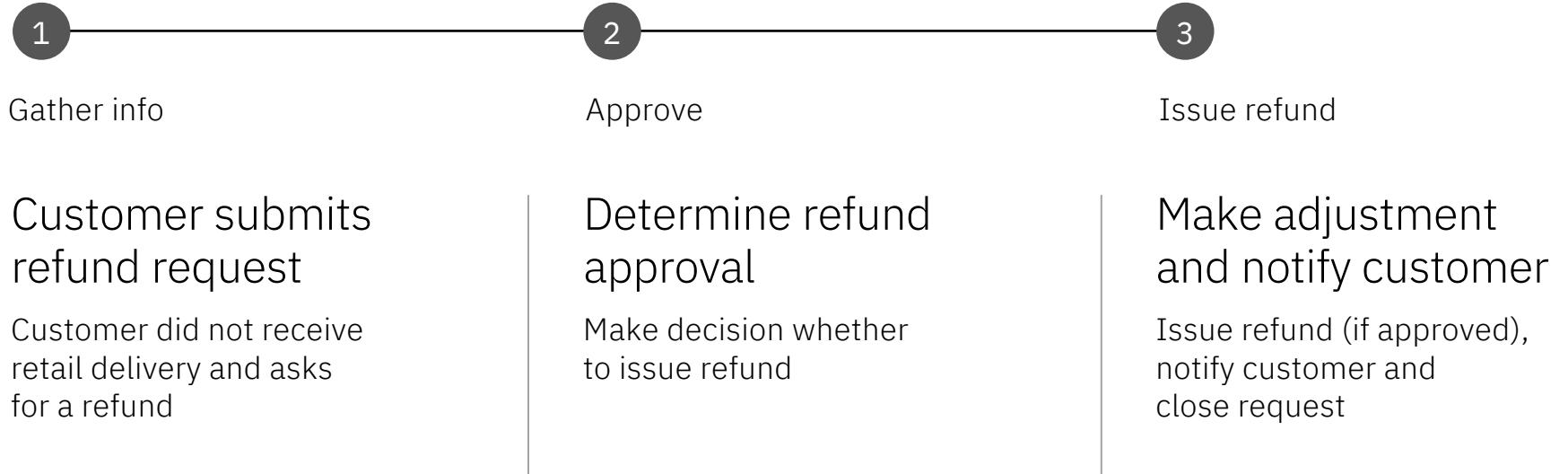
## Operational intelligence

Gain insights with  
built-in AI

- Capture data generated by operational systems
- Apply AI and machine learning to provide insights
- Make adjustments to improve business operations

## Scenario

# Refund approvals



**Current metrics:**

0% straight-through processing  
(every refund request requires at least some human handling)

**Challenge:**

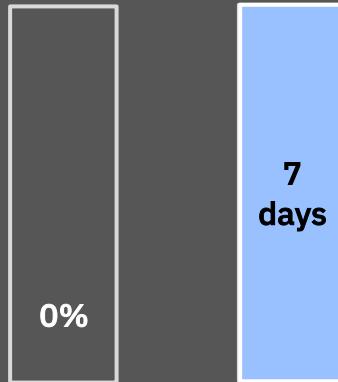
Get to 80% straight-through processing

## Scenario: Refund approvals

### Current situation: Core automation combined with manual work

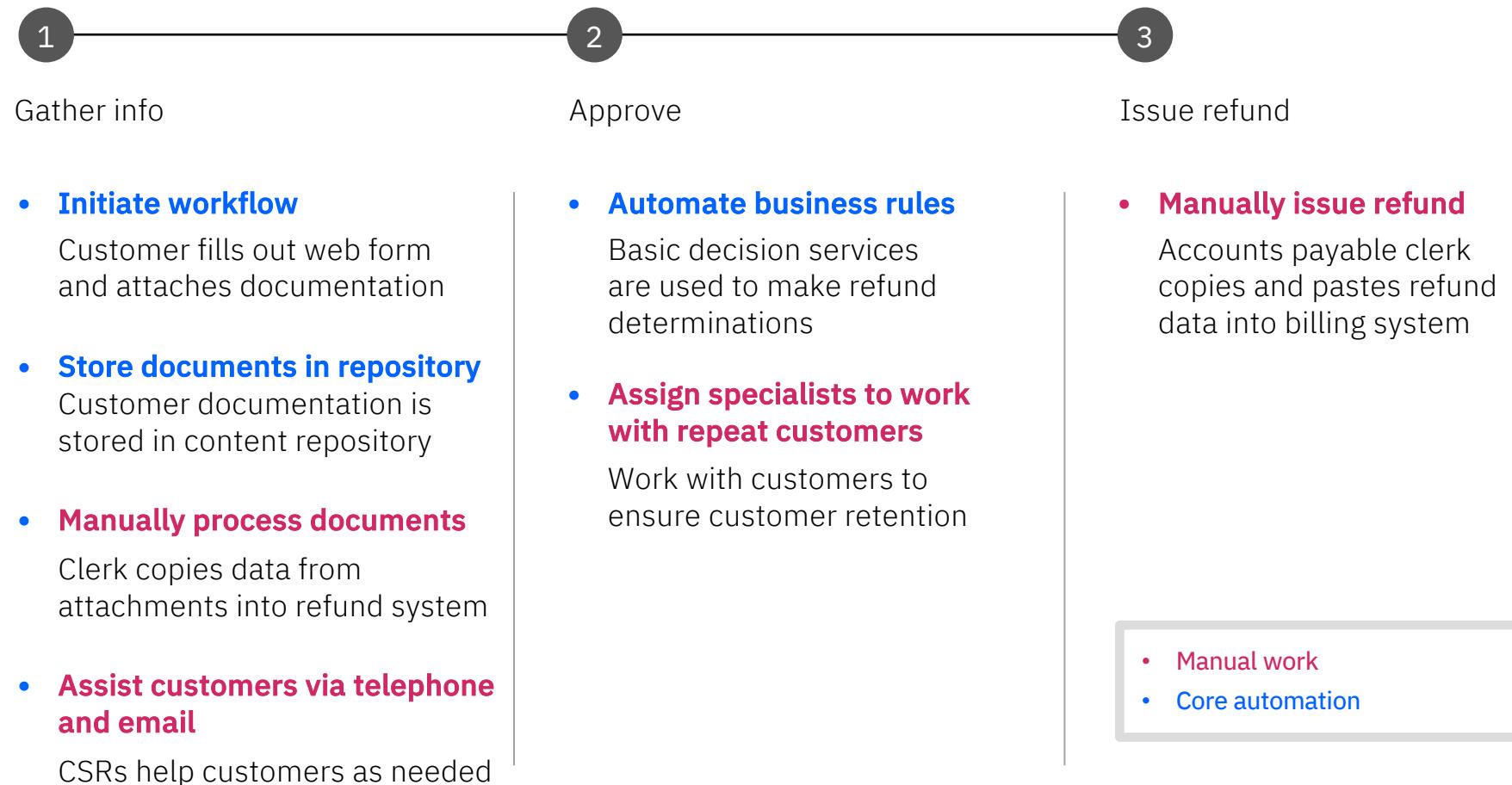
**Current process:**  
Core automation

#### Refund metrics



Straight-through processing

Completion time

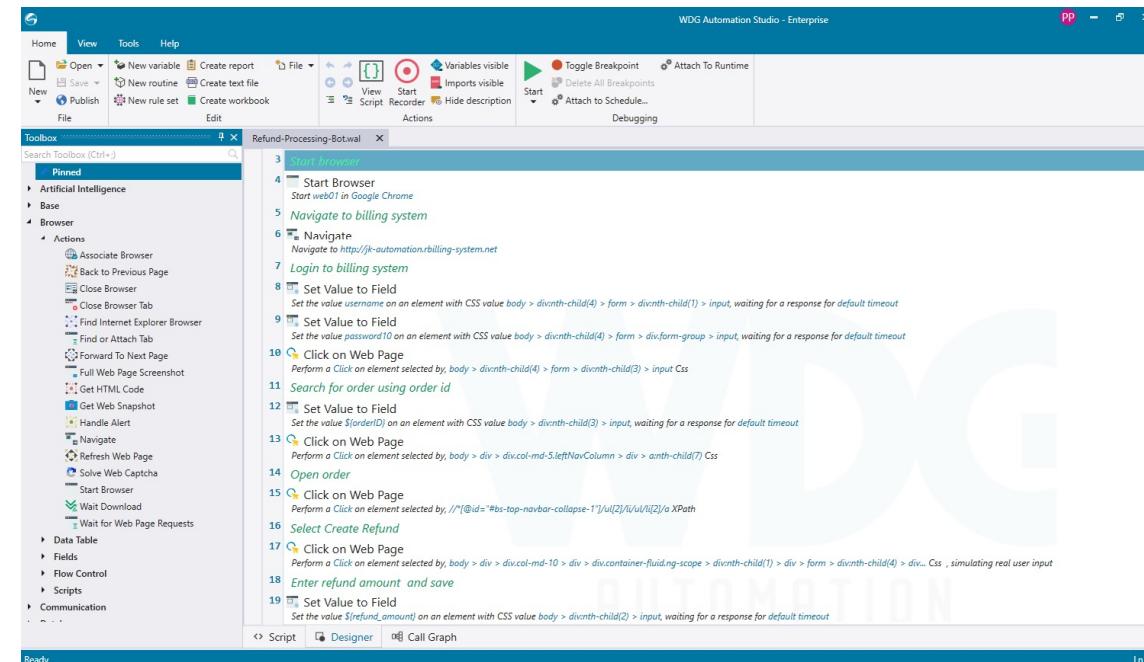
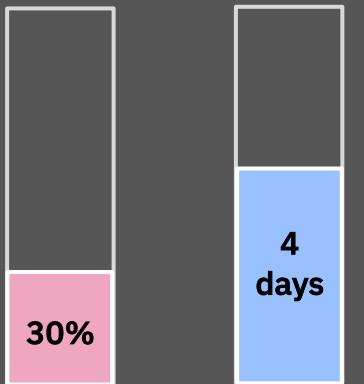


## Scenario: Refund approvals

Add robotic process automation to automatically process refunds

Add:  
Robotic process  
automation

### Refund metrics



### Automatically issue refund

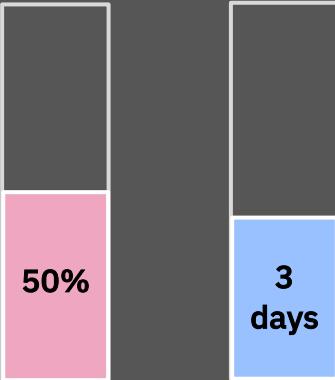
RPA connects to billing system (without APIs) by replicating the interactions with application user interfaces

## Scenario: Refund approvals

Add document processing to automatically capture unstructured data

Add:  
Document processing

### Refund metrics



Straight-through processing

Completion time

The screenshot shows the IBM Navigator Batch Capture Application interface. On the left, there is a preview of a PDF document titled 'Invoice for refund 1.pdf'. The main area displays an 'Invoice' from 'Acme Supply' to 'Sally Smith'. The invoice details include an item description 'GE-395412 Energy efficient electric heater 120V', quantity '1', rate '\$825.00', and amount '\$825.00'. It also shows a 'Sub Total' of '\$825.00', 'Sales Tax (8.25%)' of '\$68.06', and a 'Total' of '\$893.06'. The payment status shows 'Paid to Date' at '\$893.06' and a 'Balance' of '\$0.00'. On the right, a sidebar lists extracted fields with their corresponding values: 'US Street Name' (Main Street), 'US Zip Code' (78704), 'InvoiceNumber' (INV-1152349), 'InvoiceDate' (Sep 30 2020), 'Description' (GE-395412 Energy efficient electric heater 120V), 'SubTotal' (\$825.00), 'Total' (\$893.06), and 'EmailAddress' (Field value).

### Automatically analyze incoming documents

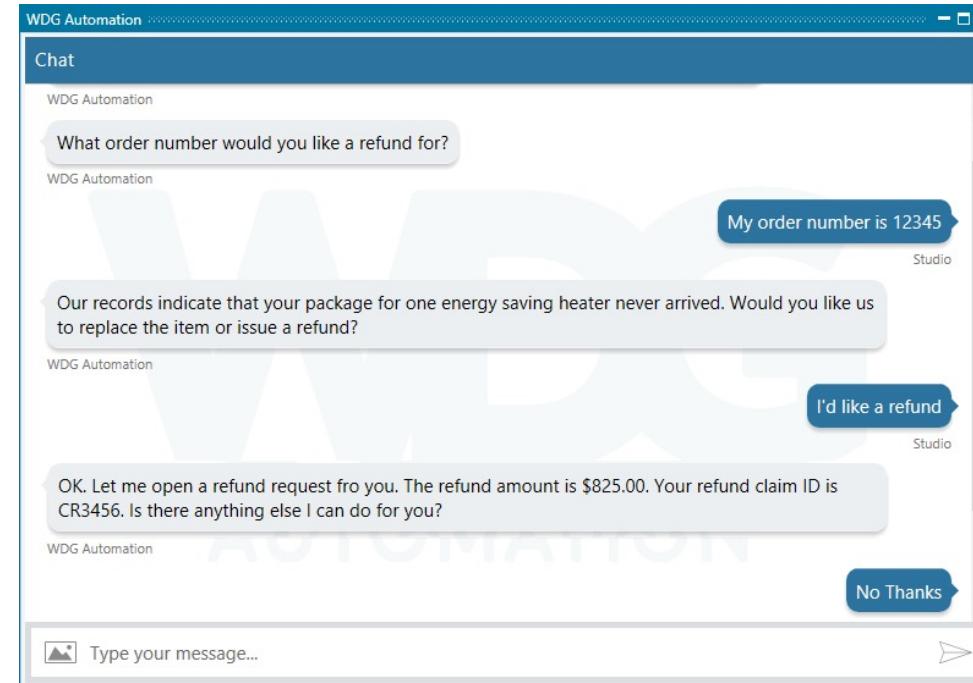
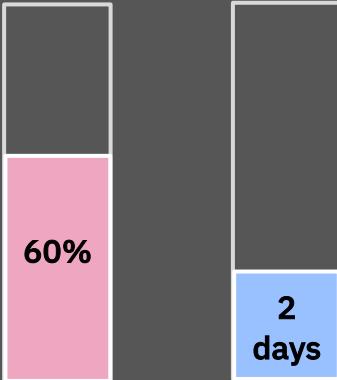
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Add:  
Intelligent chatbots

### Refund metrics



### Converse with customers via intelligent chatbots

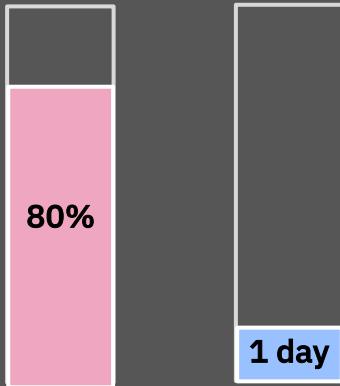
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Add predictive analytics to make more profitable decisions

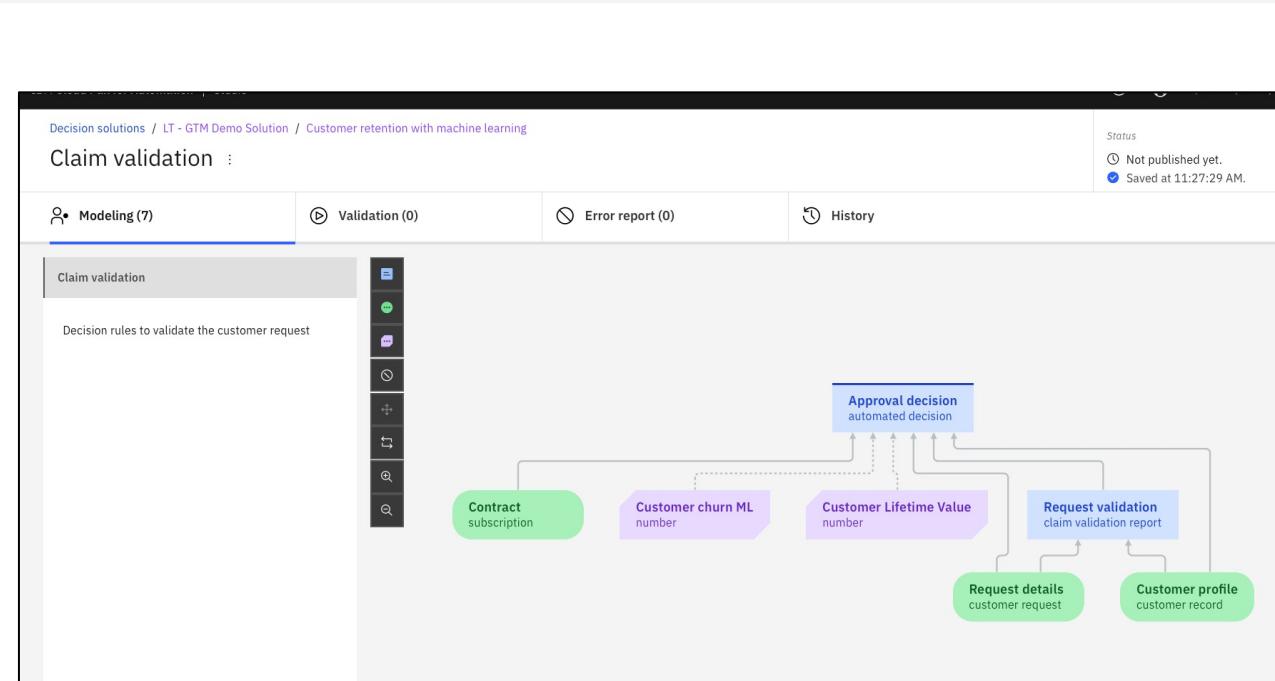
Add:  
Predictive decisions

### Refund metrics



Straight-through processing

Completion time



### Apply predictive decisions

Incorporate machine learning models that use predictive analysis such as customer propensity to churn