



Decisioning Consultant

STUDENT GUIDE



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Product: Pega Customer Decision Hub™ '26

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Getting started with Pega Customer Decision Hub Foundation

Description

Before you begin learning, familiarize yourself with Pega Academy. Learn about the structure of the learning content, explore the content of the Pega Customer Decision Hub Foundation Mission, and learn how to access challenges in Pega Academy.

Learning objectives

After completing this module, you should be able to:

- Explore what topics the mission covers.
- Learn how to use the exercise system in Pega Academy.
- Use Self-study Buddy to learn about Pega Infinity™.

Key features of Pega Customer Decision Hub

Transcript

Andrzej – Hi everyone. I am very excited to host this little chat and find out what exactly does the Pega Customer Decision Hub Foundation mission cover. My name is Andrzej Panfil, I am a senior curriculum developer at Pega, currently focusing on Pega NLP and Process AI. I was very curious what you will be learning during this training session as participant; so, I was thinking how to best find out, other than talking directly to the man himself who was teaching the same content at Pega World! So let me introduce you to Miki Muzsi, who has been with Pega for more than 20 years, currently being the curriculum owner for Pega Customer Decision Hub and Data Scientist. Welcome Miki!

Miki – Hi Andrzej, thanks so much for having me. I am very happy to answer any questions you may have.

Andrzej – That's great, so let's start with a simple one: who is the target audience, who do you think should take this training course?

Miki – Well, so, since this training is meant to cover the Essentials of Pega Customer Decision Hub, I think that a variety of people could benefit from it. So, if you are a business leader, technology professional, a member of the marketing operations team, or even a Data Scientist – somebody who is looking to transform your decision-making processes and focus on driving better customer experiences, then I believe that this training is for you.

Andrzej – I see, so, that is indeed a wide group... And what if I already have some experience using Customer Decision Hub? Would you still recommend it?

Miki – Well, it really depends which version you have used. The other day, I was chatting to a former instructor, who used to teach Customer Decision Hub few years ago, and he was literally blown away when I've explained him the latest product features. So, during this training, you will obviously experience the latest released software, and we will cover things like Next-Best-Action Designer...[interrupted]

Andrzej – Ok wait, wait, before we dive into product features, can you maybe just explain in simple terms what this Customer Decision Hub is all about, so that participants can have an idea what do they sign up for?

Miki – Yeah, you are right, I tend to jump quickly into features since I am really excited about them. So very simply put, Pega Customer Decision Hub is revolutionizing marketing.

In a traditional approach, marketers search for potential customers from a database based on target demographics, geographies, financial means to make a purchase a product, and then they would identify a so-called customer segment, which is a subset of the total population, and then they target all these customers from the segment, across all channels, by sending them ONE specific offer. And the problem with this approach is that, only a low percentage of customers respond. So, while marketers may hit their short-term goal, in the long term, this approach will affect the relationship with customers.

Andrzej – Ok, so what you are saying is that the traditional mass-marketing techniques that use segments, batches, and campaigns are not working anymore as they have become outdated and inefficient, right? So, what is the solution then?

Miki – Yes, that's exactly what I am saying. So, nowadays, the market has centered around real-time technologies and one-to-one customer interactions. At Pega, we call this capability, "1-to-1 Customer Engagement", which enables companies to transition their marketing away from traditional one-to-many campaign-driven approach. And this is where Customer Decision Hub comes in the picture because the Customer Decision Hub forms the core of the customer engagement platform.

And what you will learn during this training is how the Customer Decision Hub combines analytics, AI, business rules, customer data, and data collected during each customer interaction to make intelligent decisions; decisions which we call next best actions.

Andrzej – Wow, next best actions, that's some interesting stuff! Is there a way to get our hands on it and practice what we have learned?

Miki – Of course! During the training, you will do some hands-on challenges, and experience how these next best actions are delivered across multiple channels. You will see 2 use cases: how next best actions are presented in the contact center, and on a digital channel, on the web.

Andrzej – Ok clear, now, so very simply put, the Customer Decision Hub is really a centralized brain used by every channel to deliver next best actions to the customer, right?

Miki – Yes that's right.

Andrzej – Ok, so you mentioned also analytics and AI. Will you go into more details on this during the course?

Miki – Yes, absolutely. However, before we talk about AI, you will first learn about the Next-Best-Action Designer in the Customer Decision Hub portal. So, you learn how NBA Designer is used to create a set of actions, which will eventually be delivered as next best actions, and the set of engagement policies which are a set of business rules and practices that the

organization uses to determine which customers qualify for which actions. Once we cover engagement policies, we'll talk about AI and Arbitration.

Andrzej – Ok, ok, AI and Arbitration, that sounds pretty interesting. Could you maybe explain more about how AI and Arbitration are correlated?

Miki – Yeah sure! So, arbitration is all about applying a relatively simple formula, to arrive at a priority calculation. And the action presented to the customer is the one with the highest priority. But one of the most relevant factors from the arbitration formula is the Propensity, which is calculated by AI. So, at Pega, we use AI not for self-driving cars or for generating a nice poem... but we use AI to determine this Propensity, which is the likelihood of positive behavior, such as the likelihood of a customer accepting an offer or the likelihood of a customer clicking on a banner. For a new action, this propensity starts at 0.5 and as the system learns about customer behavior it continuously changes and adapts in real-time, without any involvement from a marketer or a data scientist.

Andrzej – It sounds like there is a lot going on in the back end. Is there a way to see how these values are calculated so that we have a full transparency of this process?

Miki – Absolutely. And this brings us to another feature you will learn about, the Customer Profile Viewer, which was recently introduced in the product. Among many other things, Customer Profile Viewer allows you to simulate a decision for a customer and get insights into how the decision was made. Specifically, you are able to inspect the Propensity details, and understand which are the predictors that increase the propensity, and which are the predictors that decrease the propensity of a given action.

Andrzej – Oh wow! It feels like a lot of details and a lots of new product features will be covered. So, you mentioned Next Best Action Designer, Customer Profile Viewer, you told us how to explain the influence of AI and so on. But let me ask you this: What is your favorite product feature, or what would you call as 'the coolest feature' which we will learn during this training?

Miki – Well, in my opinion, there are a lot of nice features in the product, but one of the most exciting one, recently introduced in the latest product version is Impact Analyzer. This is really, really an exciting new feature and it's great to see it in the product.

Andrzej – All right, Impact Analyzer, what a cool name! Now you made me very curious. What does this Impact Analyzer do?

Miki – Well, it basically gives no excuses to marketers, or, to the next-best-action operations team to say that they don't understand the value Customer Decision Hub brings.

Andrzej – And why is that?!

Miki – Well, that's because, Impact Analyzer allows you to monitor the overall health of your next-best-action system, and directly see how effective it is. It basically allows you to assess if your AI delivers you lift or not; in other words, it allows you to immediately see how much better off you are, using next-best-action and the AI models. And if you notice some issues in the lift charts, it helps you identify the root cause of them... as it makes clear suggestions where to look for improvements... And much related to this, are the usage of simulation tools like Scenario Planner which allows you to test alternative strategies or alternative configurations and see which one is best for your business. Or Value Finder simulations, which allows you to identify underserved customers, and then suggests actions for improvement – like adjusting engagement policies or creating new actions. But there is really so much more cool stuff I could talk about...

Andrzej – Alright, alright! I can see that. That's great. So, let's summarize all this. To conclude, I will learn what next best action is all about. I will also learn about Next Best Action Designer, Customer Profile Viewer and then about AI driven propensity and action arbitration, correct?

Miki – Yes!

Andrzej – And finally, I will see how Impact Analyzer (which is your favorite feature) and other simulation tools work, to ensure a healthy next-best-action system, right?

Miki – Spot on, absolutely right ... and actually much more! So, if you are as excited as I am about all these product features, go ahead and get your Customer Decision Hub Foundation badge today!

Andrzej – Alright, thank you so much for joining me today, Miki. And to those of you watching, if you want to see more episodes of tech talk, go to the video library on Pega community and once again thank you for joining us today!

Using the exercise system in Pega Academy

Introduction

In Pega Academy, the learning content follows a structured approach that is organized into **Missions**, which are collections of **Modules**, **Topics**, and **Challenges**, culminating in **Mission tests**, and (optionally) a **Mission exercise** directed to a learning goal.

The screenshot displays a vertical list of four learning items in the Pega Academy system, each with a distinct icon and color-coded header. The items are separated by downward-pointing chevrons. 1. **Module**: 'Optimizing your next-best-action strategy' (teal header, target icon). It includes the text 'Learn how to check the health of Pega Customer Decision Hub™ and improve the effectiveness of your next best actions.' and 'Impact Analyzer, Scenario...'. 2. **Challenge**: 'Analyzing the impact of applying business levers' (orange header, hand icon). It includes the text 'U+ Bank is cross-selling on the web by presenting various credit cards to its customers. Last year the business decided to boost the Credit Cards...'. 3. **Challenge**: 'Analyzing the impact of applying engagement policies' (orange header, hand icon). It includes the text 'U+ Bank is currently cross-selling on the web by presenting various credit cards to its customers. The business wants to present more personalized...'. 4. **Mission Test**: 'Pega Customer Decision Hub Foundation' (purple header, pyramid icon). It includes the text 'Before you begin:' followed by two bullet points: 'The mission test measures your competency and skill.' and 'Successful completion of the mission test is required to receive the mission...'. Each item also shows its revision status ('Current revision: Published (03/19/2024)') and duration ('3 Topics | 30 mins' for the module, '2 Tasks | 20 mins' for the challenges, and '7 Questions | 10 mins | Passing Score: 80%' for the mission test).

Type	Title	Description	Revision	Duration
MODULE	Optimizing your next-best-action strategy	Learn how to check the health of Pega Customer Decision Hub™ and improve the effectiveness of your next best actions. Impact Analyzer, Scenario...	Current revision: Published (03/19/2024)	3 Topics 30 mins
CHALLENGE	Analyzing the impact of applying business levers	U+ Bank is cross-selling on the web by presenting various credit cards to its customers. Last year the business decided to boost the Credit Cards...	Current revision: Published (03/19/2024)	2 Tasks 20 mins
CHALLENGE	Analyzing the impact of applying engagement policies	U+ Bank is currently cross-selling on the web by presenting various credit cards to its customers. The business wants to present more personalized...	Current revision: Published (03/19/2024)	2 Tasks 20 mins
MISSION TEST	Pega Customer Decision Hub Foundation	Before you begin: - The mission test measures your competency and skill. - Successful completion of the mission test is required to receive the mission...	Current revision: Published (03/19/2024)	7 Questions 10 mins Passing Score: 80%

Missions are designed to provide the knowledge and skills necessary to close a capability gap, or to prepare learners for a certification exam.

MISSION

Pega Customer Decision Hub Foundation

Current revision: Published (03/19/2024)
Master Record ID: MIS19016-8-EN

4 Modules | 4 Challenges | 25% Complete | 2 hrs 30 mins Remaining | Pega Customer Decision Hub 24.1 | Follow

Visible to: Pega

Beginner | Pega Customer Decision Hub 24.1 | Decision Management | Next Best Action | English

Learn about the business problems Pega Customer Decision Hub™ can solve and discover how Pega's omni-channel artificial intelligence (AI) delivers the right action during every customer interaction. Reduce design time while achieving your business goals by automatically creating strategies that adhere to best practices. Learn how to use Next-Best-Action Designer to deliver the Next-Best-Action — a decisioning approach that makes customer interactions more relevant for the customer and more valuable to the business. Discover how to optimize your Next-Best-Action strategy by using Impact Analyzer, Scenario Planner and Value Finder.

- Explore the CDH role based learning paths [here](#) ?
- Access the offline mission content [here](#) ?
- To receive updates to this mission [follow us](#) X

Modules consist of a cluster of topics that are aligned with learning objectives, while topics, nested within modules, provide detailed, focused information that typically addresses specific purposes.

MODULE

One-to-one customer engagement

Current revision: Published (03/19/2024)
Master Record ID: MOD20306-5-EN

4 Topics | Completed: February 27, 2024 | Pega Customer Decision Hub 24.1

Visible to: Pega

Beginner | Pega Customer Decision Hub 24.1 | English

Familiarize yourself with the one-to-one customer engagement paradigm. Learn about the business problems Pega Customer Decision Hub™ can solve and discover how Pega's omni-channel AI delivers the right action during every customer interaction.

To receive updates to this module [follow us](#) X

After completing this module, you should be able to:

- Explain the basics of the Next-Best-Action approach.
- Describe the purpose of Next-Best-Action Designer and its user interface.

Available in the following mission:

[Pega Customer Decision Hub Foundation v8](#)

Topics		
Next-Best-Action paradigm	Current revision: Published (10/13/2022)	5 mins
One-to-one Customer Engagement paradigm	Current revision: Published (12/13/2022)	10 mins
Pega Customer Decision Hub overview	Current revision: Published (03/19/2024)	5 mins
CDH Assistant overview	Current revision: Published (03/19/2024)	5 mins
Module Quiz		5 mins

Challenges serve as exercises in which learners apply technical concepts learned from modules within a cloud-based Pega Infinity environment.

Exploring cross-sell on the web

- Scenario
- Challenge Walkthrough
- Detailed Tasks
 1. Verify offers on the U+ website.
 2. Observe the profile of customer Troy
 3. Review the Next-Best-Action Designer configurations

Current revision: Published (03/19/2024)
Master Record ID: CH20321-8-EN

Exploring cross-sell on the web

3 Tasks | 20 mins | Pega Customer Decision Hub 24.1

Visible to: Pega

Beginner | Pega Customer Decision Hub 24.1 | English

Scenario

U+ Bank recently completed a project where customers who log in to their account page see credit card offers. After login to the U+ Bank website, customers see the offers that they qualify for based on the engagement policies defined by the business.

The business team has classified the engagement policies into three groups:

- Eligibility rules, which are the "hard" rules representing what is even possible to offer.
- Applicability rules, which represent business practices that limit what to offer based on a customer's current situation but are not as "hard" as Eligibility.
- Suitability rules, which are rules that are the least "hard" but represent what the business should and should not do ethically and empathetically.

Some of the criteria apply to the entire credit card group, and some apply to specific actions. The following table contains the list of the detailed requirements to implement:

Action	Type	Condition: Customer...
All credit cards	Eligibility	is at least 18 years old or older
All credit cards	Applicability	does not have a credit card
Standard & Rewards	Eligibility	has been a customer for a maximum of 90 days
Rewards Plus & Premier Rewards	Suitability	Is not financially vulnerable

Each challenge includes an exercise system, which is a hands-on learning environment in which students practice and implement their knowledge. The environment enables users to interact with an example Pega application, complete exercises, and gain practical experience. The exercise system is pre-configured with specific scenarios and tasks that align with the learning objectives of the mission. You access the exercise system through your Pega Academy account and follow the instructions provided in the course materials to complete the challenges.

Access the exercise system from within each challenge by clicking **Initialize Pega instance for this challenge**.

You must initiate your own Pega instance to complete this Challenge.

Initialization may take up to 5 minutes so please be patient.

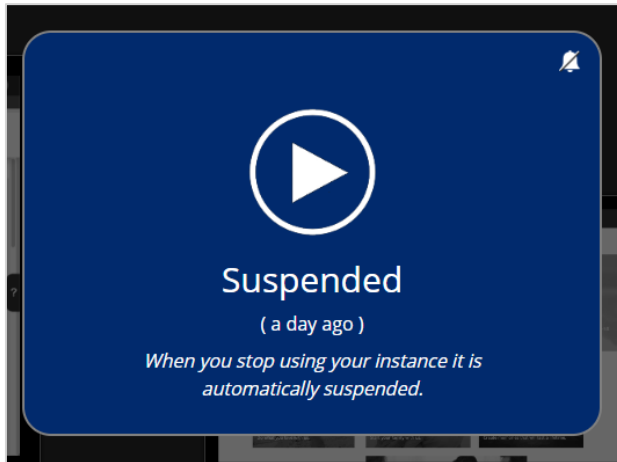
[Initialize Pega instance for this Challenge](#)

NOTE: Always use the button(s) above for this Challenge. Directly bookmarking a Pega instance may launch the wrong environment.

For help managing your Pega instance, see our [FAQs](#)

The system is user-specific, and results are not visible to other students. Upon initial access, the goal is to complete the challenge as soon as possible. If you stop using the system, it

will automatically suspend for a few hours. During this time, you can refresh the system and keep working on the challenge.



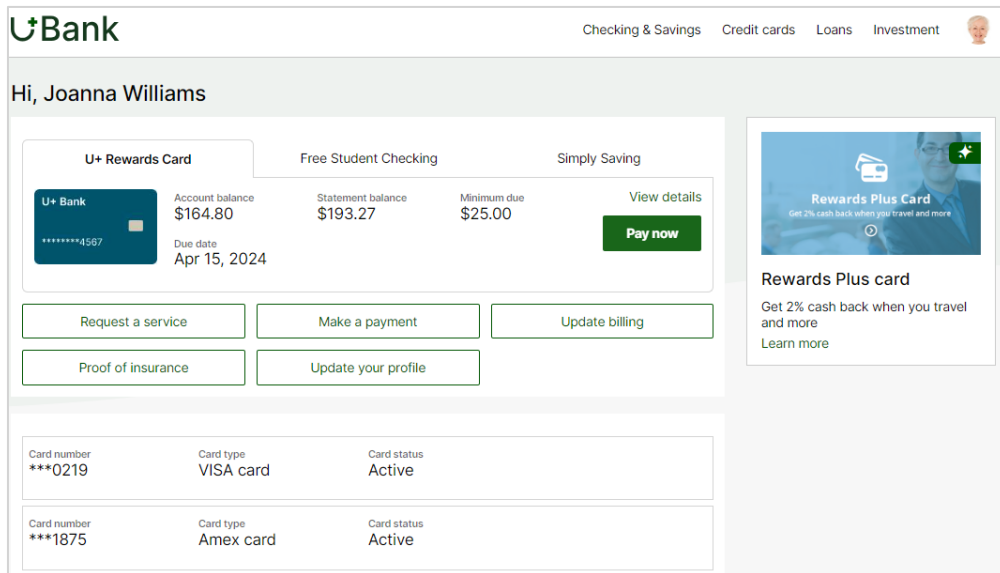
However, after those few hours, the system is terminated. After termination, you can provision a fresh instance and start the challenge from the beginning.

When you access the exercise system, you can launch Pega Infinity™ from its landing page, to access the Customer Decision Hub portal.

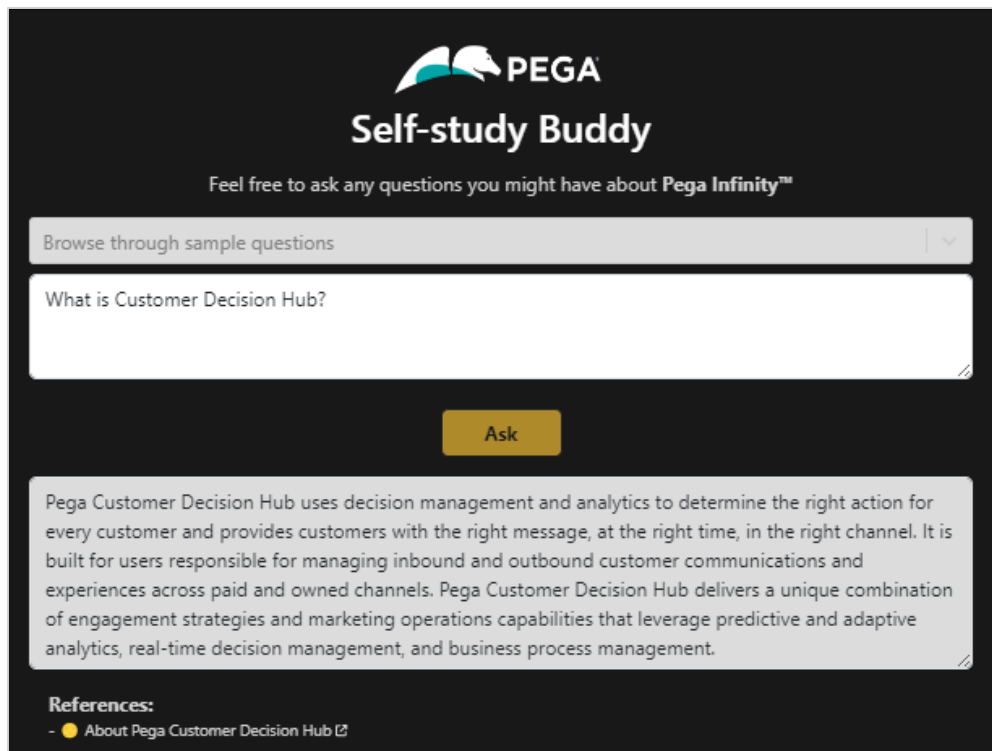
Additionally, in the upper-left corner of the exercise system landing page, you can find the Application Switcher pane.

You use this pane to switch between various applications. Some of these applications are:

- U+ Bank website, which is a sample application using Customer Decision Hub, where users can log in and see personalized offers.

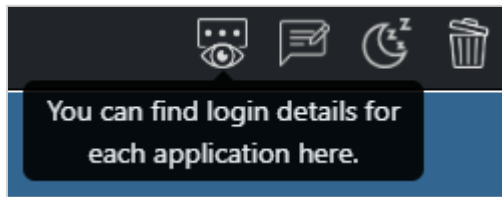


- Web Email, which provides access to the customer's email inbox for checking incoming messages.
- Self-Study Buddy, an intelligent assistant specifically designed to assist Pega students in answering technical questions about Pegasystems' Pega Infinity software suite.



- PG Admin, which provides an interface to help users manage and work with their databases, run queries, and organize data. In the right-upper corner of the PG

Admin landing page, you click the **Password** icon to log in to each application.



One-to-one customer engagement

Description

Familiarize yourself with the one-to-one customer engagement paradigm. Learn about the business problems Pega Customer Decision Hub™ can solve and discover how Pega's omni-channel AI delivers the right action during every customer interaction.

Learning objectives

- Explain the basics of the Next-Best-Action approach
- Describe the purpose of Next-Best-Action Designer and its user interface

Next-Best-Action paradigm

Introduction

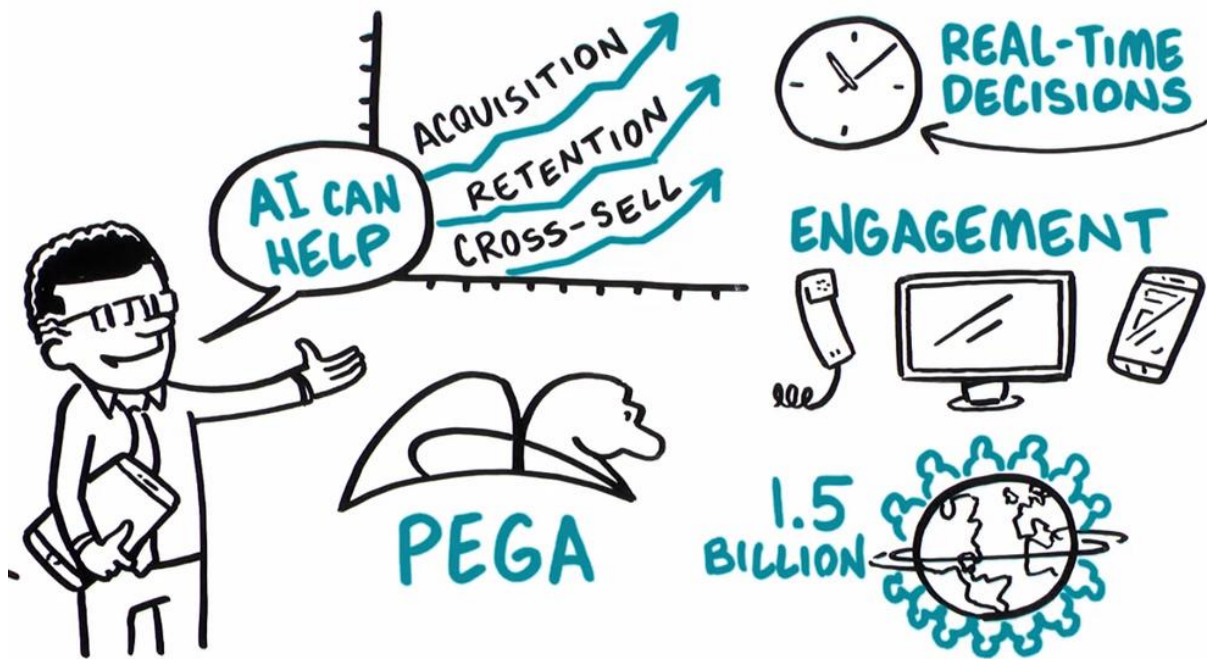
The value of big data and analytics is fully realized when every customer conversation delivers exactly the right message, the right offer, or the right level of service to provide a great experience while maximizing the customer's value to the organization. With Pega Next-Best-Action, business experts develop decision strategies that combine predictive and adaptive analytics with traditional business rules to maximize this value.

Transcript

This is your customer. You want him to buy your products, use your services and have a great experience. And your competitors want the same thing. To compete, you have to take the right action at every customer touch, ensuring that each conversation delivers exactly the right message, offer and level of service. You want to provide a great experience, while maximizing the customer's value to your organization.



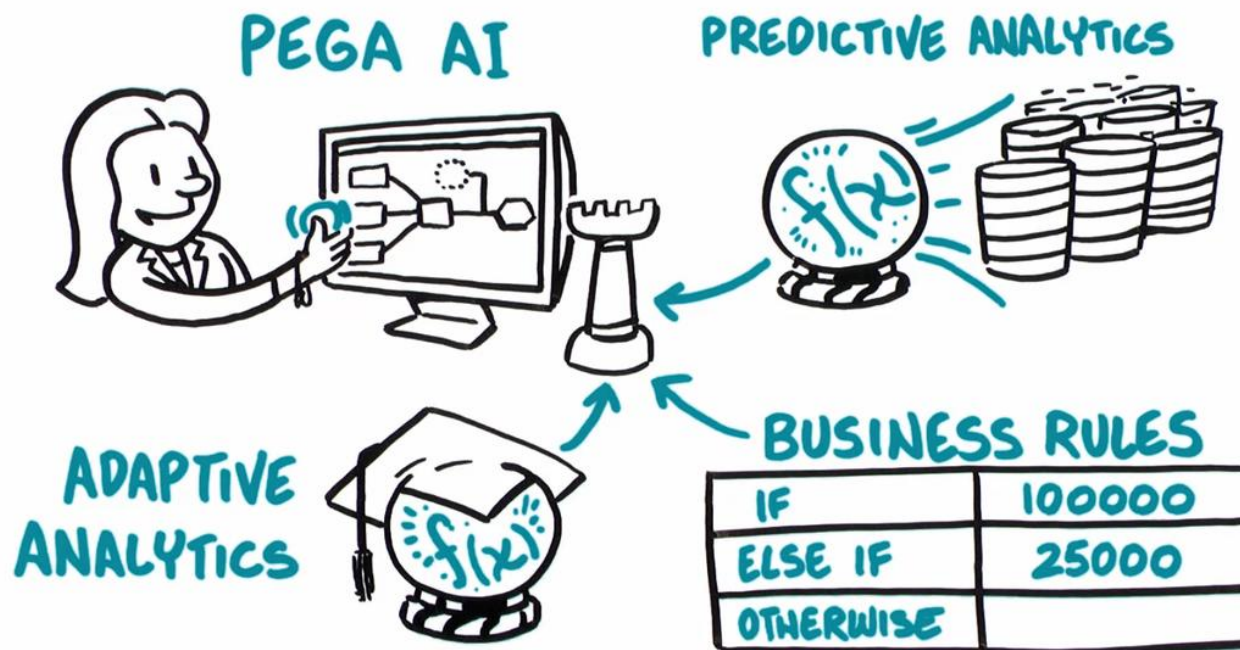
Artificial Intelligence, or AI, can help—if you can get past the hype. Pega has been using AI to create real business value for years, driving real-time decisions that deliver awesome engagement on any channel and improving experiences for over 1.5 billion customers across the globe.



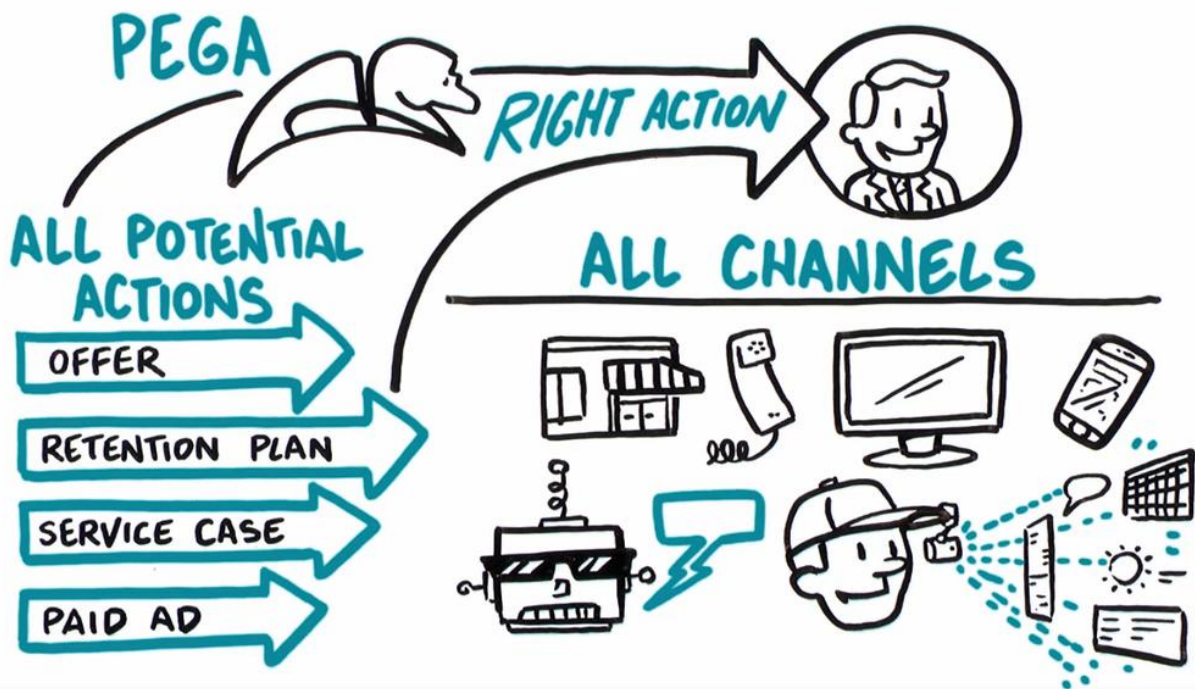
Pega's omni-channel AI delivers the right action at every customer touch by crunching millions of data points in real-time. Make an offer, initiate a retention plan, predict a problem before it happens. Every decision generates the next-best-action for your customer, and your business.



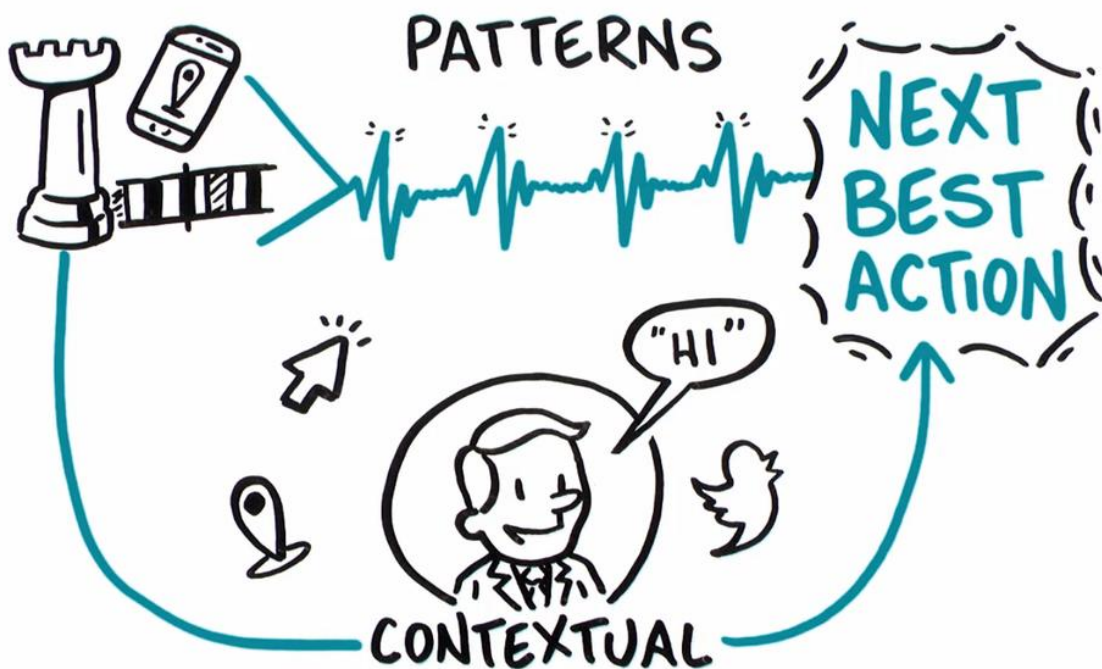
Pega's AI is built for business people, not scientists or developers. They design visual decision strategies that combine predictive analytics, algorithms developed through mining large sets of data, adaptive analytics, machine-learning algorithms that improve with each interaction, and traditional business rules that allow users to prioritize and arbitrate between decisions.



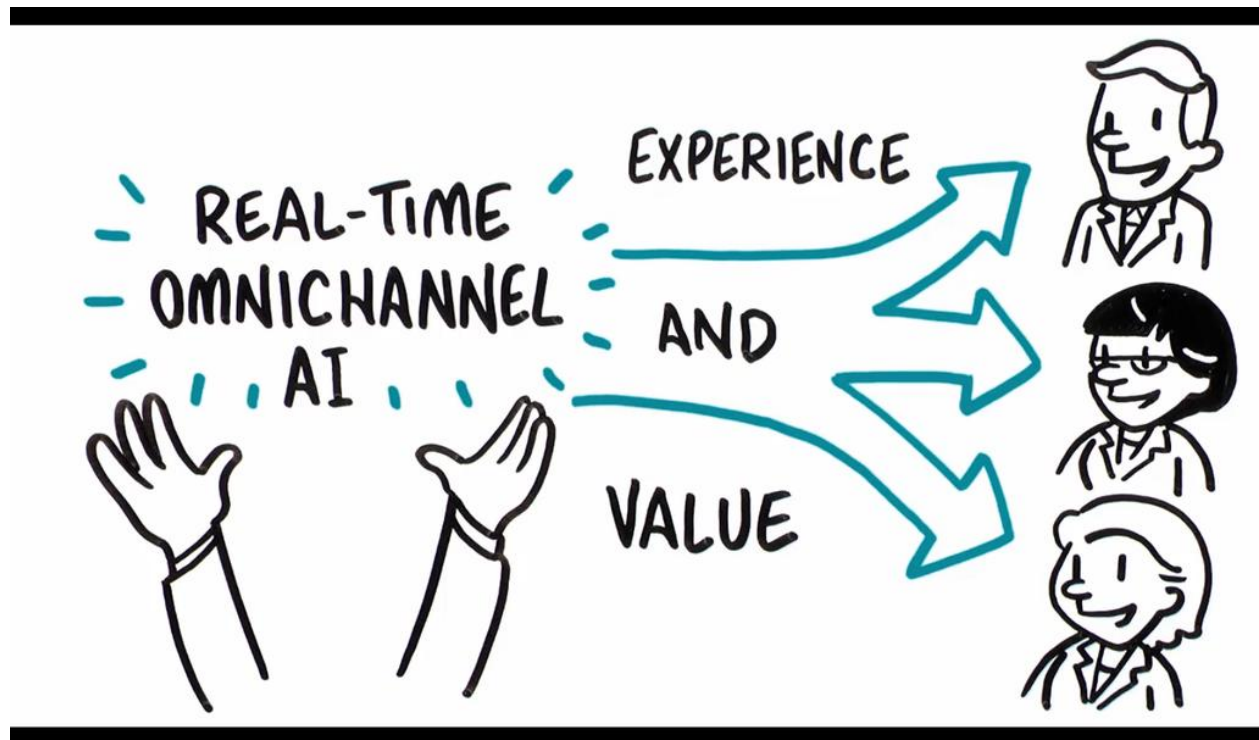
Pega uses the strategy to look across all the potential actions you may take with a customer, make an offer, initiate a retention plan, open a service case, place an ad, and ensure exactly the right action is taken at every interaction and it works across all channels to provide a consistent experience in a store, on the phone, on the web, mobile, with the chat bot, or just some crazy tech that hasn't even been invented yet.



And Pega connects to streams like mobile locations or network events to detect patterns and drive the Next Best Action proactively. And strategies are completely contextual. Any change in the customer's context — a click, a reply, a location change, a Tweet — will trigger the Next Best Action. So, you can really listen to your customers and act accordingly.



Pega's real-time, omni-channel AI puts the power in your hands, so you can optimize every customer interaction for experience, and value.



1:1 Customer Engagement paradigm

The optimal outcome of every customer interaction is to provide a great experience while maximizing the value of the customer to the company. To achieve this outcome, you must perform the right action in the right channel at the right moment for each customer. In Pega Customer Decision Hub™, this feature is known as One-to-one Customer Engagement.

Transcript

The optimal outcome of every customer interaction is to provide a great experience while maximizing the value of the customer to the company.

In a traditional approach marketers search for potential customers from a database based on target demographics, geographies, or financial means to make a purchase. Then, marketers target this customer segment across all channels, and all these customers receive offers for a specific product.

The problem with this approach is that only a low percentage of customers respond or make a purchase. Marketers might hit their short-term goal, but in the long term, this approach affects the relationship with customers.

As a result, the traditional marketing approach fails because of a lack of relevance, context, timing, and empathy.

Why this fails

Lack of **RELEVANCE**

Lack of **CONTEXT**

Lack of **TIMING**

Lack of **EMPATHY**

Customers are more empowered than ever before. As a result, they have very high expectations for the experiences they receive from their service providers. Their experiences must make sense within the context of their lives and this means they must be meaningful, consistent, and personalized across every channel with which they interact.

In business, the optimal outcome of every customer interaction is to provide a great experience while maximizing the customer's value to the company. To achieve this, you must perform the right action in the right channel at the right moment for each customer.



Traditional mass-marketing techniques that use segments, batches, and campaigns do not move the needle anymore; they are antiquated and unsustainable. The market has recentered around real-time technologies and one-to-one customer interactions.



The Pega approach to these interactions is through One-to-one Customer Engagement.

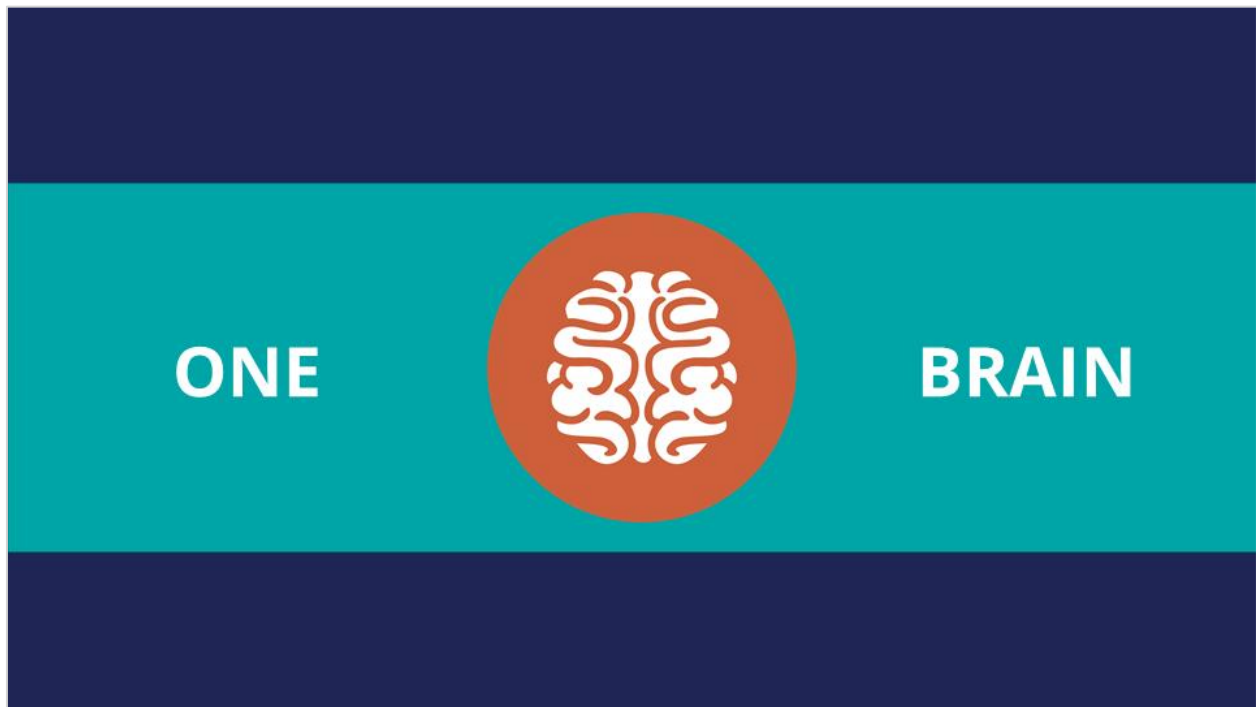
Through One-to-one Customer Engagement, companies can transition their marketing away from a traditional one-to-many campaign-driven approach. A one-to-one approach allows companies to have consistent, contextual, and relevant conversations with individual customers across any channel or touch point.



The key to achieving One-to-one Customer Engagement is one centralized brain.

In other words, one piece of intelligence acts as a single decision authority across your application ecosystem.

Each channel or system profits from this single source of customer intelligence and can use it to gain insights or perform relevant actions.



In Pega Customer Decision Hub, this centralized brain is the core feature that uses AI to enable One-to-one Customer Engagement.

In Pega Infinity, Pega Customer Decision Hub forms the core of the customer engagement platform, which sits at the center of existing systems and channels in an enterprise.

The “brain” collects data from every customer engagement across the enterprise to create predictions and decisions about every interaction in every channel.

Pega Customer Decision Hub can directly integrate with third-party content management platforms such as Adobe Experience Manager and use the content that you develop in these platforms for personalized customer engagement.

Continuous learning and decision-making are the foundation of a One-to-one Customer Engagement solution.

Modern engagement stacks

Fully integrated, powered by real-time decision management



Customer Decision Hub combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that it uses to make intelligent decisions. These decisions are known as the next best actions.

Modern engagement stacks

Fully integrated, powered by real-time decision management



Every next best action weighs customer needs against business needs to optimize decisions based on priorities set by the business manager.

In the milliseconds before interacting with a customer, Customer Decision Hub combines thousands of business rules and predictive and adaptive models that determine customer needs and interests to ensure the next best action is relevant by keeping it personal, timely, contextual, and empathetic.

Customer Decision Hub identifies the best moments to make a sale, provide a service, make a retention offer, inform about an offer, or do nothing at all (for example, if no offer is relevant enough to warrant the customer's attention). The system distributes next-best-action decisions in real time to your channels, such as the web, mobile, and contact center. Pega Customer Decision Hub can also distribute next best actions to real-time paid channels such as Google, YouTube, Facebook, LinkedIn, and Instagram. Pega Customer Decision Hub also integrates with non-real-time outbound channels such as data management platforms (DMPs) and email.

After the system distributes the next best actions and the "brain" receives customer responses, the process begins again. Customer Decision Hub distributes new next best actions in milliseconds. It captures every customer interaction in every channel to ensure consistency and an optimized customer experience across channels.



For example, consider a customer, Miranda. With the centralized brain in place, instead of looking only at sales offers, the system begins with a list of all potential actions, such as service, retention, nurture, or a hardship message, everything that you can do for this customer now.

Although AI drives the next best actions, AI does not run rampant; it experiments on every person with every topic. Customer Decision Hub still allows marketers to maintain control and establish the criteria that AI must meet to consider beginning one of these conversations.

For example, you establish eligibility rules that state the business cannot sell a card to someone under the age of 18.

Then there are applicability rules to define if the action is appropriate at a given time. If Miranda already owns a competing or more valuable product, the business does not offer this product to her even though she is eligible.

Suitability rules determine whether an action is in the best interest of a customer. For example, Miranda might be eligible for a card, and her current card does not offer as high of a cash-back offer. But because Miranda cannot make her monthly payments and might end up in collections, the business does not offer the card to her even though it can.

So, if a customer fails to meet the conditions that you establish for an action, the AI does not consider that action.

Next-Best-Action Decisions



**Should we
arbitrate?**

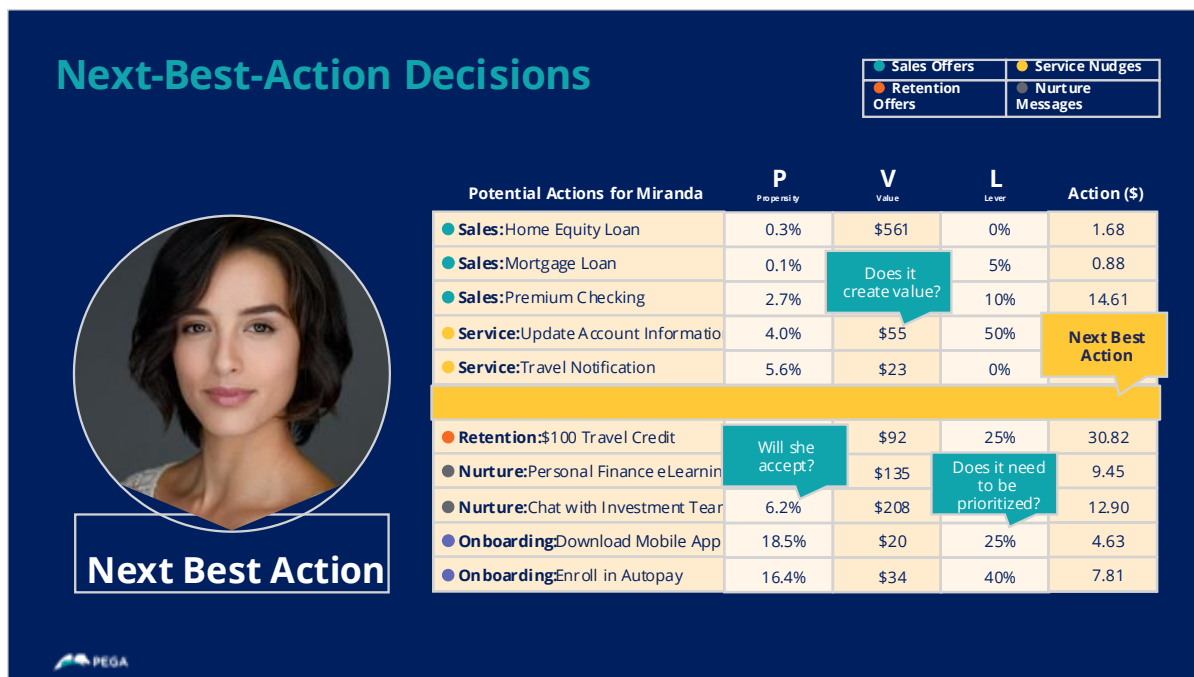
Potential Actions for Miranda	Eligible?	Applicable?	Suitable?	Arbitrate?
● Sales: Rewards Card	✓	✓	✗	No
● Sales: Home Equity Loan	✓	✓	✓	Yes
● Sales: Mortgage Loan	✓	✓	✓	Yes
● Sales: Premium Checking	✓	✓	✓	Yes
● Service: Update Account Information	✓	✓	✓	Yes
● Service: Fraud Alert	✓	✗	—	No
● Service: Travel Notification	✓	✓	✓	Yes
● Retention: Waive Annual Fee	✓	✓	✓	Yes
● Retention: Double Rewards Points	✗	—	—	No
● Retention: \$100 Travel Credit	✓	✓	✓	Yes
● Nurture: Personal Finance eLearning	✓	✓	✓	Yes
● Nurture: Chat with Investment Team	✓	✓	✓	Yes
● Onboarding: Download Mobile App	✓	✓	✓	Yes
● Onboarding: Enroll in Autopay	✓	✓	✓	Yes

● Sales Offers ● Service Nudges
● Retention Offers ● Nurture Messages

Once the system narrows down the list, AI takes over. AI first determines how likely each action is desirable to the customer. Next, it determines the value each option generates for the business. What is the impact if the customer reads the content or accepts an offer? Does it give you more revenue or reduce your costs?

You can add levers to make adjustments based on the current business situation. For example, the business can decide to nudge an offer if it needs to meet its financial goals or ramp down an offer if it runs low on inventory.

For Miranda, the action that the system selects as the next best action is the one with the highest $P*V*L$ value.



In summary, Customer Decision Hub is the always-on brain that acts as a single, centralized decision authority.

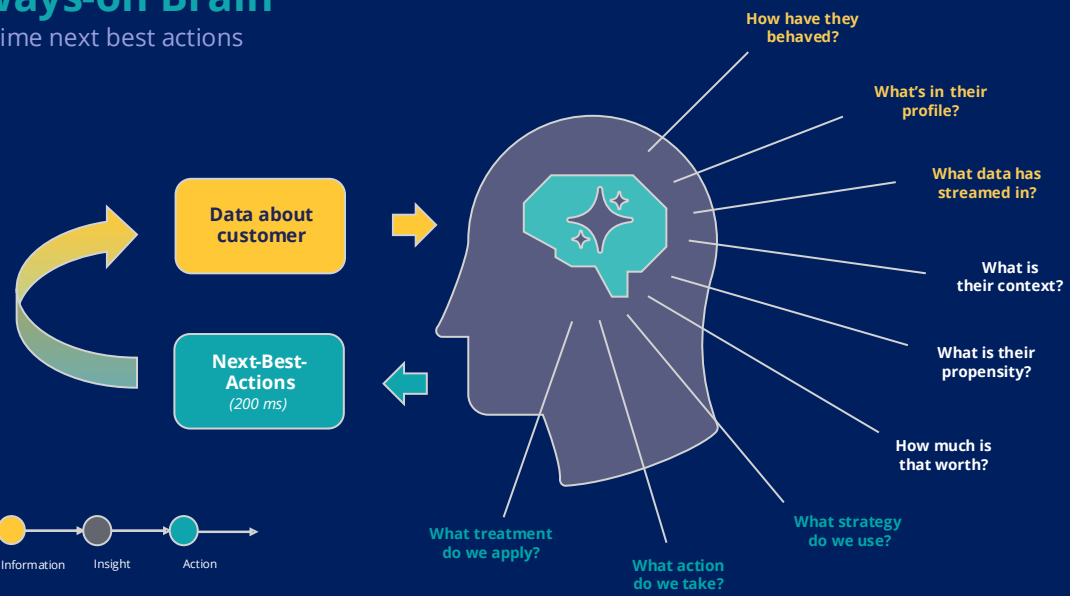
It uses data about the customer, including past interactions, as input.

It uses advanced AI techniques to make predictions.

Decision strategies (which combine traditional business rules with predictive, adaptive, and text analytics) deliver consistent and personalized next best actions across all channels.

Always-on Brain

Real-time next best actions



You have reached the end of this video.

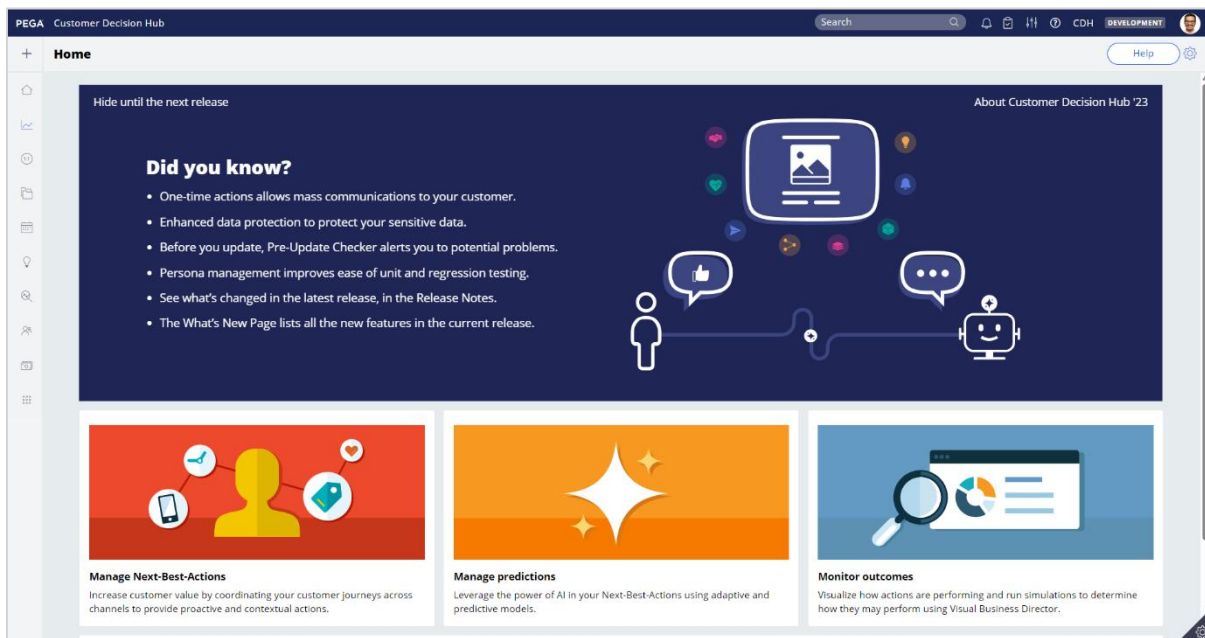
Pega Customer Decision Hub overview

Pega Customer Decision Hub™ optimizes customer lifetime value by providing an "always-on brain" for your business. With Customer Decision Hub, you can unify your data, analytics, and channels into a single, connected experience so that you can predict customer needs in real-time. You then deliver hyper-personalized next best actions that drive long-term loyalty across channels and at scale.

Transcript

Most marketing stacks use a combination of channel-based decisioning solutions, that do not work out-of-the-box together and cannot keep pace with today's customers. The design of these marketing stacks intends to push products rather than solve problems. Building real relationships with today's customers means engaging them one-to-one, anticipating their needs, and delivering relevant experiences across channels.

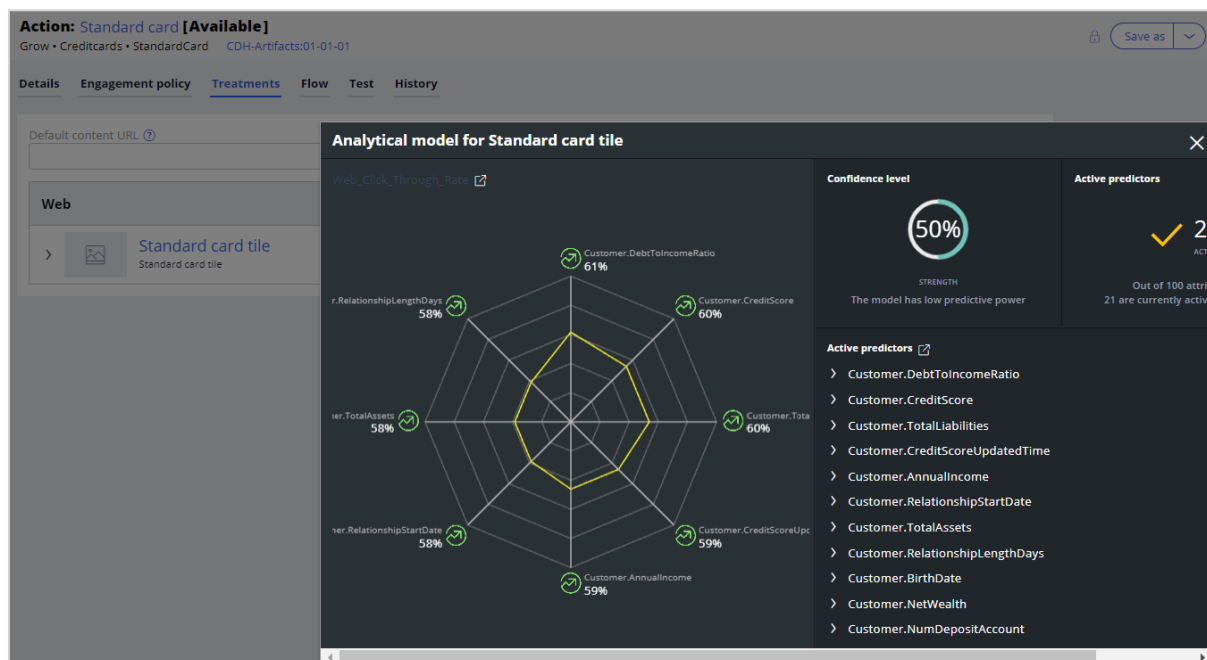
Pega Customer Decision Hub is the central decision engine of your marketing stack, constantly analyzing the context of the customer and recommending the most relevant, next best action to take, all in real time. Here is how it works.



You first identify the outcomes that you want to achieve, such as increasing sales, reducing churn, or preventing service issues. These outcomes are called business issues. A business issue is the purpose behind the actions that you offer to customers. The business issues contain business groups to organize actions into categories.

Business structure		
Issues / Groups	Description	Action naming
Acquire	Drive conversion rate and generate sustainable growth	
☞ Credit cards	Actions to improve customer's card acquisition journey experience	
☞ Auto loans	Actions to improve customer's auto account acquisition journey experience	
☞ Deposit accounts	Actions to improve customer's deposit account acquisition journey experience	
☞ Mortgages	Actions to improve customer's Home loan acquisition journey experience	
Grow	Develop deeper and more profitable relationship with existing clients	
☞ Credit cards	Credit card products for existing customers	
☞ Deposit accounts	Deposit account products for existing customers	
☞ Mortgages	Actions which help to build deeper relationships based on customers need for home loans	
Nurture	Nurture customer relationship to drive more engagement	
☞ Webinars	Includes webinars for developing customer relationships	
☞ Credit cards	Maximize the benefits card customers receive	
☞ Articles	Fuel you content marketing using knowledge articles	
☞ Mobile banking	Highlight the convenience & security of mobile banking	
Retain	Improve customer attrition	

Next, you create actions, such as upsell or cross-sell offers, retention bundles, and nurture messages that Customer Decision Hub uses to engage your customers. You create treatments, variations of these actions, to tailor that engagement to multiple channels. Each action and treatment automatically receive a predictive model, so our AI can determine exactly what each customer needs.



With Customer Decision Hub, the next-best-action customer journey takes a transformational approach by using real-time AI to prioritize across all potential journeys and actions to deliver more relevant customer experiences.

Customer Decision Hub helps marketers leverage thousands of pieces of historical data and identify the actions and journeys that lead to positive engagement. Because Customer Decision Hub takes advantage of real-time machine learning, all the predictions are up to date, which ensures that customers receive personalized offers at each stage.

You define a journey once across all business objectives, channels, and lines of business. Then, you add the different stages and assign the corresponding actions to each one. As customers move through their journeys, the AI learns continuously and automatically to identify which actions work best at each stage and pivots between selling, serving, and retaining in real time as the needs of customers change.

Then, you define specific channel and action limits and limit overexposure to a specific action or group of actions. With outbound and inbound action limits, you restrict the number of actions that the system presents to customers in a given period of time.

Constraints

CDH-Artifacts: 01-01-01
Edited 6 days ago by Decisioning Architect

Edit

Actions

Outbound channel limits

> All outbound

2 limits defined

> Outbound Retail

1 limit defined

> Email

1 limit defined

> Direct Mail

1 limit defined

> SMS

1 limit defined

> Push

1 limit defined

> Outbound Call Center

1 limit defined

Outbound action limits

> All issues / All groups (All categories)

1 limit defined

Inbound action limits

> Call center

1 limit defined

> Retail

1 limit defined

> Web

1 limit defined

Contact policy library

> CP-IMPR-G-7D: Track Impressions for the action over the past 7 days

> CP-ACPT-G-7D: Track Accepts for the action over the past 7 days

Next, you set rules of engagement so that Customer Decision Hub knows what customers are eligible for, when certain actions make sense, and what to prioritize in different situations. Engagement policies are a set of business rules and practices that the organization uses to determine which customers qualify for which next best actions. These

policies allow you to specify the conditions under which an action or group of actions a customer is eligible for.

The screenshot displays the 'Business structure' sidebar on the left, with 'Credit cards' selected under the 'Grow' category. The main panel shows the 'All actions' section for the 'Grow / Credit cards' group. It includes a list of policies: Eligibility (E), Applicability (A), Suitability (S), and Contact policy (C). Below these, there are four actions: Standard card, Rewards card, Rewards Plus card, and Premier Rewards card. Each action is associated with specific policies (E, A, S, C).

Name	Specialized policies
Standard card	E
Rewards card	E
Rewards Plus card	S
Premier Rewards card	S

You balance customer relevance with business priorities by using arbitration. Arbitration is how Customer Decision Hub prioritizes the remaining list of eligible, applicable, and suitable actions from each group. On the **Arbitration** tab of Next-Best-Action Designer, you can define the AI controls that the system uses to rank the next best action for each customer.

The screenshot shows the 'Arbitration' tab in the Customer Decision Hub interface. It features a visual formula for arbitration: Customer relevance (Propensity × Context weighting) × Business priority (Business value × Business levers) = Final priority. Below the formula, there are configuration options for each component: Propensity (0 thresholds defined), Context weighting (10 contexts defined), Business value (0 thresholds defined), Business levers (0 levers defined), and Priority (0 thresholds defined).

Customer relevance

Propensity × Context weighting

Business priority

Business value × Business levers

Final priority

Explore arbitration results

Propensity 0 thresholds defined

Ensure only relevant messages get communicated to customers and determine the source for propensities.

Context weighting 10 contexts defined

Upweight actions based on real-time contextual data passed by channel applications.

Business value 0 thresholds defined

Extend the way business value is calculated through the CalculateBusinessValue extension point.

Business levers 0 levers defined

Upweight actions based on the business structure, and toggle all individual action levers ON/OFF.

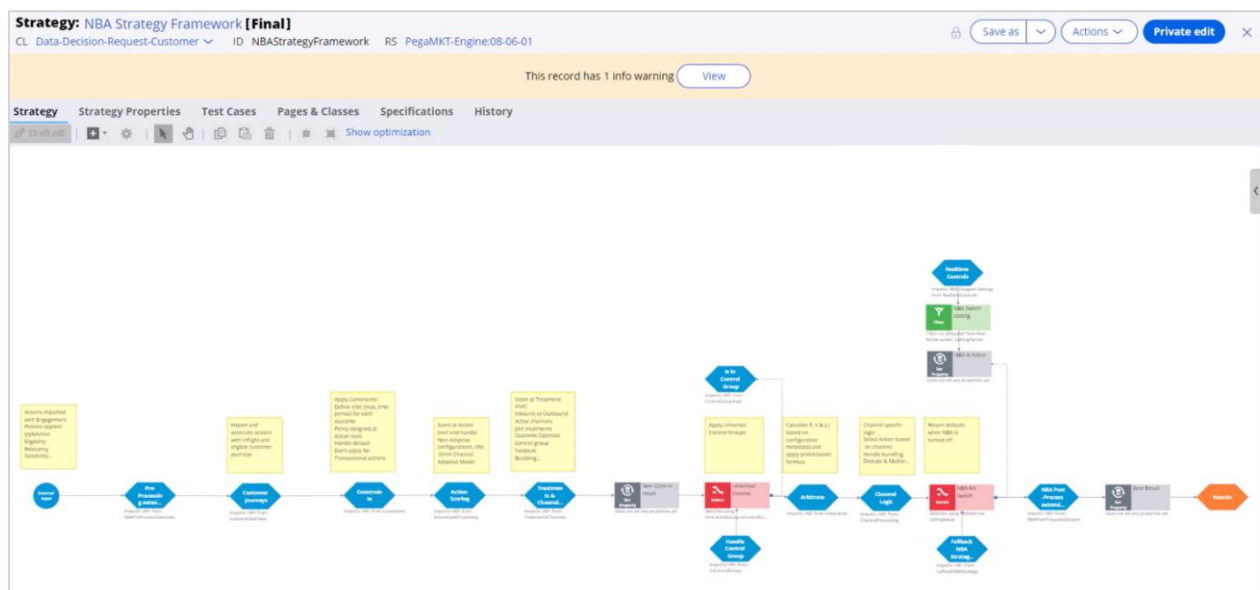
Priority 0 thresholds defined

Ensure that only the most important messages get delivered to customers.

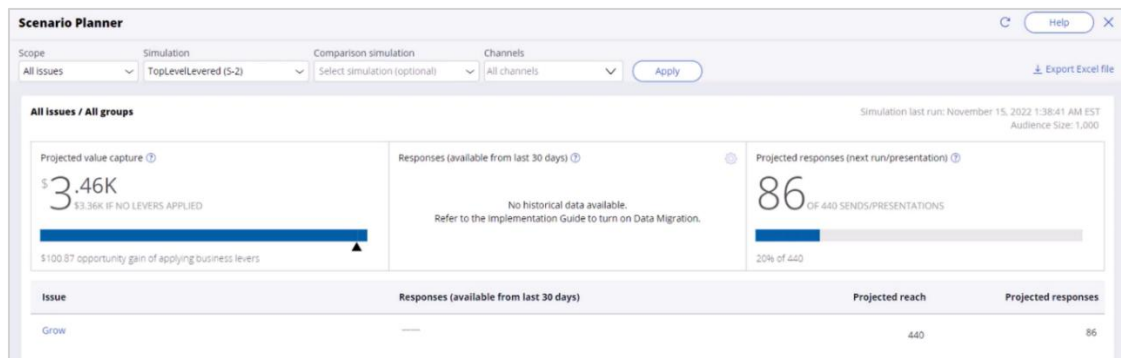
Finally, you activate your next best actions in the intended delivery channels, which creates a "brain" that powers your entire engagement program.

As you use the Next-Best-Action Designer user interface to define strategy criteria, the system uses these criteria to create the next-best-action strategy framework. This framework leverages best practices to generate next-best-action decision strategies at the enterprise level. These decision strategies are a combination of the business rules and AI models that form the core of Customer Decision Hub, which determines the personalized set of next best actions for each customer. There are several extension points in the framework. An extension point is an empty rule or activity that is intended to be overridden to meet the specific needs of the application.

In most cases, you do not need to configure the strategy directly. However, Customer Decision Hub includes extension points if you need to add your own business logic to the framework.



With Customer Decision Hub, you also have all the tools you need to test the AI, simulate different strategies, and find the right mix to optimize performance across your key performance indicators (KPIs). With Scenario Planner, you can compare different configurations, to see which one best impacts your business. With Value Finder, you can also identify underserved customers through simulation tests that allow you to investigate how an introduction of a new engagement policy might affect actions that are offered across a segment of customers.



Customer categories

Analysis of the current customer engagement. Click on a customer category to find out more details.

Category
All

>	329 customers (32.9%) No actions after suitability
>	212 customers (21.2%) Only irrelevant actions after eligibility
>	207 customers (20.7%) No actions after eligibility
>	75 customers (7.5%) No actions after applicability
>	32 customers (3.2%) Only irrelevant actions after suitability
>	3 customers (0.3%) Only irrelevant actions after arbitration

Pega Customer Decision Hub is designed to address the needs of your customers. To fulfill this objective, the application is specifically configured to align with business requirements. You can access a summary of your application's configuration through the **Application Overview**. This landing page provides crucial details about enabled modules, environments, Rulesets, and metrics, and offers insights into the health of your next best action, suggesting areas for further review.

The information from the **Application Overview** helps you understand how the application is currently configured and how it performs against the current configuration. For example, it showcases the number of active issues, groups, and actions within the

system, as well as provides information on treatments and the performance of actions. Additionally, it highlights areas that can benefit from improvement.

Application OverviewData is as of

Application and environments

The application is currently running on **Infinity '24.1** and **Customer Decision Hub 08-24-01** versions on **Non Pega Cloud** infrastructure.

The following modules are enabled: **Next-Best-Action Designer**.

Objectives, Actions, and Journeys

There are **17 active Groups** across **7 Business Issues**. There is an average of **2 Groups per issue**. There is a total of **137 Actions** across all issues and an average of **8 Actions per group**.

The HomeLoans Business Issue is the most prominent, with 24% (33) of all actions, followed by CreditCards with 15% (21), followed by Payoffdebt with 10% (15).

The application is configured with a total of **7 active Journeys** and **0 Inactive Journeys**. **1 Journeys** are related to **Sales / CreditCards** while **1 Journeys** are not related to a specific Business Issue or Group. There is an average of **3 stages per Journey** and **an average of 2 actions** assigned to Journeys.

Channels and Treatments

There is a total of **110 Treatments** configured in the application. An average of **1 Treatments per Action**. The application is active on **5 Channels**. There are **24 Email** treatments, **11 SMS** treatments and **75 Web** treatments.

No real-time data available for the application.

Data

The application has **99K customers** in its Customer Insights Cache. The customer profile has **130 attributes**. The profile is organized into **2 context entities**. Customer with **3 association entities** History, BehavioralData and Get Topics. Account with **0 association entities**.

Performance & Areas for Improvement

The overall health of Next-Best-Action is **Poor**. Of the 4 active (1 inactive) tests being performed, 1 are worthy of further review : **Check "Performance of AI" test and review models in prediction studio**.

There are **5 active** (and **10 inactive**) predictions including **2 custom prediction** and **160 adaptive models** over **3** different channels. The average model performance is **51.864** on a scale of 50-100.

There is a total of **0 predictors** driving the models, with an average of **0 active**.

Each time a customer engages with an offer, the channel calls Customer Decision Hub for a new next best action. Because Customer Decision Hub updates itself every time you receive a new piece of data, you constantly trigger new offers and messages as you learn more about each customer.

So, whether customers browse the web, read an email or mobile message, talk with a CSR, or see a digital ad, that experience is all about them every time. Pega Customer Decision Hub helps you embrace empathy at scale across your entire enterprise, helps customers get what they need, and helps you generate hundreds of millions in incremental value every year.

Creating a Customer Engagement Blueprint with AI

Description

In this series of topics, you use the Customer Engagement Blueprint™ tool to design a comprehensive engagement strategy aimed at increasing product adoption among existing customers.

Learning Objectives

After completing this module, you should be able to:

- Understand Customer Engagement Blueprint™.
- Define engagement context for a strategy.
- Analyze AI-generated personas.
- Interpret customer segments for personalization.
- Understand how configuration shapes engagement strategy.

Pega Customer Engagement Blueprint

introduction

Introduction

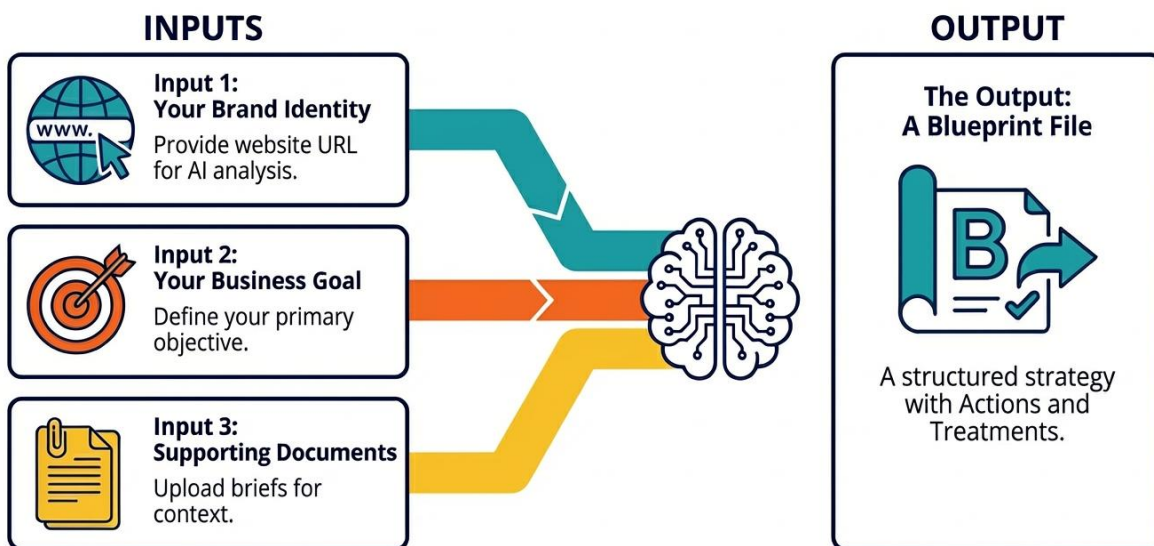
Explore how you can use use Pega Customer Engagement Blueprint™ to create a strategy for U+ Bank to cross-sell credit cards to existing checking account customers. This topic introduces the tool by looking at what goes in and what comes out to get you oriented.

Transcript

Imagine that you are a marketing strategist at U+ Bank. You need to create a complete cross-selling strategy for credit cards, but where do you start?

Traditionally, this process means weeks of research, workshops, and manual configuration. With Customer Engagement Blueprint, you can do all the work in minutes.

See what goes in, and what comes out.



To get started, you provide three things. First, your **website URL**: the AI agents analyze your site to understand your industry, products, services, and visual brand identity.

Second, your **business goal**: you define what you want to achieve, whether that is growing the value of existing customers or acquiring new ones.

And third, any **supporting documents** that you want to share, such as marketing briefs or strategy papers, which give the AI even more context to work with.

From these three inputs, Blueprint AI goes to work. It generates a set of customer experiences tailored to your goal and channels.

What comes out is a **Blueprint file**, a complete, structured engagement strategy. This file contains **Actions**, which represent the specific offers and messages that you want to deliver, and **treatments**, which define exactly how each Action is presented across Channels such as email and web.

When your strategy is ready, you download the Blueprint file and import it directly into **Pega 1:1 Operations Manager**. This import instantly transforms your strategic design into a technical implementation, with actions, treatments, and experiences already configured and ready for testing and deployment.

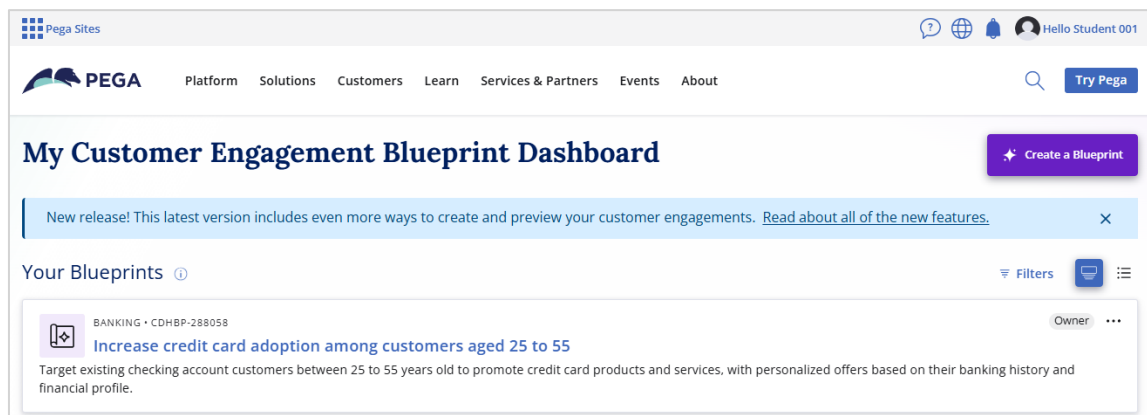
In the following lessons, you define the engagement context for U+ Bank, configure the Blueprint settings, review the AI-generated Personas and brand voice, and then finally simulate the Next-Best-Action process to see exactly how the system selects the right offer for the right customer.

Starting a Customer Engagement Blueprint

Introduction Explore how to use Customer Engagement Blueprint™ to create a strategy for U+ Bank to cross-sell credit cards to existing checking account customers. This topic details the initial step of the six-step process by focusing on defining the engagement context by entering business details and the objective into the system. The tool then analyzes the bank's website to extract relevant business and brand information to support strategy development.

Transcript

Let us get started with The Pega Customer Engagement Blueprint. Here is the use case: U+ Bank wants to cross-sell credit cards to its existing checking account customers. Instead of manually designing the strategy, I'm going to use Pega Customer Engagement Blueprint, which uses AI to accelerate strategy development.



Let me click **Create a Blueprint** on my dashboard to get started.

Alright, I can see this is step 1 of a six-step process: Context, Setup, Personas, Brand, Experiences, and Summary. So, I need to fill in my business details and my objective.

There's also an **Upload supporting content** button. Hmm, I'm curious what that's for. Let me ask Blueprint Agent.

I'll ask: "What is the **Upload supporting content** button for?"

Interesting. The agent explains that the button lets me provide additional documents that the Strategy Agent can analyze, such as marketing briefs or strategy documents. Good to know, though I don't have any documents to upload right now.

AI Assistant



Let's build your Blueprint! Start by telling me what you're working on and I'll fill in the details. You can also make changes manually anytime — whatever works best for you.

If you have strategy docs, creative briefs, or reference materials, upload them and I'll pull from them to fill in the relevant sections.

What is the Upload supporting content button for?"

The "Upload supporting content" button is used to provide additional information, such as documents or other files, that the Strategy Agent can analyze. This helps the agent understand your marketing situation better and create a more accurate and comprehensive customer engagement blueprint. It's particularly useful when you're starting a new blueprint or want to enhance an existing one with new context.

How does the Strategy Agent use this content?

What kind of documents can I upload?

Can I upload a URL instead?

Write your message



Verify AI-generated content for accuracy.

Alright, let me fill in the form. First, I need to change the organization name to *U+ Bank*.

Next, the website URL. This part is important because the AI will analyze this site to understand the business structure.

Now for the Engagement Objective. Let me click the list to see the options. Because I want to cross-sell credit cards, which means growing the value of existing relationships, **Grow customer value** looks right.

The system automatically fills in detailed information about growing customer value through cross-sell and upsell opportunities. But let me make this specific to our credit card objective.

I'll update the objective details to *Cross-selling credit card products to existing checking account customers*.

Let's start your Customer Engagement Blueprint!

What is your business and objective? ⓘ

Organization name *

U+ Bank

Organization website

<https://customerengagementenablement.github.io/U-BankWebsite/>

Engagement Objective *

Grow customer value

Objective details for your messaging *

Cross-selling credit card products to existing checking account customers.

Language *

English

Location

 Upload supporting content

Perfect. I now have everything filled in. I'll click **Next** to start the website analysis.

Excellent! I can see that the agents are analyzing the U+ Bank website to extract the information about the industry, products, services, and visual brand elements that will form the foundation for everything I build next.

Configuring the Customer Engagement Blueprint settings

Introduction

Pega Customer Engagement Blueprint™ analyzed the U+ Bank website to extract relevant business and brand information. In this topic, explore how to configure the outcomes and Channels that we want to use.

Transcript

Earlier, I defined U+ Bank's engagement context by providing its website URL and business objective: cross-selling credit cards to existing checking account customers. The AI agents started analyzing the website. Now let's see what they discovered and configure our Blueprint settings. The analysis is complete and I am now on the Setup page. Let us have a look at what the AI discovered.

1 Context 2 Setup 3 Personas 4 Brand

Let's set the focus

Choose your industry, products, outcomes, and channels. Our AI uses your selections to shape what it generates next.

Industry Banking ✎

Products and Services Credit Cards, Savings, Checking ✎

Blueprint identified the industry as Banking: that is correct. And for Products and Services, it extracted Checking, Savings, and Credit cards. Excellent. The AI analyzed the U+ Bank website and correctly identified the product catalog. In this scenario, Credit Cards come under the Cards category. This information will shape the personas and experiences we generate.

Now I need to configure the Blueprint by selecting outcomes and Channels. I can see several options. The goal is to sell credit cards. Let me ask the Blueprint Agent about this.

Which outcome should I select for cross-selling credit card customers?

Interesting. The agent explains that I could use either **Grow** or **Acquire**. Grow focuses on expanding the customer relationship by offering additional products. **Acquire** focuses on

getting customers to adopt a new product. Because the bank wants to expand existing relationships with checking account customers, **Grow** makes more sense for this use case.

Alright, I'll select **Grow** as the outcome.

Good. Now I see a new section: **What channels will you be communicating on?** I have many options, but for cross-selling credit cards, Email and Web make the most sense. They are digital channels that support personalized, scalable outreach to existing customers. I'll select both, and then click **OK** to confirm my selections.

Great! The Channels are now confirmed as **Email** and **Web**. I can see that there are optional features available, Customer Journeys and Data Model, but I'll proceed to the next step to see what the AI generates based on the configuration.

1 Context 2 Setup 3 Personas 4 Brand 5 Experiences 6 Summary

Let's set the focus

Choose your industry, products, outcomes, and channels. Our AI uses your selections to shape what it generates next.

Industry	Banking
Products and Services	Credit Cards, Savings, Checking
Outcomes	Grow
Channels	Email, Web

What optional features would you like to define?

- ☐ **Customer Journeys**
Organize experiences into Journeys for your customers.
- ☐ **Data Model**
View and manage data powering your customer engagements.

Excellent! Based on the **Grow** outcome and the U+ Bank website analysis, the AI is now generating customer personas that represent different segments of checking account customers who might be interested in credit cards.

Reviewing AI-generated Personas and brand voice

You used the Pega Customer Engagement Blueprint™ tool to create a strategy for U+ Bank to cross-sell credit cards to existing checking account customers. In this topic, you will review the AI-generated Personas and brand voice.

Transcript

So far, the Blueprint contains the U+ Bank's engagement context, and uses "Grow" as the outcome and "Email" and "Web" as channels. The AI Agents began generating customer Personas based on these settings. Now it's time to see what the Agents created.

Review your Customer Personas [+ Add Persona](#)

These personas represent the audiences your business is likely to engage with. Edit, remove, or add personas—then we'll use them to tailor experiences and simulations in later steps.

Bonus-Seeking Ben ...

Bonus-Seeking Ben is a mid-30s Male professional with a stable career, a primary checking account at U+ Bank, and growing financial responsibilities for a young family. He is frustrated by feeling like his everyday spending is not earning enough rewards and is looking for a credit card that turns his regular bills and grocery runs into meaningful cashback or points without adding complex fees. He tends to research on his phone during commutes, compares reward structures on blogs and bank sites, and responds best to straightforward explanations, clear benefit calculators, and transparent terms that show exactly how much extra value he can earn as an existing checking customer.

Security-Minded Susan ...

Security-Minded Susan is a late 40s Female who manages household finances through her U+ Bank checking account while juggling a busy career and teenage kids. She is concerned about fraud, debt, and surprise charges, and is looking for a credit card that offers strong security features, spending controls, and predictable terms so she can separate bills and family spending without losing sleep. She researches carefully via desktop, reads FAQs and security pages, and trusts brands that use reassuring, educational language, highlight fraud protections, and clearly explain how linking the new card to her existing checking account simplifies monitoring and payments.

Perfect! The AI created comprehensive profiles that represent different checking account customer segments who might be interested in credit cards. But should I trust these AI-generated Personas, or do I need traditional market research? Let me ask the Blueprint Agent about this.

I will ask, "Do I need additional marketing research?"

That is an extensive reply! It boils down to the advice that targeted marketing research is needed to further optimize the Customer Engagement Blueprint.

Now let me check the Brand landing page to see what the AI extracted about U+ Bank's brand.

The AI identified brand voice characteristics from the U+ Bank website. For example: Value-Led, Plainspoken, Relationship-Aware and Measured Confidence. You can also configure your visual identity in the blueprint.

The sample email shows how these characteristics are applied. The subject line and the message use a confident and informative tone

U+Bank

Elevate Your Banking Experience



Unlock Your Financial Potential

Hi Tech-Savvy Alex,

At U+ Bank, we understand that your time is valuable. Our checking account offers modern solutions that fit your tech-savvy lifestyle. Enjoy convenient mobile banking and rewards on your daily purchases. Let's grow your financial future together!

Best,
U+ Bank Team

OPEN AN ACCOUNT

With these elements in place, the AI has created a solid foundation: customer personas representing different segments, brand voice characteristics ensuring consistent messaging, and you can configure the visual identity to maintain U+ Bank's look and feel. Based on our input, the agents create a set of customer experiences to support our use case.

In another video, you will see how the Pega Next-Best-Action process uses these Personas and brand characteristics to determine the right offer for each customer through a seven-stage filtering process.

Simulating Next Best Action

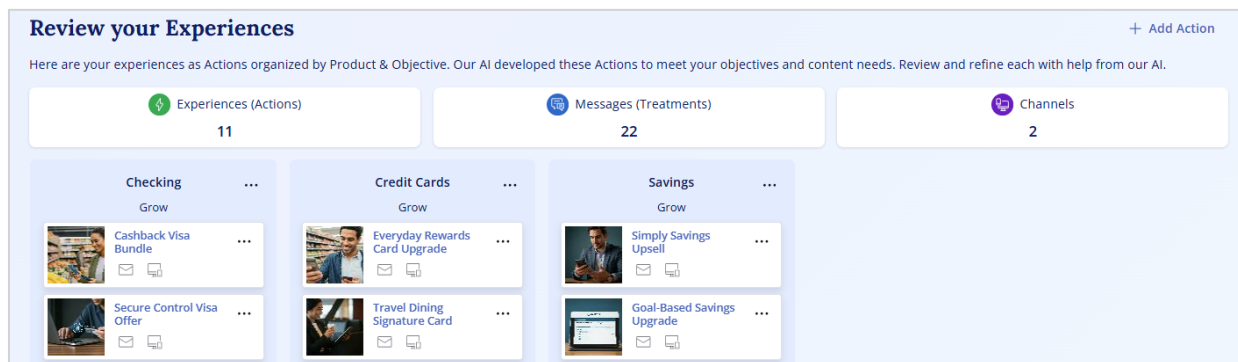
You used the Pega Customer Engagement Blueprint™ tool to create a strategy for U+ Bank to cross-sell credit cards to existing checking account customers. In the topic [Reviewing AI-generated Personas and brand voice](#), the AI created a set of customer experiences. In this topic, you explore the Pega Next-Best-Action process to identify the best offer for a customer.

Transcript

In this demonstration, you will simulate the Pega Next-Best-Action process to identify the best offer for a customer.

So far, U+ Bank's Blueprint has **Grow** as the outcome. The AI-generated Personas and brand characteristics underwent review in the Blueprint, and the AI has created customer experiences.

On the Experiences landing page, I see the actions generated for each product.



Time for a closer look at one of the credit card experiences. I see the treatments, one for web, one for email, that I can edit. I'll change the marketing principle to **consistency** and see what the agents come up with.

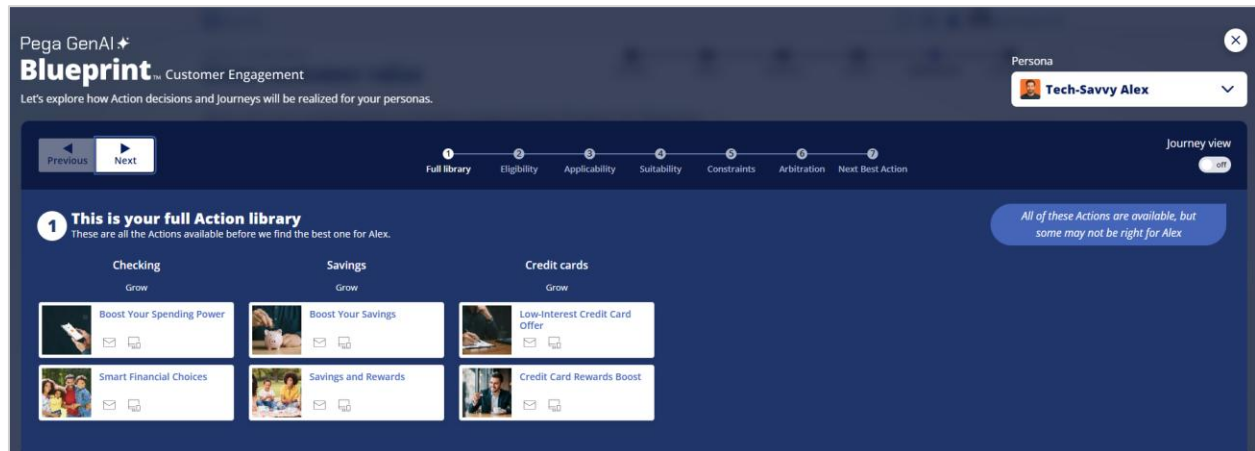
Interesting suggestion! So, the experiences and messages are all fully adjustable to meet all U+ Bank's requirements.

Back on the Experiences landing page, I click **Simulate the Next Best Action** to see how Pega Customer Decision Hub™ determines the best offer for a customer.

The simulation is asking me to select a Persona. I'll select Sarah, who manages her finances carefully.

This is the seven-stage Next-Best-Action process; that is the heart of the Pega decisioning engine. I'll step through each stage to understand how it filters all actions down to one best action.

Stage 1: Full library. All actions are available. This stage shows the complete catalog of offers.



Stage 2: Eligibility. The system checks if Sarah legally qualifies for each offer. Factors like geographic restrictions, age requirements, regulatory compliance. The list is down to five actions now. One was filtered out because they weren't applicable for Sarah's situation.

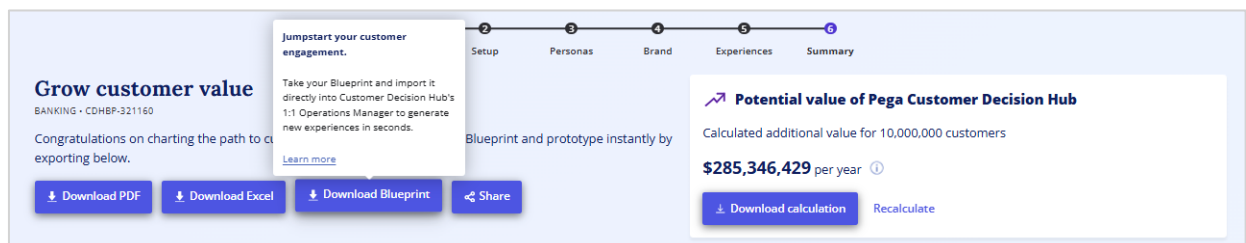
Stage 3: Applicability. This stage checks if it's the right time and context. Does Sarah already have this product? Is the timing appropriate?

Stage 4: Suitability. This stage is about ethics and customer best interest. Does this offer truly align with Sarah's budget?

Stage 5: Constraints. This stage prevents customer overwhelm. Customer Decision Hub enforces channel limits. We don't want to bombard Sarah with too many emails or web banners. All five actions respect our constraints.

Stage 6: Arbitration. This stage is where AI prioritization happens. Each action gets a priority score based on four factors: Propensity (so how likely Sarah is to accept), Context weighting (so what is the relevance right now), Action value, and Business Levers to set strategic priorities.

Stage 7: Next Best Action. The winner! The *Goal Savings Upgrade*, web treatment, is selected as the best offer for Sarah. I can see the web treatment preview with a call-to-action button.



Excellent! I see our complete Blueprint: all the Personas, brand voice, and experiences. There's an ROI calculator here. Time to get an estimate for U+ Bank's checking account customer base.

The personalization, real-time decisioning, and contextual arbitration can generate this additional value by improving conversion rates and customer satisfaction.

I'll download the Blueprint file so I can import it directly into Pega 1:1 Operations Manager to jumpstart implementation later.

Creating a Customer Engagement Blueprint demo is completed; you have learned:

- Define engagement context.
- Configure Blueprint settings.
- Analyze AI-generated personas and brand voice.
- Simulate Next-Best-Action.
- Interpret customer segments for personalization.

Next best action in an omnichannel environment

Description

Pega's omni-channel AI delivers the right action at every customer touch by crunching millions of data points in real-time.

Learn how you can use Next-Best-Action to ensure a customer service representative takes relevant actions at every step during a customer interaction. Learn how easy it is to configure the brain by using the Next-Best-Action Designer to select the right offer for the right customer on a digital channel.

Learning Objectives

- Explain the benefits of Next-Best-Action in a contact-center
- Explain how adaptive models are used to predict customer behavior
- Describe the cross-sell on the web use case
- Explain the purpose of key configurations in the Next-Best-Action Designer

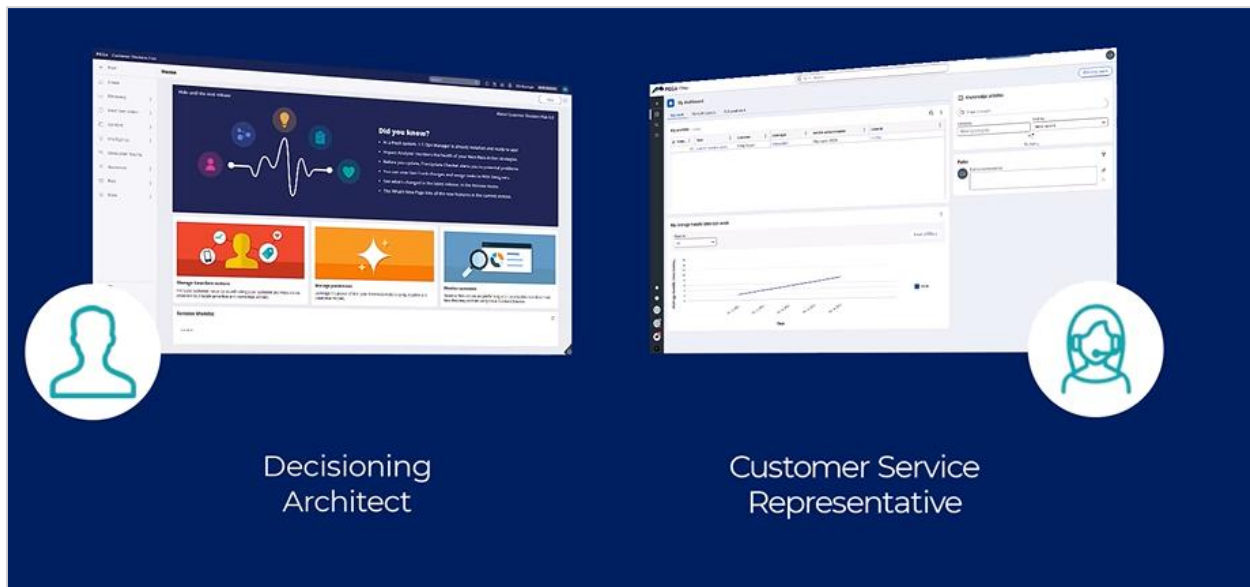
Next best action in a contact center

Pega Customer Decision Hub™ is an "always on" centralized decisioning "brain" that calculates a one-to-one business case for every Next-Best-Action recommendation. To create the business case, Customer Decision Hub combines the customer profile with previous interaction results, the current call context, and business rules, and then applies predictive analytics. Next-best-action recommendations occur across multiple channels, including the contact center.

Transcript

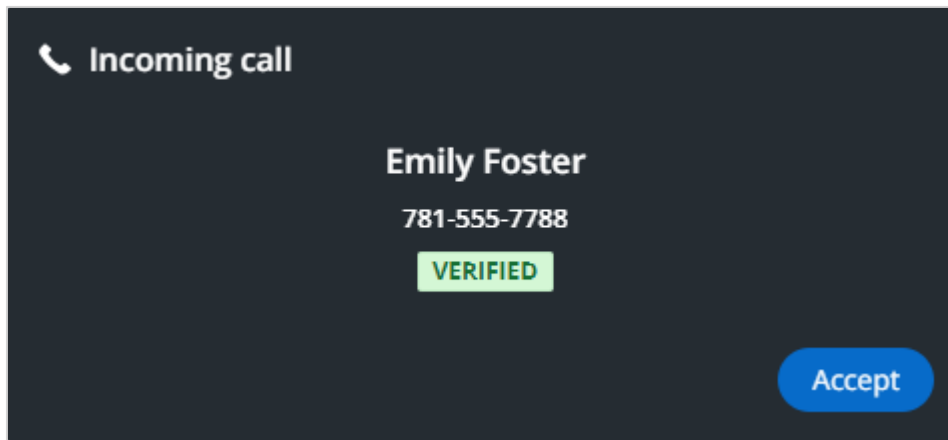
Next-best-action recommendations help to ensure that a Customer Service Representative (CSR) takes relevant actions at every step during a customer interaction.

In this scenario, U+ Bank is a retail bank that uses **Pega Customer Decision Hub** (CDH) and **Pega Customer Service** in its contact center. All the configurations implemented by the decisioning architect in Pega Customer Decision Hub are visible to the CSR in Pega Customer Service, and help them achieve the best results when interacting with customers.



Let's consider an example of a customer interaction:

A call comes into the U+ Bank service center from Emily Foster, a U+ customer. The system immediately routes the call to a CSR.



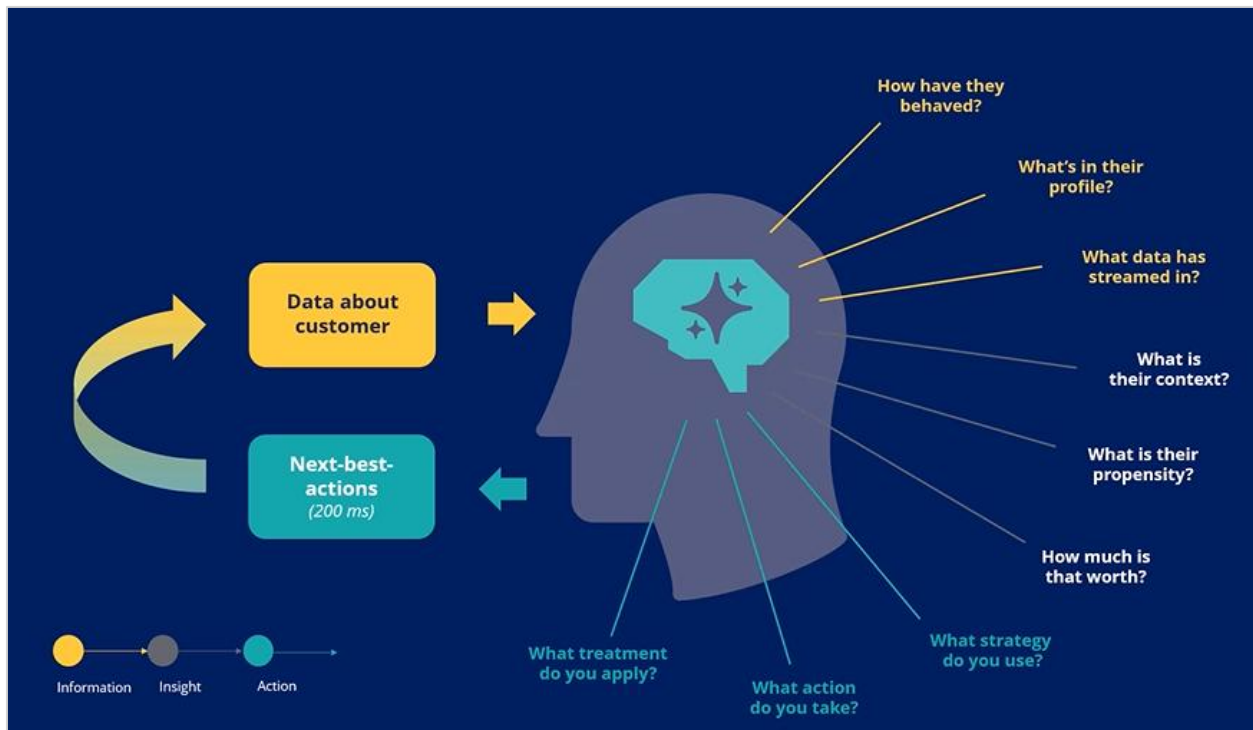
The call details from the interactive voice response (IVR) system indicate that Emily wants to discuss recent credit card transactions.

Once the CSR accepts the call, all relevant details about Emily are displayed on the main application window. The next-best-action recommendations then guide the CSR to take the next step with Emily.

In the lower-left corner of the screen, you can see the next best action that Customer Decision Hub recommends to the CSR.

Customer Decision Hub is an "always on" centralized decision management "brain" that calculates a one-to-one business case for every next-best-action recommendation. Customer Decision Hub combines the customer profile with previous interaction results, the current call context, and business rules to create the business case, and then applies predictive analytics.

Customer Decision Hub reevaluates the next best action and delivers a new recommendation when any new information becomes available. For example, when the customer responds to the recommended action.



In this case, the recommended action is to start a service task to handle Emily's transaction dispute. So, the CSR carries out the task. However, the CSR is always in control and can select other service actions as appropriate during the conversation.

Dispute transactions

Capture dispute details S-2003 PENDING-INTAKE

Card *

*****7340 - Emily Foster (Active)

Dispute reason *

Duplicate charge

Cancel

Once the CSR completes the task, the system refreshes the next best action to show the next recommended action, which is to present a credit card offer.

Customer Decision Hub analyzed Emily's credit score, which indicates that she is a customer with a high credit score.

So, the highest recommendation is for a Standard credit card, a top offer, which is relevant for customers with high credit scores.

The CSR can view more details about the recommended offer to discuss its benefits with Emily further.

Get 1% cash back on every purchase

Why this is relevant

Customer with high credit score

▼ **Benefits**

\$200 cash rewards after you spend \$500 on purchases in the first 3 months from account opening. Earn unlimited 1% cash back on every purchase. No annual fee.

▼ **Pricing**

10% interest for 18 months when you transfer other card balances.

After learning about the benefits of the offer, Emily is not convinced that it is a good offer for her. Therefore, the CSR presents the other available offers recommended by Customer Decision Hub.

The CSR then presents the second top offer that is in the suggestions section. Now, Emily is interested in the offer, and she decides to accept it.

Other suggestions

Rewards card

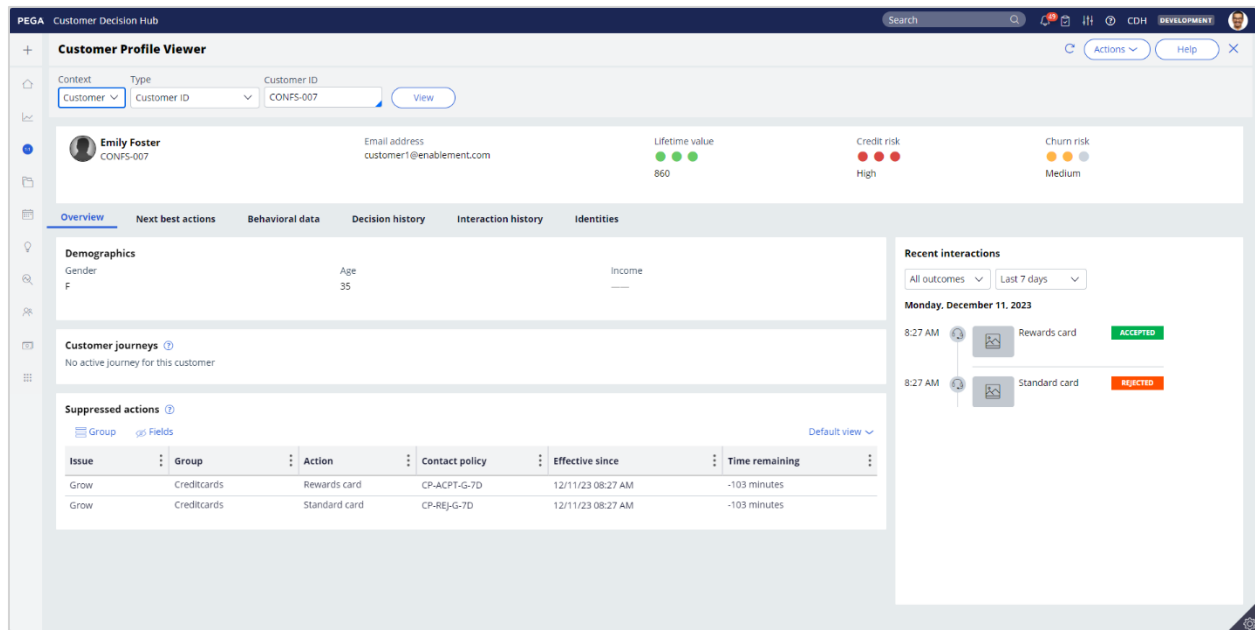
Get 1% cash back on every purchase

[More](#)

When the CSR accepts the offer, the offer fulfillment is complete, and the customer response is recorded in the Interaction History.

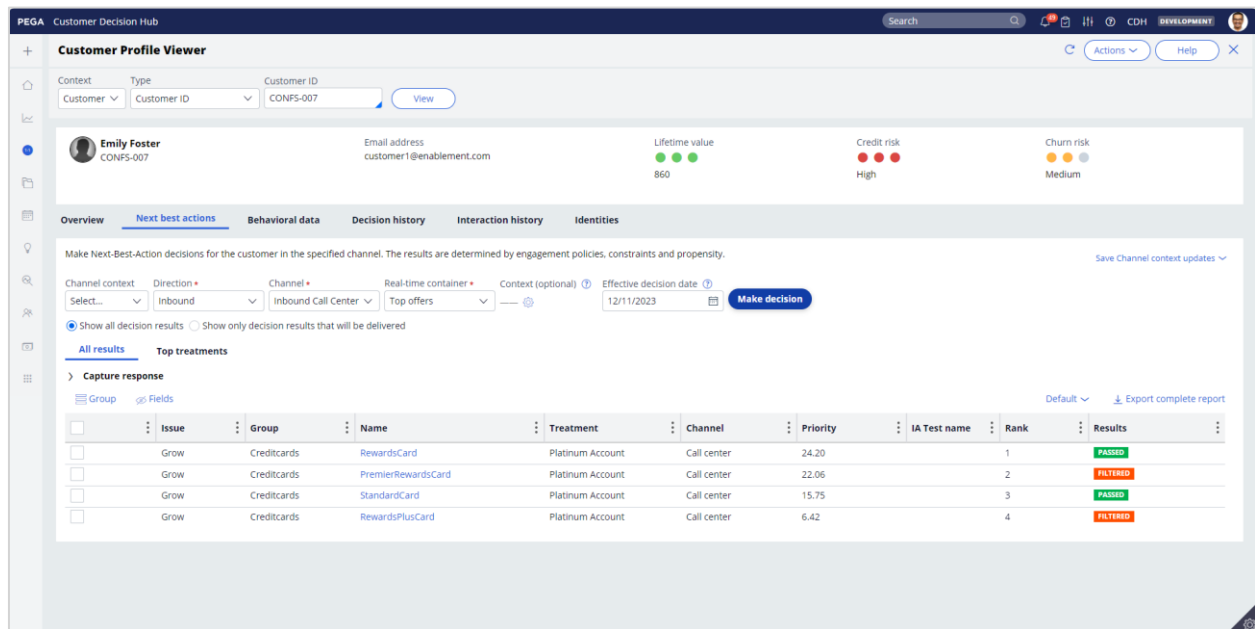
As a decisioning architect, you can use Pega Customer Decision Hub to input or configure data necessary to make the next best recommendations.

The recent interaction between the CSR and the customer, Emily Foster, was captured and is now visible on the overview tab of Customer Profile Viewer.



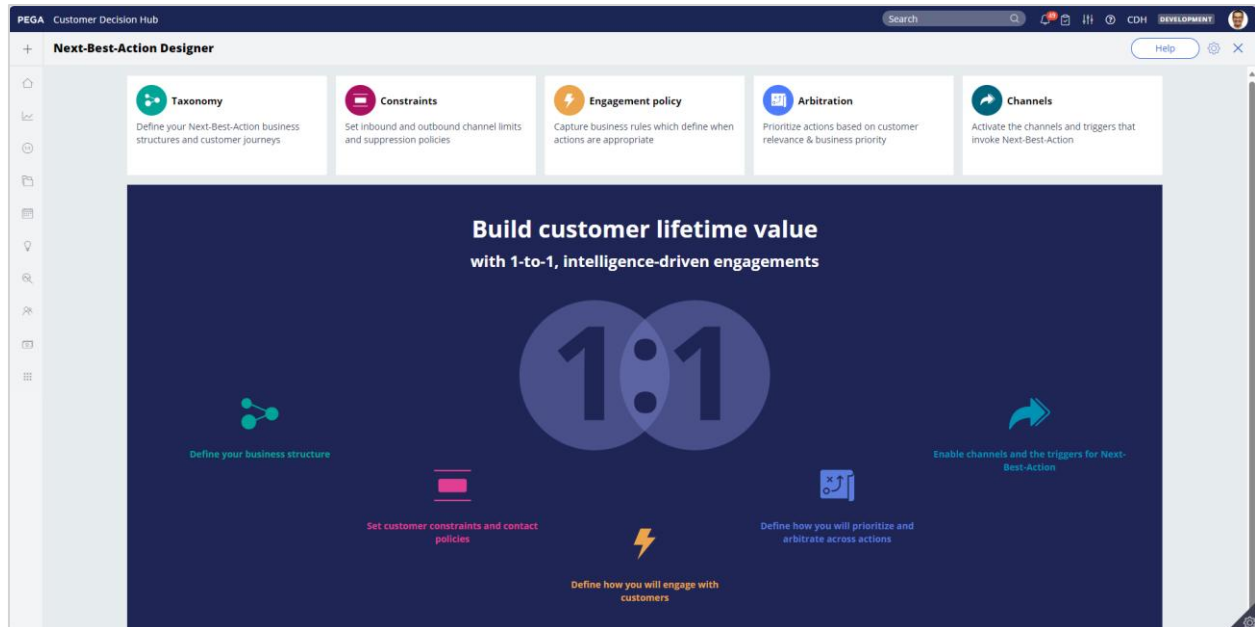
Customer Profile viewer allows you to explore customer profile details such as demographics, active customer journeys, suppressed actions, recent interactions behavioral data, decision history, and interaction history.

The Next best actions tab in Customer Profile Viewer shows what actions can be presented to the customer. You can provide some input parameters like direction, channel type, which real-time container to test, and what the next-best-action results would be.



Apart from the tailored offers, you can also examine the arbitration factors: prioritization, weighing, and propensity for the final result.

Next-Best-Action Designer guides you through the creation of a next-best-action strategy for your business. Using its intuitive interface, proven best practices, and sophisticated underlying decisioning technology, you can automatically deliver personalized customer experiences across inbound, outbound, and paid channels.



On the engagement policy tab of NBA designer, you can observe previously defined sets of actions belonging to specific issues and groups (in this case cross sell, credit cards).

You, as the decisioning architect, can also define group-level engagement policies and action-level engagement policies. All the applied eligibility, applicability, and suitability conditions are visible on the Customer offers tab.

Customer actions

Policies:
E
A
C
Actions: 4

E
Eligibility
?

(Customer: Age is greater than or equal to 18)

A
Applicability
?

(Customer: Count of credit card accounts is equal to 0)

S
Suitability
?

No group criteria defined

C
Contact policy
?

> 7-day group clicks: Track Clicks for all actions in the group over the past 7 days

> 7-day action impressions: Track Impressions for the action over the past 7 days

Actions

4 Actions (4 with specialized policies)

Name	Specialized policies
Standard card	E
Rewards card	E
Rewards Plus card	S
Premier Rewards card	S

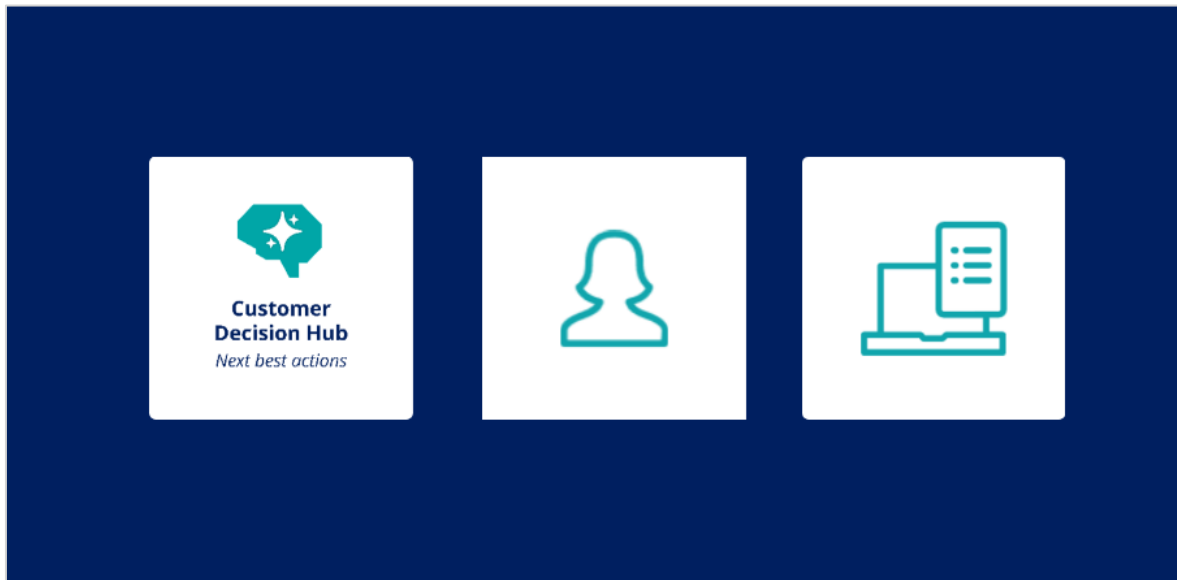
For an action, you can also define channel-specific treatments, which means that the action can be delivered to a customer by using a particular channel. The treatment contains all the data necessary for the CSR to offer the action to a customer.

To summarize, the Customer Sales Representative offered a customer a Next-Best-Action that was selected by the “always on” centralized decision management “brain” from a set of actions defined and configured by the Decisioning Architect.

Next best action on digital

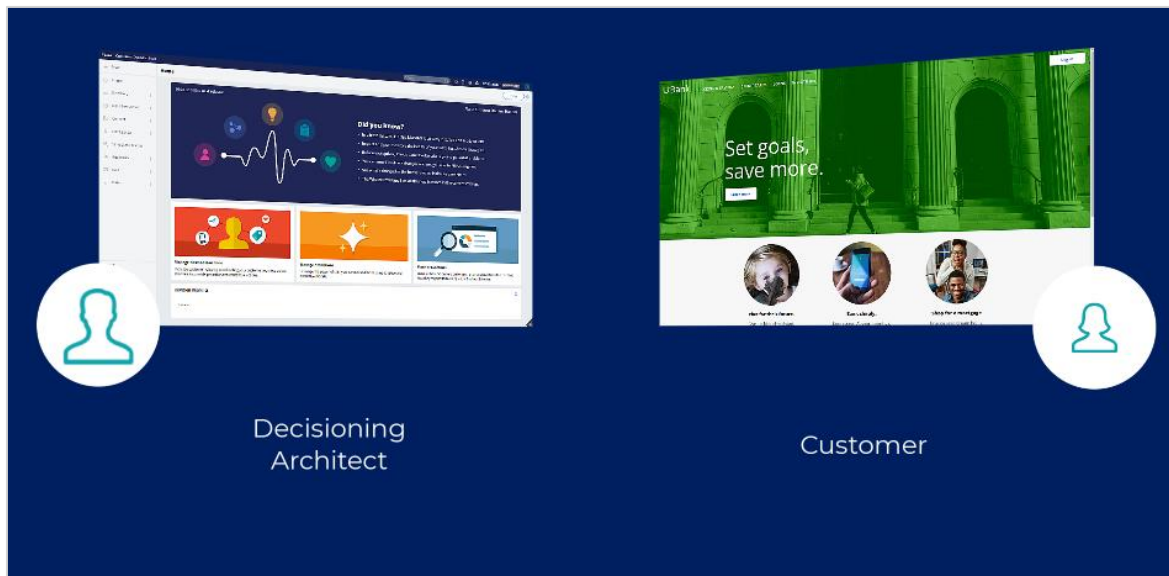
Transcript

Pega Customer Decision Hub can deliver the next-best-action recommendations through various inbound and outbound channels. Outbound messages involve proactively reaching out to customers, while inbound channels demand action from a customer. One such inbound channel is the web. For example, when a customer visits the website, they see the intended offers.



Consider the following web channel scenario, which is a typical cross-selling use case.

The next-best-action recommendations help to ensure that the customers of U+ Bank can see the tailor-made offer when visiting the website of the bank. The centralized decision management "brain" of Customer Decision Hub selects the next best action that is displayed for a customer based on configurations implemented by the Decisioning Architect.



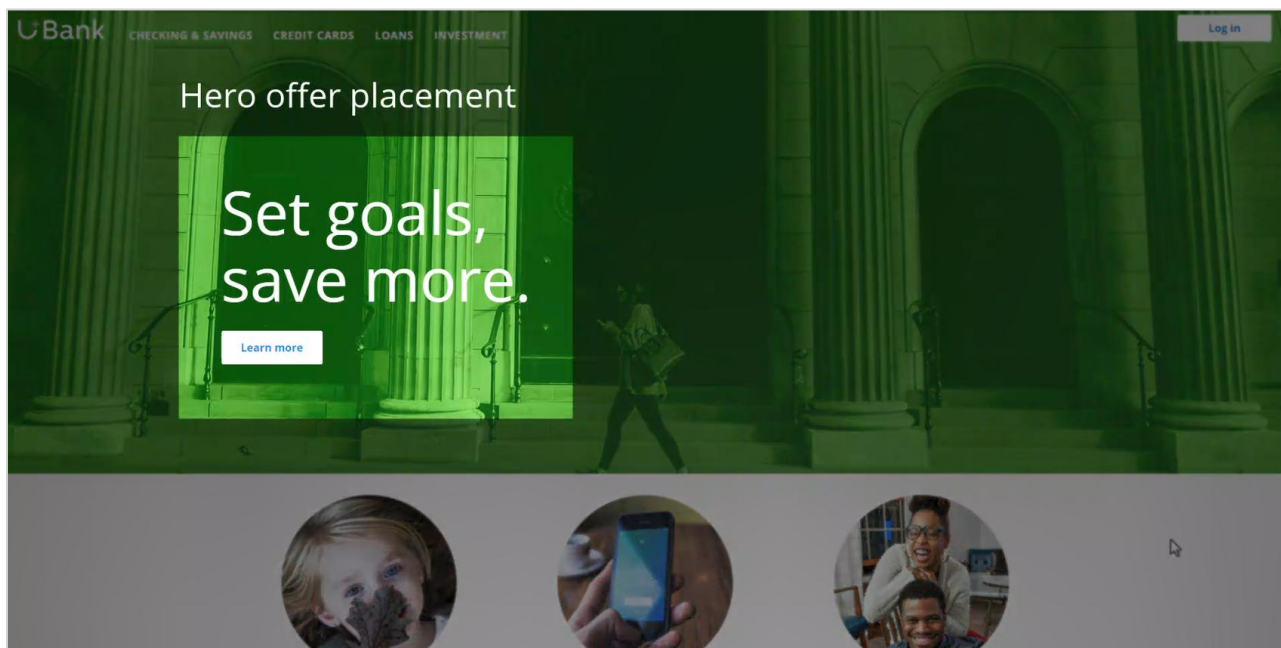
U+ is a retail bank that wants to use its website as a marketing channel to improve One-to-one Customer Engagement, drive sales, and deliver next best actions in real time.

The bank has decided to use Pega Customer Decision Hub™ to recommend more relevant banner ads to its customers when they visit the website.

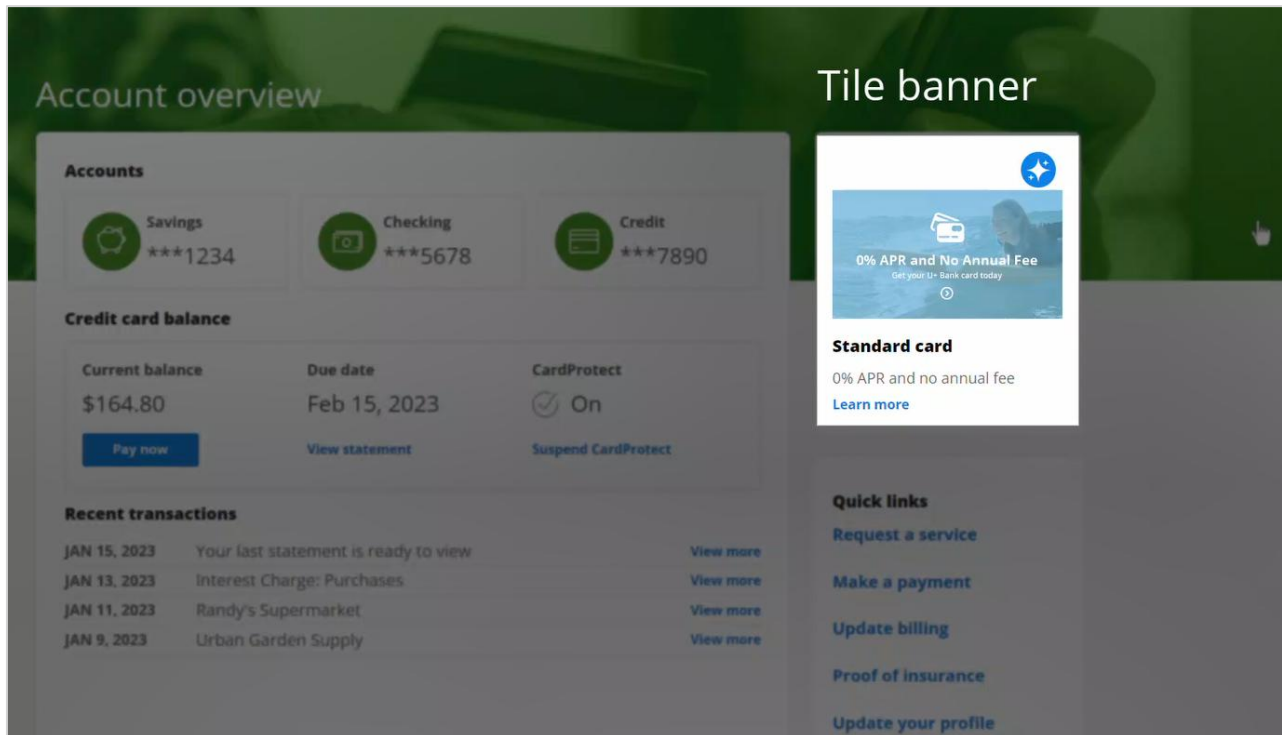
When visiting the U+ Bank website, Troy, a customer, can see banner ads on various pages.

For example, on the home page, U+ displays a hero banner at the top of the page, which is typically a larger image with larger typeface.

Under that banner, there is space to display several tile banners, which are typically smaller.



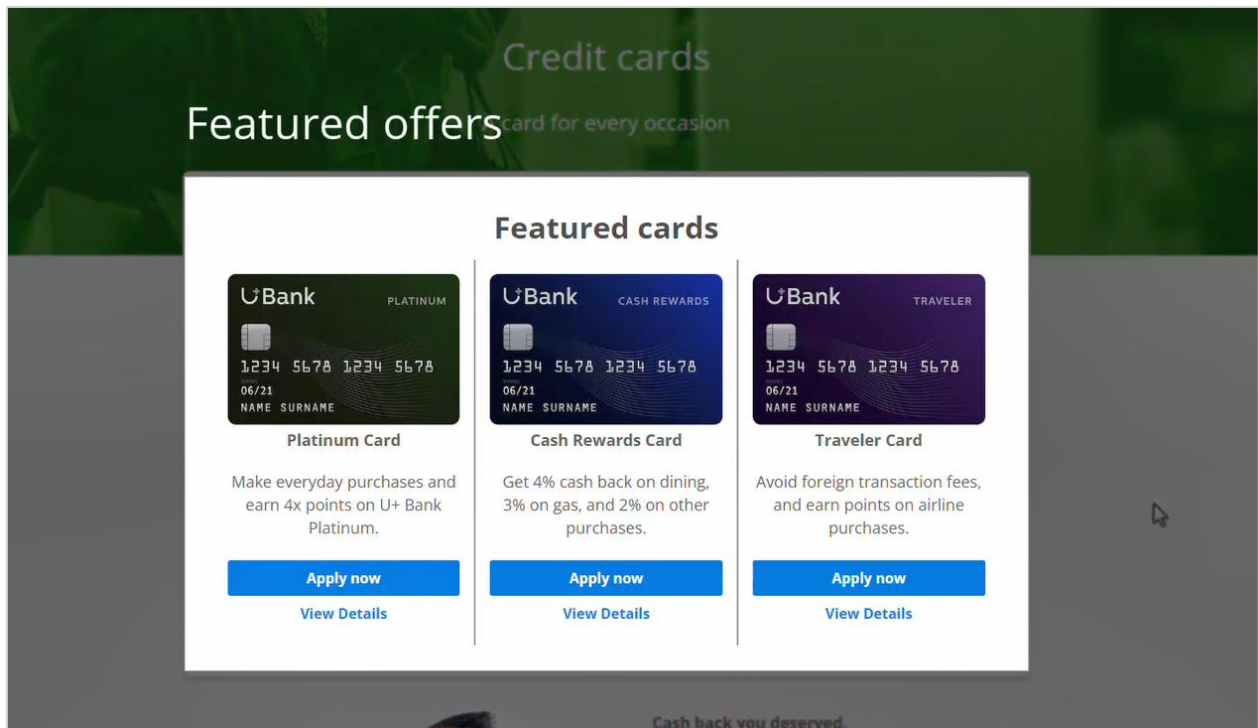
When Troy logs in to his personal portal, he also sees a tile banner on the **Account overview** page.



The main goal of U+ at this stage is to increase customer web engagement. When Troy clicks the **Learn more** link, the action shows his interest.

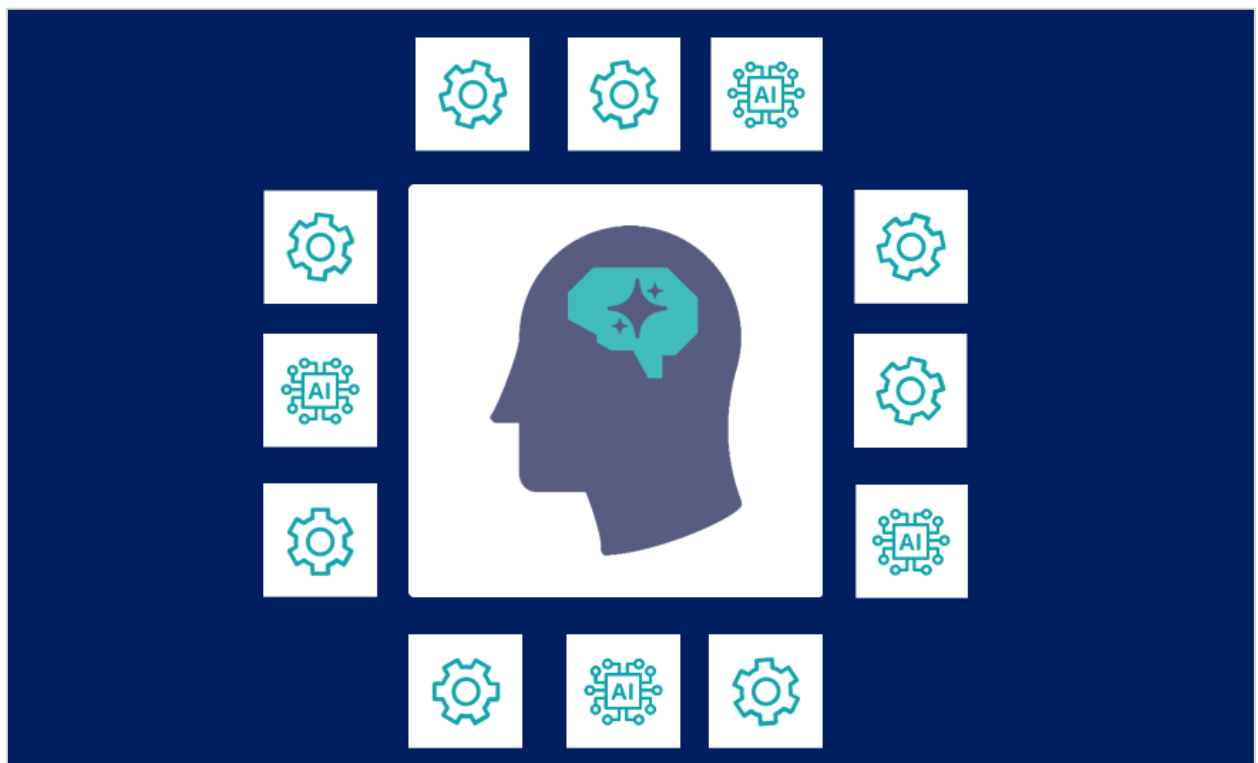
This interaction is recorded as a click-through and helps measure the web engagement of the customer.

After clicking **Learn more**, Troy can see featured credit card offers for which he can apply.

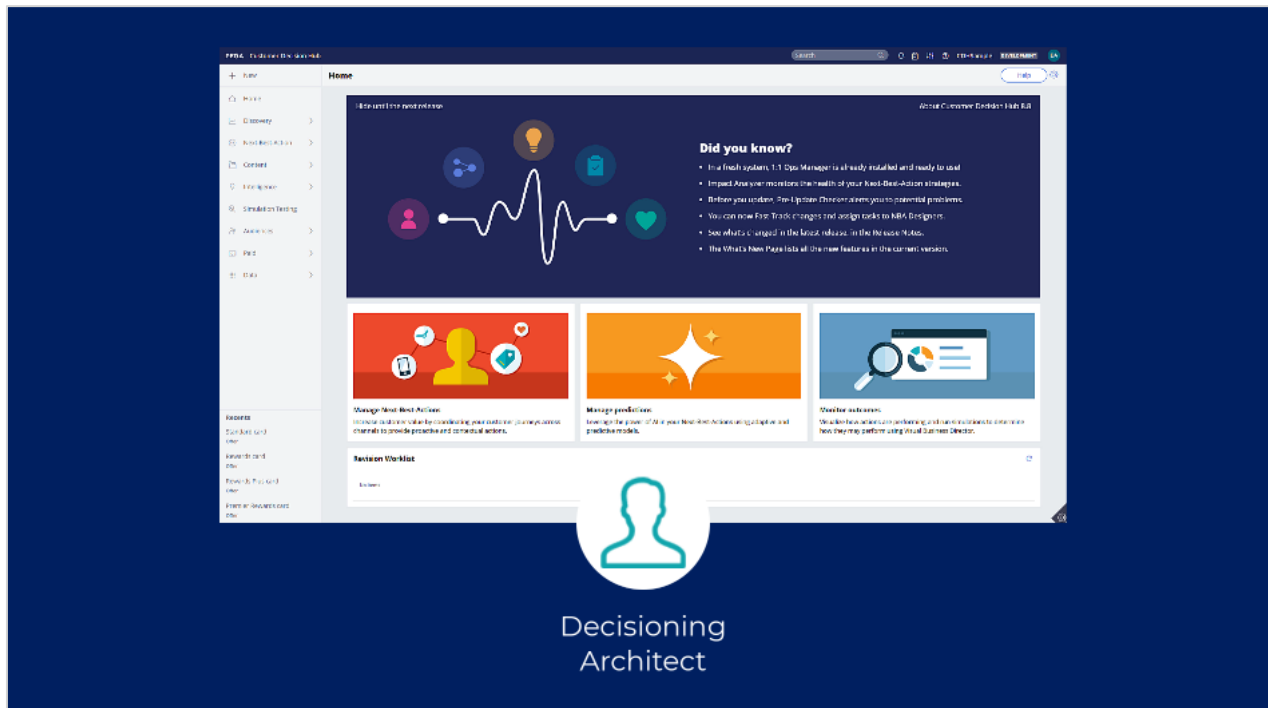


Behind the scenes of the next best actions, the complex decision engine is working to rank and select the best offer to display for each customer who visits the website.

A combination of artificial intelligence (AI) and other business rules determine the options.



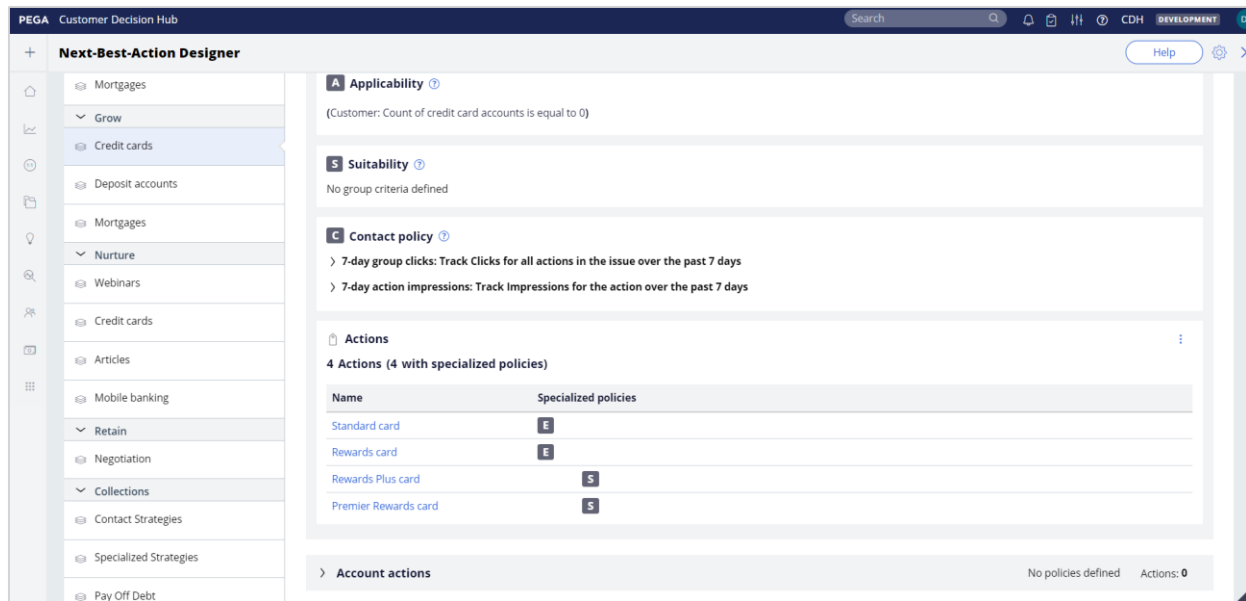
As a Decisioning Architect, you can define the business rules and other settings in Pega Customer Decision Hub by using **Next-Best-Action Designer**.



Next-Best-Action Designer allows you to configure how you want the always-on brain to select the best offer for a customer.

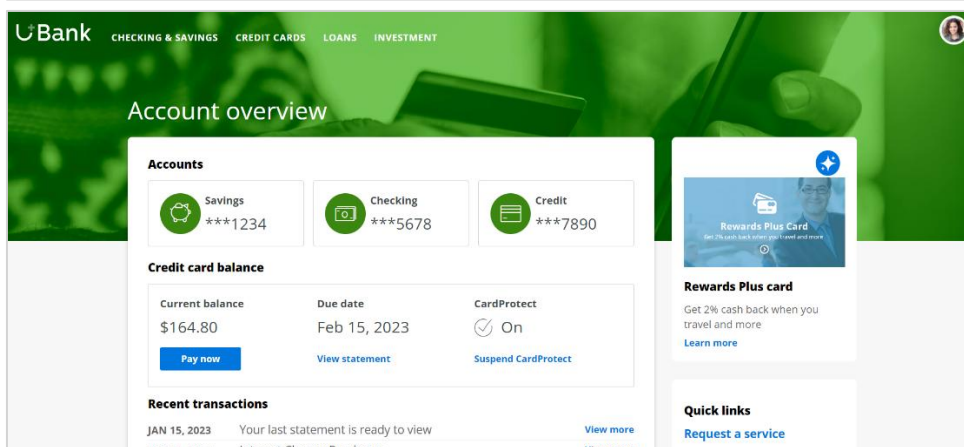
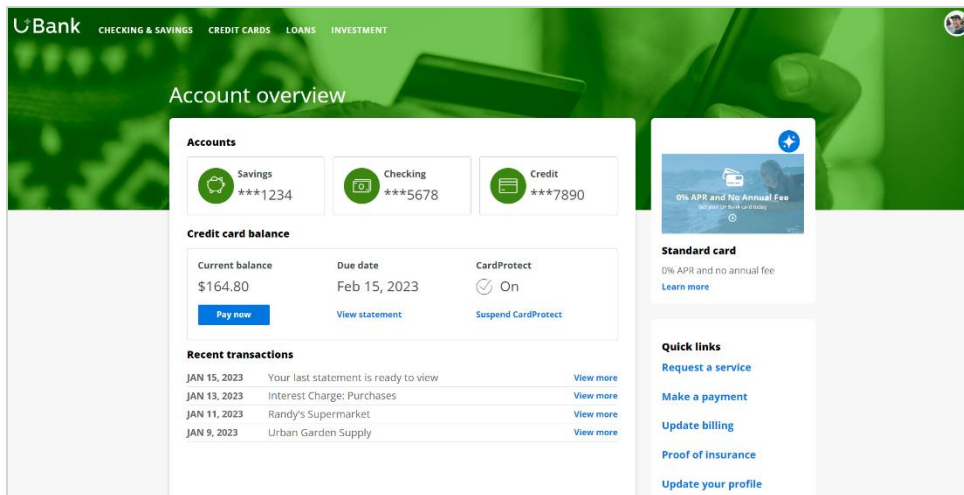
First, to ensure that the offer is displayed on the website, you need to verify that the business structure is in place and that the actions and treatments are defined. You can check that on the **Engagement policy** tab of Next-Best-Action Designer.

In the **Grow** issue and **Credit cards** group, four actions are defined.



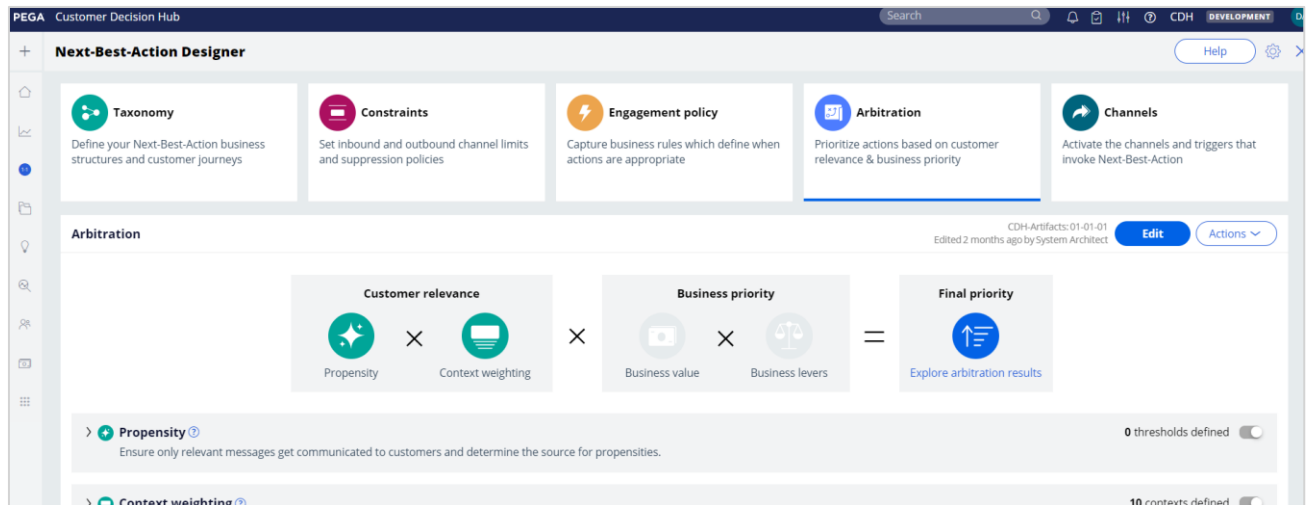
Each action has a set of conditions such as eligibility, applicability, and suitability specified. These conditions are engagement policies, and they qualify an offer or a group of offers for a customer. As a result, customers see only the offers which the organization believes they should receive.

For example, when Troy logs in, he sees the Standard Card, but this offer is not applicable for Barbara, so it is never displayed; instead, she sees the Rewards Plus Card.



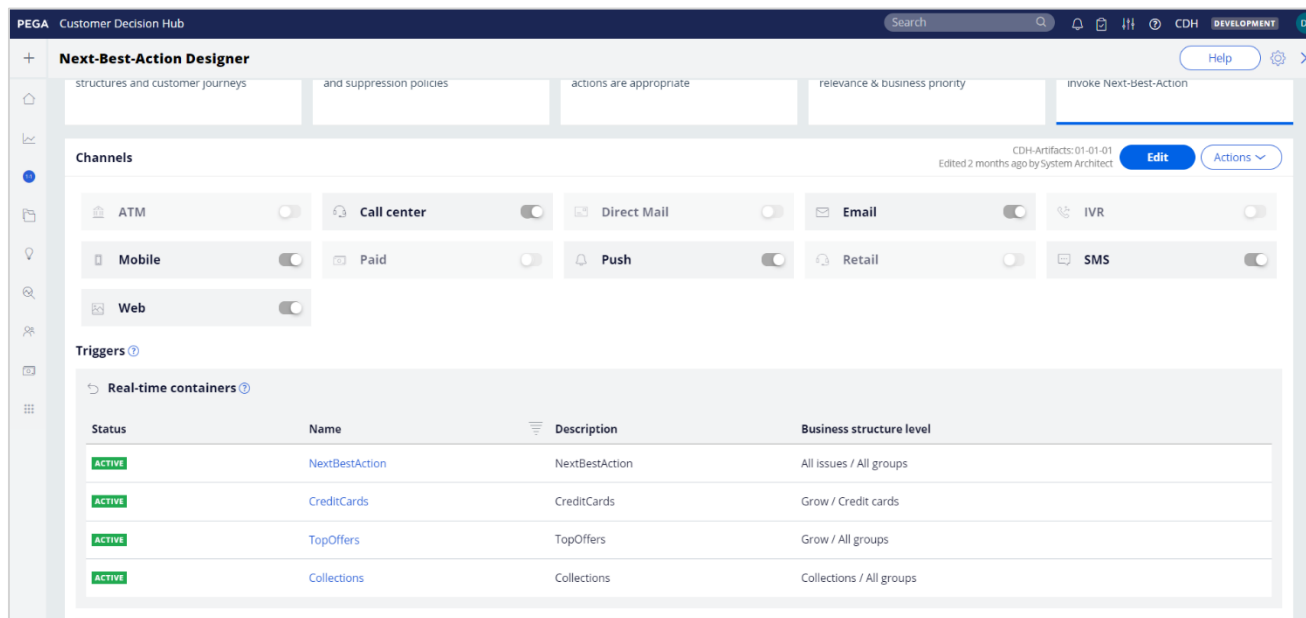
After the engagement policies have "whittled down" the total possible offers to a few, Customer Decision Hub uses arbitration to choose the top offer based on what is relevant for the customer right now.

Arbitration aims at balancing customer relevance with business priorities. Specifically, propensity, context weighting, business value, and business levers have numerical values. The system then uses a simple formula to arrive at a prioritization value, which determines the selection of the top offer.

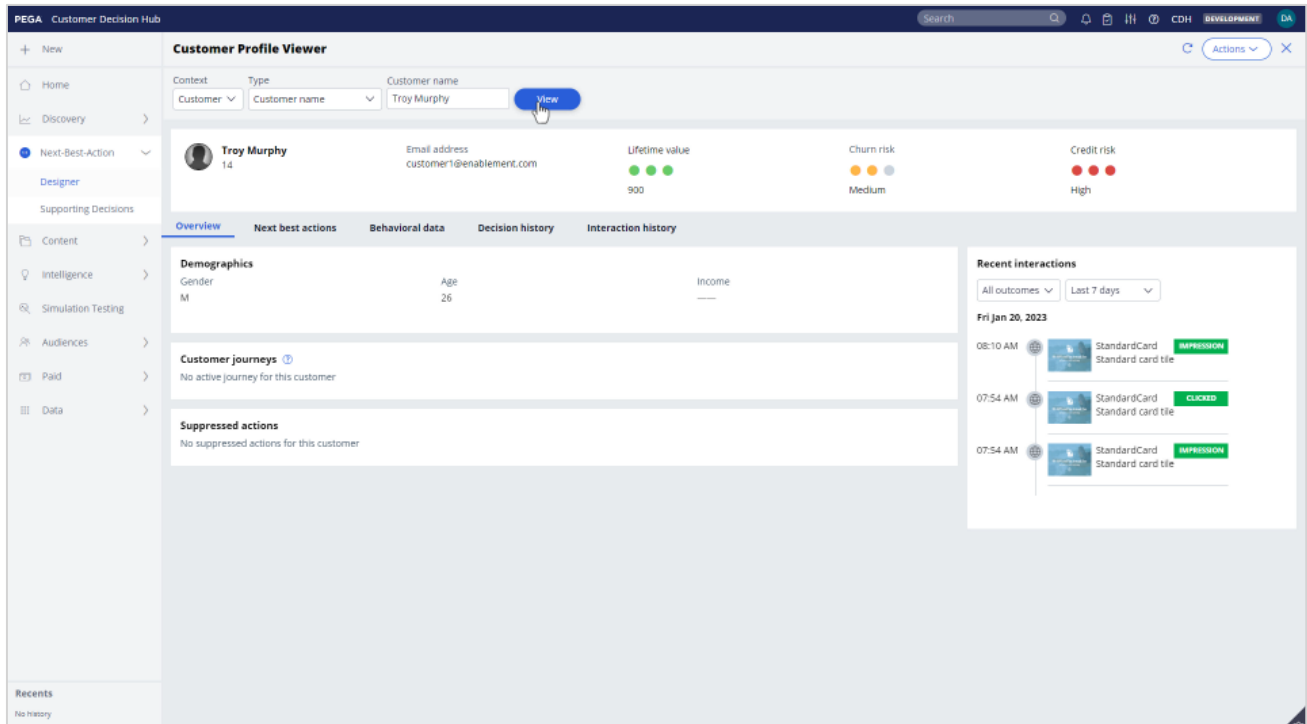


Additional configurations are required, such as enabling a web channel and adding a real-time container, to present the offer on the website. Both settings are configurable on the **Channels** tab of Next-Best-Action Designer.

A real-time container is a service that manages communication between Customer Decision Hub and external channels. It fetches the data configured in Customer Decision Hub and makes it possible to display it on a website.



The recent Troy interaction that Customer Decision Hub captured is now visible in Customer Profile Viewer. You can observe whether the interaction was an impression or a click.



On the **Next best actions** tab of the Customer Profile Viewer, you can see the next-best-action results based on the provided input parameters (for example, inbound direction and a web channel).

In the action results table, you can observe that two out of four credit cards were filtered out, which means that they will not be presented to Troy.

You have access to exclusive Pega GenAI™ capabilities if you are on Pega Cloud. After you view the next-best-action decisions for a customer, you can use the AI Insight feature, which uses Pega GenAI™ technology, to better explain the results that are displayed in the table.

Enabling Pega GenAI, results in changes to the UI of Customer Profile Viewer. The fields marked with the Polaris icon give you access to the AI Insight feature.

AI Insight

The Grow - Creditcards Issue Group has a total of 4 candidate Offers. Out of these, 2 actions passed and 2 actions were filtered out. The most occurring filter reason is "Excluded by suitability", which filtered out 2 actions.

Group Fields

Default Export complete report

	Issue	Group	Name	Treatment	Channel	Priority	IA Test name	Rank	Results
☐	Grow	Creditcards	RewardsPlusCard	Rewards Plus card tile	Web	26.36		1	FILTERED
☐	Grow	Creditcards	PremierRewardsCard	Premier Rewards card tile	Web	17.27		2	FILTERED
☐	Grow	Creditcards	RewardsCard	Rewards card tile	Web	4.06		3	PASSED
☐	Grow	Creditcards	StandardCard	Standard card tile	Web	3.50		4	PASSED

After processing the results, the AI Insight provides the summary for the tested configuration. In this example, you receive a clear explanation that there are four candidate offers for Troy. However, only 2 actions passed, and 2 actions were filtered out due to the Suitability conditions.

By clicking on the Polaris icon for each row in the Results column, you can access an explanation of the action results in the Action results explanation window, specific to the action.

Name	Treatment	Channel	Priority	IA Test name	Rank	Results
RewardsPlusCard	Rewards Plus card tile	Web	26.36		1	FILTERED
PremierRewardsCard	Premier Rewards card tile	Web	17.27		2	FILTERED
RewardsCard	Rewards card tile	Web	4.06		3	PASSED
StandardCard	Standard card tile	Web	3.50		4	PASSED

In this example, you will learn that the RewardsPlusCard is filtered out due to the suitability condition.

Action results explanation GENERATED USING AI

[Grow](#) / [Creditcards](#) / [RewardsPlusCard](#) / [Rewards Plus card tile](#) **FILTERED**

The offer you mentioned, **RewardsPlusCard**, is currently being filtered out due to the reason **"Excluded by suitability"**. This means that the offer does not meet the required criteria or properties to be delivered to the customers.

To make this offer pass and be delivered to the customers, you need to address the suitability issue. The specific reason for the exclusion is not provided in the information you provided, so it would be helpful to investigate further to determine the exact criteria that are not being met.

Once you have identified the specific criteria, you can take the following probable approach to make the offer pass:

1. Review the properties of the offer and compare them to the desired criteria.
2. Identify any gaps or discrepancies between the offer properties and the required criteria.
3. Make necessary adjustments to the offer properties to align them with the desired criteria.
4. Ensure that the adjusted offer properties meet the suitability requirements.
5. Test the modified offer to confirm that it now passes the suitability criteria.

By following this approach, you can increase the chances of the offer being delivered to the customers based on the desired properties.

Learn more about:
[Excluded by suitability](#)

You can explore the reasons behind this decision by utilizing the "Filtering by feature" option. The table displaying the decision results has been enhanced with multiple categories that might serve as the underlying cause for excluding certain actions.

You can for example, see how the engagement policies are used or why a customer does not receive an action.

To summarize, when visiting the bank's website, the customer can see the next best action that the "always on" centralized decision management "brain" of Customer Decision Hub selected from a set of actions defined and configured by the Decisioning Architect.

You have reached the end of this video.

Arbitration fundamentals

Description

Customers might still qualify for more than one action after you apply engagement policy rules. Learn how every next best action weighs customer needs against business objectives to optimize decisions based on the priorities that the business sets.

Learning Objectives

- Describe what action arbitration is and how it works.
- Explain how the system considers customer needs and business objectives during arbitration.
- Prioritize actions based on AI.

Action arbitration

Pega Customer Decision Hub™ (CDH) combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that CDH uses to make intelligent decisions. Arbitration aims to balance customer relevance and business priorities by weighing numerical values for the following factors: propensity, context weighting, business value, and business levers. Learn to create a simple formula for arriving at a prioritization value, which is used to select the top actions.

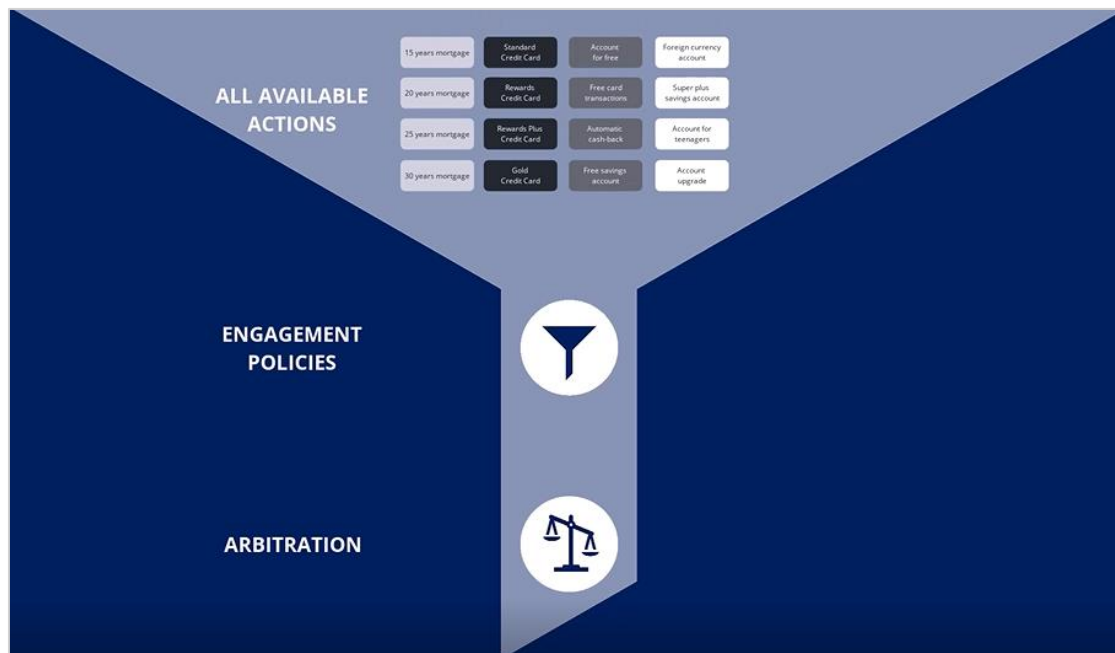
Transcript

This video explains the concept of action arbitration in Pega Customer Decision Hub.

Pega Customer Decision Hub combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that it uses to make intelligent decisions. These decisions are known as Next-Best-Actions. Every Next-Best-Action weighs customer needs against business objectives to optimize decisions based on priorities set by the business manager.



U+, a retail bank, wants to avoid offering random actions to its customers, so it uses Pega CDH to rank and select the next best actions for every customer. All the actions from the Bank's offer move through several steps that whittle them down until the Next Best Action is selected.



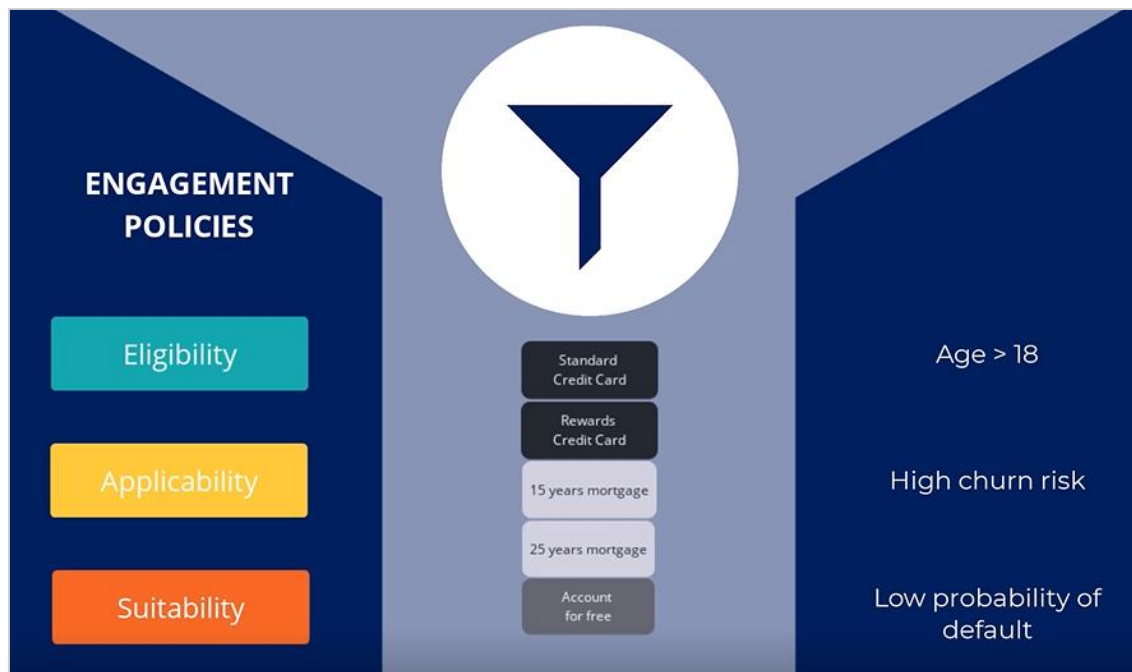
The process starts with the catalog full of actions that the organization can offer to its customers. These actions belong to various issues and groups.

The first step is to apply the Engagement Policies: Eligibility, Applicability, and Suitability conditions.

Eligibility rules are used to determine whether customers are eligible for an action. Users must meet the condition for CDH to consider the action eligible. An example of an eligibility condition is the customer's age. A customer can be offered a credit card only if they are 18 years old or older.

Applicability rules are used to limit what to offer, based on a customer's current situation. For example, the bank wants to show a retention offer, instead of a credit card offer, to customers who are likely to churn in the near future.

Suitability rules are used to define whether an offer is appropriate for a customer. For example, if a customer is in debt and has a lot to pay off, the bank does not want to offer them a 30-year mortgage as it would not be empathetic.



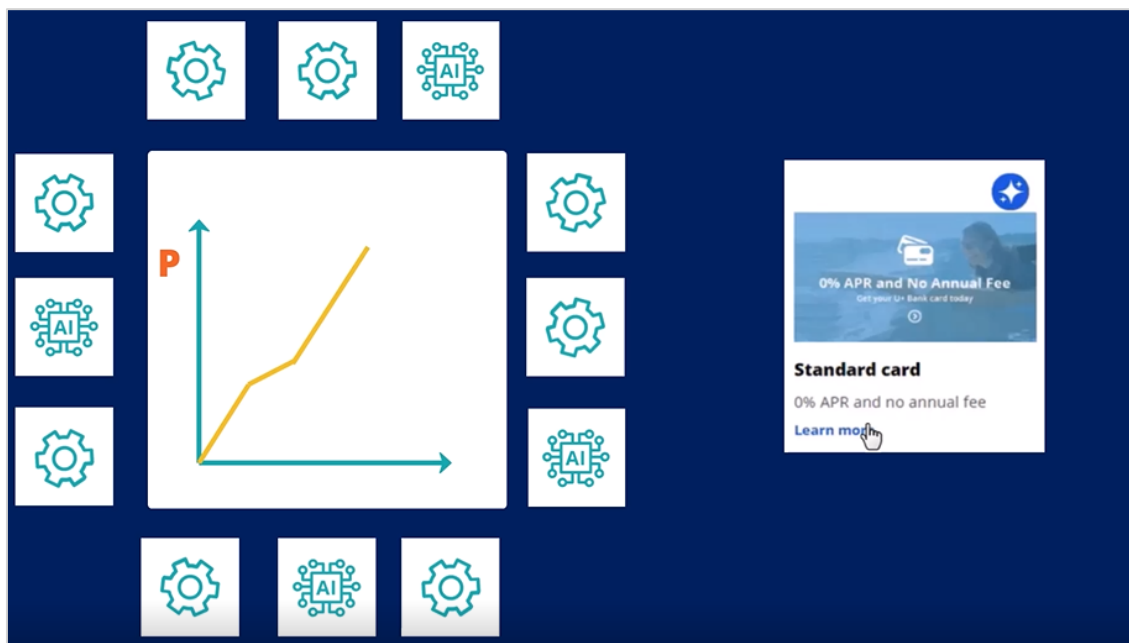
The initial catalog of actions has been narrowed down by engagement policies. These engagement policies are a combination of business rules, for example, certain age requirements for a loan or some product compatibility rules, and predictive models which help predict customer behavior as customer churn or probability of default. These predictive models are created by data scientists in Pega, or other tools familiar to data scientists like Python, R, and H2O.AI.

Before being presented to customers, the remaining actions go through a final stage known as the arbitration stage. This stage focuses on selecting and prioritizing the best actions that are most relevant for the customer at the present time. Arbitration balances customer relevance with business priorities using four components: **Propensity**, **Context Weighting**, **Business Value**, and **Business Levers**, each represented by numerical values.



Propensity is the predicted likelihood of positive behavior, such as the likelihood of a customer accepting an offer.

The propensity value is calculated by AI and it is the foundation of the arbitration process. The higher the likelihood of a customer accepting an offer, the higher the Propensity value for that offer. For Example, when a customer is eligible to receive a Standard Credit Card and clicks the Standard Credit card offer on the Bank's website the propensity of this action increases.



The AI is driven by adaptive models, self-learning mathematical models that use machine learning to make calculations. Adaptive models are a sub-group of predictive models that continuously adapt to new data as it becomes available. This means that the models are updated incrementally in real-time based on incoming data.

The Customer Decision Hub is configured to calculate the propensity for each treatment. For the web treatment, **Web_Click_Through_Rate** is the out-of-the-box adaptive model. It predicts the likelihood of a customer clicking on a banner, which is considered a positive behavior.

Context Weighting allows Pega Customer Decision Hub to consider the situational context for each action. For example, if a customer contacts the bank to close their account, the highest-priority action is to ensure that the customer is retained, even if they are eligible for other offers.

Business Value enables you to assign a financial value to an action and prioritize high-value actions over low-value ones. This value is typically normalized across Issues and Groups. For example, a 25-year mortgage is more profitable than a 15-year mortgage. So, in a situation where a customer is eligible for both plans, the 25-year mortgage will be ranked higher because of its higher business value.

Business Levers allow the business to assert some level of control over the prioritization of actions defined within the system. Levers are used to manually nudge Customer Decision Hub toward Next-Best-Actions based on external factors. For example, the recommended Next-Best-Action might be to offer a credit card to a customer when they visit the home page. However, to meet a business goal, the Mortgage Line of Business favors a mortgage offer, even if that offer is ranked a little lower on the list of possible actions.

Pega AI considers all four components to select the top offer for a customer. A simple formula $P * C * V * L$ is used to arrive at a prioritization value, which is used to select the top actions. The action with the highest priority will be presented to a customer.



In the current example, there are 5 actions that made it until the arbitration phase.

Assume the AI generates a propensity value for each of the actions which is a value between 0 and 1.

Each action has a context weight set, which is a percentage value between 0% and 100%, business value in dollars, and business lever value in a percentage between 0% and 100%.

Using the priority formula PCVL, with all of these values taken into account, we end up with a computed priority. Finally, the action with the highest priority is selected. In this case, it is a Standard Credit Card.

	PROPENSITY	CONTEXT	BUSINESS VALUE	BUSINESS LEVERS	PRIORITY
Standard Credit Card	0.45	5%	\$186	25%	5.23
Rewards Credit Card	0.3	5%	\$238	25%	4.46
15 years mortgage	0.25	2%	\$665	10%	3.6
25 years mortgage	0.2	2%	\$965	10%	4.25
Account for free	0.4	10%	\$56	5%	0.58

In summary, arbitration is used to select and prioritize the best actions that are most relevant for the customer at the present time. Arbitration balances customer relevance with business priorities using the formula $P \times C \times V \times L$. The top actions are selected based on the result of this multiplication – the prioritization value.

Action prioritization with AI

Explore how AI-based arbitration works and how AI predicts customer behavior. Arbitration aims to balance customer relevance with business priorities. Pega Customer Decision Hub™ uses a formula to arrive at a prioritization value and select the top actions. The formula uses the propensity value that AI calculates. Propensity is the predicted likelihood of positive behavior, such as the likelihood of a customer accepting an offer.

Transcript

This demo shows you how AI-based arbitration works and explains how AI predicts customer behavior.

U+ Bank, a retail bank, uses Pega Customer Decision Hub to display marketing offers to customers on its website. The bank wants to display more relevant offers to customers based on their behavior. There is an initial set of actions that belong to **Grow** Issue and **Credit Cards** Group created in Customer Decision Hub.

The screenshot displays the 'Next-Best-Action Designer' interface. On the left, a navigation pane lists various categories like Home, Discovery, Next-Best-Action, Designer, Supporting Decisions, Content, Intelligence, Simulation Testing, Audiences, Paid, and Data. The main area shows a list of actions under the 'Grow' category, including Deposit accounts, Mortgages, Credit cards, Deposit accounts, Mortgages, Nurture, Webinars, Credit cards, Articles, Mobile banking, Retain, Negotiation, Collections, Contact Strategies, Specialized Strategies, and Pay Off Debt. The right pane shows the details for the 'Credit cards' group, including Applicability, Suitability, and Contact policy. The 'Actions' section lists 4 actions with specialized policies:

Name	Specialized policies
Standard card	
Rewards card	
Rewards Plus card	
Premier Rewards card	

After filtering by Engagement Policies, customer Troy is eligible for two credit card offers – Standard Card and Rewards Card. When he logs into the bank’s website, he sees the **Standard Card** offer. When you click the **Polaris** icon next to the card offer, you can examine the arbitration details, such as propensity value and priority value.

The screenshot shows a UBank account overview page. The main content area displays account balances for Savings, Checking, and Credit cards. A Pega overlay is visible on the right side, showing a decision table with the following data:

Real-time container	TopOffers
Customer ID	14
Interaction ID	-5206216757466914714
Action	/Grow/Creditcards/StandardCard
Standard card Treatment	Standard card tile
Category	Cards
Propensity	0.32759
Priority (P*C*V*L)	0.32914
Rank	1
Quick links	Tile
Placement type	Request a service

The overlay also includes a PEGA logo and a 'make a payment' button.

The offer presented to the customer is the one with the highest priority that the Pega Customer Decision Hub selects based on the arbitration settings. You define the Arbitration settings in the Next-Best-Action Designer of Customer Decision Hub. The purpose of arbitration aims is to balance customer relevance with business priorities. The system uses four components of arbitration, **Propensity** (P), **Context weighting** (C), **Business value** (V), and **Business levers** (L), represented by numerical values, to achieve this balance. With the $P \times C \times V \times L$ formula, Customer Decision Hub arrives at a prioritization value, which the system uses to select the top offers.

The screenshot shows the Next-Best-Action Designer interface. The 'Arbitration' section is highlighted, showing the formula for calculating the final priority:

$$\text{Customer relevance} \times \text{Business priority} = \text{Final priority}$$

Where:

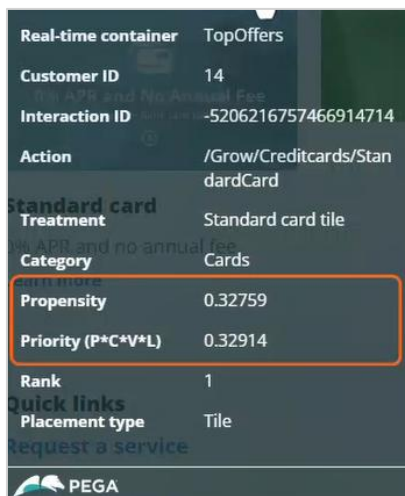
- Customer relevance = Propensity × Context weighting
- Business priority = Business value × Business levers

The final priority is used to explore arbitration results. Below the formula, there are four sections with checkboxes and descriptions:

- Propensity**: Ensure only relevant messages get communicated to customers and determine the source for propensities. 0 thresholds defined.
- Context weighting**: Upweight actions based on real-time contextual data passed by channel applications. 10 contexts defined.
- Business value**: Extend the way business value is calculated through the CalculateBusinessValue extension point. 0 levers defined.
- Business levers**: Upweight actions based on the business structure, and toggle all individual action levers ON/OFF. 0 levers defined.

Typically, the propensity for every action starts at 0.5 or 50 percent, the same as the flip of a coin. This value is the default because the AI has no past customer behavior on which to base its predictions. After every interaction, the propensity increases or decreases accordingly.

The **Standard Card** that is displayed for the customer Troy shows the propensity and priority equal 0.32, and it means that the system captured several interactions before.



The screenshot shows a PEGA interface with a 'Standard card' offer. The offer details are as follows:

Real-time container	
TopOffers	
Customer ID	14
Interaction ID	-5206216757466914714
Action	/Grow/Creditcards/StandardCard
Treatment	Standard card tile
Category	Cards
Propensity	0.32759
Priority (P*C*V*L)	0.32914
Rank	1
Placement type	Tile

Below the table, there are 'Quick links' including 'request a service' and the PEGA logo.

Consider the following interaction as an example: Troy logs in multiple times and sees the same Standard Card offer. On the first three visits, Troy ignores the offer. When he visits the website the fourth time, he clicks the offer to learn more.

In Customer Profile Viewer, you can examine Troy's interactions, the decision history, and the next best actions. First, load the decision history for the current use case to view the interactions recorded. In the table, the propensity changes after the system records each interaction. You can examine that the propensity decreases because Troy ignored the offer three times. Then, after he clicked **Learn more**, the propensity increased.

New

Home

Discovery

Next-Best-Action

Content

Intelligence

Simulation Testing

Audiences

Paid

Data

Customer Profile Viewer

Context

Type

Customer ID

14

View

Troy Murphy

14

Email address
customer1@enablement.com

Lifetime value

900

Churn risk

Medium

Credit risk

High

Overview

Next best actions

Behavioral data

Decision history

Interaction history

Explore the decisions that were made for this customer by Customer Decision Hub. Loading all decisions may take some time because they are stored externally.

Load all decisions

last loaded on: 2/22/23 10:01 AM

Group

Fields

Density

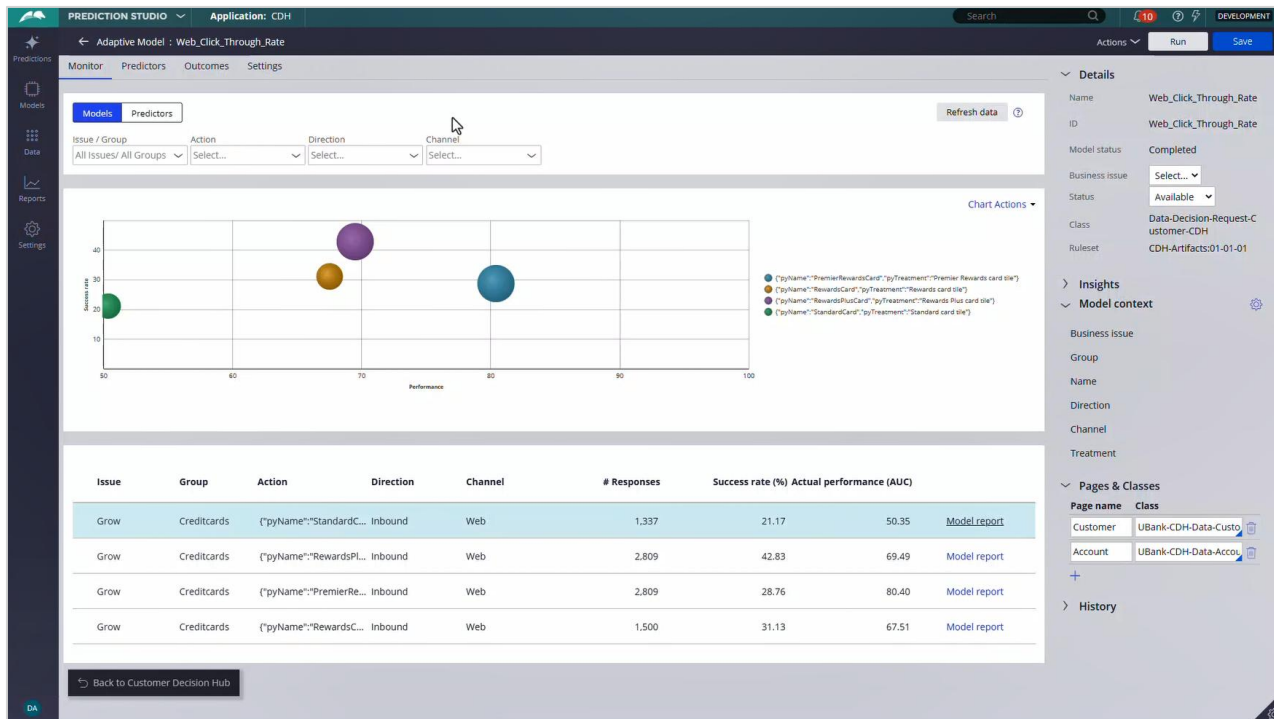
Export excel file

Decision time	Name	Treatment	Group	Issue	Direction	Channel	Journey	Journey stage	Final propensity	Context weight	Value	Total lever weight	Priority	Rank
2/22/23 9:57 ...	StandardC...	Standard card tile	Creditcards	Grow	Inbound	Web			0.3400	1.00	35.00	1.00	0.34	1
2/22/23 9:57 ...	StandardC...	Standard card tile	Creditcards	Grow	Inbound	Web			0.3158	1.00	35.00	1.00	0.32	1
2/22/23 9:56 ...	StandardC...	Standard card tile	Creditcards	Grow	Inbound	Web			0.3342	1.00	35.00	1.00	0.33	1
2/22/23 9:56 ...	StandardC...	Standard card tile	Creditcards	Grow	Inbound	Web			0.3442	1.00	35.00	1.00	0.34	1

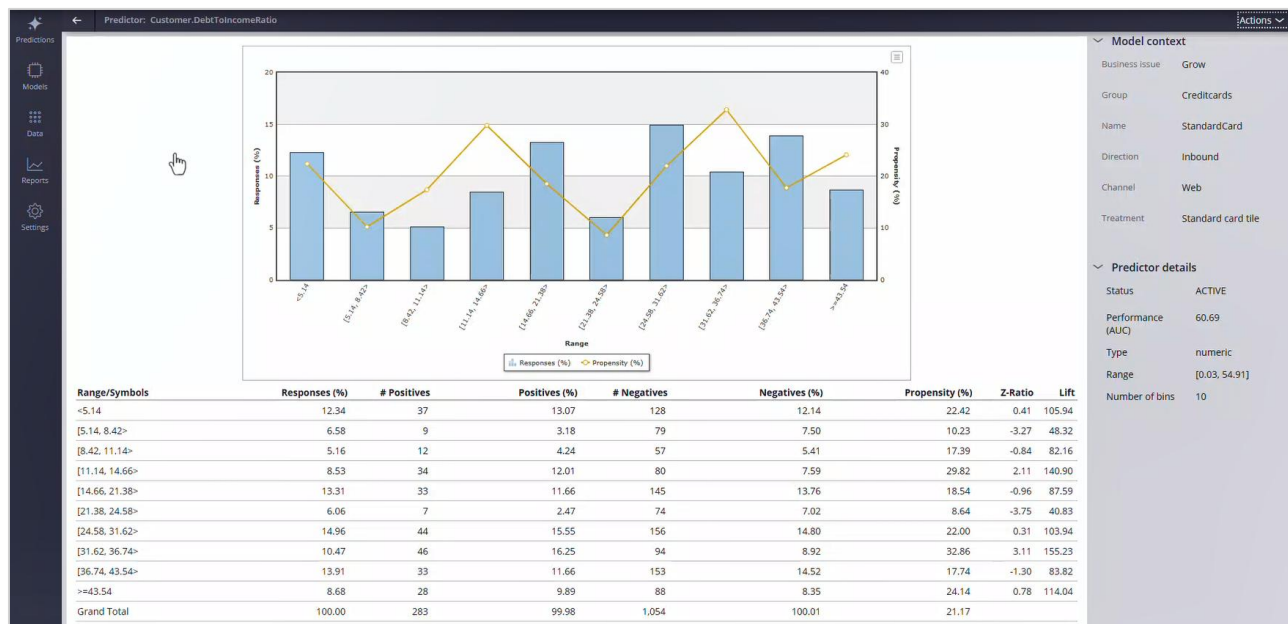
The configuration of the AI model behind these offers treats impressions that do not result in a click as a negative outcome. As a result, the propensity, and therefore the priority of that offer, decreases. The propensity and priority of the not-clicked offer keep decreasing until the model records a click (positive outcome). However, if Troy clicks the offer, the propensity and priority increase. Next, view the next-best-action recommendations to learn more about the action for which Troy qualifies. For the current use case, the direction is **Inbound**, and the channel is the **Web**. TopOffers is the real-time container service that manages communication between the Customer Decision Hub and the website of the bank.

Based on the engagement policy rules, Troy is eligible for two credit card offers: the **Standard card** and the **Rewards card**. In Customer Profile Viewer, you can examine the arbitration factors using one of the following options: **Explain prioritization**, **Explain weighting**, or **Explain propensity**. In the **Explain propensity** view, you can check the influencing factors of a specific action for which Troy qualifies. The factors are the best-performing predictors that contribute positively to the propensity of the offer and the predictors that contribute negatively to the propensity of the offer.

Propensity details Grow / Creditcards / StandardCard / Standard card tile Final propensity 22.85% Average is 0.22% Top predictors Out of 19 total predictors	
Increasing the propensity Credit score is 625 Count of investme... is 2 Debt-to-income ratio is 45 Credit score last... is NaN	Decreasing the propensity Total liabilities is 9,619 Total assets is 554,406 Count of deposit ... is 1 Is prospect is false



An adaptive model is a self-learning predictive model that uses machine learning to calculate propensity scores. It automatically determines the factors that help in predicting customer behavior. These predictors can include a customer's demographic details, product and service usage, past interactions with the bank, and even contextual information such as the current channel of interaction. In the **Predictor** report, you can examine the performance of individual predictors. For example, you can see how the system automatically groups the values of a numeric predictor into bins and how the propensity to accept varies across the bins.



The behavior of one customer influences the propensity calculation for other customers with a similar profile.

- You have reached the end of this video. You have learned:
- How customer behavior influences the Propensity value.
- Where in CDH you can update the Arbitration settings.
- How customer behavior and next best actions are displayed in Customer Profile Viewer.
- What are the adaptive models, and how to manage them.

Optimizing your next-best-action strategy

Description

Learn how to check the health of Pega Customer Decision Hub™ and improve the effectiveness of your next best actions. Impact Analyzer, Scenario Planner, and Value Finder are optimization tools that provide insight into the performance of your next best actions, identify opportunities for improvement, and help you adjust settings to create higher customer engagement and value capture.

Learning objectives

- Use Impact Analyzer to monitor the performance of your next best actions.
- Use Scenario Planner to simulate “what-if” scenarios to forecast results.
- Use Value Finder to identify underserved customers and take action to improve their experience
- Explain the connection between Impact Analyzer and Scenario Planner.
- Explain the connection between Impact Analyzer and Value Finder.

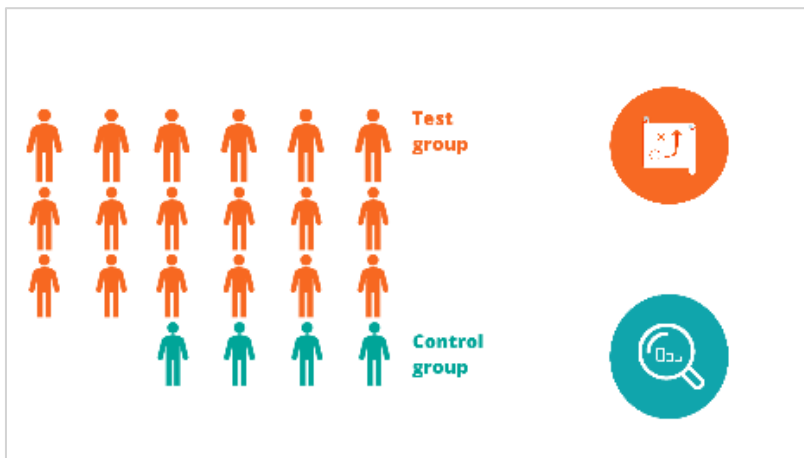
Monitoring the health of the system using Impact Analyzer

Impact Analyzer is a proactive monitoring tool that shows the overall health of your actions and highlights opportunities for improvement. The tool provides insight into the performance of your next best actions through the results of experiments that tell you what actions and configurations are working as expected, and where you can still improve.

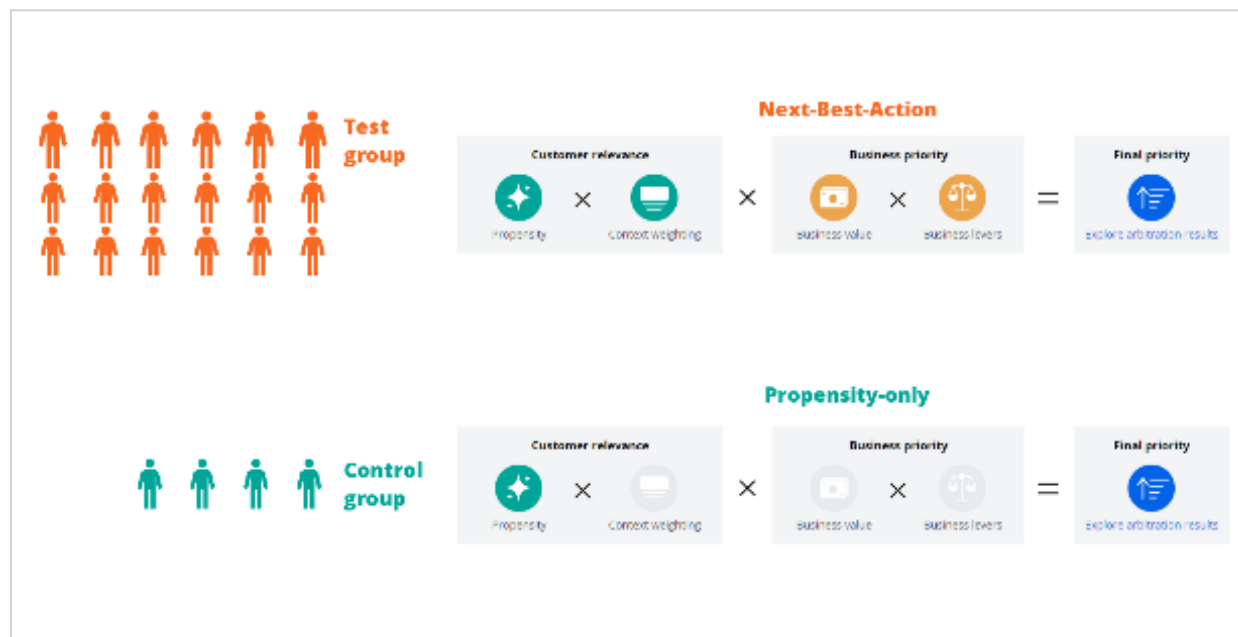
Transcript

Impact Analyzer is a feature of Pega Customer Decision Hub™ that uses experimentation to track the effectiveness and overall health of next best actions. By utilizing this tool, you can gain insights into the effects of arbitration. Impact Analyzer conducts experiments with alternative prioritization and engagement policy filters on a small control group of customers. This enables you to assess whether or not the next best action is producing a positive effect. In addition to monitoring for basic lift, these control group experiments can also reveal opportunities to optimize and align the next best actions with your business goals.

An experiment is a test with two sets of participants, the test group and the control group, in which the test group receives the originally arbitrated action and the control group receives an alternate action based on the type of experiment.



You can use Impact Analyzer to carry out a variety of tests. For example, you can assess the effectiveness of the next best action against a random relevant action or actions, chosen based on propensity alone. Additionally, you can measure the performance of the next best action when arbitrating with no levers. You can also evaluate the performance of the adaptive model propensity against a random propensity.

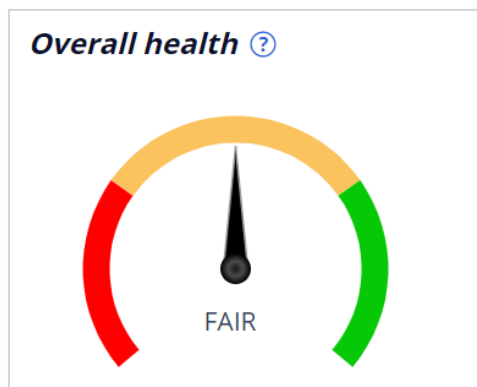




Impact analyzer continuously monitors the health of the next best actions in the experiment, and presents the results in the form of two key performance indicators (KPIs): value lift, and engagement lift. Value lift measures how much a business can make from suggesting certain next best actions to customers, compared to a random relevant action. Engagement lift measures how much more likely customers are to click or accept a suggested next best action, compared to the random relevant action.

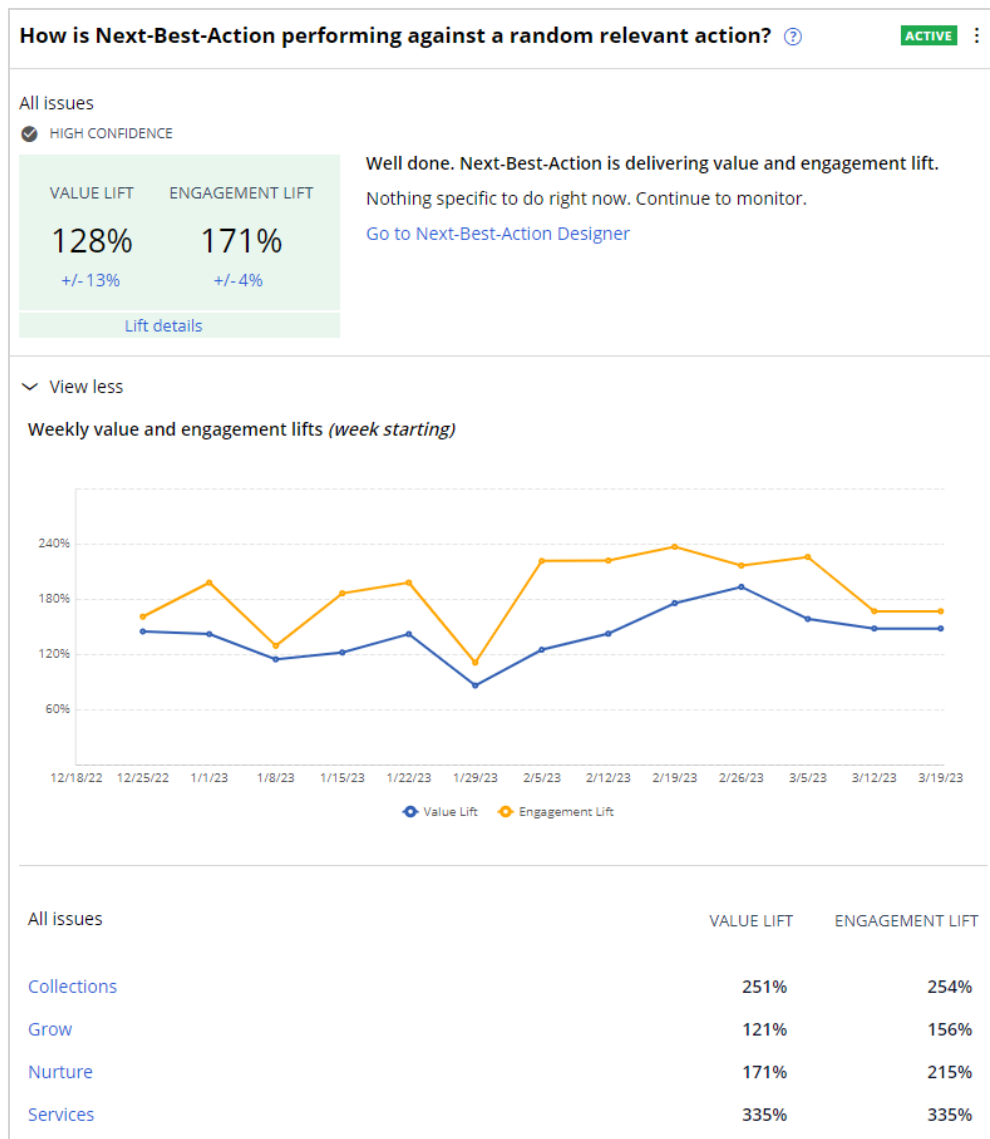
Note: Impact Analyzer calculates engagement and value lift metrics based on outcome events, such as Accepted, Clicked, or custom outcomes. Outcome aliases extend this capability by allowing Impact Analyzer to treat equivalent outcome signals from different channels as one logical outcome. This approach delivers consistent and accurate health metrics across all channels, ensuring your custom outcome signals are not missed. For more information on Outcome alias, refer to the [Outcome Alias](#) tab and creating [outcome aliases](#).

When a next best action is delivering lift, the overall health indicator highlights in green. The middle position of the indicator shows that there is room for improvement to better align actions to the business. The red highlight [the section on the left] means that something is wrong and needs your attention. The indicator is colored gray when the general health is not available due to insufficient data in one or more active tests.



Impact Analyzer is available under **Discovery** tab in the left menu of Customer Decision Hub.

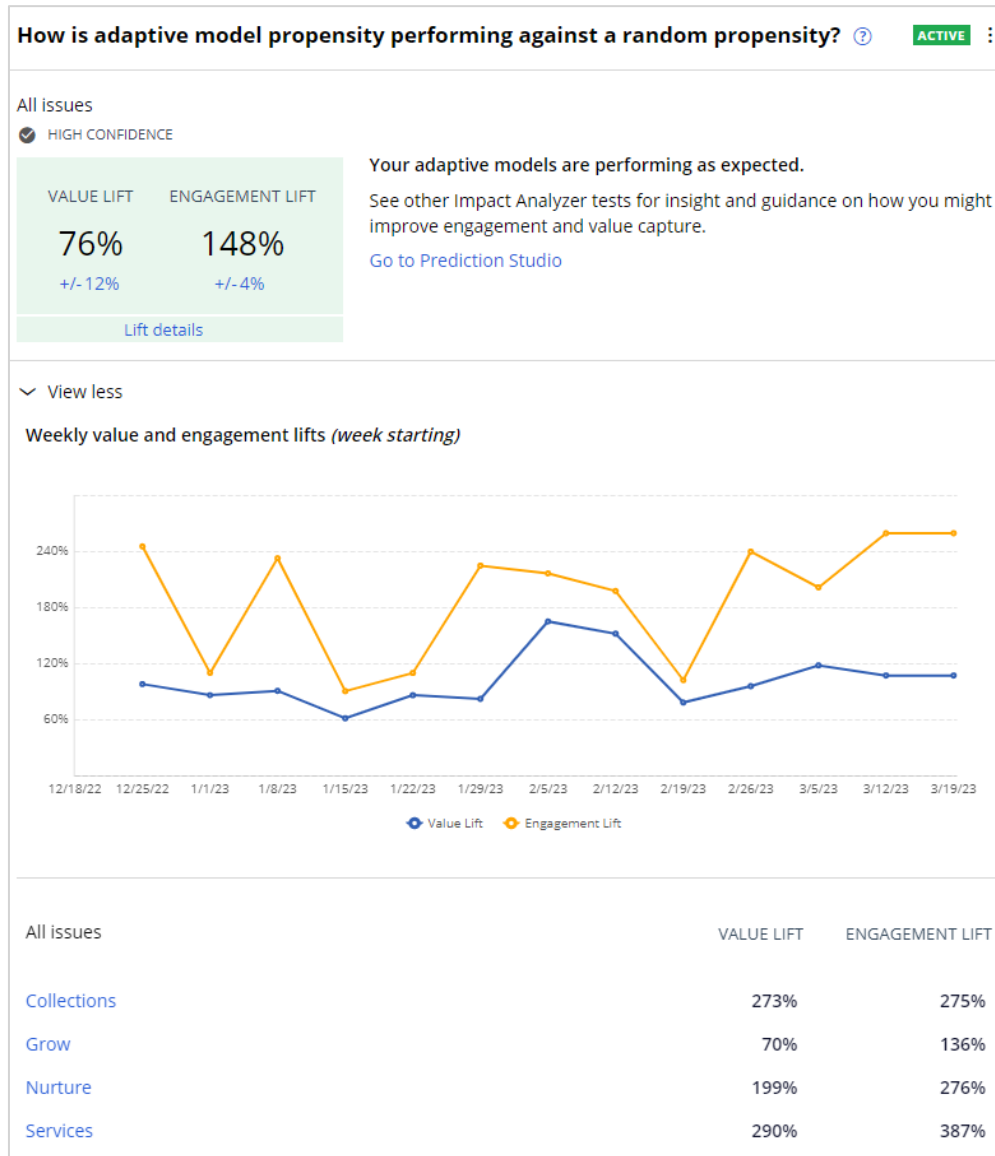
One of the experiments that you can run is called *How is Next-Best-Action performing against a random relevant action?*



This test serves as a baseline check to ensure that the next best action is beating the random relevant action. At the very least, we expect the value lift - and ideally, both the value and engagement lift - to be positive, at the highest level across all issues and groups aggregated. If both value and engagement lifts are negative, there is an issue. This could mean that there is a problem with the underlying adaptive models, or that your engagement policies are too targeted. Another reason might be that your levers are excessively biased, and the next best action lacks the aptitude to optimize engagement or to capture value.

The test widget presents a value lift of 128 percent and an engagement lift of 171 percent. Both values are positive, and the test is highlighted in green.

Another experiment is called *How is adaptive model propensity performing against a random propensity?*



This experiment compares only Pega AI-driven model propensity with no context weight, no business value, and no business levers, against only randomly generated propensity. The experiment is another baseline check to ensure that the adaptive models that a next best action uses are delivering lift over random propensity.

To monitor for basic lift, both presented experiments should be on at all times.

Impact Analyzer offers a range of benefits to its users. One of the most significant benefits is the ability to collect data in real-time, allowing for real-time monitoring and testing of KPIs. Impact Analyzer also enables users to look for opportunities that they may have otherwise missed.

The primary user of Impact Analyzer is the Next Best Actions operations team, who are responsible for ensuring that the system runs optimally. However, the tool brings value to various lines of business, sales, marketing, and Data Scientists.

You have reached the end of this video. You have learned:

- How Impact Analyzer continuously monitors the performance and health of the system.
- How Impact Analyzer conducts experiments by implementing alternative prioritization and engagement policy filters on a small control group of customers, to assess the effectiveness of next best actions.
- How the experiments reveal opportunities to optimize and align next best actions with business goals.

Investigating the effect of business levers in action arbitration

Impact Analyzer is a tool that uses experimentation to monitor the health and effectiveness of next best actions. Through various experiments, Impact Analyzer checks if the next best actions are delivering lift, and identifies opportunities to better optimize and align next-best-action optimization with your business goals. To further analyze such cases, you can use Scenario Planner, which allows you to easily simulate 'what-if' scenarios to accurately forecast results, optimize strategies to hit specific goals, and explore the potential trade-offs of each option. Both Impact Analyzer and Scenario Planner are optimization tools that help you adjust Pega Customer Decision Hub™ settings so that the actions bring higher customer engagement and value capture.

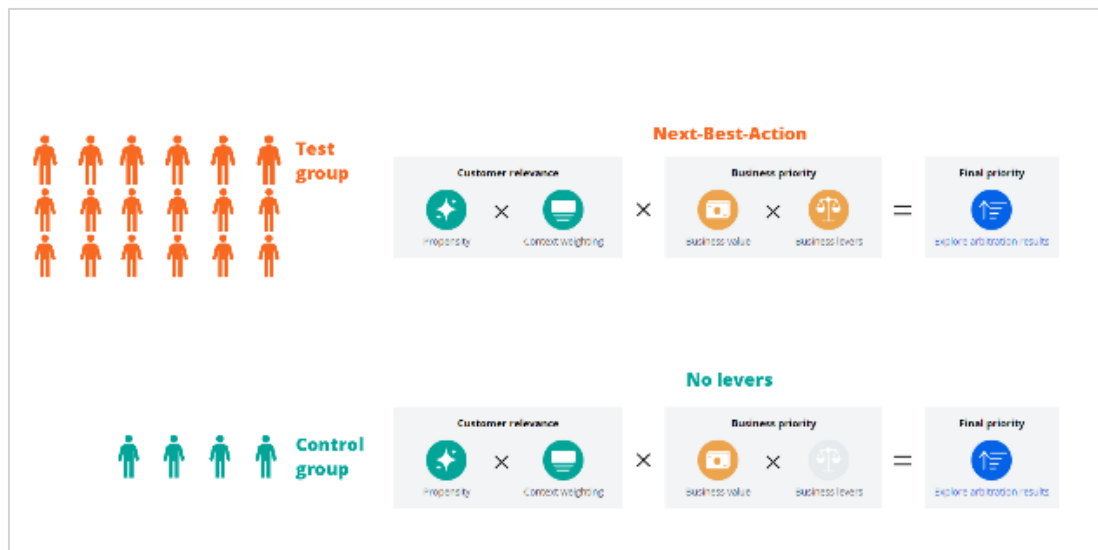
Transcript

Business levers are one of the arbitration factors that allow the business to assert some level of control over the prioritization of actions defined within the system. One of the experiments in Impact Analyzer is the business levers experiment, which highlights opportunities that are missed because of the use of business levers. Using Scenario Planner, you can simulate different business levers settings, and assess which one has the right balance between missed opportunities and alignment with your business goals.

Business Levers are used to manually nudge Customer Decision Hub toward next best actions based on external factors. For example, the recommended next best action might be to offer a credit card to a customer when they visit the home page. But to meet a business goal, the Mortgage Line of Business favors a mortgage offer, even if that offer is ranked a little lower on the list of possible actions.

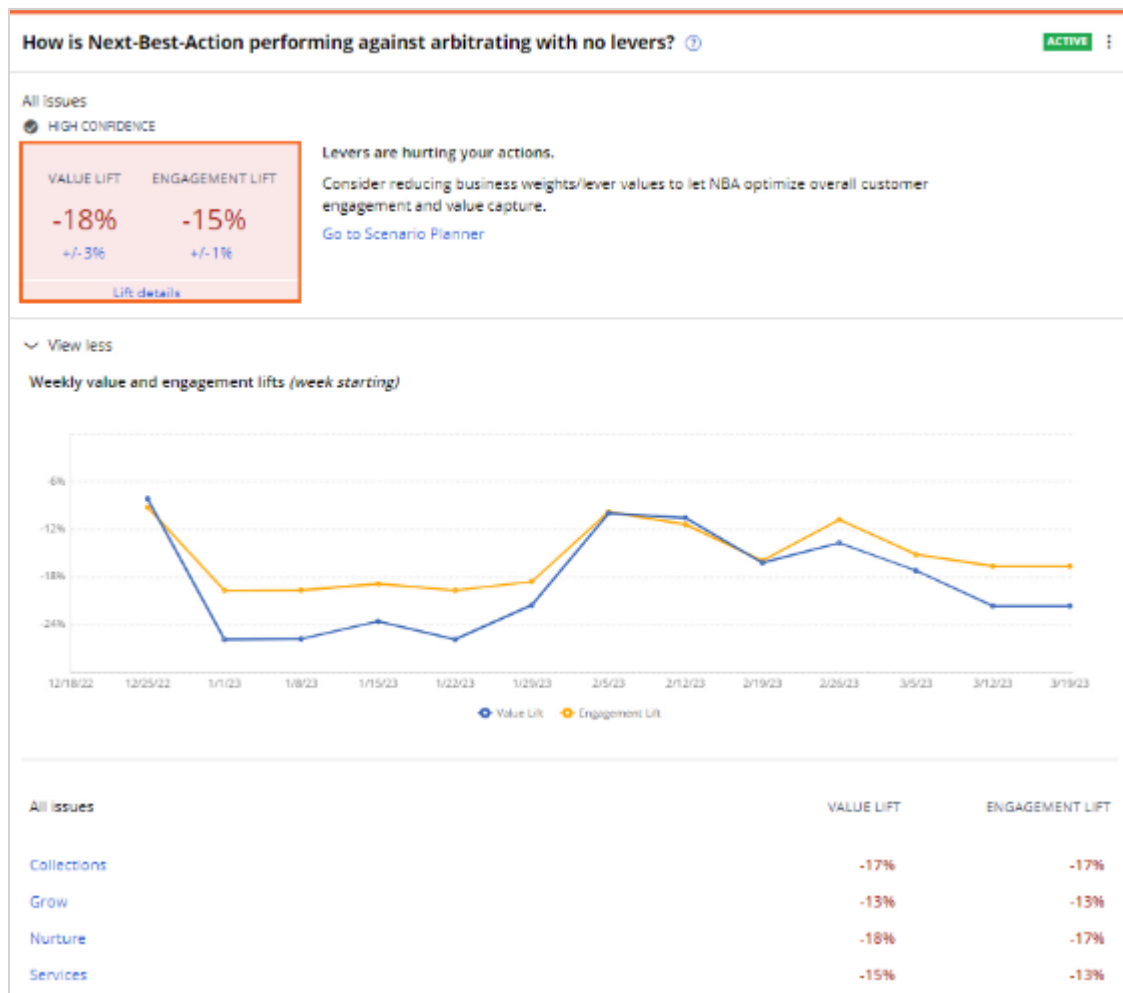
One of the experiments you can perform using Impact Analyzer is "How is next best action performing against arbitrating with no business levers?".

The business levers experiment highlights opportunities that are missed because of the use of business levers. This experiment evaluates the effectiveness of the full PCVL priority formula, which includes Propensity, Context, Business Value, and Business Levers, compared to arbitration with no business levers.



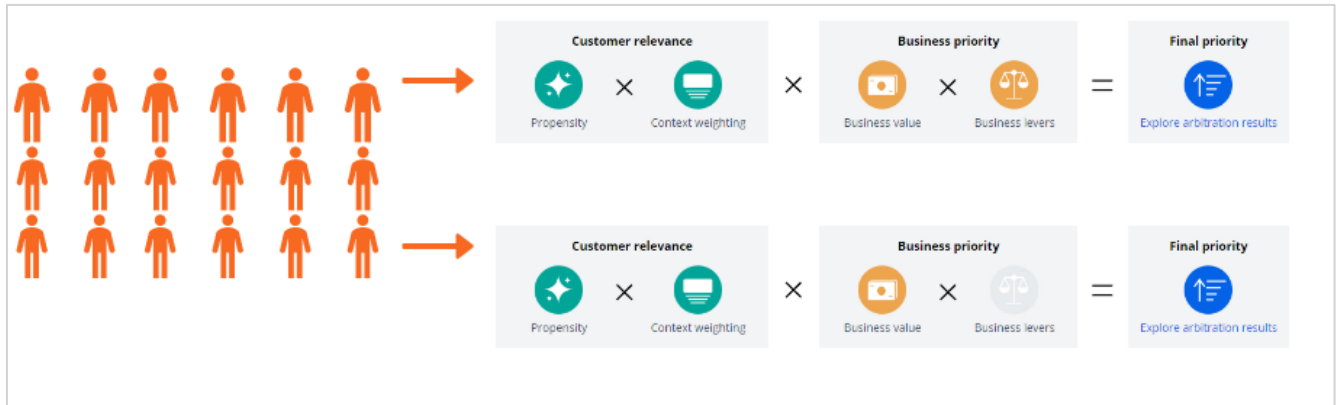
We expect that the next best actions should not outperform the control group with no levers in terms of value capture during this experiment. This is because the action that wins the impression using the full PCVL formula may not have the highest expected value capture. When next best actions arbitrate without any business levers, actions with the highest expected value capture will be presented. However, when business levers are applied, actions with lower expected value capture may be boosted and win the impression. Therefore, for this experiment, the value lift KPI is expected to be negative. This experiment can identify missed opportunities due to the use of business levers. When engagement or value lift is negative in this test, reducing lever values at the issue, group, and action levels can improve performance by giving next best actions the space to optimize. To ensure that the next best action is optimizing lift, the test widget provides recommendations to follow.

In the following example, the experiment indicates an -18 percent value lift and -15 percent engagement lift, with an overall red status, which is in line with expectations.

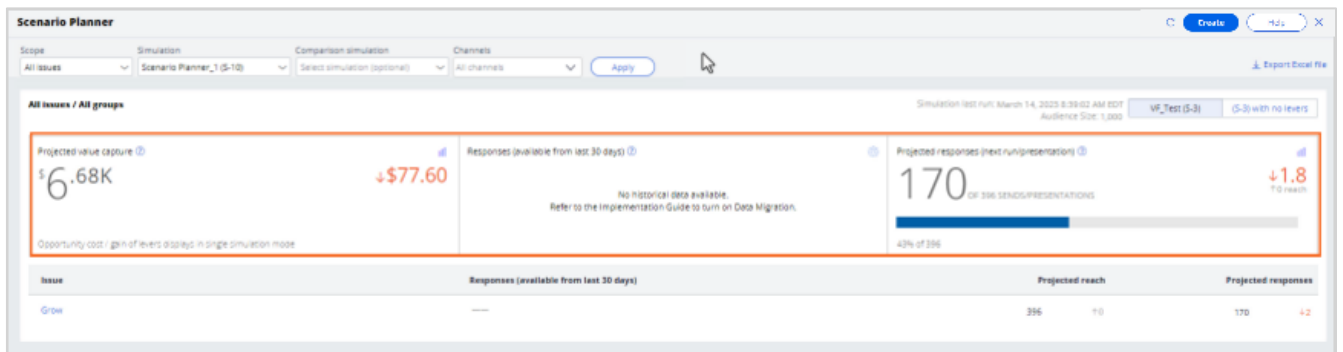


To examine the impact of changing lever values, use Pega Scenario Planner. Scenario Planner allows you to easily simulate 'what-if' scenarios to accurately forecast results, optimize strategies to hit specific goals, and explore the potential trade-offs of each option. Scenario Planner also estimates the value that the subsequent next-best-action run creates using its current configuration. For example, you can observe whether prioritizing a specific action by increasing its business weight will likely result in an opportunity gain or an opportunity cost.

Consider running a comparison simulation using a Scenario Planner to examine the difference between applying the full PCVL formula and the PCV formula without levers. Customer Decision Hub has various subsets of customer data available to run comparison simulations. The subsets of customers represent a sample of real customer data. For a Scenario Planner simulation, you use the same customer data sample for both simulations – one sample with full PCVL, and the comparison sample with the PCV formula.



The Scenario Planner landing page shows a number of useful key performance indicators (KPIs) including projected reach and projected acceptances, projected value capture, as well as historical acceptances, sends, and impressions.



In this example, the value capture is shown as \$6.68k, which represents the estimated value that will be generated by the upcoming next best action using the currently selected configurations. The delta is displayed in red and indicates that actions arbitrated without business levers result in a higher value. Based on the results obtained from the Scenario Planner, and taking into account your business goals, you can determine whether or not to update the business levers.

If you choose to update the business levers settings in an attempt to increase the value lift and engagement lift, you can use Scenario Planner to compare the current simulation with the adjusted simulation. This time, Scenario Planner will compare two simulations with full PCVL formulas, to determine whether the newly adjusted settings are aligned with the business objectives and bring value.

You have reached the end of this video. You have learned:

- How Impact Analyzer identifies the value and engagement loss caused by applied business levers.

- How Scenario Planner enables users to simulate different scenarios and explore potential trade-offs, to optimize their business strategies.
- How updating your business levers influences the Scenario Planner results.

Investigating the effect of applying engagement policies

Impact Analyzer is a tool that uses experimentation to monitor the efficiency and health of next best actions. Through various experiments, it checks whether the next best actions deliver lift and identifies opportunities to better optimize and align next-best-action optimization with your business goals. With the help of Impact Analyzer, you can identify the value and engagement loss caused by excessively restrictive engagement policies. To further analyze such cases, you can use Pega Value Finder to identify underserved customers and take action to improve their experience.

Transcript

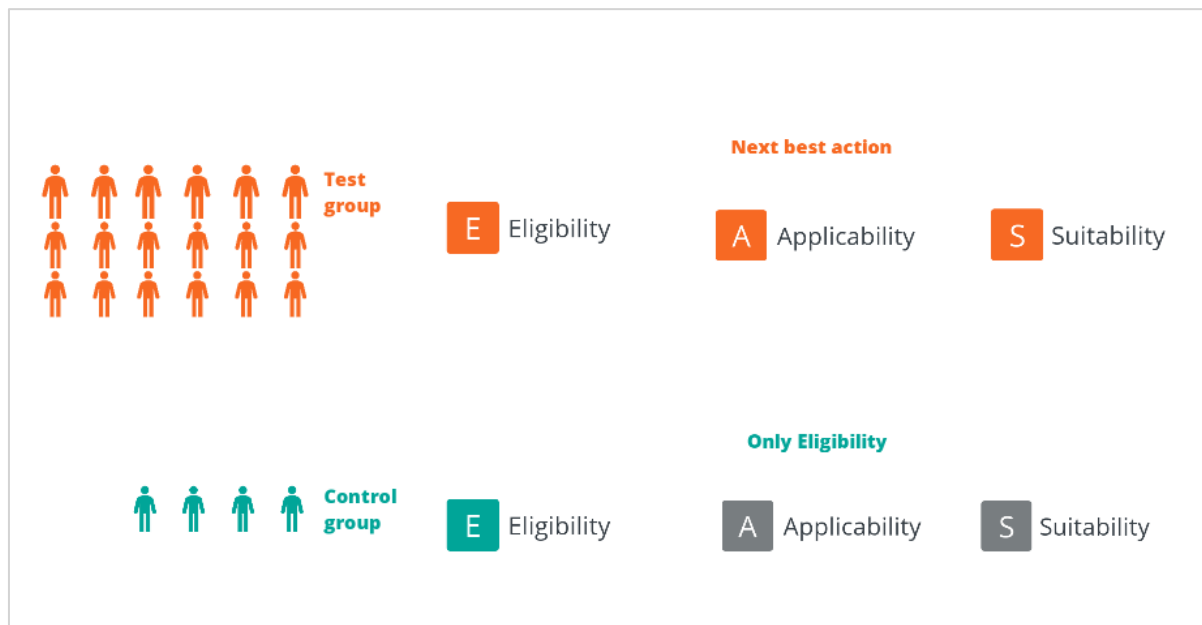
Engagement policies are a set of business rules and practices used by the organization to determine which customers are eligible for which next best actions. There is an experiment in Impact Analyzer, which measures the value and engagement loss caused by possibly too strict engagement policies. Pega Customer Decision Hub™ provides an additional optimization tool, Value Finder, which enables users to further explore this issue. The Value Finder helps users identify underserved customers and optimize their next best actions to deliver higher value.

You can use the engagement policies to specify the conditions under which an action or group of actions a customer is eligible. There are three engagement policy conditions: **Eligibility, Applicability, and Suitability**.

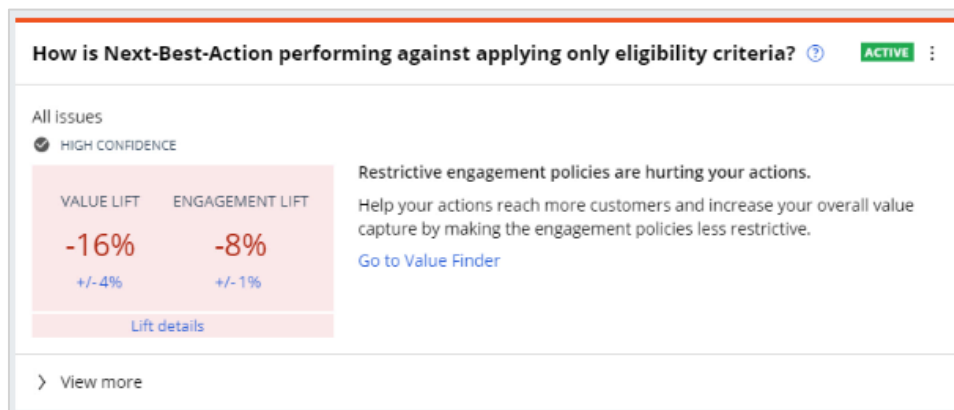
One of the experiments you can perform with Impact Analyzer is "How is Next-Best-Action performing against applying only eligibility criteria?". This experiment compares the next best action configured with full engagement policies and arbitration against the action configured with only Eligibility (without the Applicability and Suitability rules) followed by arbitration. The engagement policies need to be appropriately categorized for the "How is Next-Best-Action performing against applying only eligibility criteria?" experiment to work. Specifically, all the 'required' engagement policies need to be categorized as Eligibility criteria, while discretionary policies need to be categorized as Applicability and Suitability criteria.

You can use this experiment to identify potential opportunity gains by making your engagement policies less restrictive. Sometimes, when engagement policies are too restrictive, actions with a high potential for engagement and value capture are filtered out and do not have a chance to compete for the impression. By eliminating non-essential engagement policies, you can put these offers back in place and increase customer engagement and value capture. In this experiment, the test group receives the fully-

configured next best action, while the control group receives an action with only the eligibility criteria applied.

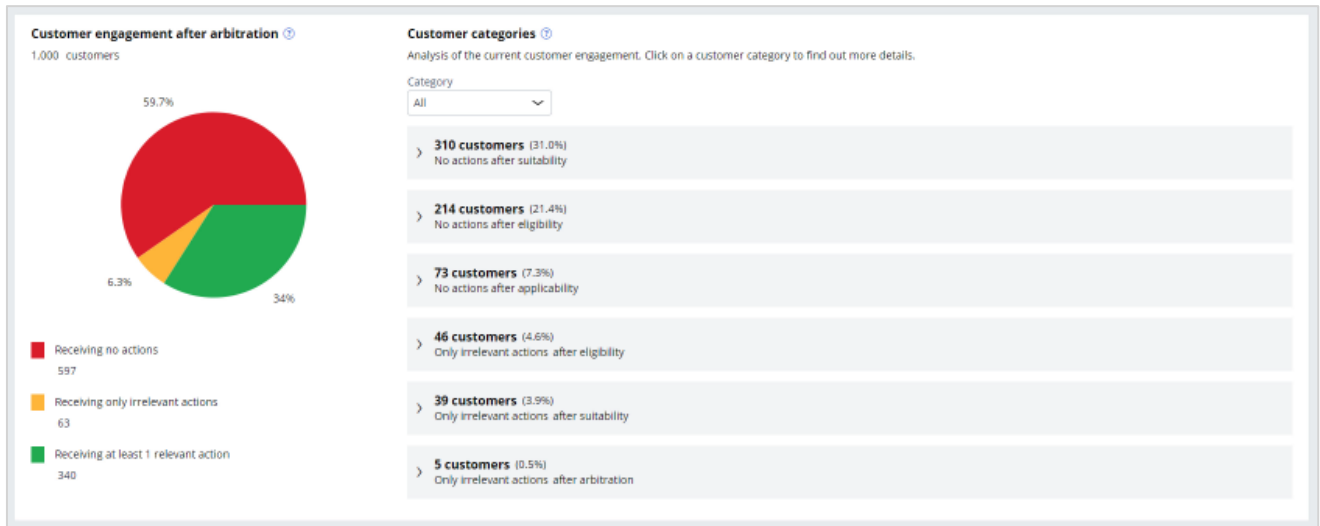


In this example, Impact Analyzer indicates a -16 percent of value lift and -8 percent of engagement lift, and the overall status of the experiment is negative. The widget displays the recommendation that you can make your engagement policies less restrictive to increase the overall value capture.

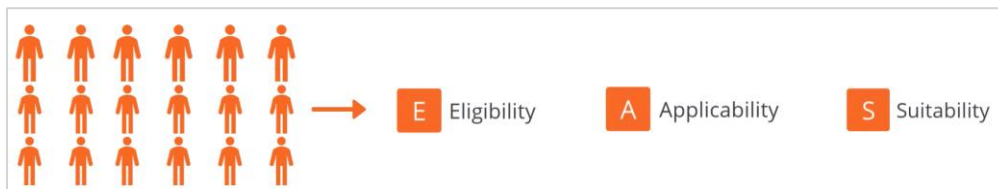


Pega Customer Decision Hub provides opportunities to engage empathetically by identifying "under-served" customers. By using the simulation tool Pega Value Finder, you can identify areas for improvement and monitor scenarios where customers receive no or only low-propensity actions. Value Finder also suggests actions you can take to increase the value capture, such as adjusting engagement policies or creating new actions and treatments.

Consider running a Value Finder simulation to indicate missed opportunities and underserved customers.



Customer Decision Hub has various subsets of customer data available to run simulations, and the subsets of customers represent a sample of real customer data. For a Value Finder simulation, you use a subset of the customer data and apply all three engagement policy conditions.



Once the simulation run is complete, the Value Finder landing page displays a pie chart with numbers of customers in different categories:

- **Receiving no actions** represents the number of customers who received no actions.
- **Receiving only irrelevant actions** represents the number of customers who received low-propensity actions.
- **Receiving at least 1 relevant action** represents the customers who received high-propensity actions.
- **Receiving only new actions** represents the customers who received only new actions.

Value Finder also displays customer categories tabs, with the number of customers filtered out because of the given engagement policy. In this case, the first customer category shows the number of customers who receive irrelevant actions because of eligibility conditions. In this case, it is 370 customers. Analysis of the first customer category suggests that the eligibility conditions might be too strict and exclude many customers.

Customer categories ⓘ

Analysis of the current customer engagement. Click on a customer category to find out more details.

Category

All ▼

>	310 customers (31.0%)	No actions after suitability
>	214 customers (21.4%)	No actions after eligibility
>	73 customers (7.3%)	No actions after applicability
>	46 customers (4.6%)	Only irrelevant actions after eligibility
>	39 customers (3.9%)	Only irrelevant actions after suitability
>	5 customers (0.5%)	Only irrelevant actions after arbitration

When you click a particular category, you can run a simulation to see which conditions influence the actions negatively. Considering the business objectives and current conditions that you want to maintain, you can decide whether to loosen your eligibility rules or not.

If you decide to update the engagement policies to increase lift and engagement values, you can perform an additional Value Finder simulation to determine the number of underserved customers that remain after you apply the new settings.

You have reached the end of this video. You have learned:

- How Impact Analyzer identifies the value and engagement loss caused by engagement policies.
- How Value Finder identifies underserved customers and provides valuable insights.
- How Impact Analyzer and Value Finder help businesses improve the optimization of next best actions and align them more effectively with their overall business goals.

Next-Best-Action on digital

Description

Learn about a typical cross-selling use case on the web channel and its four phases of implementation to improve 1-to-1 customer engagement, drive sales, and deliver Next-Best-Actions in real time.

Learning objectives

- Describe a typical cross-selling use case on the web channel
- List the four phases of use case implementation

Business use case: Cross-sell on the web

Introduction

Pega Customer Decision Hub's Next-Best-Action Designer lets you configure how you want the always-on brain to select the best offer for a customer. The best offer is the result of a series of decisions that are executed in a hierarchical fashion by the brain. Cross-selling on the web channel will help you improve 1-to-1 customer engagement, drive sales, and deliver Next-Best-Actions in real-time.

Transcript

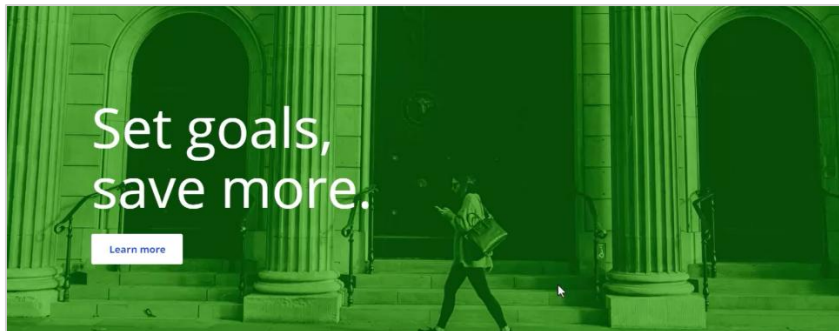
This video describes a typical cross-selling use case on the web channel.

U+ is a retail bank. The bank would like to leverage its website as a marketing channel to improve 1-to-1 customer engagement, drive sales, and deliver Next-Best-Actions in real-time.

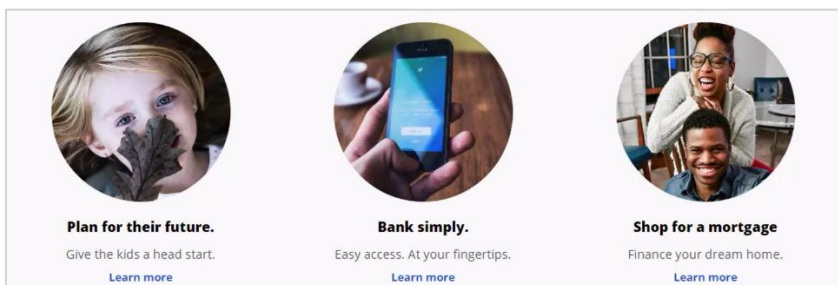
The bank has decided to use the Pega Customer Decision Hub™ to recommend more relevant banner ads to its customers when they visit their personal portal.

Banner ads are shown on various pages throughout the website.

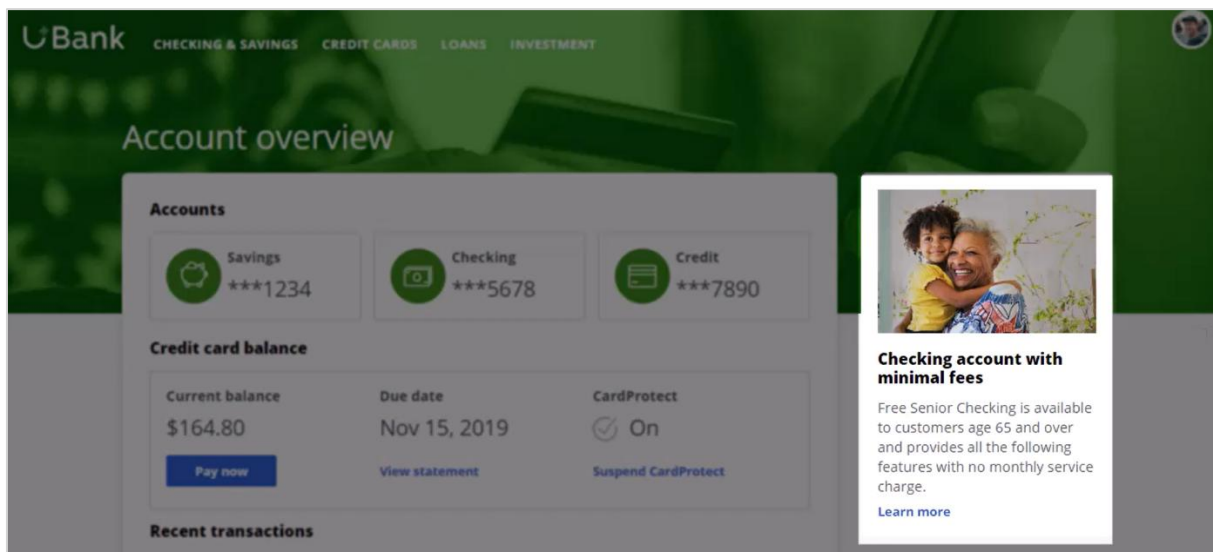
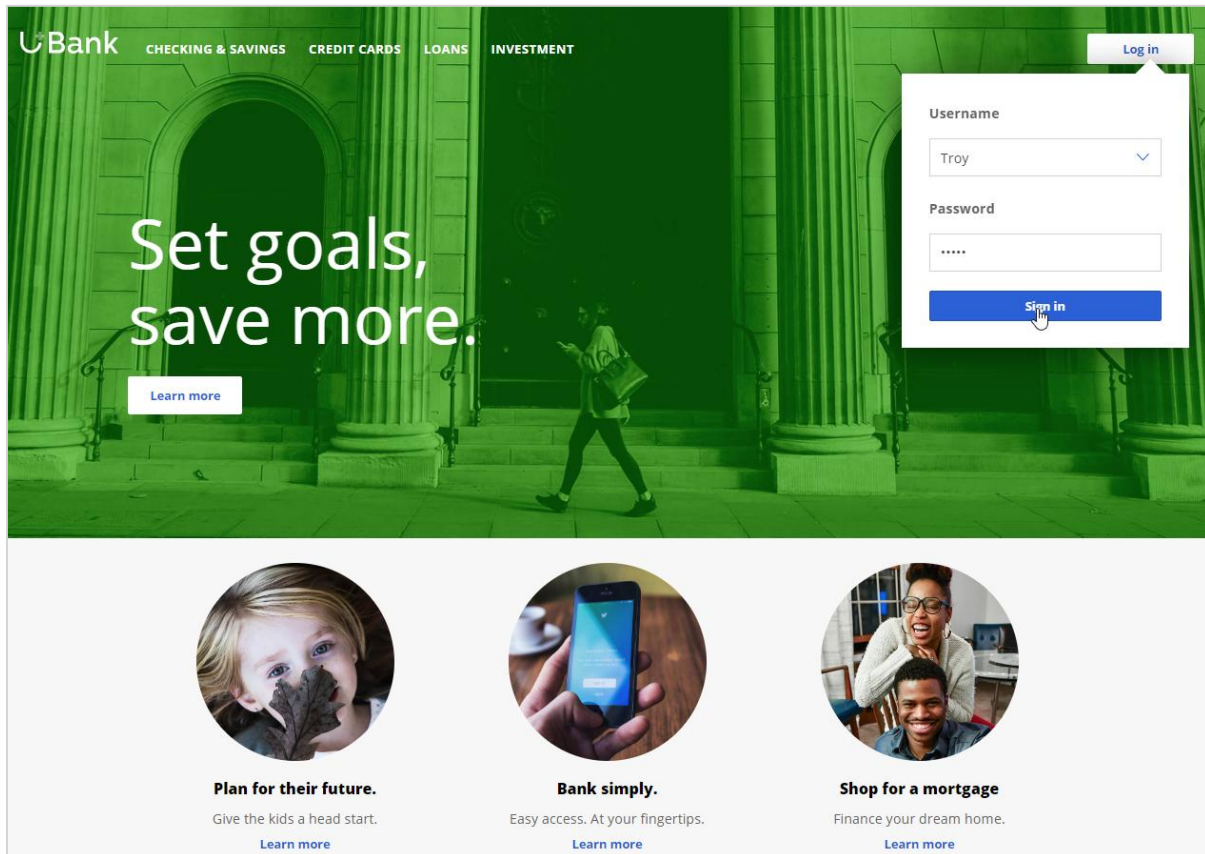
For example, on the home page, U+ can display a Hero banner at the top of the page, which is typically a larger image with bigger typeface.



Below that, there is space to display several Tile banners, which are typically smaller.



When customers log in to their personal portal, they also see a Tile banner on the 'Account overview' page.



The main intent of U+ at this stage is to increase their web engagement. This can be measured by click-through rate. A Click-through is recorded when the customer clicks on the 'Learn more' link.

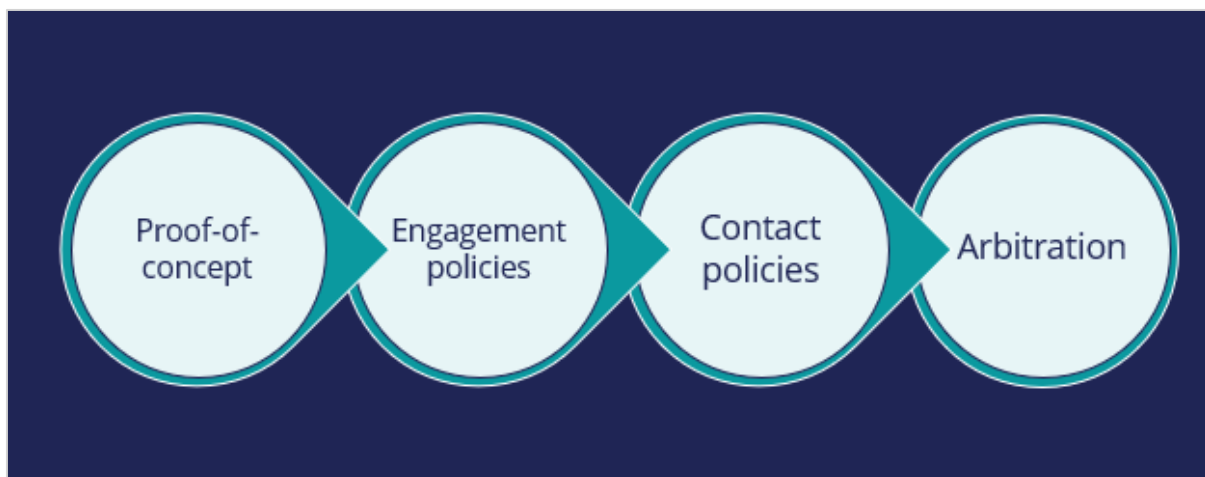
The bank would like to use these banners on the 'Account overview' page, to display offers that are more relevant and likely to receive a positive response.

The offers will be selected by a combination of artificial intelligence (AI) and other business rules. The AI and business rules are defined in the Pega Customer Decision Hub.

The Pega Customer Decision Hub is the always-on customer brain that acts as a single, centralized decision authority. The always-on customer brain selects the right offer to be displayed to each customer who visits the bank's website.

Next-Best-Action Designer lets you configure how you want the always-on brain to select the best offer for a customer. The best offer is the result of a series of decisions that are executed in a hierarchical fashion by the brain.

The bank plans to implement the requirement in multiple phases.



The first phase is a proof-of-concept phase. In this phase, the goal is to display a credit card offer on the U+ website. This requires getting the basic environment up and running, setting up the business structure, defining an Action and a Treatment, and enabling channels and triggers for Next-Best-Action.

As a result of this phase, a credit card offer will be displayed on the 'Account overview' page to all customers who visit the U+ web site. For example, if customer Troy logs in to his account, the 'Cash back' offer is displayed. If another user logs in, they will see the same offer. However, in practice, more offers should be displayed. Also, not all offers may be available to a customer for various reasons.

The next phase is to add customer engagement policies. Engagement policies are the set of conditions such as eligibility, applicability, and suitability that qualify an offer, or a group of offers for a customer. As a result of engagement rules, customers will see only those offers that the organization believes they should be exposed to. For example, Troy logs in, he sees

the Rewards Card, but for Barbara this is not applicable, so it will never appear; instead, she sees the Rewards Plus Card.

Too many contact attempts over a short period of time can have a negative impact on a customer's attitude toward further offers by your company. Therefore, in the next phase, U+ implements some contact policies using suppression rules, which allow an offer to be put on hold after a specific number of outcomes. For example, if Troy ignores an ad a few times, then the ad will no longer be shown to him over a period of time. Instead, his 'Account overview' page will show a different ad.

Basically, from a set of all available offers, the choice is narrowed down by engagement policies. Then the selection is further narrowed down by suppression rules.

After the engagement policies and suppression rules have "whittled down" the total possible offers to a few, Arbitration is used to choose the top offer based on what is relevant for the customer right NOW.

Arbitration is the last phase of cross-sell in the U+ web use case.

Arbitration aims at balancing customer relevance with business priorities. Specifically, Propensity, Context Weighting, Business Value, and Business Levers are given numerical values. A simple formula is then used to arrive at a prioritization value, which is used to select the top offer. For example, Troy qualifies for three credit card offers. When he logs in, he sees the top offer for him, the Standard Card. This offer is the Top 1 because the priority value is the highest among all other offers.

This video has concluded. It showed you a typical cross-selling use case on the web channel and its four phases of implementation.

Next-Best-Action Designer

Introduction

Next-Best-Action Designer guides you through the creation of a Next-Best-Action strategy for your business. Its intuitive interface, proven best practices, and sophisticated underlying decisioning technology enable you to automatically deliver personalized customer experiences across inbound, outbound, and paid channels. Next-Best-Action Designer is organized according to the high-level sequence of steps needed to configure the next-best-action strategy for your organization.

Transcript

Next-Best-Action Designer guides you through the creation of a next-best-action strategy for your business. Its intuitive interface, proven best practices, and sophisticated underlying decisioning technology enable you to automatically deliver personalized customer experiences across inbound, outbound, and paid channels.

Next-Best-Action Designer user interface allows you to easily define, manage, and monitor next best actions.

The tabs across the top of the user interface represent the steps to complete to define next best actions.

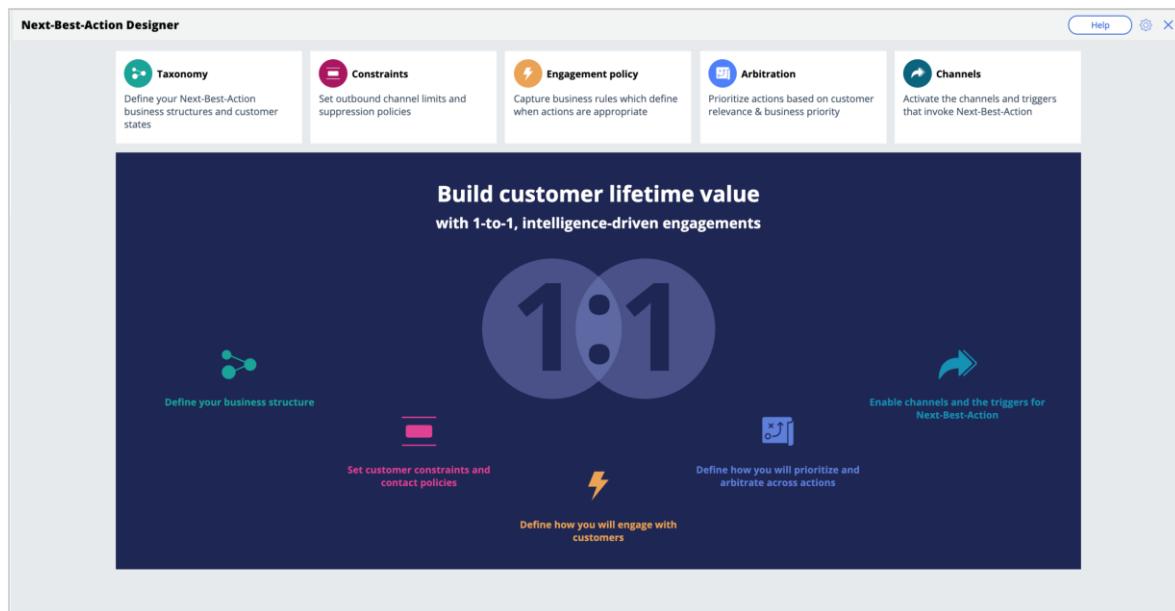
Use the **Taxonomy** component to define the business structure for your organization.

Use the **Constraints** component to implement channel limits and constraints.

Use the **Engagement policy** component to define the rules that control which actions are offered to which customers.

Use the **Arbitration** component to configure the prioritization of actions.

Use the **Channels** component to configure when and where the next best actions initiate.



The system uses these definitions to create an underlying Next-Best-Action Strategy framework. This framework leverages best practices to generate next-best-actions decision strategies at the enterprise level. These decision strategies are a combination of the business rules and AI models that form the core of the Pega Customer Decision Hub, which determines the personalized set of next best actions for each customer.

Use the **Taxonomy** tab to define the hierarchy of business issues and groups to which an action belongs and create and manage customer journeys.

Next-Best-Action Designer

Taxonomy
Define your Next-Best-Action business structures and customer journeys

Constraints
Set outbound channel limits and suppression policies

Engagement policy
Capture business rules which define when actions are appropriate

Arbitration
Prioritize actions based on customer relevance & business priority

Channels
Activate the channels and triggers that invoke Next-Best-Action

CDH-Artifacts: 01-01-01
Edited 1 month ago by System Architect

Taxonomy

Business structure Customer journeys Properties

Business structure

Issues / Groups	Description	Action naming
Acquire	Drive conversion rate and generate sustainable growth	
⇒ Credit cards	Actions which help to improve credit card acquisition journey experience	
⇒ Auto loans	Actions which help to improve auto loan acquisition journey experience	
⇒ Deposit accounts	Actions which help to improve deposit account acquisition journey experience	
⇒ Mortgages	Actions to improve home loan acquisition journey experience	
Grow	Develop deeper and more profitable relationship with existing clients	

A business issue is the purpose behind the actions you offer to customers. For example, actions with the purpose of acquiring new customers belong to the business Issue of **Acquire**. Actions with the purpose of retaining existing customers are grouped under the business issue of Retain.

Business groups organize customer actions into categories. For example, as part of the Acquire business Issue, you can create groups for products like credit cards, mortgages, or auto loans, with the intention of offering these to potential customers.

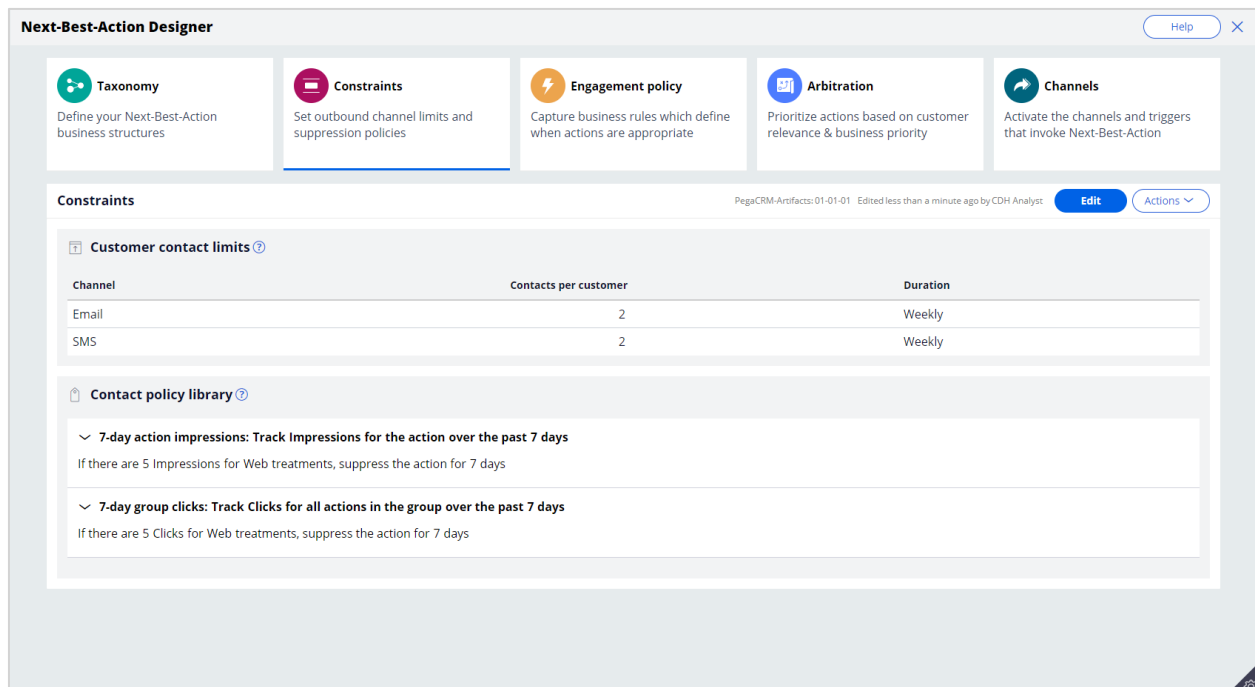
Customer journeys are the sum of the phases that customers go through when interacting with an organization. You can create customer journeys in Next-Best-Action Designer, and then map customer actions to different journey stages. Each stage represents an experience that a customer goes through while interacting with an organization.

On the **Properties** tab, you can define, manage, and view all the strategy result properties and action properties that are available in the application, including both default system properties and custom properties that you define for the outbound treatments or real-time containers.

The screenshot shows the 'Next-Best-Action Designer' application. At the top, there are five main tabs: Taxonomy, Constraints, Engagement policy, Arbitration, and Channels. The 'Taxonomy' tab is selected, and within it, the 'Properties' sub-tab is active. The 'Properties' section displays a table of system properties. The table has columns for Name, Description, Type, Usage, Include in strategy results, and Expressions. The properties listed are PrintingCost, LabelPriority, AverageCost, and CreditScore. There is also a checkbox to 'Show system properties'.

Name	Description	Type	Usage	Include in strategy results	Expressions
PrintingCost	Printing Cost	Decimal			
LabelPriority	LabelPriority	Decimal	Dynamic		
AverageCost	AverageCost	Decimal	Static	Inbound,Outbound	
CreditScore	CreditScore	Integer	Dynamic		

Use **Constraints** to specify outbound contact limits and limit overexposure to a specific action or group of actions.



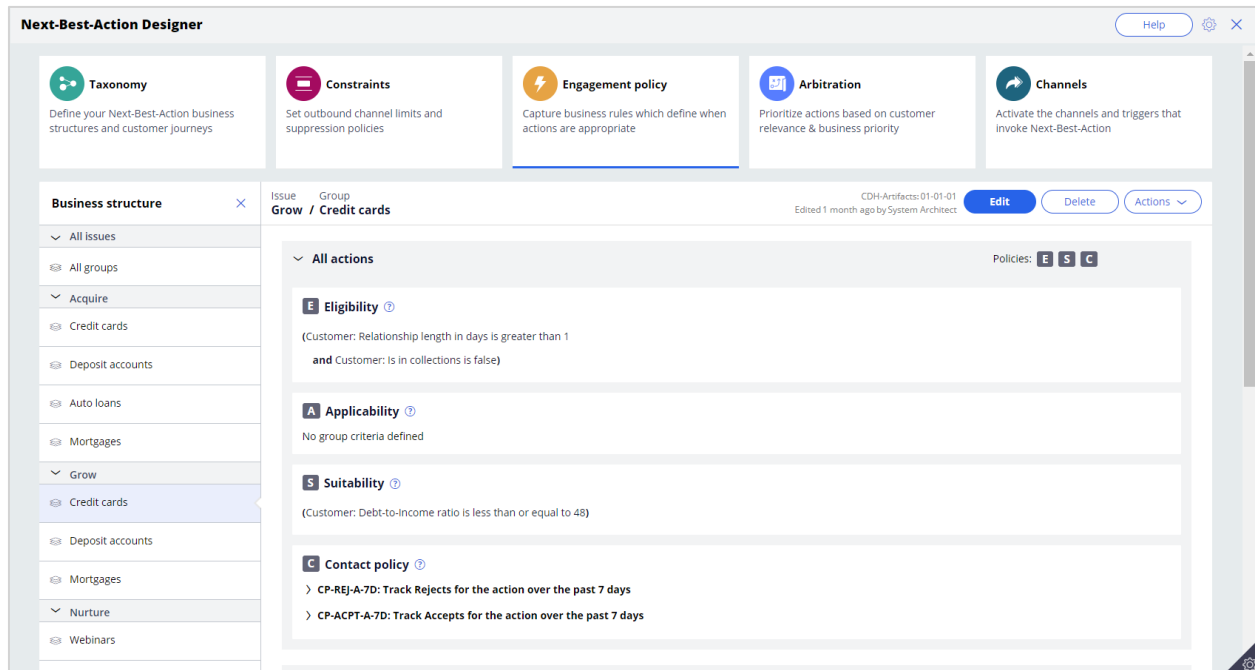
Outbound channel limits allow you to limit the number of outbound communications that a customer can receive over a given period of time on a specific channel. For example, you can decide that you do not want your customers to receive more than two emails per week or two SMS messages per week.

With action limits (outbound action limits and inbound action limits), you limit the number of actions that the customer sees during an interaction on an inbound or outbound channel.

On the **Constraints** tab of Next-Best-Action Designer, you can define more extensive suppression rules by creating Contact Policy rules in the library. Contact Policy rules are reusable across all Business Issues and Groups.

In the Contact Policy library, you define suppression rules that automatically put an action on hold after a specific number of outcomes are recorded for some or all channels. For example, an action can be suppressed for a customer for seven days after the customer has seen an ad for that action five times. Suppressing or pausing an action prevents over-exposure by limiting the number of times a customer is exposed to the same action.

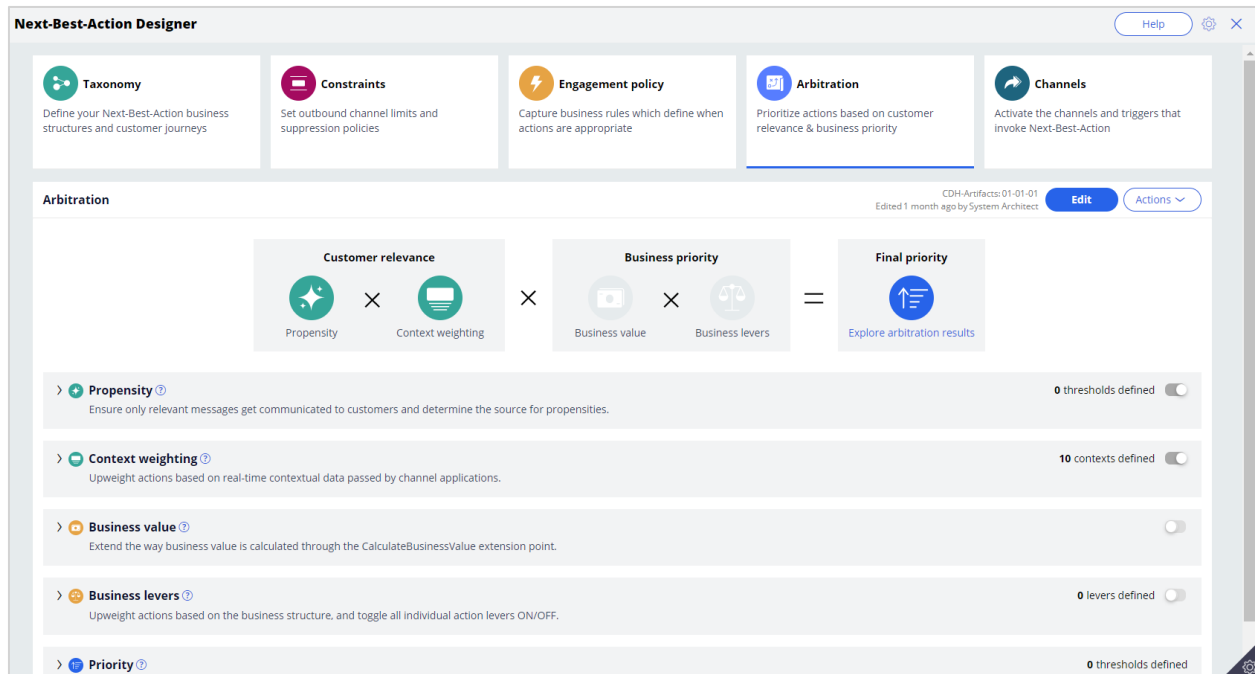
Use **Engagement policies** to define when specific actions or groups of actions are appropriate for customers.



There are four types of engagement policies:

- **Eligibility** determines whether or not a customer qualifies for an action or group of actions. For example, an action may only be available for customers over a specific age or living in a specific geographic location.
- **Applicability** determines if an action or group of actions is relevant for a customer at a particular point in time. For example, a discount on a specific credit card may not be relevant for a customer who already owns a card.
- **Suitability** determines if an action or group of actions is appropriate for a customer for ethical or empathetic reasons. For example, a new loan offer may not be appropriate for a customer whose credit score is low, even though it might be profitable for the bank.
- **Contact Policies** determine when an action or group of actions should be suppressed and for how long. For example, you can suppress an action after a specific number of promotional messages have been sent to the customer. To activate *Contact Policy* rules created in the library on the **Constraints** tab, add them to the **Engagement Policy** tab.

Arbitration determines how Customer Decision Hub prioritizes the list of eligible and appropriate actions that come out of each group.



The factors weighed in arbitration are **Propensity**, **Context weighting**, **Business value**, and **Business levers**, each represented by numerical values.

- **Propensity** is the likelihood of a customer responding positively to an action. The propensity is calculated by AI. For example, clicking an offer banner or accepting an offer in the contact center are considered positive behaviors.

Real-time contextual data is an important part of making highly relevant recommendations. **Context weighting** allows you to assign a weighting to a specific context value for all actions within an Issue or Group. For example, if a customer contacts the bank to change their address, the weight of the Service context increases, and the highest priority action is to ensure that the relevant service is delivered to the customer.

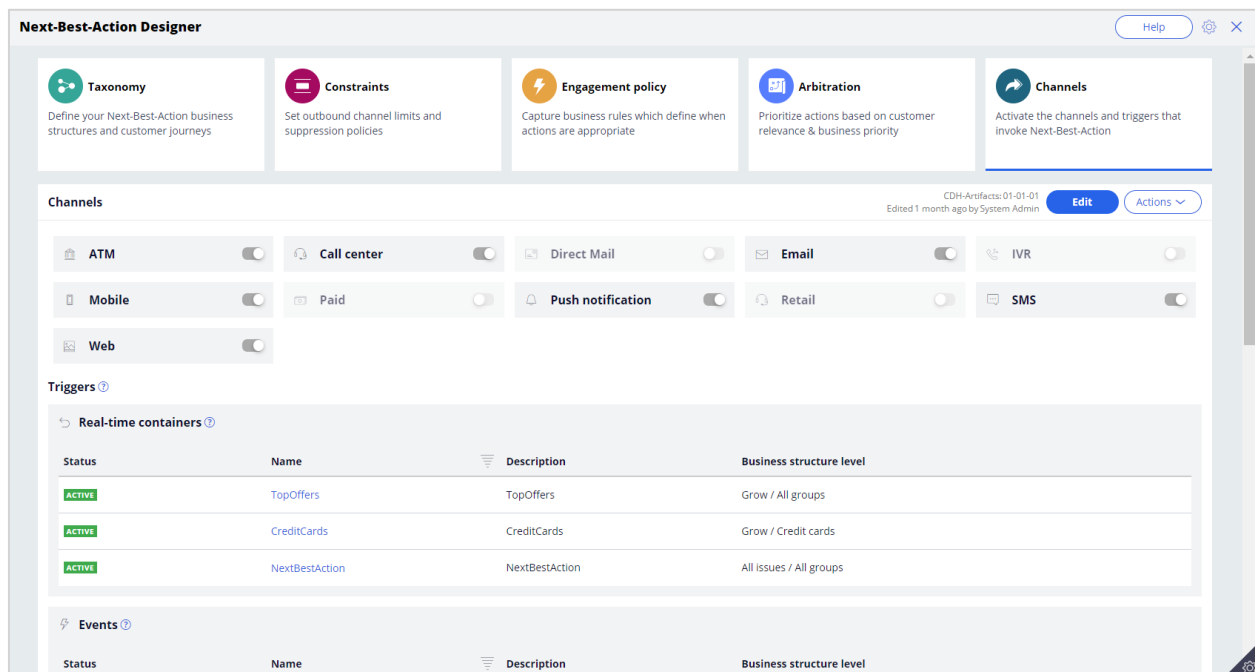
- **Business value** enables you to assign a financial value to an action and prioritize high-value actions over low-value ones. For example, promoting an unlimited data plan might be more profitable for the company than a limited data plan. Action values are typically normalized across Issues and Groups.
- **Business levers** enable you to accommodate ad hoc business priorities by specifying a weight for an action or group of actions and/or its associated business issue.

A simple formula determines a prioritization value, which is used to select the top actions.

The final priority indicates the top action selected from the list of eligible and appropriate actions for the customer. You can explore the arbitration matrix in Customer Profile Viewer to understand what type of actions are displayed to the customer.

You can use Customer Profile Viewer to examine specific profile and behavioral data, including previous next-best-action decisions and interaction history.

Next-Best-Action Designer enables the delivery of next best actions through inbound, outbound, and paid channels.



You can turn these channels on or off. If you turn off a channel, the next best actions are not delivered to that channel.

An external real-time channel is any channel that displays the actions that Customer Decision Hub selects for a customer. These channels can include a website, a call-center, or a mobile application. A real-time container is a placeholder for content in an external real-time channel.

A trigger is a mechanism whereby an external channel invokes the execution of a Next-Best-Action decisioning process for specific Issues and Groups. The result returns to the invoking channel. For example, when a real-time container called *TopOffers* is configured, the website invokes this real-time container before loading the account landing page.

As you have seen in this video, Next-Best-Action Designer is organized according to the high-level sequence of steps needed to configure the Next-Best-Action strategy for your organization. These steps involve:

- Defining the business structure for your organization.
- Implementing the channel limits and constraints.
- Defining the contact policies that control for which actions a customer qualifies.
- Configuring the prioritization of actions.
- Configuring when and where to initiate next best actions.

You have reached the end of this video.

Defining and managing customer actions

Description

In Pega Customer Decision Hub™, learn how to use Next-Best-Action Designer to build the business issue/group hierarchies for your organization. Create an action under a specific business issue/group hierarchy and learn to rename an action to better reflect its business context.

Learning objectives

- Explain an actions hierarchy
- Configure a business structure with issues and groups
- Create actions
- Rename actions

Action hierarchy

Customer action introduction

In Pega Customer Decision Hub™, next-best-action customer recommendations can take many forms, such as a banner advertisement, a retention offer, or a service message. Learn how to recognize different types of actions in your organization and organize similar actions into action groups.

Customer actions in your organization

In Pega Customer Decision Hub, customer actions are the specific actions that the system or application can take based on customer interactions and decisions. These actions can include sending personalized messages, offers, recommendations, or any other form of engagement with the customer. The actions are determined by the decisioning capabilities of Customer Decision Hub, which utilize analytics, business rules, and customer data to make intelligent decisions and drive personalized customer experiences.

Consider the following scenarios in various channels: contact center, mobile, and web.

Scenario 1: Contact center: Upsell

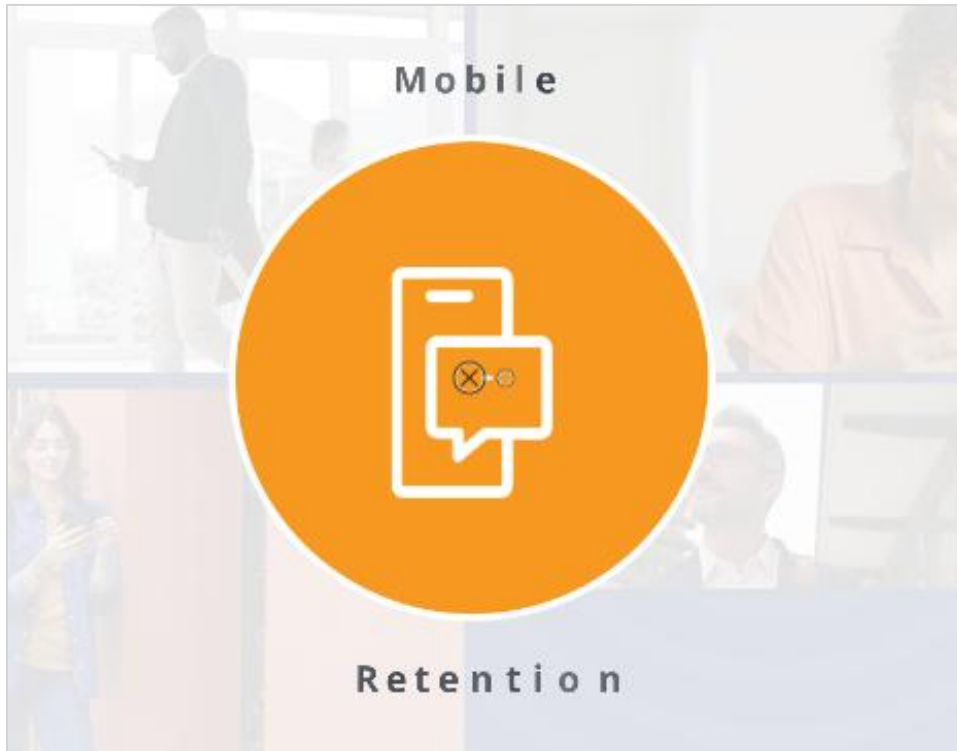
A customer, Peter, has a subscription with a Telco company. A Customer Service Representative (CSR) calls Peter to encourage him to purchase an upgraded version of the subscription.

This scenario is an upsell offer made in a contact center and is a valid customer action.



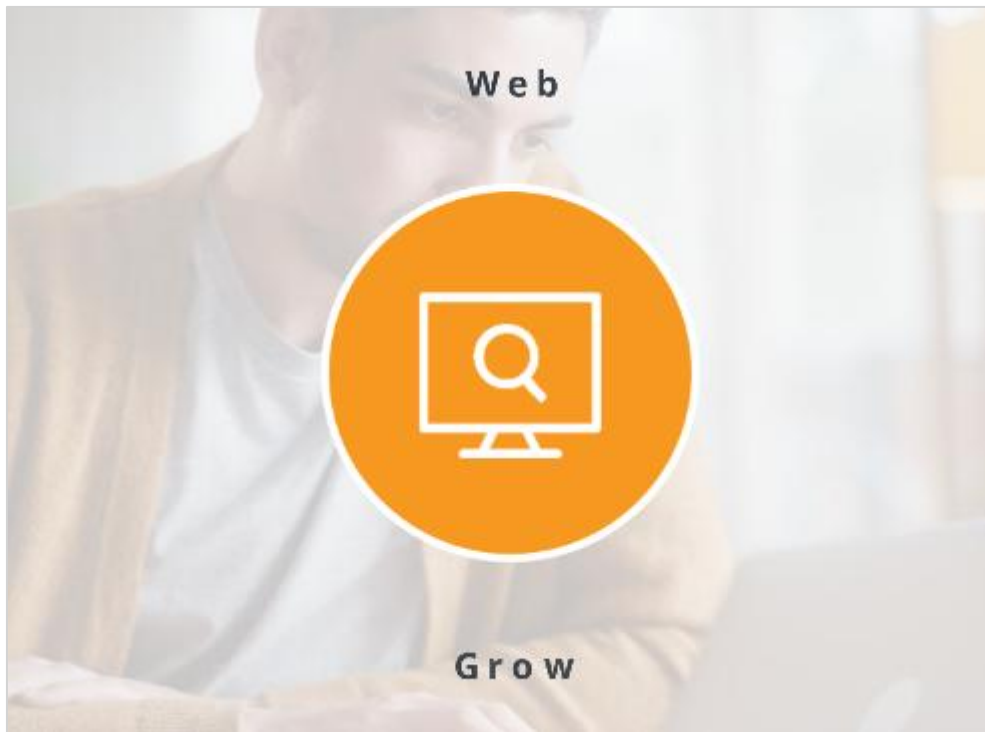
Scenario 2: SMS: Retention

A customer, Troy, doesn't use his credit card that often anymore and has decided to cancel the contract with U+ Bank. The Bank sends him an SMS message with the discount retention offer. This scenario is a retention offer made on the mobile channel to retain a customer and is a valid customer action.



Scenario 3: Inbound-web: cross-sell

A customer, Arnold, searches for a new phone subscription on a Telco company website. He finds an advertisement for a monthly subscription with unlimited mobile internet and calls. This scenario is a banner advertisement on a website and is a valid customer action.



Customer action properties

Every customer action has properties that define its characteristics. For example, a banner advertisement on a website usually consists of several elements, which help customers quickly understand the offer.

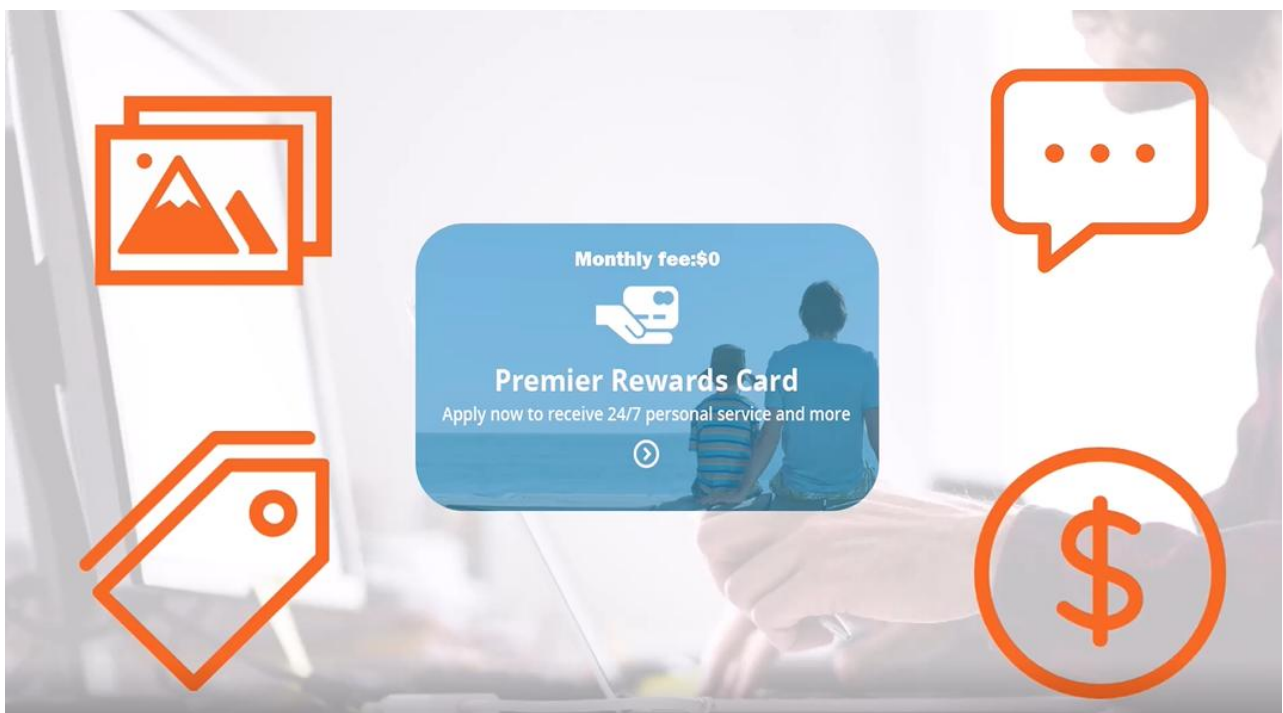


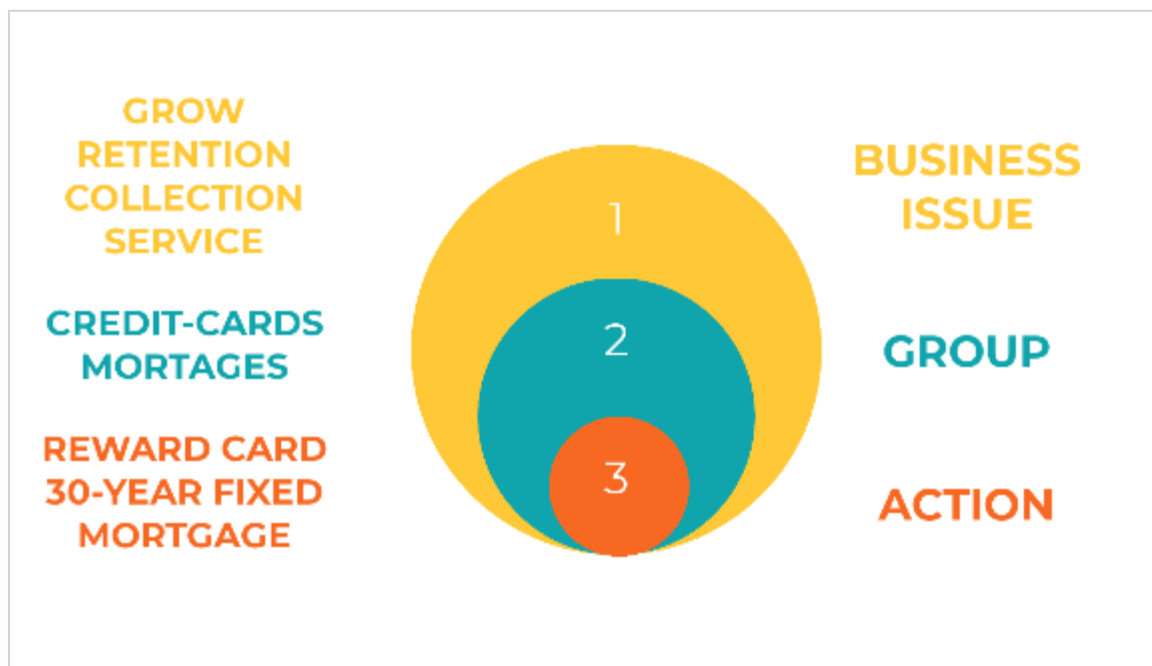
Image represents the visualization that is used for the banner. **Price** is a numeric property that represents the price of the customer action. **Benefit** represents the value proposition to the customer. **Short title** is a property that represents a short description of the customer action.

Business hierarchy

In Pega Customer Decision Hub, customer actions apply to various business issues and are organized into a three-level hierarchy. The business issue is the purpose of the actions that you offer to your customers. Each action that you prepare for your customers is associated with an issue and a group. Because of the association, you must always define the hierarchy before creating actions.

In Pega Customer Decision Hub, a **Business Issue** represents the business area for which a customer action is applicable (for example, **Grow**, **Retention**, **Collections**, and **Service**), a **Group** organizes actions into logical categories (for example, **Credit Cards** or **Mortgages**), and an offer, which is referred to as an **Action** (for example, a **Reward card** or **30-year fixed rate**).

Each action that you prepare for your customers is associated with an issue and a group.



You have reached the end of this video. What did it show you?

- What are the customer actions in Customer Decision Hub.
- What are the customer action properties.

- Business hierarchy in Customer Decision Hub.

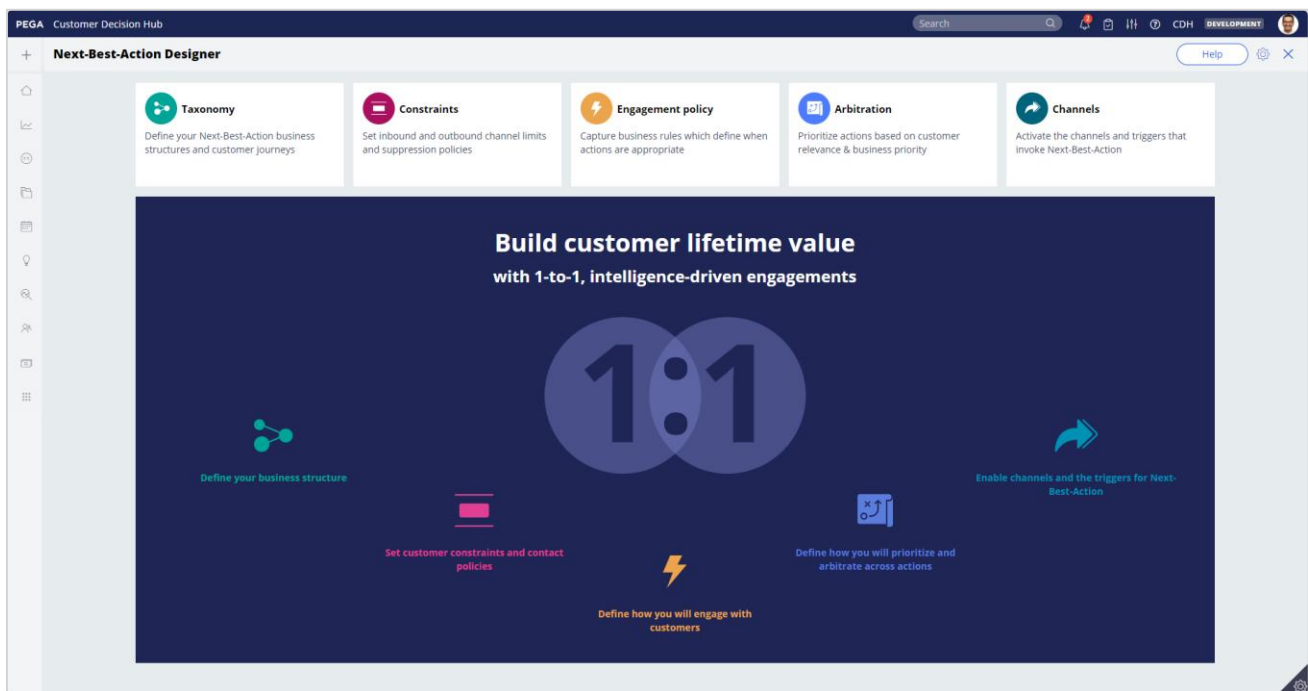
Managing business structure

In Pega Customer Decision Hub™, you can use Next-Best-Action Designer to build the business issue and group hierarchies for your organization. Business issues and groups collectively form the organizing structure for your customer interactions. Each next best action that the system displays to a customer is associated with a business issue and group.

Transcript

This demo shows you how to manage your business structure in Next-Best-Action Designer.

This is the Pega Customer Decision Hub portal. To manage the business structure, navigate to Next-Best-Action Designer.



Customer actions are organized using a hierarchical business structure known as Issues and Groups.

On the **Taxonomy** tab, you can view the issues and groups defined during the set up of the Financial Services (FS) framework. You can also define new Issues and Groups that will contribute to the next-best-action decisioning process.

Taxonomy
Define your Next-Best-Action business structures and customer journeys

Constraints
Set inbound and outbound channel limits and suppression policies

Engagement policy
Capture business rules which define when actions are appropriate

Arbitration
Prioritize actions based on customer relevance & business priority

Channels
Activate the channels and triggers that invoke Next-Best-Action

Taxonomy

CDH-Artifacts:01-01-01
Edited 22 days ago by System Architect

Edit
Delete
Actions

Business structure
Customer journeys
Properties

Business structure

Issues / Groups	Description	Action naming
Acquire	Drive conversion rate and generate sustainable growth	
Credit cards	Actions to improve customer's card acquisition journey experience	
Deposit accounts	Actions to improve customer's deposit account acquisition journey experience	
Auto loans	Actions to improve customer's auto account acquisition journey experience	
Mortgages	Actions to improve customer's Home loan acquisition journey experience	
Grow	Develop deeper and more profitable relationship with existing clients	
Credit cards	Credit card products for existing customers	
Deposit accounts	Deposit account products for existing customers	
Mortgages	Actions which help to build deeper relationships based on customers need for home loans	
Nurture	Nurture customer relationship to drive more engagement	

Click **Edit > Configure issues** to add, remove, or create new Issues. The Configure Business Issues window shows the issues created at the earlier stage. The issues marked blue are already active. Click the **Collections** issue to turn it off.

Configure Business Issues

Create a new Business Issue or select an existing one to make it active.

Acquire

Collections

Grow

Nurture

Cancel

The deactivated issue is automatically removed from a business hierarchy.

Similarly, you can add, remove, or create business groups. To add more groups, configure the groups under the selected issue. Create a new **Debit cards** group. To complete the configuration, save the changes.

Configure Grow groups

Credit cards

✓

Deposit accounts

✓

Mortgages

✓

Debit cards

✓

↺

🗑️

+ Create

Cancel

Note that you can disable only the issues and groups that do not have any references.

For example, if there are actions or other references in the **Grow issue, Credit cards group**, you can not disable the issue or group.

You have reached the end of this video. You have learned:

- How to remove an existing issue from the business hierarchy.
- How to add a new group to an existing Issue.

Creating actions

Introduction

An action holds various details about a particular offering, such as Start Date, End Date, and Expected Revenue. Each action is backed by a decisioning proposition. The system automatically manages this relationship by creating, deploying, and deleting the proposition instances as needed. Since an action is closely tied to a proposition, it must always be created in the context of an issue and group.

Transcript

This demo will show you how to create an Action. It will also explain how to create Actions in bulk.

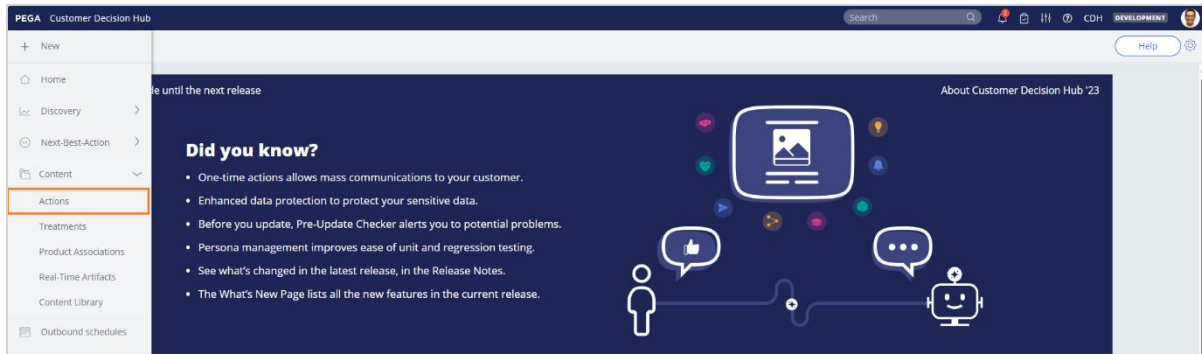
In Pega Customer Decision Hub, actions are customer recommendations that can take many forms, such as a banner advertisement, a retention offer, a service message, an e-mail message with the new offer, or different kinds of announcements. All these actions fall into one of the two categories: Always-on or One-time actions.

Always-on actions are available for the Next-Best-Action framework to select and deliver the appropriate communication to the customer. They can be promotional, transactional, or mandatory.

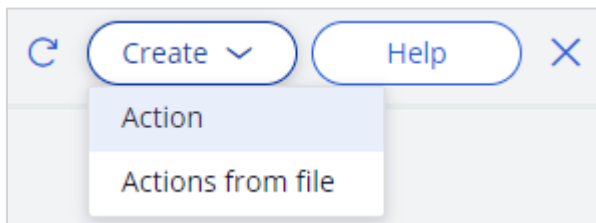
One-time actions are batch communication that all customers receive at a specific date and time. These actions are executed in a Business Operations Environment. No engagement policies or constraints are applied to these actions, and everyone receives the same action.

U+, a retail bank, recently introduced several new credit card offers that they would like to display to their customers. As a decisioning consultant, you have been tasked with creating these offers in the **Grow** Issue and **CreditCards** Group as per the pre-defined business hierarchy.

This is the Pega Customer Decision Hub™ portal. Actions are created and managed on the Actions landing page.

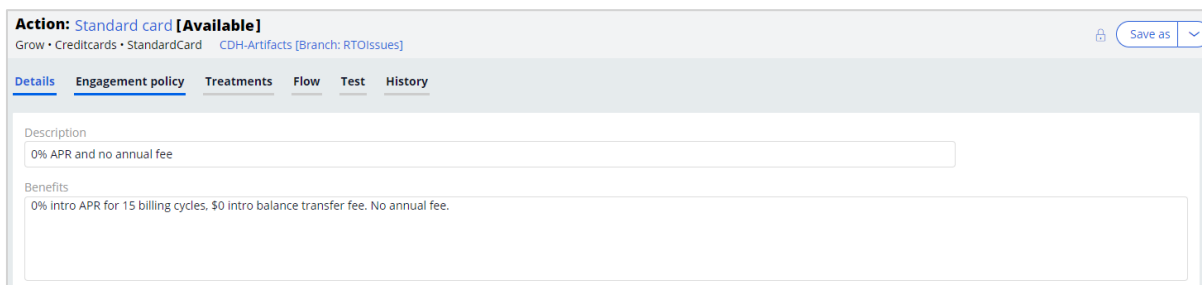


You can either create a single Action or Actions in bulk.



To create a single Action, enter a short description of the new Action. Select the appropriate **Issue** and **Group**. Now, open the Action.

The attributes of an Action distinguish it from other Actions. Attributes are used by the Customer Decision Hub to select the right Action for a customer. Fill in the attributes relevant to this Action. For example, provide a **Description** that explains its purpose and **Benefits** that describe how this Action will benefit the customer.



Bear in mind that some of the values you enter may be customer-facing information. For example, U+ wants to display the content of the Benefits attribute when this Action is presented on its website.

An Action can be associated to a Context, and it will be evaluated as part of the Next-Best-Action for that Context. In this case, **Customer** is the primary context.

Action: Standard card [Available]

Grow • Creditcards • StandardCard [CDH-Artifacts:01-01-01](#)

Details

Engagement policy

Treatments

Flow

Test

History

Action context ?

Customer

Customer Journey stage ?

Not currently assigned to any customer journey stage

To complete the configuration, **save**.

To view Actions within a certain Group, you can filter by a specific **Issue** and **Group**. This is the Action you just created. Thus far you have created a single Action. However, sometimes you may want to create multiple Actions at once. You can do that by uploading a list of Actions from a Comma Separated Value (CSV) file. To create such a CSV file you need to download a CSV template and fill it in.

Open the downloaded CSV template. You can use this template to add/update Actions. Add new Actions with corresponding attributes to the file.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	ExpectedJourneyO	IsWebEna	BundleNa	ApplyAna	pyIssue	DynamicT	InboundC	ImageURL	Value	ProductSe	BundleCo	ProductsC	StartingPr	StartDate	BundlePa	ProductsI	pyIsPropo	ExpectedI	IsArbitrat	InboundT	IsPredicti	IsPaidEnal	IsPushEna	Outbound	IsMobileE	IsCont
2				TRUE	Grow	.	.	.	.	NotPartOfABundle			1		FALSE		Always							.		
3				TRUE	Grow	.	.	.	.	NotPartOfABundle			1		FALSE		Always							.		
4				TRUE	Grow	.	.	.	.	NotPartOfABundle			1		FALSE		Always							.		
5				TRUE	Grow	.	.	.	.	NotPartOfABundle			1		FALSE		Always							.		
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Properties that start with py, such as pyIssue, pyName, pyGroup, pyLabel and pyIsPropositionActive are mandatory internal properties. It is important that you input these values in the correct format into the CSV file.

The property `pylsPropositionActive` corresponds to the Availability property, which is visible on the Details tab of an Action. Possible values for this property are 'Always', 'Never' and 'Date'.

Choose 'Always' to ensure that the Action is selected during the Next-Best-Action decisioning process by the Customer Decision Hub.

Set it to 'Never' if you never want the Action to be selected, for example when you want to retire the Action

If you set the value to 'Date', you should enter a date range in the 'StartDate' and 'EndDate' fields. The Customer Decision Hub will select this Action only during that time period.

`pylssue` corresponds to the Issue the Action was created for.

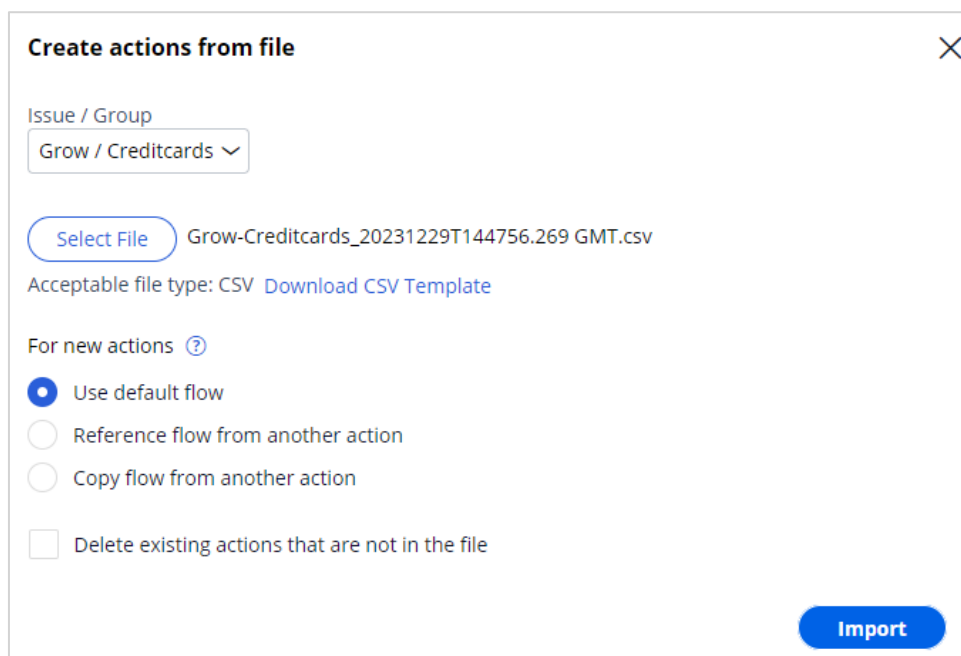
`pyLabel` corresponds to a short description of the Action.

`pyName` corresponds to the Action name.

`pyGroup` is the Group to which the Action belongs.

Save and close the CSV file.

Now, import Actions from the file. Select the CSV file that contains the list of Actions you want to import. If you want to delete existing Actions from this Issue/Group that have been created in the system but not in the CSV file, you can select this option. For now, you are only interested in adding new Actions.



The screenshot shows a dialog box titled "Create actions from file" with a close button (X) in the top right corner. Inside the dialog, there is a section labeled "Issue / Group" with a dropdown menu currently showing "Grow / Creditcards". Below this is a "Select File" button, followed by the text "Grow-Creditcards_20231229T144756.269 GMT.csv". Underneath, it says "Acceptable file type: CSV" and provides a link to "Download CSV Template". A section titled "For new actions" with a help icon (?) contains three radio button options: "Use default flow" (which is selected), "Reference flow from another action", and "Copy flow from another action". At the bottom of this section is a checkbox labeled "Delete existing actions that are not in the file", which is currently unchecked. A blue "Import" button is located in the bottom right corner of the dialog.

Notice that the window displays a summary of the result of the import. For example, when a duplicate Action is added, the Errors count is incremented, and you can download the error file to learn the exact issue. Complete the import.

Create actions from file✕

File Name
Grow-Creditcards_20231229T144756.269 GMT.csv

Issue / Group
Grow / Creditcards

Summary

Actions added or updated	Actions deleted	Errors
4	0	0

<< BackFinish

Notice that the new Actions are now listed on the **Actions** page.

This demo has concluded. What did it show you?

- How to create an Action.
- How to set Action attributes.
- The most important properties of Actions in a CSV file.
- How to create multiple Actions using a CSV file.

Renaming actions

Introduction

By default, Pega Customer Decision Hub uses the term 'actions' to refer to messages delivered during a customer interaction. If needed, you can change this to a more appropriate term, such as Promotions or Nudges. Actions can be renamed with different terms based on the business issue and group to which the product belongs.

Transcript

This demo will show you how to change the default naming of Actions to something that better reflects their business context.

This is the Pega Customer Decision Hub™ portal. On the **Actions** landing page, you can view all the Actions that have been created. To view Actions within a certain Group, you can filter by a specific **Issue** and **Group**. In this case, filter Actions in the **Grow** Issue and **CreditCards** Group. Open an Action to view the name. Notice that the Grow/CreditCards Group uses the default terminology '**Action**'.

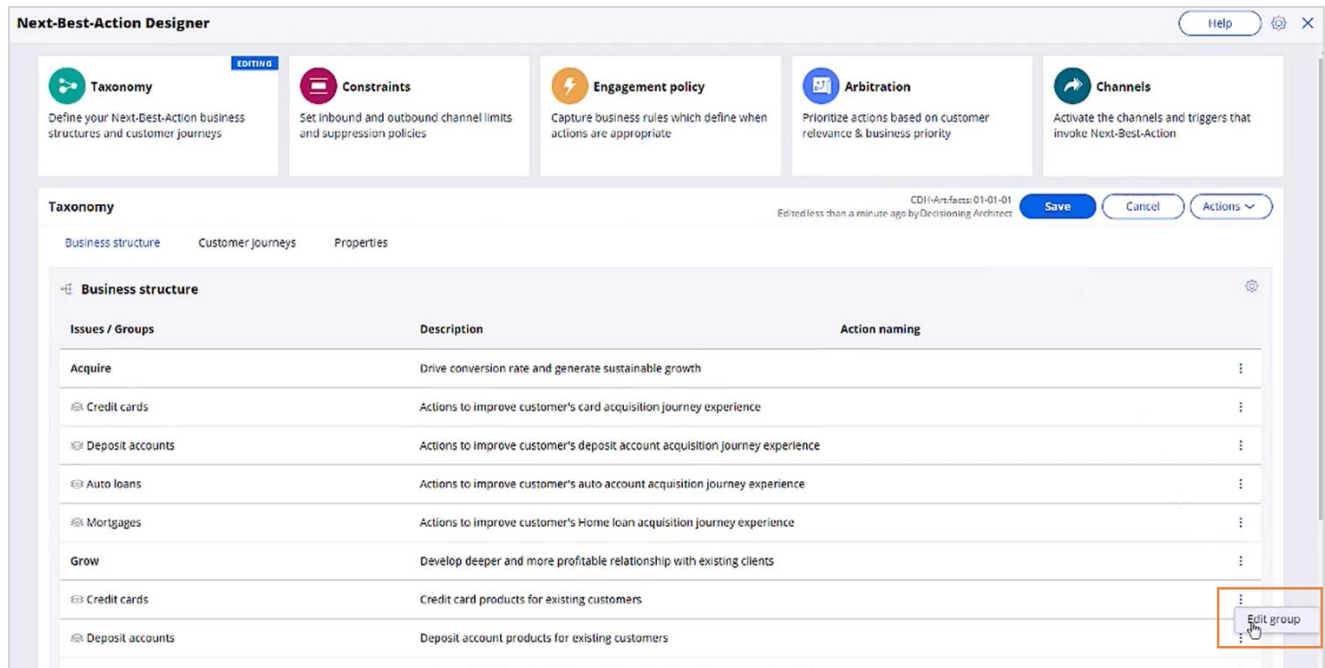


U+ bank wants to rename Actions under the **Grow** Issue and **CreditCards** Group to better suit their business purpose. The Actions under the **CreditCards** Group are always promotional credit card offers, therefore the bank wants to change the naming convention from 'Action' to 'Offer'.

You can change the default naming convention of Actions in Next-Best-Action Designer.

To manage the business structure, navigate to the Taxonomy tab of Next-Best-Action Designer. The 'Action naming' convention is set in a business Group's configuration settings. This can be set for each group in the business hierarchy.

Edit the hierarchy to modify the Group attributes.



In this case, change the Action naming convention to Offer.

The 'Edit CreditCards' dialog box is shown. It has the following fields and controls:

- Short description:** A text input field.
- Full description:** A larger text input field.
- Action naming (singular):** A text input field containing the value 'Offer'.
- Action naming (plural):** A text input field containing the value 'Offers'.
- Buttons:** 'Cancel' and 'Submit' buttons at the bottom.

To complete the configuration, save the changes. Verify that the Action is renamed. Open any Action under the **Grow** Issue and **CreditCards** Group to view the effect of renaming.

Offer: Premier Rewards card [Available]

Grow • CreditCards • PremierRewardsCard CDH-Artifacts:01-01-01

Save as

Details Engagement policy Treatments Flow Test History

Description

Receive 24/7 personal service and more

Benefits

Earn 5% cash back at BioFresh Foods Market, 2% cash back at restaurants, gas stations and drugstores and 1% cash back on all other purchases. Plus, enjoy 24/7 personal service.

From now on, Actions under Grow/CreditCards will be referred to as Offers.

This demo has concluded. What did it show you?

- How to change the default naming convention of Actions, to a name that better reflects their business context.

Presenting a single offer on the web

Description

Learn about real-time containers and how they are used to display actions selected by Pega Customer Decision Hub in real-time channels. Gain experience creating and configuring real-time containers by learning how to configure Next-Best-Action Designer to select a single offer that will be displayed on a website.

Learning objectives

- Describe the concept of real-time containers
- Explain how to create and configure a real-time container
- Explain how to configure Next-Best-Action designer to display an offer on the web

Real-time containers

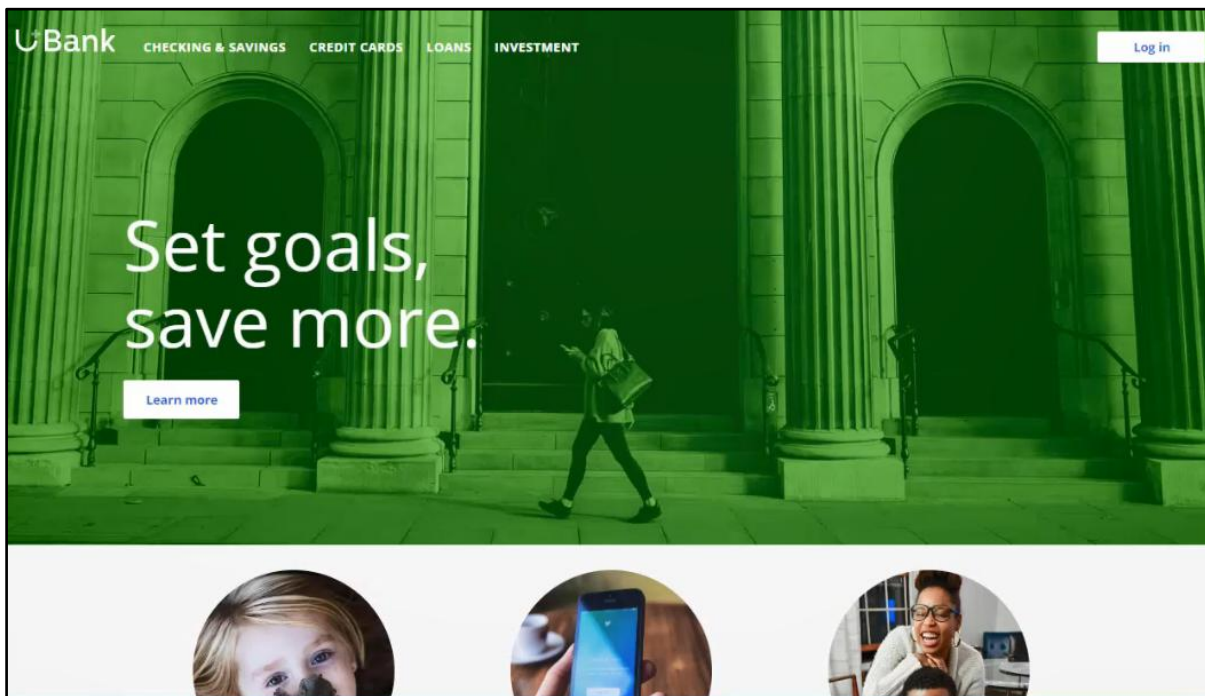
Introduction

A real-time container is a service that manages communication between Pega Customer Decision Hub and external channels. An external real-time channel is any channel that presents actions selected by the Customer Decision Hub to a user or customer. For example, a website, a call-center application, or a mobile application.

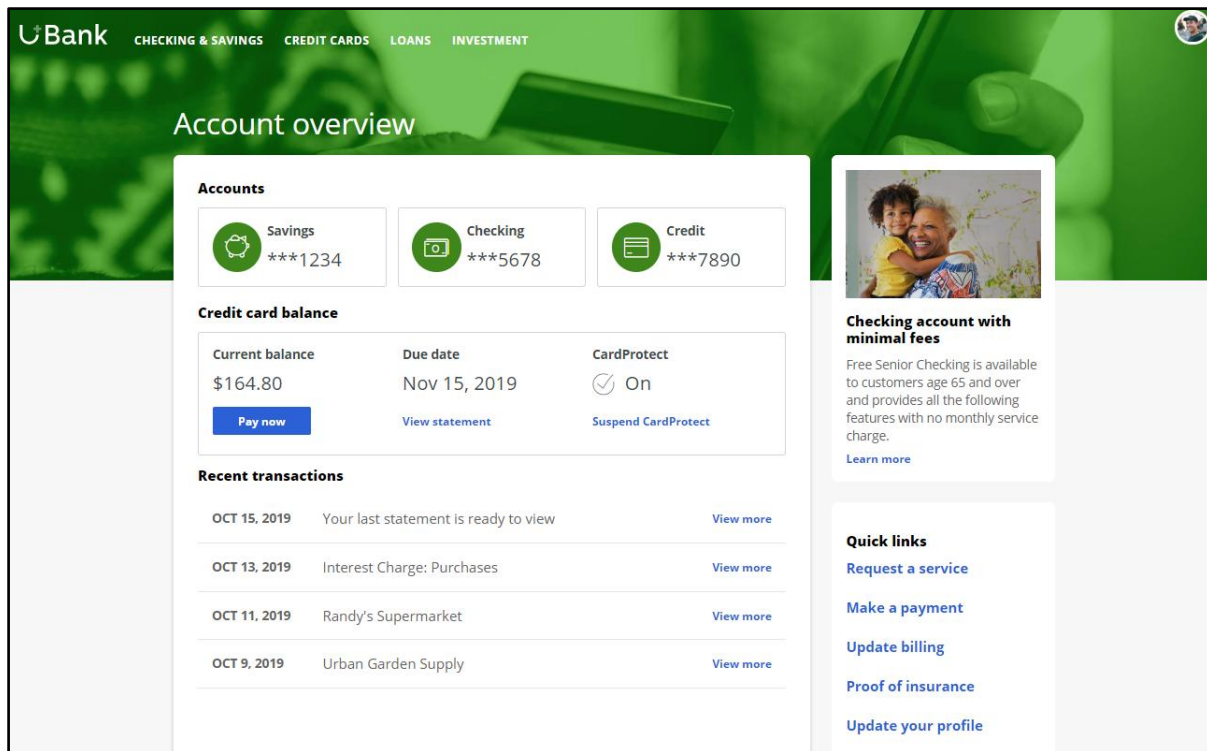
Transcript

This video explains the concept of real-time containers, which manage communication between the Pega Customer Decision Hub™ and external channels.

This is the website of a retail bank called U+ Bank.



The bank plans to promote new offers on the account page, which is displayed when customers log in.

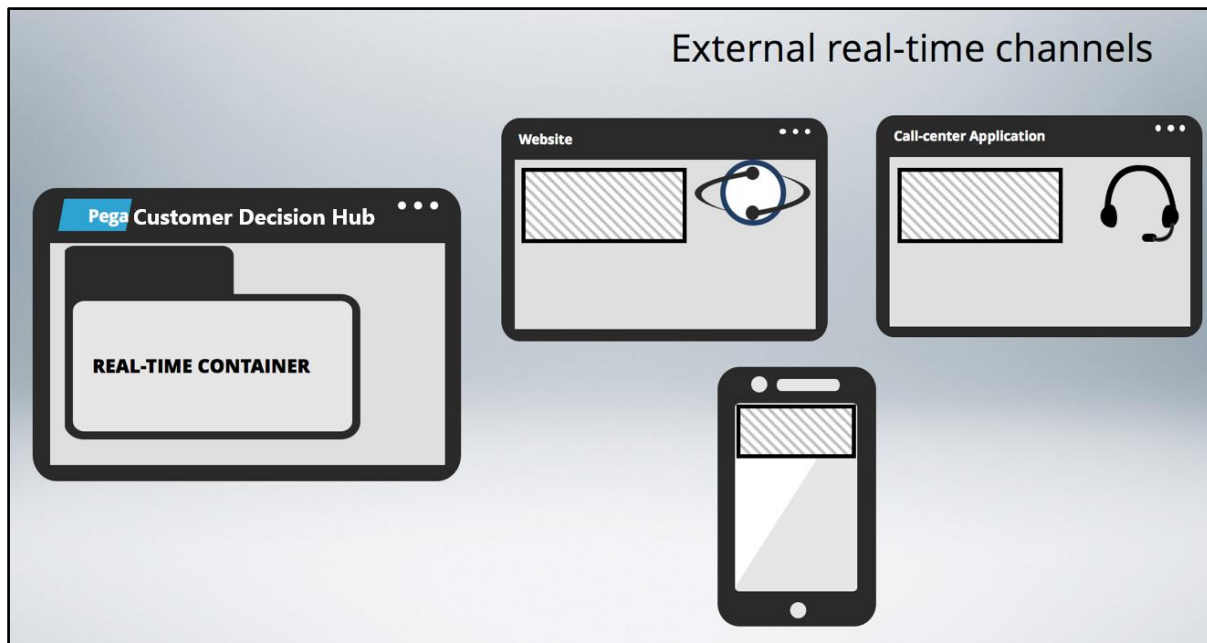


The marketing department wants to leverage the Customer Decision Hub's Next-Best-Action capability to display the right offer for each customer.

The Customer Decision Hub's real-time container functionality is used to implement this requirement.

A real-time container is a placeholder for content in an external real-time channel.

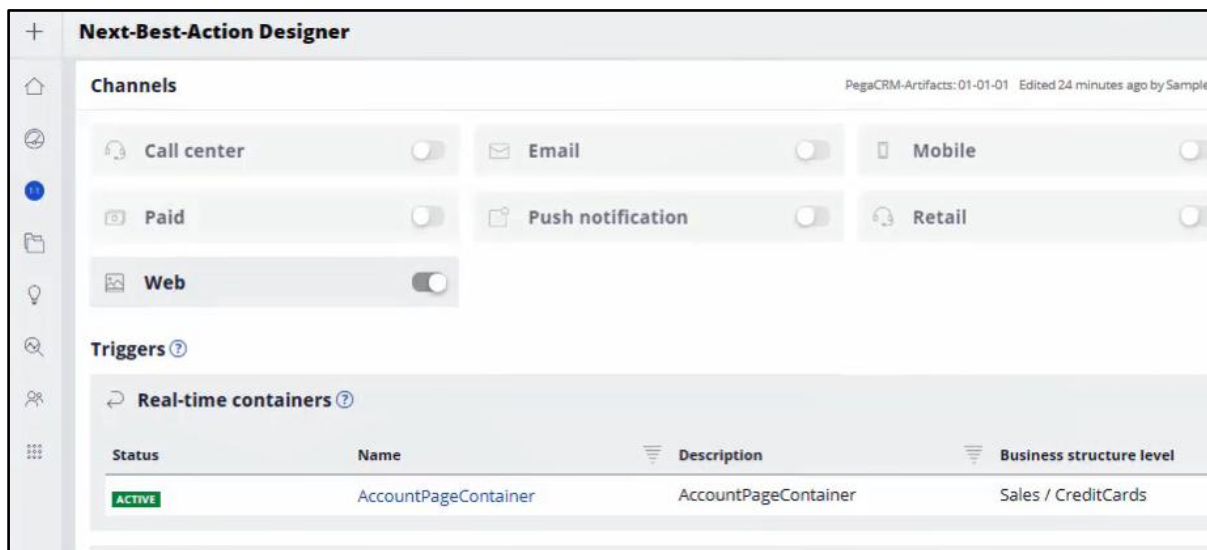
An external real-time channel is any channel that presents actions selected by the Customer Decision Hub to a user or customer. For example, a website, a call-center application, or a mobile application.



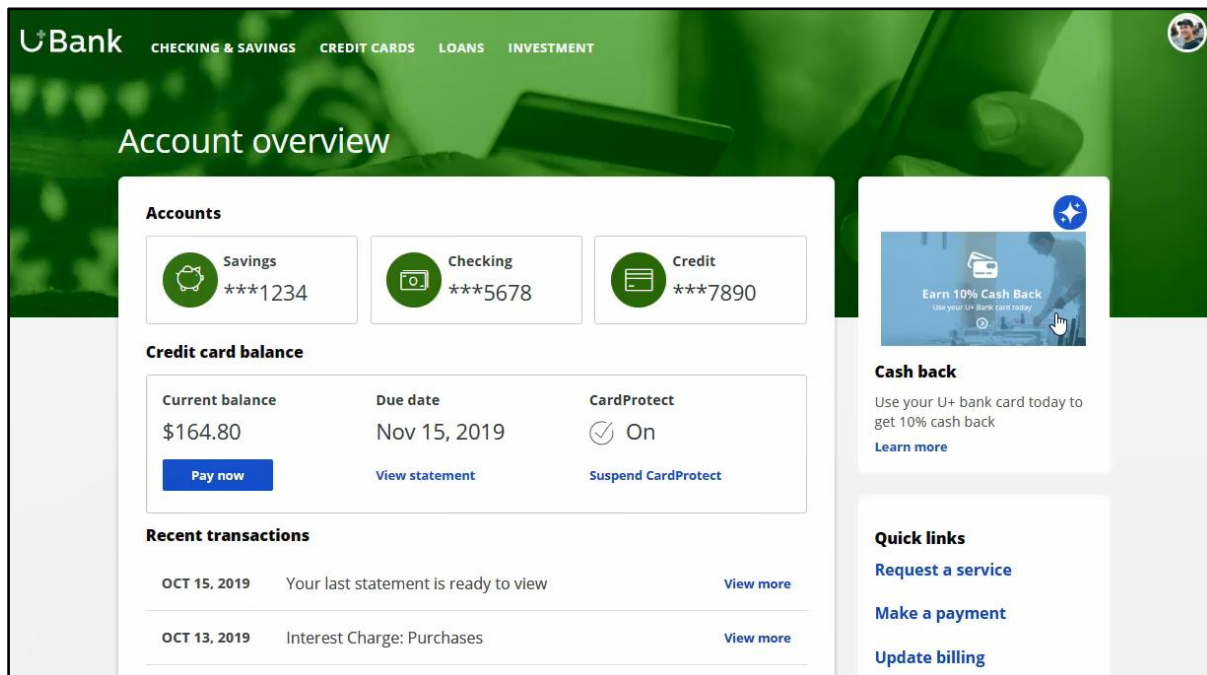
Here's how the website invokes the real-time container to present credit card offers on the account page.

In the Customer Decision Hub's Next-Best-Action Designer, a real-time container called "Account Page Container" is configured. The website invokes this real-time container before loading the account page.

The Customer Decision Hub then evaluates the actions from the associated Issue/Group, which in this case is Sales/CreditCards and returns the resulting offer details back to the website.



The website then loads the account page with the content returned by the Customer Decision Hub, such as the offer image, description and other relevant attributes.



Meanwhile, the Customer Decision Hub records these customer interactions in the Interaction History. An Impression is recorded to indicate that the action was shown to the customer, a Click-through is recorded when the customer clicks on the action. Marketers use these metrics, i.e. Impressions and Click-throughs, to measure the level of customer engagement, and therefore, the success of the marketing effort.

Creating and configuring a real-time container

Introduction

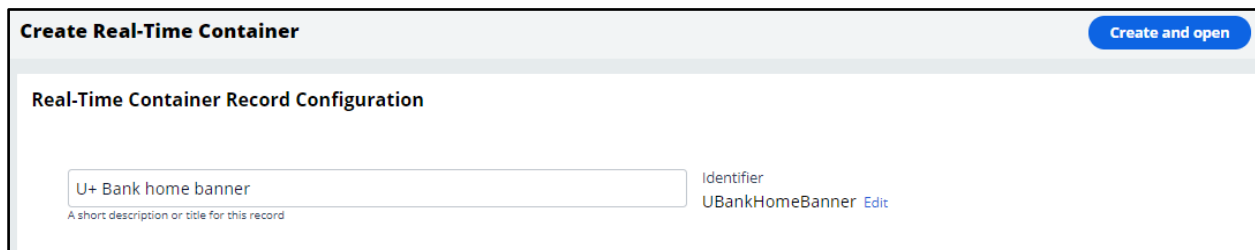
Learn how to create and configure a real-time container which allows you to manage communication between Pega Customer Decision Hub and external channels.

Transcript

This demo will show you how to create and configure a real-time container.

To create real-time containers, navigate to the Real-Time Artifacts landing page.

Enter a short description of the new real-time container.



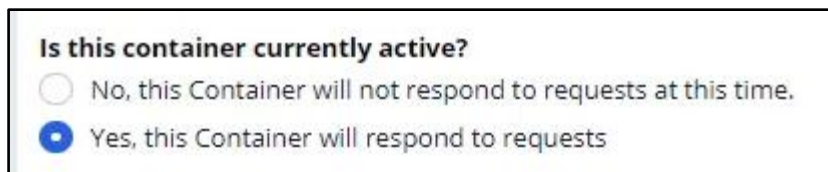
The screenshot shows a web form titled "Create Real-Time Container". In the top right corner, there is a blue button labeled "Create and open". Below the title bar, the section is labeled "Real-Time Container Record Configuration". There is a text input field containing "U+ Bank home banner" with a small placeholder text "A short description or title for this record" below it. To the right of the input field, the label "Identifier" is shown above the text "UBankHomeBanner", which has a blue "Edit" link next to it.

An external channel uses the real-time container's identifier when it makes a request to the Pega Customer Decision Hub.

You can change the identifier to a value that the external channel in your environment expects.

For example, the U+ Bank website is pre-configured to call a real-time container with the identifier Ubank_home_banner. Now, open the real-time container.

Here you can turn the real-time container's ability to respond to requests from external channels on or off.



The screenshot shows a configuration box titled "Is this container currently active?". It contains two radio button options. The first option is "No, this Container will not respond to requests at this time." and is currently unselected. The second option is "Yes, this Container will respond to requests" and is selected, indicated by a blue dot in the radio button.

Keeping the default value will allow the Customer Decision Hub to serve requests from the website.

'Impression capture' allows the external channel to control how the Customer Decision Hub records impressions.

Impression capture

☐ Captured on retrieval
 ☒ Captured by channel

‘Captured on retrieval’ means that the Customer Decision Hub records an impression in the Interaction History immediately after sending the action details to the external channel.

‘Captured by channel’ means that the Customer Decision Hub does not immediately record an impression. Instead, the external channel can explicitly request that the Customer Decision Hub records an impression at a later point in time.

In this case, the bank wants the impressions not followed by a click to be captured, so keep the default value.

To record a click in the Interaction History without initiating an action flow for the customer, keep the default value.

Click through behavior

☐ Capture click through and initiate offer flow
 ☒ Capture click through only

This option is suitable for actions that do not have a defined flow, for example, on the Web channel when a customer clicking on an ad does not trigger any follow-up steps.

Here you can view the list of Next-Best-Action strategies that you have associated with this real-time container.

Next-Best-Actions associated with this container

Associated NBA	Enabled	Start date	End date	Status
No Next-Best-Actions are associated with this container. Configure through Next-Best-Action Designer.				

Save the configuration. Navigate to the Containers tab to see the newly created real-time container.

This demo has concluded. What did it show you?

- How to create a real-time container.
- How to configure the real-time container settings.

Presenting a single offer on the web

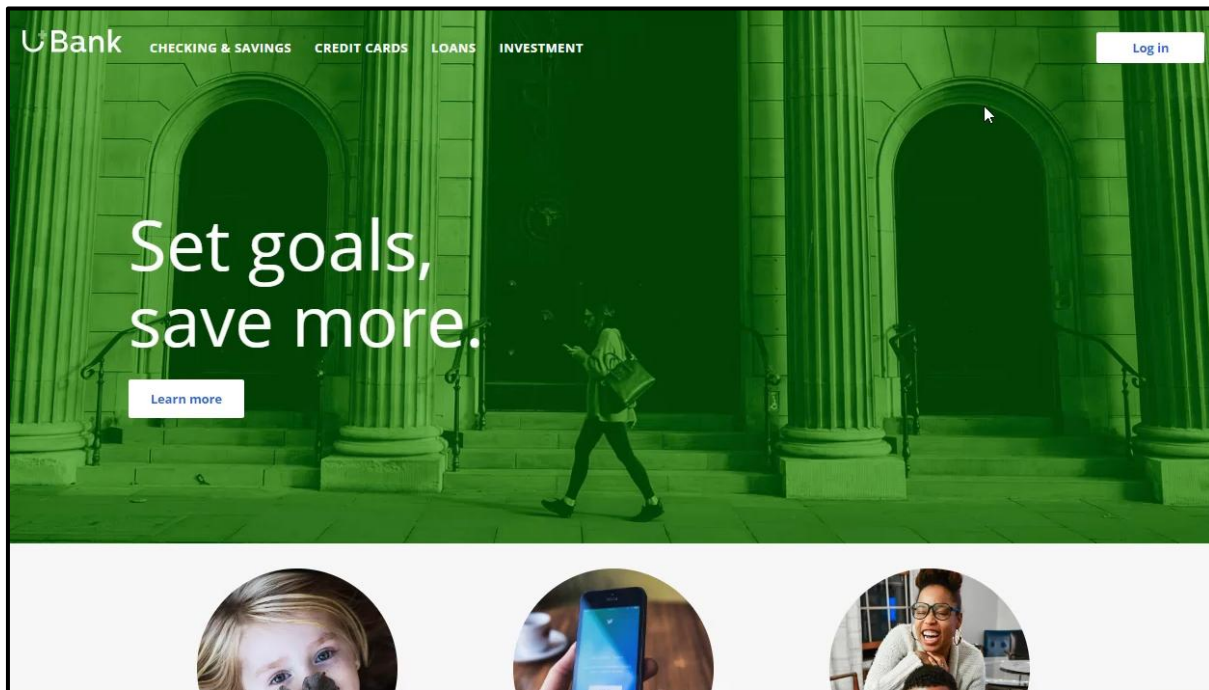
Introduction

Pega Customer Decision Hub is the always-on customer brain used to select the right offer to be presented to each customer in any real-time channel. Learn how to configure Next-Best-Action Designer to select a single offer that will be displayed on a website.

Transcript

This demo will show you how to configure Next-Best-Action Designer to select a single offer that will be displayed on a website.

U+, a retail bank, would like to use the Pega Customer Decision Hub™ to display a single offer on its website.



U+ bank wants to make offers related to credit cards and display the same 'Cash back' offer to every customer who logs in to the web site.

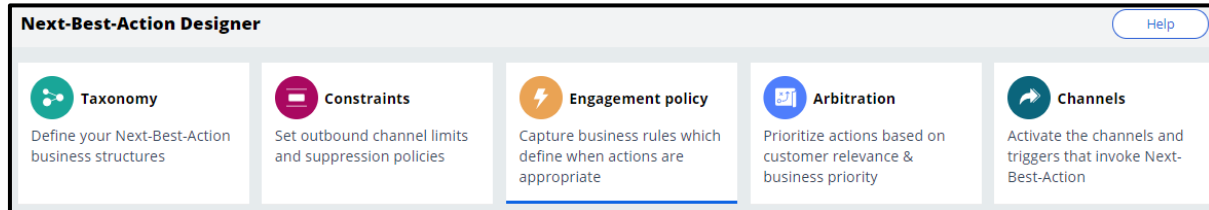
For example, if customer Troy logs in to his Accounts page, the 'Cash back' offer is displayed.

If Troy clicks on the 'Learn more' button, it takes him to the Offers page.

This page shows the offer details.

To implement this business requirement, navigate to Next-Best-Action designer.

Here you can configure business rules to define when specific actions or groups of actions are appropriate for customers.



Notice that the NBA hierarchy currently has three Business issues with Groups under them. In this case, U+ wants to promote credit card offers. So, open the CreditCards Group.

You can configure the actions here.



A consultant has already created a few actions under Sales/CreditCards. However, in this scenario, the bank wants to show only the 'Cash back' card.

Now, open on the 'Cash back' offer.

To display an offer, you need to add a treatment that is specific to the channel.

In this scenario, U+ bank wants to present the offer on their website, so select the right treatment type.

Details Engagement policy **Treatments** Flow Checklists Test History

Default content URL [?](#) [↗](#) Default click-through URL [?](#) [↗](#)



No treatments are defined
Add your first channel and treatment

[Add channel](#) ▾

A web treatment represents the message that you want to communicate visually to your customer on the web channel. You can either use an existing treatment or create one here.

Now, fill in the required fields for the web treatment.

Create web treatment [Create](#) [Help](#) ✕

Name * Description

Active

☒ Always

☐ Never

☐ Within a defined time period

Content URL [↗](#) Format ▾

Click-through URL [↗](#) Placement type ▾

Dimensions Language ▾

Here you provide a link to an image that will display the action for this treatment.

Once you provide the link, a preview of the content is displayed.

This is the URL that you want the customer to go to when they click on the action.

Now, select the intended location and style of the treatment design. For example, the treatment can appear as a large central banner, a rotating strip of images, or a footer on the website.

In this scenario, select Tile to display the 'Cash back' offer on the top right of the Account page.

You can specify the language of the treatment if required. Specifying the treatment language allows Pega Customer Decision Hub to consider the customer's preferred language when selecting the treatment.

Add the web treatment you just created.

In this phase, U+ does not have any further eligibility or prioritization requirements for this action. Save the changes.

Here, you can enable the channels and triggers that will invoke Next-Best-Actions.

As U+ wants to display the offer on the web, enable the web channel.

Channels				PegaCRM-Artifacts: 01-01-01 Edited less than a minute ago by Sample CRM Decisioning Analyst		Save	Cancel	Actions
Call center	☐	Email	☐	Mobile	☐			
Paid	☐	Push notification	☐	Retail	☐			
Web	☒							

Now, configure the real-time container that the U+ website will use to display the offer banner on the account page.

The real-time container manages communication between the Pega Customer Decision Hub and external channels such as the web and call center. A decisioning consultant has already configured a real-time container for you, so select it to be added to your configuration.

Once the real-time container is added, configure it to select the results from an appropriate Business issue and Group. In this case, U+ bank wants to display the 'Cash back' offer, which is under Sales/CreditCards.

Triggers ?			
Real-time containers ?			
Status	Name	Description	Business structure level
ACTIVE	SalesCreditCards	SalesCreditCards	Sales / CreditCards

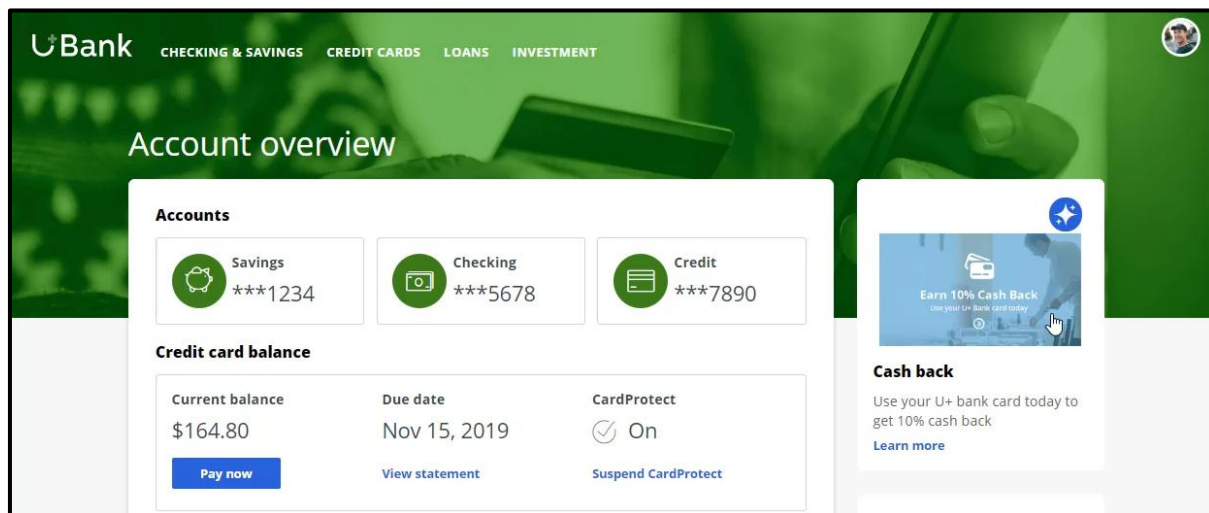
With that, all the necessary configuration for this scenario is complete. Save the changes for the configuration to take effect.

The account page on the U+ Bank website has been configured to use the real-time container with the name 'SalesCreditCards' and with Placement type 'Tile'.

The web treatment is shown as a tile on the top right of the page.

When Troy clicks on the 'Learn more' button, it takes him to the URL that was configured as the click-through URL for the treatment.

If another user logs in, they will see the same offer.



This demo has concluded. What did it show you?

- How to configure Next-Best-Action designer to display a web treatment on the U+ bank website.

Defining customer engagement policies

Description

Engagement policies are the set of conditions such as eligibility, applicability, and suitability that qualify an offer or a group of offers for a customer. As a result of engagement rules, customers will see only those offers that the organization believes they should be exposed to.

Learning objectives

- Define engagement policy conditions in Next-Best-Action Designer at the action group level
- Define engagement policy conditions at the action level
- Differentiate between eligibility, applicability and suitability conditions

Customer engagement policies

Introduction

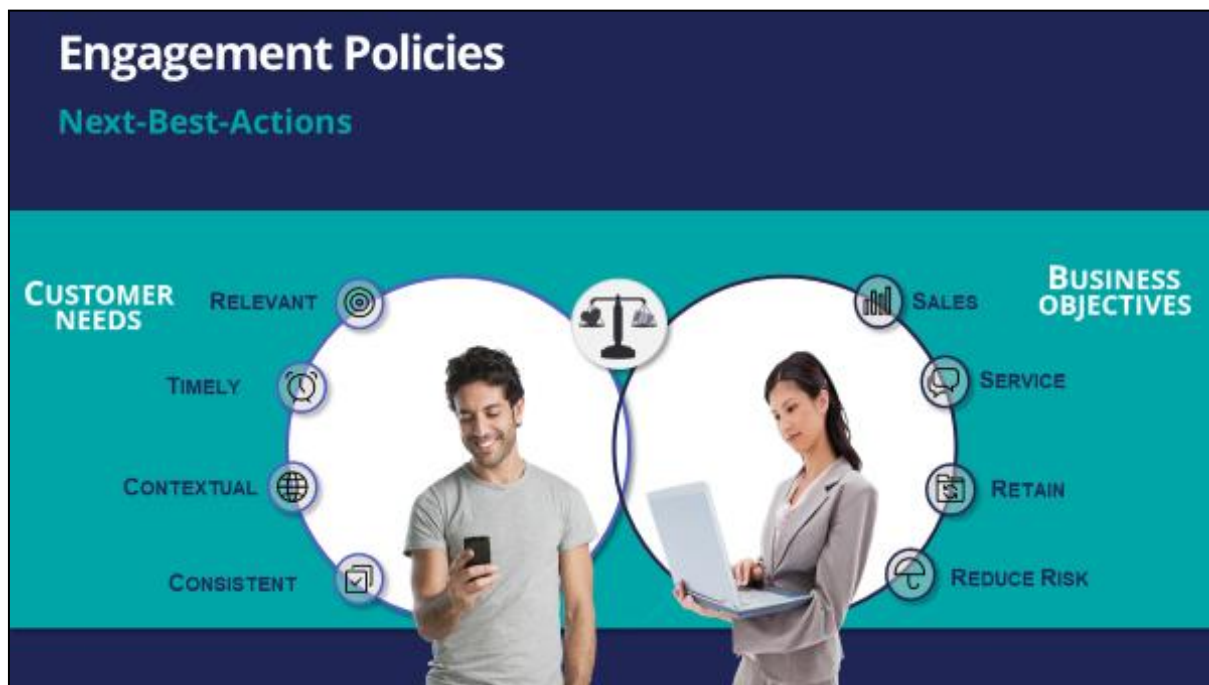
Engagement policies are a set of business rules and practices used by the organization to determine which customers are eligible for which Next-Best-Actions. These policies allow you to specify the conditions under which an action or group of actions are eligible for a customer.

To learn more about the three types of engagement policy conditions, see [Understanding engagement policies](#).

Transcript

This video explains the concept of customer engagement policies.

The Pega Customer Decision Hub™ combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that it uses to make intelligent decisions. These decisions are known as the Next-Best-Action. Every Next-Best-Action weighs customer needs against business objectives to optimize decisions based on priorities set by the business manager.



Typically, the business defines a set of rules that make certain actions available to certain customers. This set of rules is called an engagement policy.

As part of an engagement policy, three types of conditions are defined – Eligibility, Applicability, and Suitability.

Consider the following examples: a retail bank is promoting a Gold Credit Card; a telco is offering a new iPhone upgrade with an unlimited data plan; and a communications and media company is promoting a new bundle of HD channels.

Let's see how to define engagement policy conditions that will ensure the bank's Next-Best-Action decisions support these promotions.

In Eligibility, you define strict rules for what is legal, and even possible, to offer customers. For example, to be eligible for the Gold Card offer, customers must be 18 years or older.

Similarly, for the iPhone upgrade offer, customers are eligible for a new contract only if their old contract ends in less than three months.

For the TV channels offer, customers must already own a TV subscription. This offer is not available for customers who have only mobile or landline subscriptions.

Engagement Policy			
Offers	Eligibility	Applicability	Suitability
Gold Card	Age >= 18		
New iPhone unlimited data plan	ContractEndMonth<=3		
50 Full HD TV channels	IsCustomer=True and OwnsTVPackage=True		

In Applicability, you specify rules for limiting what to offer based on a customer's current situation, which is often defined by the products they currently have. These rules are not as rigid as those for Eligibility.

For example, a Gold Card is not applicable if the customer already has a higher value card, such as a Platinum Credit Card. If a customer already has a Platinum Card, they might be eligible for the Gold Card, but the Gold Card is not applicable to them. If they ask for it, they may get it, but the business would prefer not to present them with the Gold Card offer.

Similarly, with the iPhone upgrade offer, if a customer explicitly expressed in the last survey that they weren't interested in an iPhone, this action is not applicable to them. For the TV channels offer, the business does not want to advertise HD channels to a customer who has recently bought a set top box that is not capable of HD.

Engagement Policy			
Offers	Eligibility	Applicability	Suitability
Gold Card	Age >= 18	OwnedCard != Platinum	
New iPhone unlimited data plan	ContractEndMonth<=3	CustomerPreference=iPhone	
50 Full HD TV channels	IsCustomer=True and OwnsTVPackage=True	SettopBox=FullHD	

In Suitability, you specify conditions that define an offer as appropriate for a customer. Suitability rules are in place to promote the concept of empathy. That is, to help an enterprise be empathetic toward their customers and refrain from making offers that may not be a good fit.

For example, as the Gold Card is a high value card, it is only suitable for a customer whose debt-to-income ratio is below a certain threshold. Although a customer might be eligible for it, and the offer might be applicable to them, it would be inappropriate to market it to them, as there is a risk of default.

Similarly, an unlimited data plan is not suitable to be offered to a customer with low Internet usage. In the last example, if the customer's favorite TV shows are not available in HD, then it's not empathetic to offer them the new HD channels package.

Engagement Policy

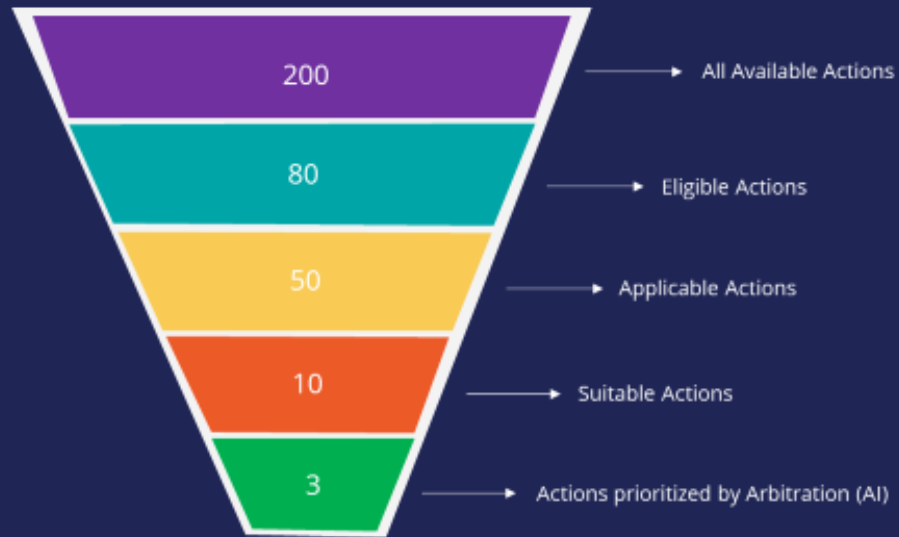
Offers	Eligibility	Applicability	Suitability
Gold Card	Age >= 18	OwnedCard != Platinum	Debt to Income ratio < 50%
New iPhone unlimited data plan	ContractEndMonth<=3	CustomerPreference=iPhone	MonthlyUsage > 5GB
50 Full HD TV channels	IsCustomer=True and OwnsTVPackage=True	SettopBox=FullHD	FavoriteChannelList contains HD content

U+, a retail bank, has configured its engagement policy to suit its own business objectives as well as the needs of its customers.

In this scenario, a marketer for U+ has designed 200 actions that could be presented to customers. To select the Next-Best-Actions from these, the Pega Customer Decision Hub first checks eligibility conditions and filters the actions. Then, the applicability conditions are run to filter them further. Next, the suitability conditions are checked to derive the final set of available actions.

These actions will go through one final stage before being presented to customers: the arbitration stage. Arbitration is used to prioritize and choose the Next-Best-Actions based on what is relevant for each customer right now. This is decided by considering factors such as AI-calculated propensity, the action value, and various business levers.

Selecting actions for a customer



Defining eligibility, applicability, and suitability Rules

You define engagement policies in Next-Best-Action Designer. Engagement policies specify the conditions under which an action or group of actions is available for a customer. Configure these policies in the following categories: eligibility, applicability, and suitability, which represent the true nature of the associated conditions.

Transcript

This demo shows you how to define engagement policy conditions such as eligibility, applicability, and suitability by using Next-Best-Action Designer.

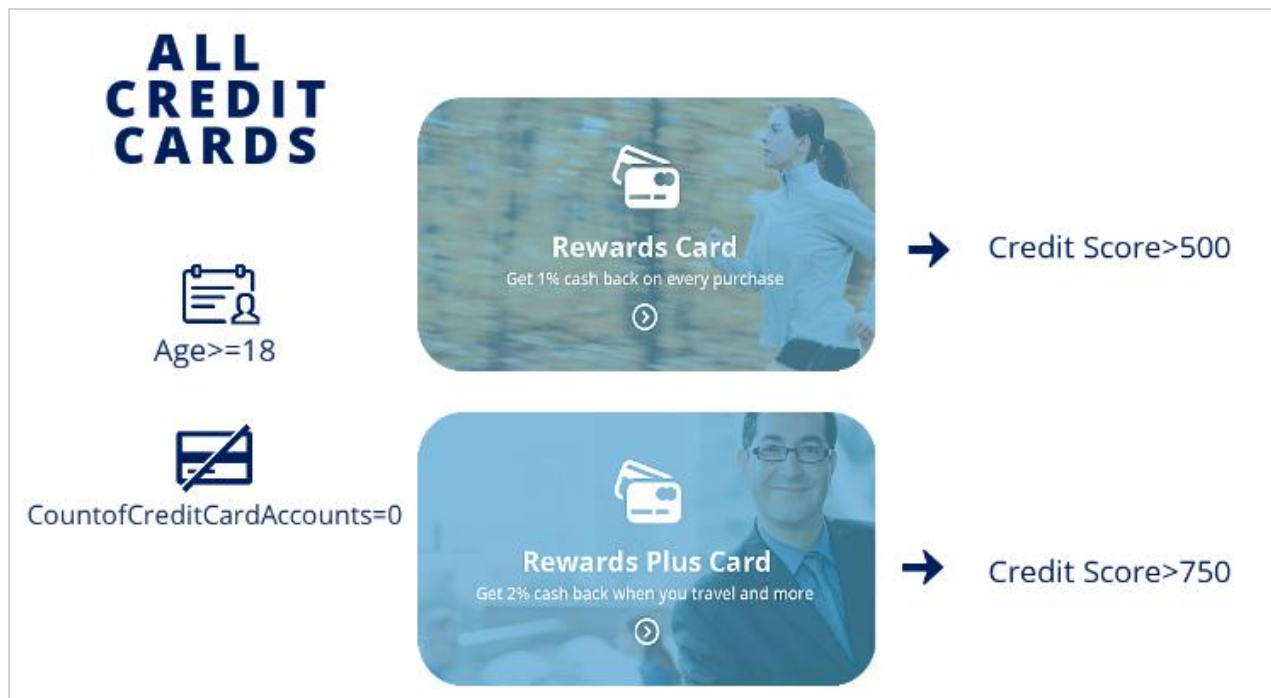
U+ Bank, a retail bank, has introduced two new credit cards and wants to offer them to customers based on certain criteria.

First, all credit cards are eligible only for existing U+ customers who are at least 18 years old.

In addition, the business wants to ensure that these two new credit cards are available for new customers who do not yet have a credit card.

Last, the business understands that not all credit cards are suitable for everyone.

Because of the credit limits of each card, the business wants to offer the Rewards Card to customers with a credit score higher than 500 and the Rewards Plus Card to customers with a credit score higher than 750.



In the Pega Customer Decision Hub™ portal, you define engagement policies in Next-Best-Action Designer. Engagement policies specify the conditions under which an action or group of actions is available for a customer.


Taxonomy
 Define your Next-Best-Action business structures and customer journeys


Constraints
 Set inbound and outbound channel limits and suppression policies


Engagement policy
 Capture business rules which define actions are appropriate

Business structure ×

[Expand All](#) [Collapse All](#)

- > All issues
- > Acquire
- > Grow
- > Nurture
- > Retain
- > Collections
- > Service

Engagement policy

Engagement policies allow you to specify the conditions under which an action or group of actions is eligible for a customer. You can define four types of conditions as part of your engagement policy.
 [Learn more](#)

Eligibility
 The criteria which the customer must fulfill in order to qualify for the action or group of actions.
For example, an action may only be available for customers over a specific age or living in a specific geographic location.


Suitability
 The criteria which must be true in order for the action or group of actions to be deemed in the best interest of the customer.
For example, a new credit card offer may not be appropriate for a customer who is likely to default on payments.


Now, you set up the engagement policies to reflect U+ Bank's requirements. You can define the engagement policies for a specific group within an issue and for individual actions. Edit to configure the engagement policies. Notice that the two actions are displayed in this group.

As a best practice, use one of the following categories to define your engagement policies: **Eligibility**, **Applicability**, and **Suitability**. These categories represent the true nature of the associated conditions.

First, define the group-level eligibility condition to ensure that only customers who are at least 18 years old are considered for the actions.

Then, define the group-level applicability condition so that only customers who currently do not have a credit card qualify for the actions.

If you wish to reuse a specific condition or a set of conditions in the future, there is an option to save them to a library. This feature helps to avoid recreating identical conditions repeatedly. Saved conditions are available on the **Intelligence>Engagement policies** tab, where you can modify and prepare them for reuse.

The **Save to library** option is unavailable if the conditions include either strategy Rules or When conditions with parameters. The option is also inactive for eligibility conditions, which include default criteria created with the **Use advanced logic** option.

The screenshot displays the 'Customer actions' configuration interface. It features two main sections: 'Eligibility' and 'Applicability'. The 'Eligibility' section is marked with an 'E' icon and contains a condition where 'Customer' is 'Age' 'is greater than or equal to' '18'. The 'Applicability' section is marked with an 'A' icon and contains a condition where 'Customer' has a 'Count of credit card acc...' 'is equal to' '0'. Both sections include a help icon (question mark) and dropdown arrows for the field and operator.

Section	Field	Operator	Value
Eligibility	Customer	Age	is greater than or equal to 18
Applicability	Customer	Count of credit card acc...	is equal to 0

Lastly, U+ Bank wants different suitability conditions for individual cards depending on the limit. Because the conditions are specific to each credit card, you must define the suitability condition for each at the action level.

Open the **Rewards Card** action. This card comes with a certain credit limit. Therefore, U+ Bank believes that this card is only suitable for customers with a credit score higher than 500, even though customers may satisfy the eligibility and applicability conditions. Thus, define the suitability condition accordingly.

Suitability ?

Inherited from Creditcards

All actions
(Customer: Debt-to-Income ratio is less than or equal to 48)

and ⓘ

Customer	▼	Credit score	▼	is greater than	▼	500
----------	---	--------------	---	-----------------	---	-----

Next, open the **Rewards Plus Card** action. This card has an even higher credit limit than the Rewards card. Thus, this card is suitable for customers with a credit score higher than 750. To complete the configuration, save the changes.

Suitability ?

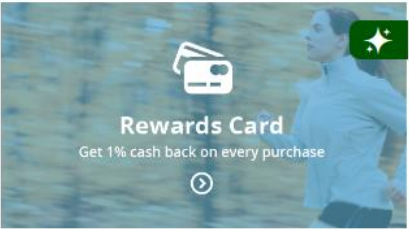
Inherited from Creditcards

All actions
(Customer: Debt-to-Income ratio is less than or equal to 48)

and ⓘ

Customer	▼	Credit score	▼	is greater than	▼	750
----------	---	--------------	---	-----------------	---	-----

Log in as Troy, a 25-year-old chef who became a customer of U+ Bank three months ago, and his credit score is 600. Notice that the Rewards Card offer is displayed because Troy satisfies all eligibility and applicability conditions. Troy receives this card only because his credit score is higher than 500 but lower than 750.



Rewards Card
Get 1% cash back on every purchase

[Learn more](#)

The advertisement for the Rewards Card features a blurred background image of a woman in a white shirt. A credit card icon is positioned at the top left, and a green star icon is at the top right. A circular arrow icon is centered below the text.

Now, log in as Barbara, a 40-year-old engineer who became a customer of U+ Bank one month ago; her credit score is 800. Notice that the Rewards Plus Card offer is displayed because Barbara also satisfies all eligibility and applicability conditions. Barbara, on the other hand, receives offers for both cards because her credit score is higher than 750.



Rewards Plus Card
Get 2% cash back when you travel and more

[Learn more](#)

The advertisement for the Rewards Plus Card features a blurred background image of a man in a suit. A credit card icon is positioned at the top left, and a green star icon is at the top right. A circular arrow icon is centered below the text.

You have reached the end of this video. You have learned:

- How to define group-level engagement policy conditions in Next-Best-Action Designer.
- How to define action-level engagement policy conditions.
- How to differentiate between eligibility, applicability, and suitability conditions.

Creating and testing personas

Description

Learn how to create personas and channel contexts in Pega Customer Decision Hub™, and how to use them for next-best-action testing. Explore the reasons behind action filtering through persona-based testing. Examine the results of the persona test cases and analyze how changes in the engagement policies affect the test results.

Learning objectives

- Create personas and channel context.
- Use personas for next-best-action testing.
- Create and analyze persona test cases.

Testing Next-Best-Action with Persona and Channel Context

In Pega Customer Decision Hub™ (CDH), after applying engagement policies and suppression rules to actions, it is necessary to test the settings to ensure that customers receive the expected and desired results. There are two different types of tests that the Decisioning Architect can perform:

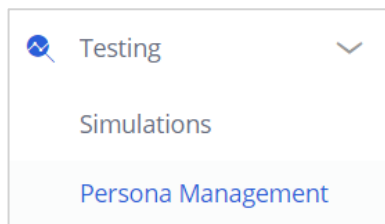
- Next-Best-Action testing in Customer Profile Viewer.
- Persona testing in Next-Best-Action Designer.

Transcript

This video shows you how to create Personas and Channel Contexts and how to use them for next best action testing.

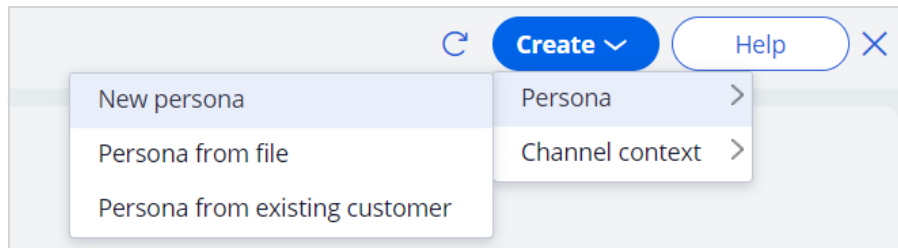
U+Bank, a retail bank, is cross-selling on the web. The bank wants to test the recent next best action configurations in Customer Profile Viewer. To generate the test results of the next best action strategy framework, the bank needs to create personas and channel context.

The dedicated space for creating, updating, and managing the Personas and Channel Contexts in Customer Decision Hub is the **Persona Management** landing page.



A persona is a profile of a fictitious person, representing a group of customers with a similar set of attributes. There are three types of personas you can create in CDH:

- **New persona**, where you input the customer properties manually,
- **Persona from file**, when creating Personas in bulk, using an external file,
- **Persona from the existing customer**.



To test the next best action configurations, U+Bank decided to use the Persona created based on existing customer Troy Murphy. Troy is a 26-year-old chef, who has been a customer of the bank for over three months, with a high credit risk. Troy is also considered financially vulnerable.

It is a good practice to use such customer information to name your Persona. The descriptive naming convention helps users to recognize the profile faster and to avoid repetitive Persona profiles. Following this rule, you can name the persona created based on Troy's profile: **Young High Risk Financially Vulnerable**.

Customer preview

Troy Murphy
14

Email address
customer1@enablement.com

Lifetime value
900

Credit risk
High

Churn risk
Medium

Persona name *

Young High Risk Financially Vulnerable

When you submit the new persona, the system auto-populates the actual customer information and organizes it in the customer attributes tree, which represents the Customer Insights cache. All the customer details are editable. You use this option to create

the persona based on the customer, and then adjust it to specific industry needs.

Entites ?
▼ Persona
 > Customer
 > Interaction history summaries

Customer + Add property

Property	Value
Age ?	26
Annual income ?	13652.000
Date of birth ?	7/8/1995 Use dynamic value
Churn risk ?	Medium
CLV designation ?	Medium
Customer lifetime value ?	900

In the Persona profile, you can also add a Persona description and tags.

Name
Young High Risk Financially Vulnerable

Description
26-year-old chef, relationship length over three months, with a high credit risk

Tags are the labels that you add to personas for the purpose of identification and easier searching. Tags can consider customer properties like **Credit risk**, **Age**, and **Relationship length in days** and so on, as well as engagement policy rules.

ID
YoungHighRiskFinanciallyVulnerable

Tags
new_customer × financially_vulnerable × low_debt ×

Last modified by
Decisioning Architect

Created date
Sep 21, 2023 3:12:23 AM

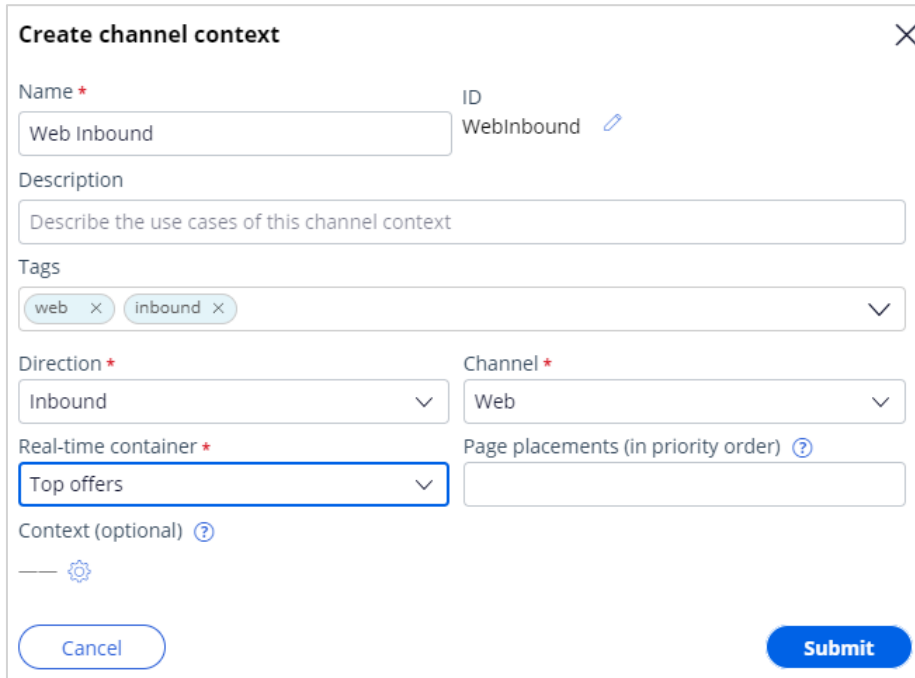
For example, if the applicability rule is Relationship length in days is ≤ 90 , and Troy's relationship with the bank is 88 days, we can tag him as a new_customer. The tag Financially_vulnerable means that Troy does not meet the suitability condition of Is financially vulnerable=false. Low_debt means that the Debt-to-income ratio for Troy is less than or equal to 48.

Personas include only raw information about the customer. Therefore, to run the tests in context, an additional factor that contains information about the **Direction**, **Channel**, and

Real-time container is necessary. This factor is called **Channel context** and it can also be created on the Persona Management Landing Page.

U+Bank is cross-selling on the web, therefore there is a need to perform a test for the direction **Inbound** and the channel **Web**. The real-time container for this channel context is **Top_Offers**.

When you create the channel context, the system automatically displays it on the Channel Context tab of the Persona Management landing page.



The screenshot shows a 'Create channel context' form with the following fields and values:

- Name ***: Web Inbound
- ID**: WebInbound (with a copy icon)
- Description**: Describe the use cases of this channel context
- Tags**: web, inbound
- Direction ***: Inbound
- Channel ***: Web
- Real-time container ***: Top offers
- Page placements (in priority order) ?**: (empty field)
- Context (optional) ?**: (empty field with a settings icon)

At the bottom, there are 'Cancel' and 'Submit' buttons.

Creating personas using Pega GenAI features

Pega introduces new features that use the power of Pega GenAI™ to simplify your daily tasks in Pega Customer Decision Hub.

With Pega GenAI, creating personas is effortless and efficient. When creating a new persona, you can describe the characteristics you want to include in natural language. It will allow you to create a diverse set of personas quickly that accurately represent your target audience.

Create new: Persona

General

Name *
Provide a name based on how you intend to use this persona(e.g. "High Value Web Visitor")

ID *

Description
Describe the use cases of this persona

Tags

Created by
Decisioning Architect

Last modified date

Last modified by

Created date
Sep 18, 2023 5:08:48 AM

Persona details

Entities

- Persona
 - Customer ✦
 - Interaction history summaries

No entities selected

Persona entities contain all the data that makes up a persona. On the left you will find a list of entities, some refined further into sub entities. When selecting the entity, its respective properties will appear here. Select an entity or sub entity, or add new entities or sub entities and populate them with properties to personalize this persona to your needs

References + Add

In this case, you can generate customer details by typing your persona characteristics in the text box. Create a mature, low-debt, financially invulnerable customer, who lives in New York.

✦ Generate customer details with AI

Additional description of persona

Mature, low-debt, financially invulnerable customer, who lives in New York.

Cancel

Preview prompt

✦ Generate

Based on the given details, the system generates the Customer data for the new persona. In this case, the age information provided is automatically set to 45, "low debt" corresponds to a low debt-to-income ratio, and "financially invulnerable" is translated to the "isFinanciallyVulnerable" flag being set to false.

Customer		+ Add property
Property	Value	
Age ?	45	
Annual income ?	75000.0	
Date of birth ?	5/20/1975 ☐ Use dynamic value	
CLV designation ?	Low Value	
Credit score ?	700	
Credit score last updated time ?	1/15/2020 10:30 AM ☐ Use dynamic value	
Customer ID ?	CUST123	
Debt-to-Income ratio ?	0.25	
Push notification opt-in ?	true	
Is in active duty ?	false	
Is in bankruptcy ?	false	
Credit score stale ?	false	
Is customer active ?	true	
Is deceased ?	false	
Is financially vulnerable ?	false	
Is in active complaint ?	false	
Is in arrears ?	false	

The remaining properties are randomly filled and can be reviewed and updated as necessary.

Testing next best actions with newly created persona and channel context

U+Bank wants to test the next best actions using the newly created Persona and Channel context. The objective is to identify whether any actions have been filtered out for the Young High Risk Financially Vulnerable Persona and determine the reasons why.

You can proceed with next best action testing in the Customer Profile Viewer. Search for Persona Young High Risk Financially Vulnerable profile, and on the next best actions tab, make the decision for the Web Inbound Channel context.

Make Next-Best-Action decisions for the customer in the specified channel. The results are determined by engagement policies, constraints and propensity. Save Channel context updates

Channel context: Web Inbound | Direction: Inbound | Channel: Web | Real-time container: Top offers | Page placements (in priority order): | Context (optional): | Effective decision date: 9/26/2023 | Make decision

☒ Show all decision results ☐ Show only decision results that will be delivered

All results | **Top treatments**

> Capture response

AI Insight

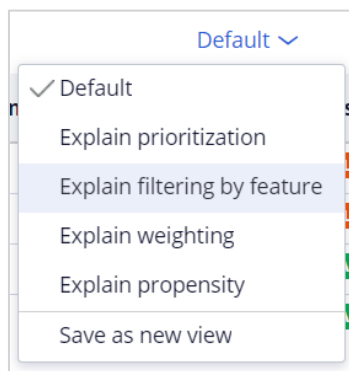
The Grow Issue Group in the Creditcards Group has a total of 4 candidate offers. Out of these, 50% (2) of the actions passed and 50% (2) were filtered out. The most occurring filter reason is "Excluded by suitability".

Group: | Fields: | Default | Export complete report

	Issue	Group	Name	Treatment	Channel	Priority	IA Test name	Rank	Results
☐	Grow	Creditcards	RewardsPlusCard	Rewards Plus card tile	Web	16.14		1	FILTERED
☐	Grow	Creditcards	PremierRewardsCard	Premier Rewards card tile	Web	8.72		2	FILTERED
☐	Grow	Creditcards	RewardsCard	Rewards card tile	Web	3.58		3	PASSED
☐	Grow	Creditcards	StandardCard	Standard card tile	Web	3.23		4	PASSED

In the action results table, you can observe that two out of four credit cards were filtered out, which means that they will not be presented to the customer.

You can explore the reasons behind this decision by utilizing the "Filtering by feature" option. The action results table has been enhanced with multiple categories that might serve as the underlying cause for excluding certain actions.



For instance, actions may be excluded based on eligibility, applicability, suitability, contact policy suppression, or if no treatment has been defined. When the labels in the table columns display "false," it indicates that the action is not excluded and can be presented to the customer.

In the case of Persona Young, High Risk, Financially Vulnerable, two actions have been filtered out due to the Suitability condition. The label in the Excluded by suitability column of the action results table indicates 'true'. Next to the label is an information icon that provides an explanation of the decision.

The Rewards Plus card and the Premier Rewards card were excluded because of the suitability condition: Is financially vulnerable=false. Young High Risk Financially Vulnerable Persona is financially vulnerable, he does not meet this condition and therefore, the two actions cannot be presented to him.

Suitability explanation

There are multiple levels of Engagement policies that effect whether or not an action will be considered as part of Arbitration or filtered out. The results for each of these levels is provided below with an indicator if the customer passed these policies

Standard view

Advanced view

✓ NBA_Grow_Creditcards_S_All PASSED

Inherited from Creditcards PASSED

(Customer: Debt-to-Income ratio is less than or equal to 48)

Action Suitability

No conditions defined

✓ NBA_Grow_Creditcards_S_Customer FAILED

Inherited from Creditcards PASSED

Always true

Action Suitability FAILED

(Customer: Is financially vulnerable is false)

	Issue	Group	Name	Treatment	Channel	Excluded by eligibility	Excluded by applicability	Excluded by suitability	Excluded by treatment eligibility	Excluded by journey stage	Suppressed by contact policy	No active channel	Action Inactive	No treatments defined	No active treatments	Excluded by model maturity
☐	Grow	Creditcards	RewardsPlusCard	Rewards Plus card tile	Web	false	false	true	false	false	false	false	false	false	false	
☐	Grow	Creditcards	PremierRewardsCard	Premier Rewards card tile	Web	false	false	true	false	false	false	false	false	false	false	
☐	Grow	Creditcards	RewardsCard	Rewards card tile	Web	false	false	false	false	false	false	false	false	false	false	
☐	Grow	Creditcards	StandardCard	Standard card tile	Web	false	false	false	false	false	false	false	false	false	false	

Action results explanation GENERATED USING AI

Grow / Creditcards / PremierRewardsCard / Premier Rewards card tile **FILTERED**

Filtered Offer:

- **Issue:** Grow
- **Group:** Creditcards
- **Offer:** PremierRewardsCard
- **Treatment:** Premier Rewards card tile
- **Channel:** Web
- **Model evidence:** 3132
- **Model positives:** 1032
- **Model propensity:** 0.2956989247311828
- **Final propensity:** 0.2775043986616834
- **Filtered:** true

Exclusion Reason:

- **Reason:** Excluded by suitability

Explanation:

The offer has been filtered out due to suitability concerns. The specific reason for exclusion is not provided in the given information. To make this offer pass, you need to address the suitability issues. Here are some probable approaches:

1. **Review Targeting Criteria:** Double-check the targeting criteria for the offer to ensure it aligns with the intended audience. Make sure the offer is suitable for customers who fall under the "Grow" issue, "Creditcards" group, and are interested in the "PremierRewardsCard" offer.
2. **Refine Treatment:** Evaluate the "Premier Rewards card tile" treatment and ensure it effectively communicates the benefits and features of the Premier Rewards Card. Consider optimizing the treatment to better resonate with the target audience.
3. **Analyze Model Results:** Review the model evidence, positives, propensity scores, and final propensity. Identify any potential issues or discrepancies that might have contributed to the exclusion. Adjust the model parameters or retrain the model if necessary.
4. **Address Suitability Concerns:** Investigate the specific suitability concerns that led to the exclusion. It could be related to compliance, legal, or ethical considerations. Take appropriate actions to resolve these concerns and ensure the offer meets all necessary requirements.

Learn more about:

[Excluded by suitability](#)

You have reached the end of this video. What did it show you?

- What is Persona and Channel context.
- How to create a Persona based on a customer profile.
- How to create a Persona using the Pega GenAI feature

- How to create a channel context.
- How to test the next best actions using Personas.
- How AI insights are generated using Pega GenAI.

Testing the Engagement Policy configurations with Persona Test Cases

In Customer Decision Hub, after applying engagement policies and suppression rules to actions, you need to perform tests to ensure that customers receive the expected and desired results.

- Next-Best-Action testing in Customer Profile Viewer.
- Persona testing in Next-Best-Action Designer.

Transcript

This video shows you how to conduct a persona test to evaluate the next-best-action strategy results.

U+ Bank, wants to verify that customers receive the correct offers from the engagement strategy and that the offers are in line with the business requirements of the bank.

Persona-based tests use customer personas with specific characteristics to evaluate next-best-action engagement strategy results.

To test the configurations, the bank decides to use a **Mature Low Risk Financially Invulnerable** and a **Young Low Risk Financially Vulnerable** personas which are created based on customers Barbara and Troy profiles.

You can see the attributes of each persona in the Persona Management landing page:

- **Mature Low Risk Financially Invulnerable** is a 32-year-old engineer who became a customer of U+ bank a year ago, and her annual income is 14452.
- **Young Low Risk Financially Vulnerable** persona is a 26-year-old chef who became a customer of U+ Bank 3 months ago, and his annual income is 13652.

Persona Management

Search
by name or tag Apply

☐ Display only withdrawn personas

Persona Channel Context

Group Fields

Name	Tags
Mature Low Risk Financially Invulnerable	mature_customer financially_invulnerable low_debt
Young Low Risk Financially Vulnerable	new_customer financially_vulnerable low_debt

With persona-based tests, you verify that the next-best-action strategy gives the expected results. On the **Engagement Policy** tab of Next-Best-Action Designer, you can create test cases for a specific group or all groups. Running test cases for all groups implies that you run the next-best-action strategy for all issues and groups in your business structure. As the bank wants to target the credit cards group, create a persona test case at the group level.

Next-Best-Action Designer Help Settings

Taxonomy
Define your Next-Best-Action business structures and customer journeys

Constraints
Set inbound and outbound channel limits and suppression policies

Engagement policy
Capture business rules which define when actions are appropriate

Arbitration
Prioritize actions based on customer relevance & business priority

Channels
Activate the channels and triggers that invoke Next-Best-Action

Business structure ×

- ▼ All issues
 - ☑ All groups
 - ▼ Acquire
 - ☑ Credit cards
 - ☑ Auto loans
 - ☑ Deposit accounts
 - ☑ Mortgages
 - ▼ Grow
 - ☑ Credit cards
 - ☑ Deposit accounts
 - ☑ Mortgages

Issue: Group / Credit cards

CDH-Artifacts: 01-01-01
Edited 18 days ago by Decisioning Architect

Edit Delete Actions

All actions Policies: E

Customer actions Policies: E

Account actions No policies defined Actions: 0

Refresh
Open canvas
Persona test...
Audience simulations
View past simulations

To configure a persona test case, select the action and treatment that you expect the test persona to receive according to your next-best-action strategy. In this case, **Young Low Risk Financially Vulnerable** Persona is supposed to receive the Standard card and Rewards card actions.

In the **Persona (Data transform)** field, select the persona against which you want to test the strategy. Select **Young Low Risk Financially Vulnerable**.

In the **Channel context** field, select *WebInbound* channel context, which defines the Direction, channel and the Real-time container for the test.

In the Next-Best-Action scope section, select whether the test checks only the engagement policy configuration or includes additional elements such as constraints and arbitration.

Selecting **Engagement policies only** validates that your policy conditions provide the desired results. The selection ensures that the test looks at the eligibility, applicability, and suitability.

Selecting **Engagement policies and arbitration** validates the effectiveness of your policies when you arbitrate across all actions. The test considers arbitration, adaptive analytics, treatment and channel processing, and constraints. In this case, select **Engagement policies only**.

Mature Low Risk Financially Invulnerable Persona is eligible for the Rewards Plus card and the Premier Rewards card. Create a test case for this persona. Run the tests to confirm that they pass.

The bank now wants to offer the Standard card to customers who have an annual income greater than 14000. See how this engagement policy change affects these test results. To define an engagement policy, click **Standard card**. Define a suitability condition so that only customers who have a minimum annual income of 14000 qualify for the actions.

Suitability ?

Inherited from Creditcards

All actions
(Customer: Debt-to-Income ratio is less than or equal to 48)

and ⓘ

Customer Annual income is greater than 14000

Group ANDs ⌵ ⋮

⚙️ + 🗑️

Run both tests to see how this engagement policy configuration affects the test cases.

Observe that **Young Low Risk Financially Vulnerable** persona fails the test. The failure means that customers with a profile similar to Troy does not satisfy all the existing engagement policies. Analyze the results to see why the test did not give the expected outcome.

Based on the report, **Young Low Risk Financially Vulnerable** persona is not eligible for the Standard card.

Young Low Risk Financially Vulnerable persona's annual income is 13652, which is less than the defined applicability condition. **Mature Low Risk Financially Invulnerable** persona's annual income is 14452, which is higher than the defined applicability condition.

Although the **Young Low Risk Financially Vulnerable** persona fails the test, the **Mature Low Risk Financially Invulnerable** persona passes it.

Now, edit the test for the **Young Low Risk Financially Vulnerable** persona to delete the Standard card assertion, and then run the test.

Edit test

Assertion

Test passes if		Issue / Group	Action	Treatment	
At least one action	is equal to	Grow / Credit cards	RewardsCard	Any treatment	
At least one action	is equal to	Grow / Credit cards	StandardCard	Any treatment	

+ Add assertion

You can design the personas according to the business requirements and test them every time an engagement policy changes.

You have reached the end of this video. What did it show you?

- How to create persona test cases.
- How engagement policy changes affect the persona test results.
- How to edit persona test cases.

Avoiding overexposure of actions

Description

Learn about contact policies and how they are used in Pega Customer Decision Hub. Gain experience defining contact policy rules to suppress actions after a specific number of outcomes.

Learning objectives

- Describe contact policy requirements
- Explain how to define contact policy rules to suppress a single action or group of actions for a limited time period

Contact policies

Understanding contact policy requirements

Too many contact attempts over a short period of time can have a negative impact on a customer's attitude toward further actions by your company. To maximize the lifetime value of every customer relationship, organizations must prevent outreach fatigue by optimizing the number of actions taken.

In the Pega Customer Decision Hub, contact policies allow you to suppress actions after a specific number of outcomes.

Suppressing or pausing an action prevents oversaturation by limiting the number of times a customer is exposed to the same action.

Defining contact policies

Contact policies determine when and for how long an Action or group of Actions should be shown to a customer. Contact policies track responses to Actions over a specific period of time, allowing you to implement rules such as the following:

- Do not show an ad to a customer for two weeks if the customer ignores the ad five times in a one-week timeframe.

Note: If outcomes are tracked for an individual action, then the action is not shown once the suppression criteria are met.

- Do not show a group of ads for six months if a customer clicks on any ad in the group 3 times over a period of 30 days.

Note: If outcomes are tracked for all actions in the group, then all of these actions are not shown once the suppression criteria are met.

An Interaction History Summary rule is used to determine the number of impressions and clicks generated by a customer over a period of time. The default time periods are 7 and 30 days. There might be business requirements to track a customer's response to an offer over different time periods, for example, 14 days.

You can add more tracking periods by creating a new Interaction History Summary rule for the required time period and then updating the part of the Next-Best-Action strategy that references it.

Defining action suppression rules

Introduction

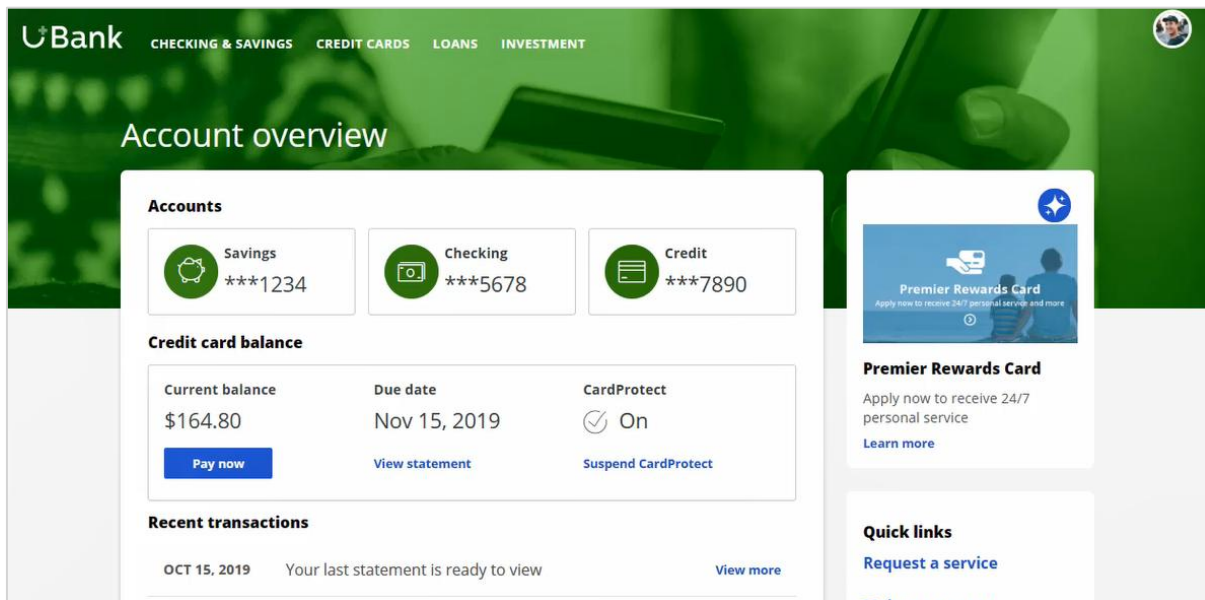
Suppression rules determine when and for how long an action or group of actions should not be shown to a customer. These suppression rules put an action on hold after a specific number of outcomes are recorded for some or all channels.

Transcript

This demo will show you how to suppress a single action or group of actions for a limited time period.

U+, a retail bank, currently displays various credit card offers to each customer who logs in to the website.

For example, every time Troy logs in to his accounts page, a credit card offer is shown. Sometimes the same offer is shown multiple times.



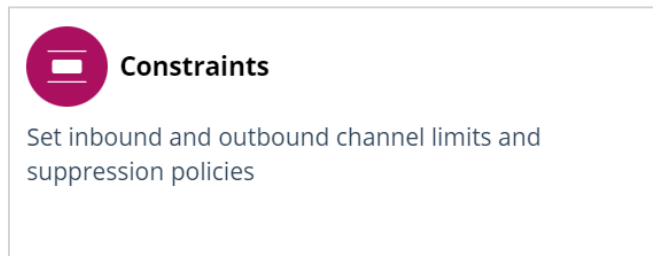
For a limited time period, the bank wants to automatically suppress offers that are shown or clicked too often.

In this scenario, the bank has two requirements. First, do not show a credit card for ten days if the card was shown three times in the last seven days.

Second, do not show any credit cards for ten days if a user has clicked on a credit card five times in the last seven days.

Contact policies are used to implement these business requirements. You create contact policies in Next-Best-Action Designer.

On the Constraints tab, you can define the suppression rules by creating contact policy rules.



For the first requirement, showing a credit card a maximum of three times, configure a contact policy to track Impressions at the Action level.

Provide a name for the contact policy.

Then select the type of outcome that will be tracked by the contact policy, in this case Impressions.

You can specify whether the responses are tracked for one specific action, or for all actions in the group. Track the first requirement at the Action level, since you want to show one specific card a maximum of three times.

You can select the time period over which the responses should be tracked. In this case, responses should be tracked over a period of seven days.

A screenshot of a 'Add contact policy' dialog box. The title bar at the top left says 'Add contact policy' and there is a close button (X) at the top right. The form contains a 'Name' field with a red asterisk, containing the text 'Three Offer Impressions'. Below it is a 'Scope' section with the text 'Track Impressions' followed by a dropdown arrow, then 'for the action' followed by a dropdown arrow, then 'within the past 7' followed by a dropdown arrow, and finally 'days'. At the bottom left is a 'Cancel' button and at the bottom right is a 'Submit' button. A mouse cursor is visible over the 'Submit' button.

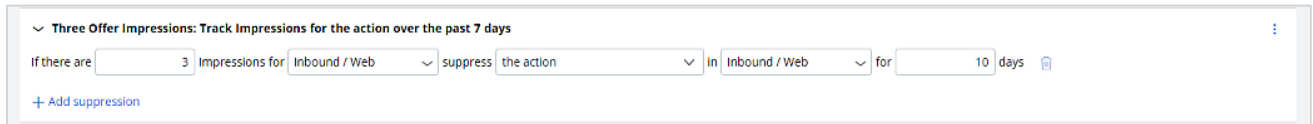
The newly configured contact policy has been added.

The first business requirement is to suppress the action for ten days if there are three impressions for the web treatment, so fill in the details accordingly.

Enter the number of responses required to fulfill the suppression criteria.

Select the channel for which the responses are tracked. Note that if you want to track impressions across multiple channels, you can select **Any**.

Enter the number of days for which an action should be paused after the suppression criteria are met.

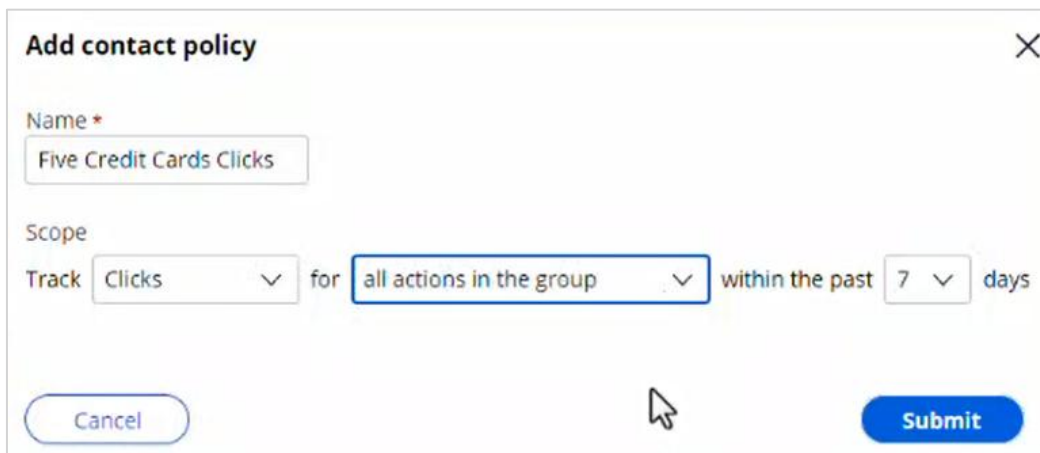


A screenshot of a suppression rule configuration interface. At the top, it says "Three Offer Impressions: Track Impressions for the action over the past 7 days". Below this, there is a form with the following fields: "If there are" followed by a text input containing "3", "Impressions for" followed by a dropdown menu showing "Inbound / Web", "suppress" followed by a dropdown menu showing "the action", "in" followed by a dropdown menu showing "Inbound / Web", and "for" followed by a text input containing "10" and the word "days". At the bottom left of the form is a link that says "+ Add suppression".

The next business requirement is to suppress the entire group of actions if there are five clicks for web treatments.

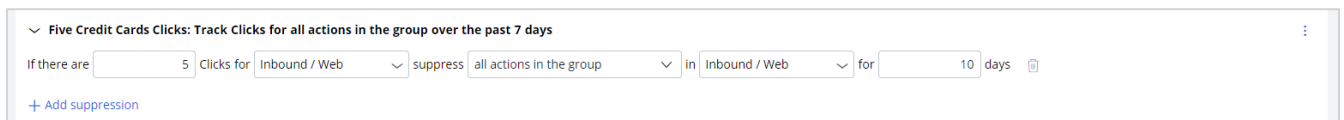
The first contact policy is configured to track Impressions, so add another contact policy.

For this requirement you will be tracking Clicks for all actions in the group. This because you want to hide all credit cards if there are five clicks on any one credit card.



A screenshot of the "Add contact policy" dialog box. The dialog has a title bar with a close button (X). Inside, there is a "Name *" field with the text "Five Credit Cards Clicks". Below this is a "Scope" section with the text "Track" followed by a dropdown menu showing "Clicks", "for" followed by a dropdown menu showing "all actions in the group", "within the past" followed by a dropdown menu showing "7", and "days". At the bottom of the dialog are two buttons: "Cancel" and "Submit".

Once the contact policy is created, fill in the suppression rule details. If there are five clicks on web treatments, suppress the group of actions for ten days.



A screenshot of a suppression rule configuration interface. At the top, it says "Five Credit Cards Clicks: Track Clicks for all actions in the group over the past 7 days". Below this, there is a form with the following fields: "If there are" followed by a text input containing "5", "Clicks for" followed by a dropdown menu showing "Inbound / Web", "suppress" followed by a dropdown menu showing "all actions in the group", "in" followed by a dropdown menu showing "Inbound / Web", and "for" followed by a text input containing "10" and the word "days". At the bottom left of the form is a link that says "+ Add suppression".

Save the changes.

The contact policy rules are reusable as policy rules across all business issues and groups.

As the bank wants to suppress credit card offers, open the CreditCards group.

Add the contact policy rules you just created.

With that, all the necessary configuration for this scenario is complete. Save the changes.

When customer Troy logs in to his accounts page, the Premier Rewards Card offer is displayed.

After showing him this offer three times, it is automatically suppressed, and a different credit card offer is shown.

When customer Barbara logs in to her accounts page, a credit card offer is displayed.

After clicking on any credit card offer five times, the credit card offers are not shown again.

This demo has concluded. What did it show you?

- How to define contact policy rules to suppress a single action or group of actions.

Arbitrating between actions

Description

After applying engagement policy rules, a customer may still qualify for more than one action. Learn how every Next-Best-Action weighs customer needs against business objectives to optimize decisions based on priorities set by the business.

Learning Objectives

- Describe what action arbitration is and how it works
- Explain how customer needs and business objectives are considered during arbitration
- Prioritize actions based on AI
- Prioritize actions based on AI & business levers

Action arbitration

Pega Customer Decision Hub™ (CDH) combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that CDH uses to make intelligent decisions. Arbitration aims to balance customer relevance and business priorities by weighing numerical values for the following factors: propensity, context weighting, business value, and business levers. Learn to create a simple formula for arriving at a prioritization value, which is used to select the top actions.

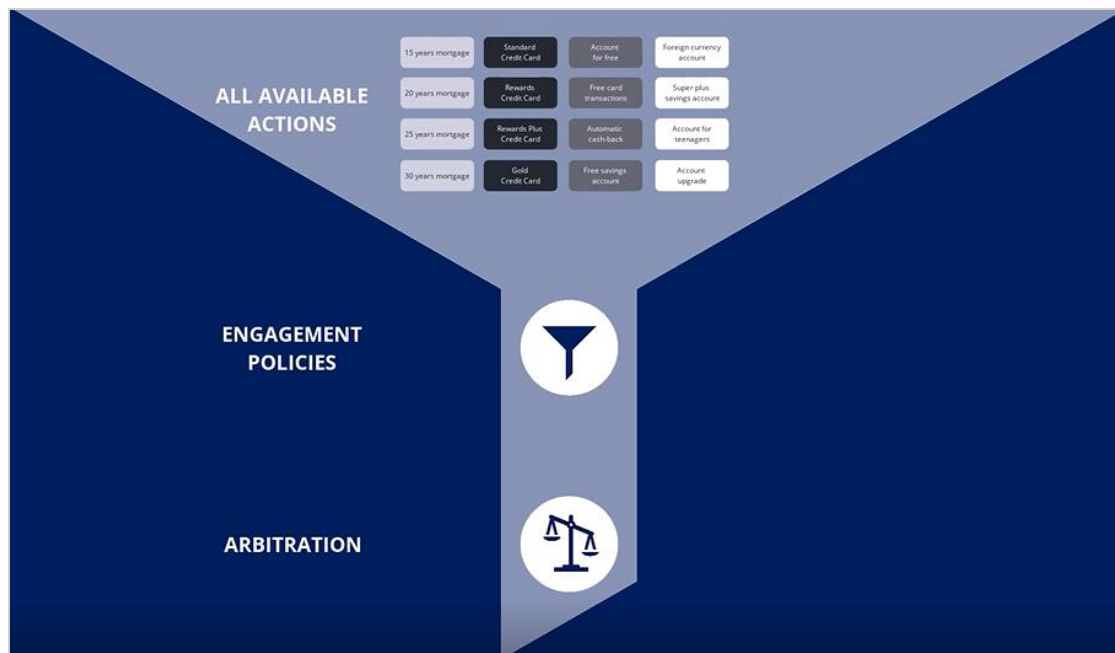
Transcript

This video explains the concept of action arbitration in Pega Customer Decision Hub.

Pega Customer Decision Hub combines analytics, business rules, customer data, and data collected during each customer interaction to create a set of actionable insights that it uses to make intelligent decisions. These decisions are known as Next-Best-Actions. Every Next-Best-Action weighs customer needs against business objectives to optimize decisions based on priorities set by the business manager.



U+, a retail bank, wants to avoid offering random actions to its customers, so it uses Pega CDH to rank and select the next best actions for every customer. All the actions from the Bank's offer move through several steps that whittle them down until the Next Best Action is selected.



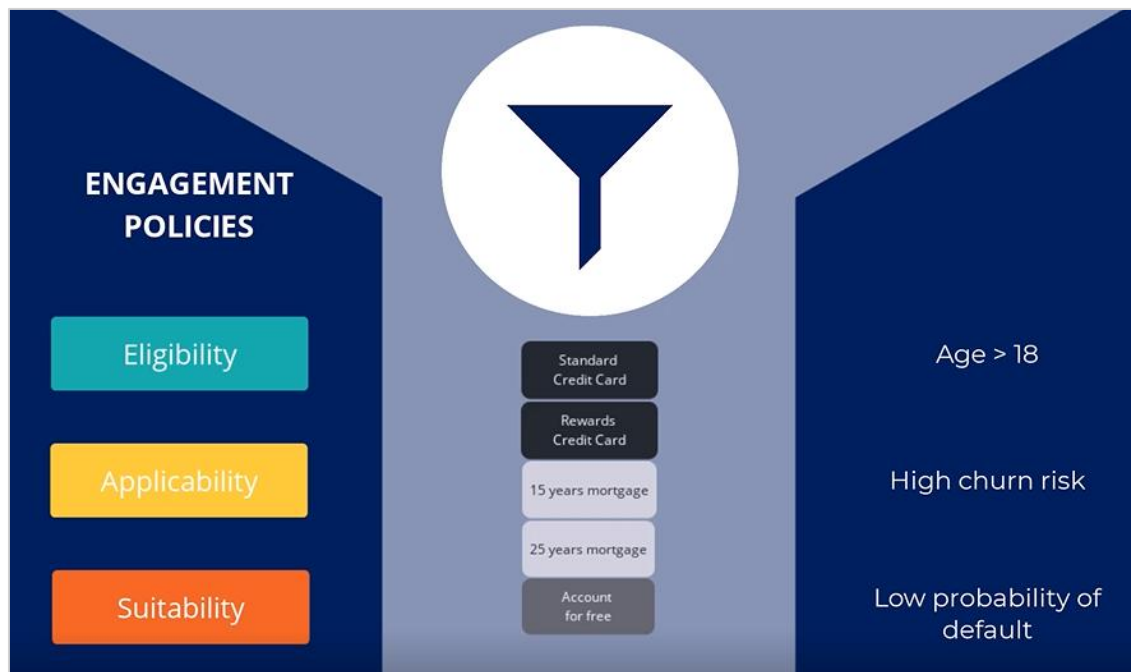
The process starts with the catalog full of actions that the organization can offer to its customers. These actions belong to various issues and groups.

The first step is to apply the Engagement Policies: Eligibility, Applicability, and Suitability conditions.

Eligibility rules are used to determine whether customers are eligible for an action. Users must meet the condition for CDH to consider the action eligible. An example of an eligibility condition is the customer's age. A customer can be offered a credit card only if they are 18 years old or older.

Applicability rules are used to limit what to offer, based on a customer's current situation. For example, the bank wants to show a retention offer, instead of a credit card offer, to customers who are likely to churn in the near future.

Suitability rules are used to define whether an offer is appropriate for a customer. For example, if a customer is in debt and has a lot to pay off, the bank does not want to offer them a 30-year mortgage as it would not be empathetic.



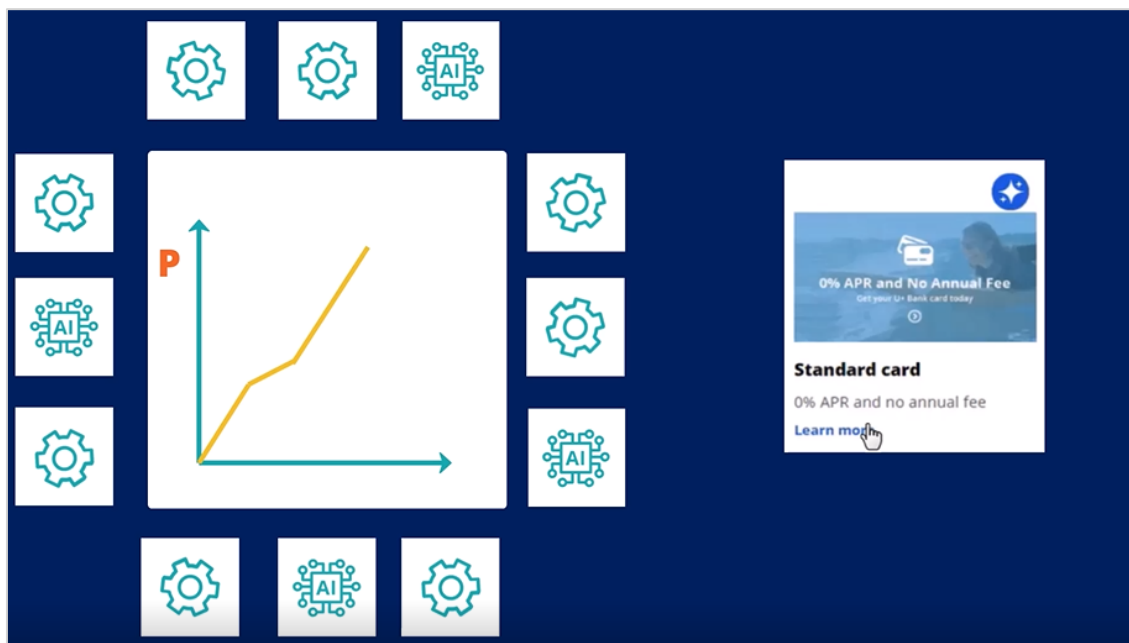
The initial catalog of actions has been narrowed down by engagement policies. These engagement policies are a combination of business rules, for example, certain age requirements for a loan or some product compatibility rules, and predictive models which help predict customer behavior as customer churn or probability of default. These predictive models are created by data scientists in Pega, or other tools familiar to data scientists like Python, R, and H2O.AI.

Before being presented to customers, the remaining actions go through a final stage known as the arbitration stage. This stage focuses on selecting and prioritizing the best actions that are most relevant for the customer at the present time. Arbitration balances customer relevance with business priorities using four components: **Propensity**, **Context Weighting**, **Business Value**, and **Business Levers**, each represented by numerical values.



Propensity is the predicted likelihood of positive behavior, such as the likelihood of a customer accepting an offer.

The propensity value is calculated by AI and it is the foundation of the arbitration process. The higher the likelihood of a customer accepting an offer, the higher the Propensity value for that offer. For Example, when a customer is eligible to receive a Standard Credit Card and clicks the Standard Credit card offer on the Bank's website the propensity of this action increases.



The AI is driven by adaptive models, self-learning mathematical models that use machine learning to make calculations. Adaptive models are a sub-group of predictive models that continuously adapt to new data as it becomes available. This means that the models are updated incrementally in real-time based on incoming data.

The Customer Decision Hub is configured to calculate the propensity for each treatment. For the web treatment, **Web_Click_Through_Rate** is the out-of-the-box adaptive model. It predicts the likelihood of a customer clicking on a banner, which is considered a positive behavior.

Context Weighting allows Pega Customer Decision Hub to consider the situational context for each action. For example, if a customer contacts the bank to close their account, the highest-priority action is to ensure that the customer is retained, even if they are eligible for other offers.

Business Value enables you to assign a financial value to an action and prioritize high-value actions over low-value ones. This value is typically normalized across Issues and Groups. For example, a 25-year mortgage is more profitable than a 15-year mortgage. So, in a situation where a customer is eligible for both plans, the 25-year mortgage will be ranked higher because of its higher business value.

Business Levers allow the business to assert some level of control over the prioritization of actions defined within the system. Levers are used to manually nudge Customer Decision Hub toward Next-Best-Actions based on external factors. For example, the recommended Next-Best-Action might be to offer a credit card to a customer when they visit the home page. However, to meet a business goal, the Mortgage Line of Business favors a mortgage offer, even if that offer is ranked a little lower on the list of possible actions.

Pega AI considers all four components to select the top offer for a customer. A simple formula $P * C * V * L$ is used to arrive at a prioritization value, which is used to select the top actions. The action with the highest priority will be presented to a customer.



In the current example, there are 5 actions that made it until the arbitration phase.

Assume the AI generates a propensity value for each of the actions which is a value between 0 and 1.

Each action has a context weight set, which is a percentage value between 0% and 100%, business value in dollars, and business lever value in a percentage between 0% and 100%.

Using the priority formula PCVL, with all of these values taken into account, we end up with a computed priority. Finally, the action with the highest priority is selected. In this case, it is a Standard Credit Card.

	PROPENSITY	CONTEXT	BUSINESS VALUE	BUSINESS LEVERS	PRIORITY
Standard Credit Card	0.45	5%	\$186	25%	5.23
Rewards Credit Card	0.3	5%	\$238	25%	4.46
15 years mortgage	0.25	2%	\$665	10%	3.6
25 years mortgage	0.2	2%	\$965	10%	4.25
Account for free	0.4	10%	\$56	5%	0.58

In summary, arbitration is used to select and prioritize the best actions that are most relevant for the customer at the present time. Arbitration balances customer relevance with business priorities using the formula $P \times C \times V \times L$. The top actions are selected based on the result of this multiplication – the prioritization value.

Prioritizing actions with business levers

Introduction

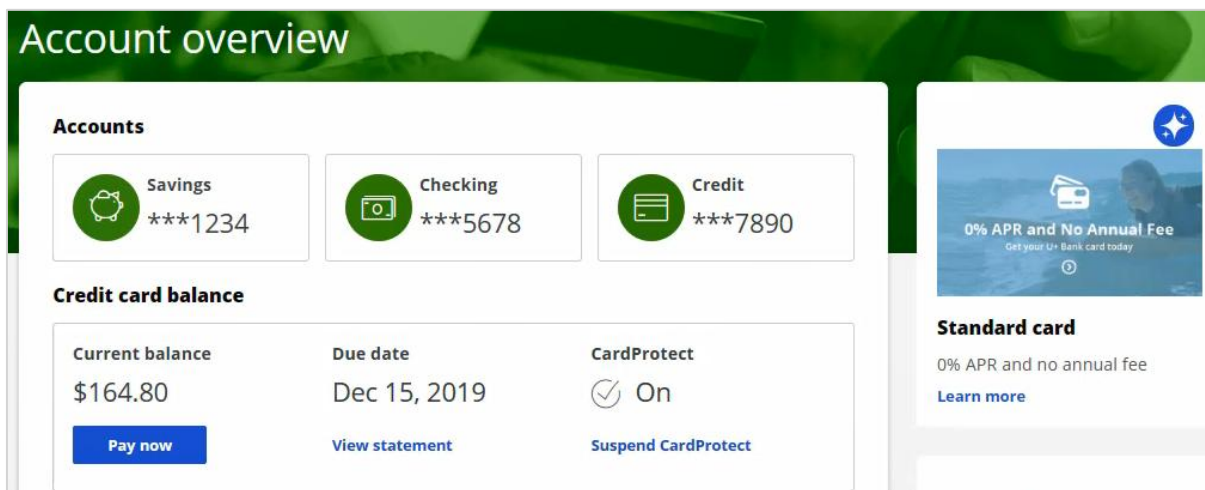
Often, due to an internal ad-hoc priority, the business would like to boost the chance of certain actions being selected. To achieve this, they would like to present more relevant offers to customers based not only on their behavior but also on business priorities. Learn how to include business requirements in an action prioritization calculation to boost the chance of an action being selected.

Transcript

This video will show you how to include business requirements in an action prioritization calculation to boost the chances of an action being selected.

U+, a retail bank, noticed that one of the offers, the Rewards card offer, was not presented frequently enough due to its low propensity because customers ignored it during the initial launch.

For example, Troy, a customer, qualifies for two credit card offers – the Standard Card and the Rewards Card. When he logs in to the bank's website, he sees the top offer for him, Standard Card.



Now, due to an internal ad-hoc priority, the bank wants to boost the chances of the Rewards Card being selected as the top offer. That is, the bank would like to present more relevant offers to customers based on not only their behavior but also on business priorities.

To implement this requirement, you must first enable the Action Weighting, a Business Lever, in Next-Best-Action Designer's Arbitration equation. This ensures that an action's business weight is used in the priority value calculation.

Business levers ?

0 levers defined

Upweight actions based on the business structure, and toggle all individual action levers ON/OFF.

Action weighting ?

Apply all of the action weighting, which is set on individual actions, to the prioritization formula.

In this case, the bank wants to boost the Rewards Card. So, open the Rewards Card offer. Edit the offer to set a business weight, a value in percentage, that is required to boost the offer. In this case, U+ wants to increase the changes of this action selected by 40%.

Starting propensity

1

Starting evidence

25

Business weighting ?

+

-

40

Business value

Save the offer for the changes to take effect.

Now, when Troy logs into the website, he will see that Rewards card is the top offer.

Account overview

Accounts

Savings
***1234

Checking
***5678

Credit
***7890

Credit card balance

Current balance
\$164.80
Pay now

Due date
Dec 15, 2019
View statement

CardProtect
On
Suspend CardProtect

Rewards Card

Get 1% cash back on every purchase

Rewards card

Get 1% cash back on every purchase

Learn more

In Customer Profile Viewer, you can examine the detailed results of the total lever weight after your updates, for the customer Troy.

☐	Issue	Group	Name	Treatment	Channel	Journey	Stage	Final propensity	Total context weight	Value	Total lever weight	Priority	Rank	Results
☐	Grow	Creditcards	RewardsCard	Rewards card tile	Web			0.1548 	1.00	1.0	1.4 	0.22	1	PASSED
☐	Grow	Creditcards	StandardCard	Standard card tile	Web			0.1823 	1.00	1.0	1.0 	0.18	2	PASSED

First, view the next-best-action decision to learn more about the details of the actions for which Troy qualifies. For the current use case, the direction is **Inbound**, and the channel is the **Web**.

TopOffers is the real-time container service that manages communication between Customer Decision Hub and the website of the bank.

When you request a decision for Troy, the Customer Profile Viewer shows you the offers for which Troy is eligible.

In the **Explain prioritization** view, you can see how the final Priority is computed, based on 4 factors: Propensity, Context, Business Value, Business levers. In this specific example, you can see how the Total lever weight influences the ranking. Even though the Final Propensity is higher for the Standard Card, the Rewards Card is ranked 1. This is caused by the Total Lever Weight factor, which is now 1.4 for the Rewards Card because the lever for this card was increased by 40%.

This demo has concluded. What did it show you?

- How to include business requirements in action prioritization calculation.
- How to boost an action using business weight.

Business use case: Cross-sell on the web extended

Description

Next-Best-Action Designer guides you through the creation of a core Next-Best-Action strategy for your business. Learn how to customize the core strategy by creating decision strategies from scratch that extend Next-Best-Action Designer capabilities.

Learning objectives

- Explain when to consider creating decision strategies from scratch

Business use case: Cross-sell on the web extended

Introduction

This video describes several use cases where decision strategies are used to extend Next-Best-Action Designer capabilities.

Transcript

U+ is a retail bank. The bank is leveraging its website as a marketing channel to improve 1-to-1 customer engagement, drive sales, and deliver Next-Best-Actions in real-time.

The bank is using the Pega Customer Decision Hub™ to recommend more relevant banner ads to its customers when they visit their personal portal. In the start-up phase, U+ successfully implemented all their use cases using Next-Best-Action Designer.

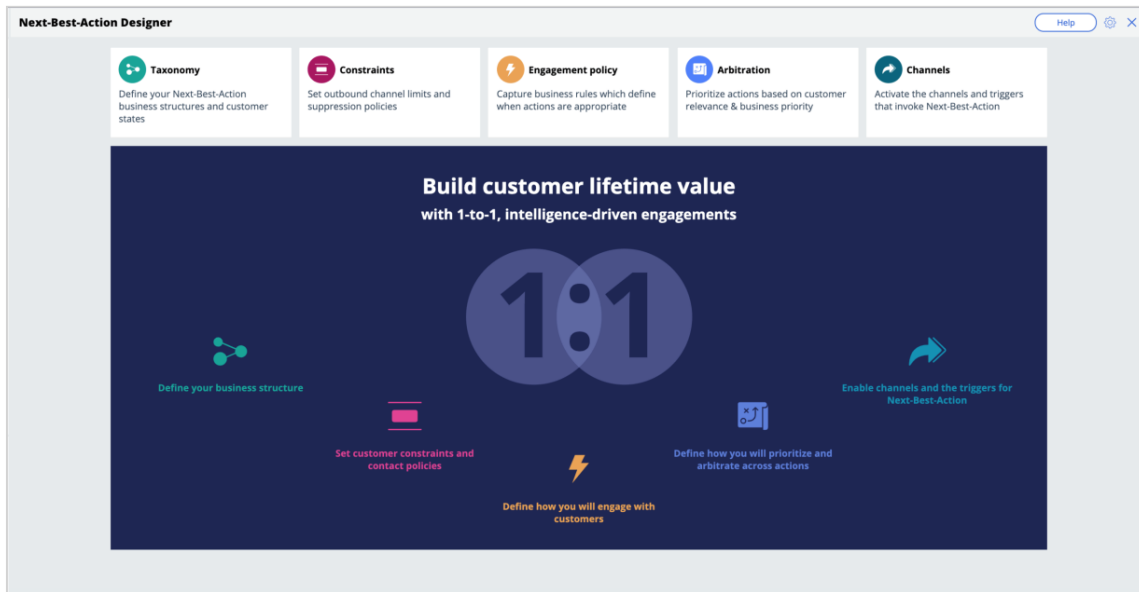
Next-Best-Action Designer guides you through the creation of a Next-Best-Action strategy for your business.

With the Next-Best-Action Designer user interface you define high-level business rules and AI controls, which the system uses to configure the underlying Next-Best-Action strategy framework.

This framework leverages best practices to automatically generate Next-Best-Action decision strategies at the enterprise level.

These decision strategies are a combination of the business rules and AI models that form the core of the Pega Customer Decision Hub, which determines the personalized set of

Next-Best-Actions for each customer.



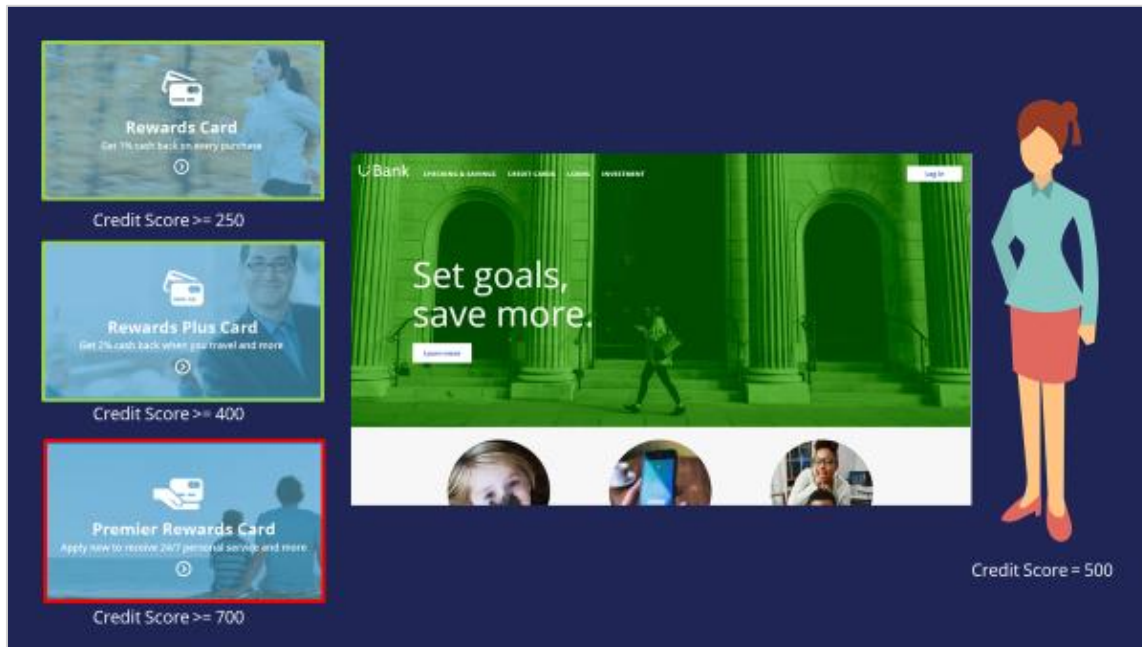
U+ Bank wants to implement additional use cases to meet new business requirements. These use cases require U+ bank to extend Next-Best-Action Designer capabilities.



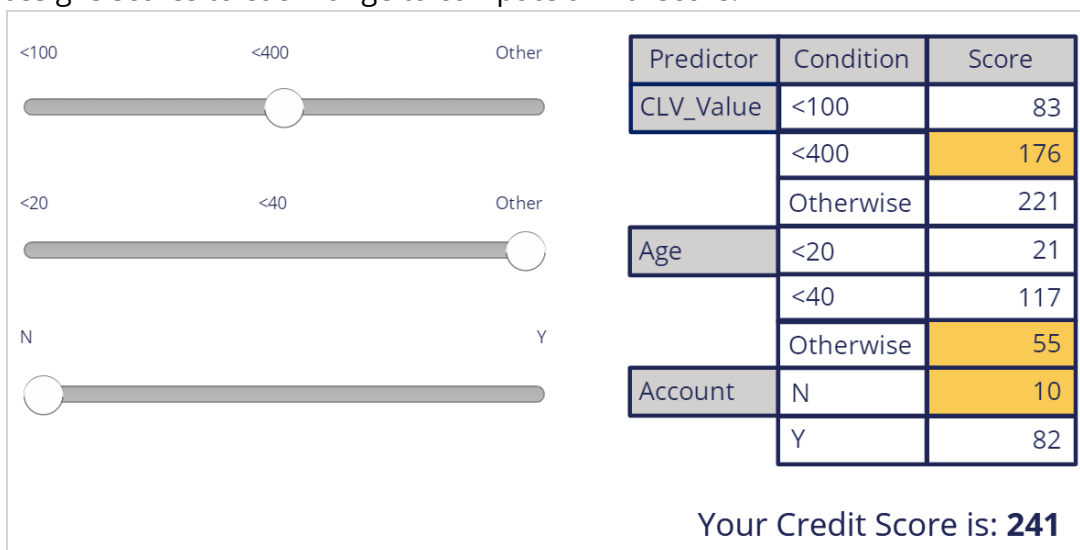
The first use case is to create suitability rules based on a customer's credit score. The bank wants to determine whether or not a customer is suitable for an offer based on their credit score. In this scenario, the credit score is not available, it needs to be computed in real-time based on customer profile information.

For example, when customer Barbara logs in, U+ bank only wants to present her with the Rewards and Rewards Plus offers, not the Premier Rewards offer. Barbara's credit score is

500. This makes her unsuitable for Premier Rewards, which is only suitable for customers with a credit score over 700.



To determine suitability, the bank wants to calculate a customer's credit score using a scorecard. A scorecard is used to assign importance to pieces of data for use in a calculation. A scorecard uses a subset of customer property values divided into ranges and assigns scores to each range to compute a final score.

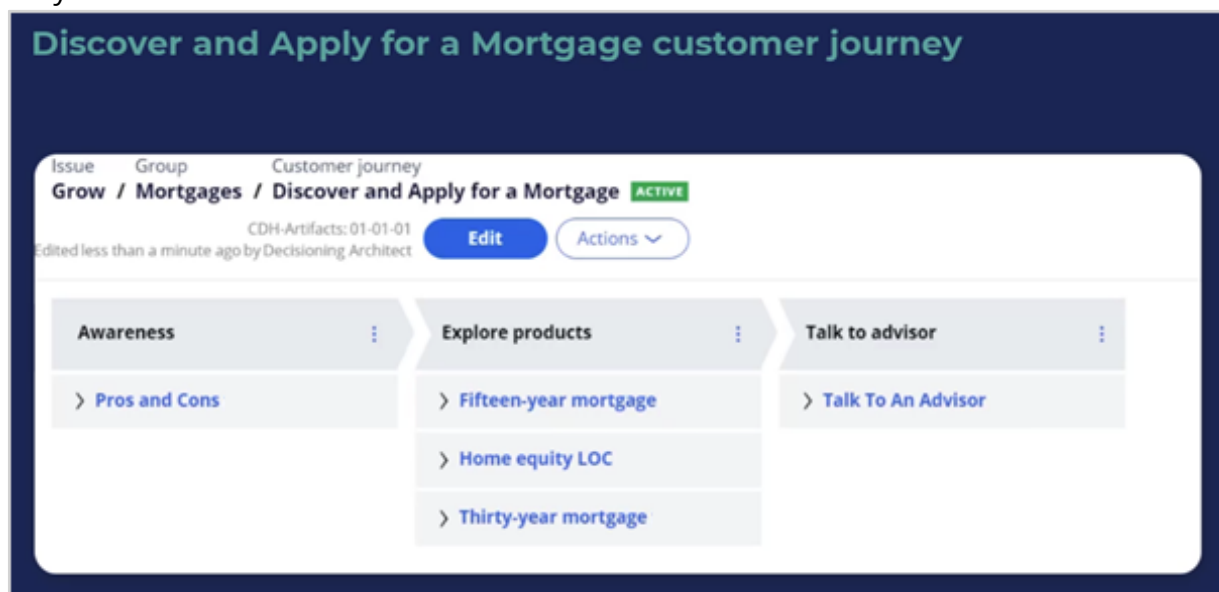


To implement this, you use a special Suitability condition in Next-Best-Action Designer. The Suitability condition uses a decision strategy that references a Scorecard rule. The Scorecard rule is used to determine the customer's credit score.

In the next use case, the bank wants to regulate and document the full customer experience. To implement this business requirement, you use Pega Customer Journeys. You can set up various customer journeys divided into stages that contain a number of actions.



The customers can advance the journey by moving to the next stage when they meet the required entry criteria. Customer journeys provide a good mental model for managing content and influencing next-best-action decisions to present suitable actions seamlessly for your customers.



In summary, this video has shown you the various use cases U+ Bank would like to implement by extending Next-Best-Action Designer capabilities in this phase of the project.

Decision Strategies Overview

Description

Decision strategies optimize business processes by using data-driven, real-time arbitration to select the best actions for specific contexts. This module explains how to create and run a decision strategy, detailing the use of various decision strategy components. It covers the importance of understanding component interactions, building expressions, and testing strategies to ensure customer-centric interactions that enhance customer experience and business outcomes.

Learning objectives

- Create and configure decision strategies from scratch using various decision components.
- Utilize various components to build effective decision strategies.
- Develop and validate expressions within decision strategies to calculate and prioritize actions.
- Test and refine decision strategies to ensure they meet business requirements and improve customer interactions.

Creating decision strategies

Introduction

You can optimize decision points in a business process or in a case life cycle with the help of decision strategies. Decision strategies allow you to perform data-driven, real-time arbitration to select the best action for a given context. Learn the type of decision components and how they are used to create decision strategies. Gain hands-on experience designing and executing your own Next-Best-Action decision strategy.

Transcript

This demo will show you how to create a new decision strategy.

It will also describe three important decision components and the types of properties available for use in expressions during strategy building.

In this demo you will build a Next-Best-Label strategy. The Next-Best-Label strategy is a sample strategy, used to illustrate the mechanics of a decision strategy.

Start by creating a new strategy from scratch.

Decision strategies output actions, utilizing the so-called Strategy-Results class.

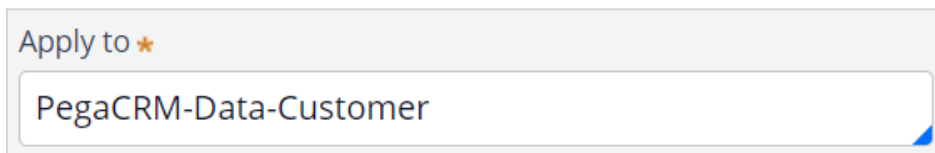
The Strategy-Results class limits the output of the strategy to the actions contained in the Business issue and Group.

The strategy you build will select a Label action from a set of predefined actions. The Label action selected will be the one with the lowest printing cost.

Notice that the complete definition of the Next-Best-Label strategy needs to include a reference to the PegaCRM-Data-Customer class.

This is the 'Apply to' class and it indicates the context of the strategy.

It ensures that from within the strategy, you have access to customer-related properties such as Age, Income, Address, Name, etc.

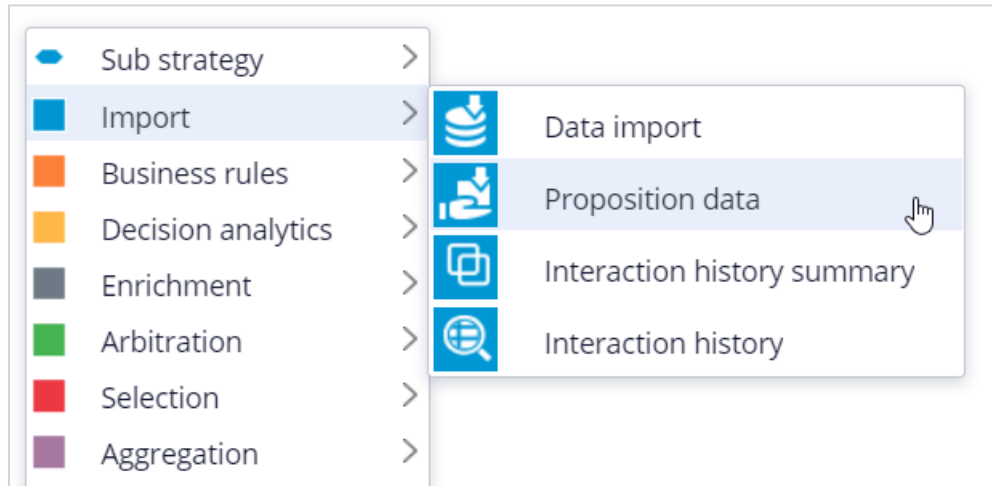


You can now start building the strategy. Right-click on the canvas to get the Context menu, which shows all component categories.

The first component to add is an Import component.

By expanding the Import category, you can see the Import component types available.

In this case you need a Proposition Data component to define the actions that will be considered by the strategy.



Now you need to configure the component. First, right-click to open the Proposition Data properties panel.

Notice that the Business issue and Group are grayed out.

This cannot be changed because the Enablement Business issue and Labels Group have already been selected for this decision strategy.

By default, the strategy will import all actions within that Group, unless you select a specific action.

For this component, you only want to import the Green Label, so let's select that.

Selecting the action from the drop-down menu automatically gives the component the appropriate name.

The description, which will appear under the component on the canvas, will also be generated automatically.

If you want to create your own description, you can do so by clicking the 'Use custom' radio button.

Now you want to import a second action into the strategy. You can use the Copy and Paste buttons to quickly add more Proposition Data components to the canvas.

You can use Alignment Snapping and Grid Snapping for easy placement of the components.

By turning these off, you can place a component anywhere on the canvas, but it makes it more difficult to align the shapes.



Now you need to add the next component in the strategy, which is an Enrichment component called Set Property.

You can add this component to the canvas by selecting it from the component menu.

Next, connect it to the Proposition Data components.

Ultimately, the result of this strategy should be the Label action with the lowest printing cost.

This printing cost is the sum of a base printing cost, which is specific to each label, and a variable cost, which depends on the number of letters.

The Set Property component is where you will calculate the printing cost for each of the actions.

The information in the 'Source components' tab is populated automatically by the Proposition Data components connected to this component.

Notice that the Black Label action is in the first row.

On the Target tab you can add properties for which values need to be calculated.

Click 'Add Item' to create the equation that will calculate the printing cost for each of the components.

Begin by setting the Target property to 'dot' PrintingCost.

In Pega, all inputs begin with a dot. This is called the dot-operator and it means that you are going to use a strategy property.

The PrintingCost property is a new strategy property that does not yet exist.

To create the new PrintingCost strategy property, click on the icon next to the Target field.



By default, the property type is Text. In Pega, there are various types supported. In this case, the PrintingCost is a numeric value, so change its type to Decimal.

Next, you need to make PrintingCost equal to the calculation you create. To create the calculation, click on the icon next to the Source field.

Using the Expression builder, you can create all sorts of complex  calculations, but in this use case, the computation is very basic.

PrintingCost should equal $\text{BaseCost} + 5 * \text{LetterCount}$.

To access the BaseCost you type a dot. Notice that when you type the dot, a list of available and relevant strategy properties appears.

This not only makes it easy to quickly find the property names you're looking for; it also avoids spelling mistakes.

In a decision strategy, you have two categories of properties available to use in Expressions.

The first category contains the strategy properties, which can be one of two types.

An Action property is defined in the Action form. Examples are the BaseCost and LetterCount properties you are using here.

These properties have a value defined in the Action form and are available in the decision strategy via the Proposition Data component.

The property values can be overridden in the decision strategy but will often be used as read only.

The second type of strategy property is a calculation like the one you just created, PrintingCost. Such calculations are often created and set in the decision strategy.

These types of properties are either used as transient properties, for temporary calculations, or for additional information you want the strategy to output.

The second category contains properties from the strategy context, also called customer properties.

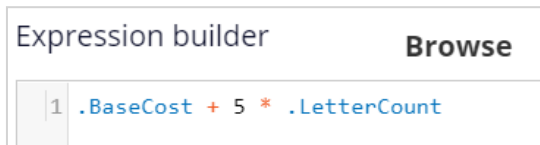
Suppose you want to use a customer property in your Expression, such as Age or Income.

In that case, you would have to type the prefix 'Customer dot', instead of just dot.

This is the list of available properties from the strategy context, also known as Customer properties.

For now, you calculate the printing cost for each action that does not use customer properties.

Finalize the Expression.



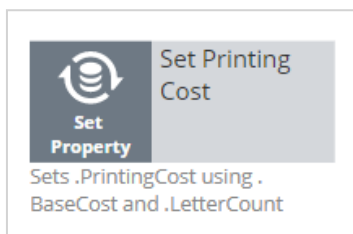
Expression builder **Browse**

1 .BaseCost + 5 * .LetterCount

Even though you used the dot-operator to build your Expression, it's best practice to validate it, so click Test.

If the Expression isn't valid, you will receive an error message on screen.

On the canvas, you can see the automatically generated description for the component: Sets PrintingCost using BaseCost and LetterCount.



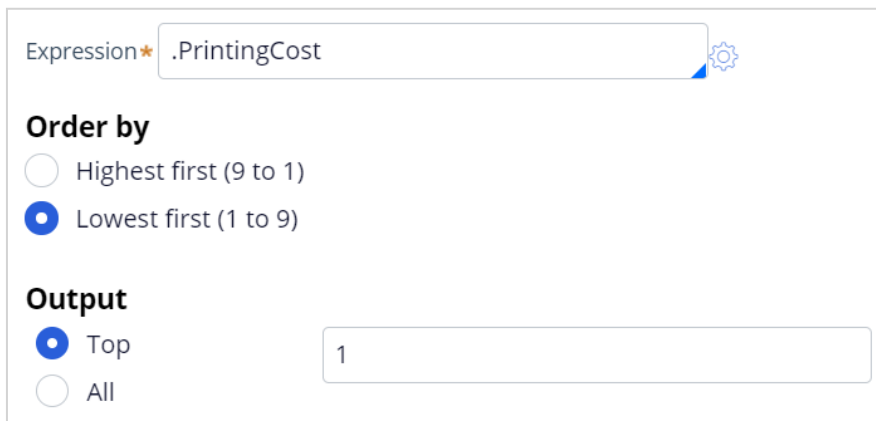
Now you want to ensure that the actions will be prioritized based on the lowest printing cost. So, you need to add the Prioritize component from the Arbitration category.

The prioritization can either be based on an existing property, or it can be based on an equation. Let's select an existing property using the dot construct.

Here you can select the order in which the top actions are presented. Since you are interested in the lowest printing costs, configure it accordingly.

You can also select the number of actions that will be returned by the strategy.

If you want to output only one label, select Top 1 here.



Expression  .PrintingCost 

Order by

☐ Highest first (9 to 1)

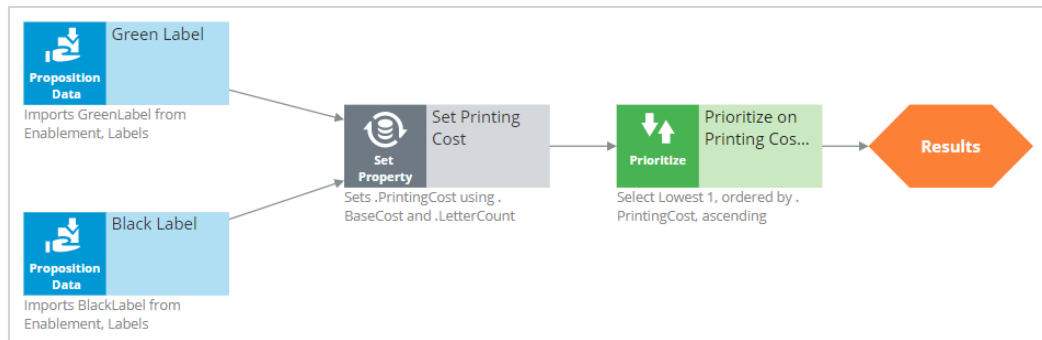
☒ Lowest first (1 to 9)

Output

☒ Top

☐ All

Now you can connect the components and save the strategy.



To test the strategy, first check it out. Then, expand the right-hand side test panel and click 'Save & Run' to examine the results.

You can view results for any of the components by selecting that component.

If more than one action is present, each one is presented as a Page.

For the Set Property component, the Results contain a page for the Black Label and one for the Green Label.

For the Black Label the PrintingCost is 70.

For the Green Label the PrintingCost is 60.

On the canvas, you can show values for strategy properties such as Printing Cost.

For this exercise, you execute this strategy against a Data Transform called UseCase1.

If you open UseCase1, you can see the customer data the strategy uses when you run it.

To test the strategy on a different use case, you can create a Data Transform with different properties.

You can also select a Data Set that points to an actual live database table.

This demo has concluded. What did it show you?

- How to create a decision strategy from scratch.
- How to configure Proposition Data, Set Property and Prioritize decision components.
- How to build expressions in strategies.
- The two categories of properties available for expressions.
- How to test a decision strategy using a use case stored in a data transform.

Decision strategy execution

Introduction

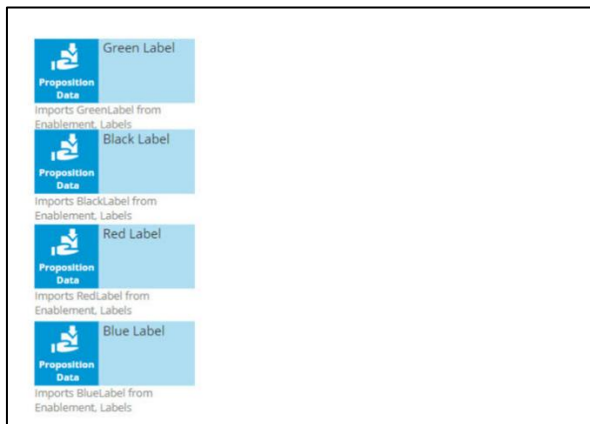
Using Pega Decision Management, you do not need to be an expert in programming, math or data science to design and execute sophisticated decision strategies that engage your customers throughout the customer journey. With its highly intuitive graphical canvas, Pega Decision Management enables you to easily embed Pega or third-party predictive models into your decision strategies. The result is customer-centric interactions that improve the customer experience while increasing customer value, retention and response rates.

Transcript

This demo explains what's going on inside each component when a Decision Strategy is executed.

For example, what happens 'under the covers' when a Filter component is executed, and how does it interact with the components around it?

In the interest of keeping it simple, this example is limited to four actions. In reality, decision strategies will involve many more actions than that.



Here are our 4 actions: 'Green Label', 'Black Label', 'Red Label' and 'Blue Label'; they are represented by a Data Import or, more specifically, a Proposition Data component.

In this example, the Proposition Data components import three data properties for each action: Name, BaseCost and LetterCount.



Green Label

Imports GreenLabel from Enablement.Labels

Rank	Name	BaseCost	LetterCount
1	Green Label	10	10



Black Label

Imports BlackLabel from Enablement.Labels



Red Label

Imports RedLabel from Enablement.Labels



Blue Label

Imports BlueLabel from Enablement.Labels

The first action's Name is Green Label, its BaseCost is 10, and its LetterCount is 10.

Likewise, the other actions have a Name, BaseCost and LetterCount.



Green Label

Imports GreenLabel from Enablement.Labels

Rank	Name	BaseCost	LetterCount
1	Green Label	10	10



Black Label

Imports BlackLabel from Enablement.Labels

Rank	Name	BaseCost	LetterCount
1	Black Label	20	10



Red Label

Imports RedLabel from Enablement.Labels

Rank	Name	BaseCost	LetterCount
1	Red Label	30	8



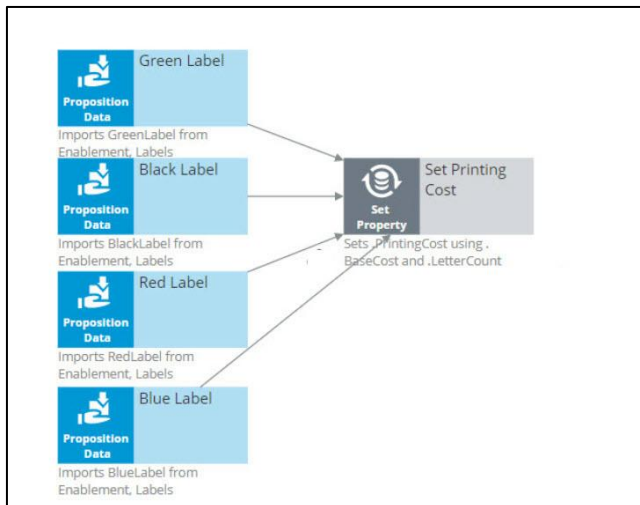
Blue Label

Imports BlueLabel from Enablement.Labels

Rank	Name	BaseCost	LetterCount
1	Blue Label	40	9

One property is automatically populated for you; this is the Rank. We will come back to this later, but notice that, as separate components, each action has a Rank of 1.

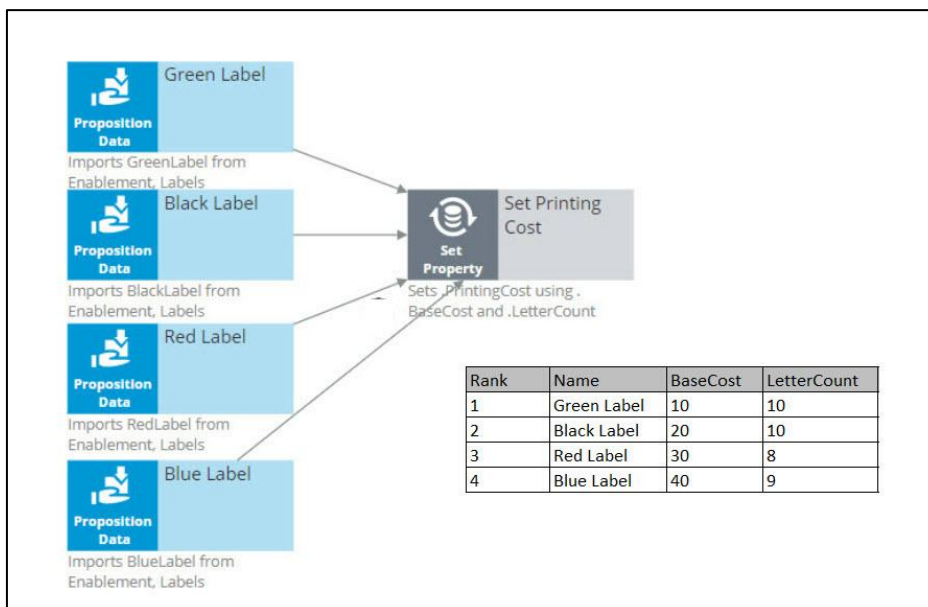
On the strategy canvas, components are connected by drawing arrows from component to component. So, what do these arrows mean exactly?



Well, when you draw an arrow, what happens is that, at runtime, all information in the component you're drawing the arrow from is available as a data source to the component you're drawing the arrow to.

So now, the Name, BaseCost and LetterCount for all of the actions are available in a single Set Property component.

The only data element that changes is the row number, or as we call it in the strategies, the Rank. In each decision component, the Rank value is automatically computed.



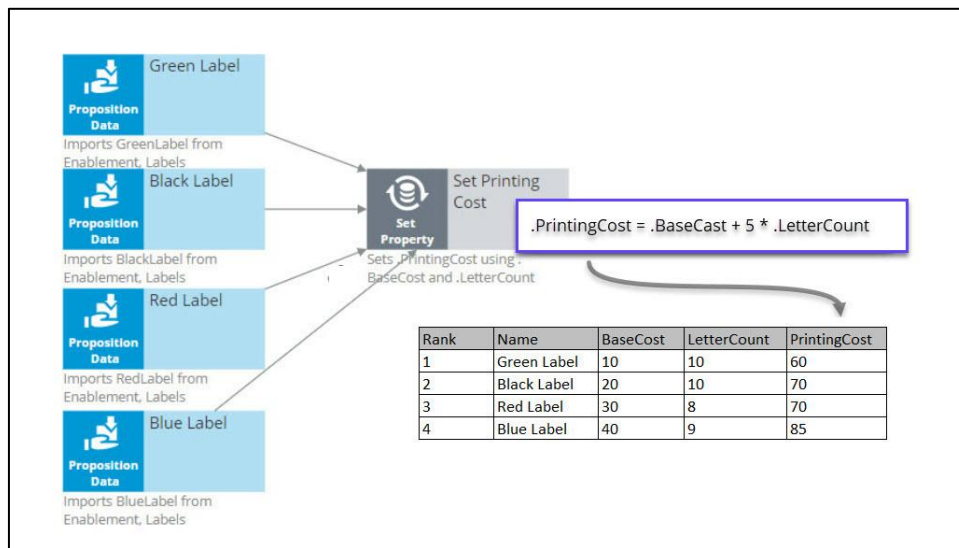
In the Set Property component, the Rank is determined by the order in which the actions are received by the component.

As a result, in this instance, the Green Label action has a Rank of 1, Black has a Rank of 2, Red has a Rank of 3, and Blue has a Rank of 4.

Ultimately, you want to select the best Label action. That is the Label with the lowest printing cost.

The printing cost of a Label is the sum of the BaseCost and a variable cost based on the LetterCount.

You configure the Set Property component to compute the printing cost of each Label action.



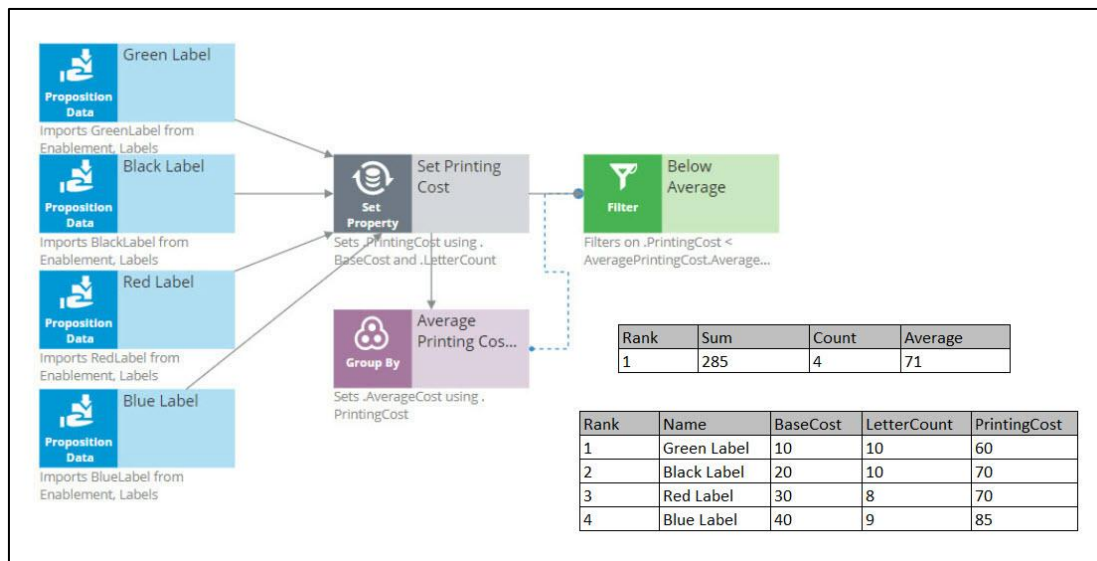
Because we are combining the data in our four Proposition Data components into one Set Property component, we only need to add one PrintingCost property to the new component, and it automatically computes the printing cost for all four actions.

For the Green Label action, PrintingCost equals a BaseCost of 10 plus 5 times the LetterCount of 10 which equals 60.

Similarly, the PrintingCost for the Black and Red Label actions is 70, and for the Blue Label action is 85.

Now, let's say the business rule is to select only Label actions with a printing cost lower than the average printing cost of all labels. For this requirement we use a 'Group by'/Filter component combination.

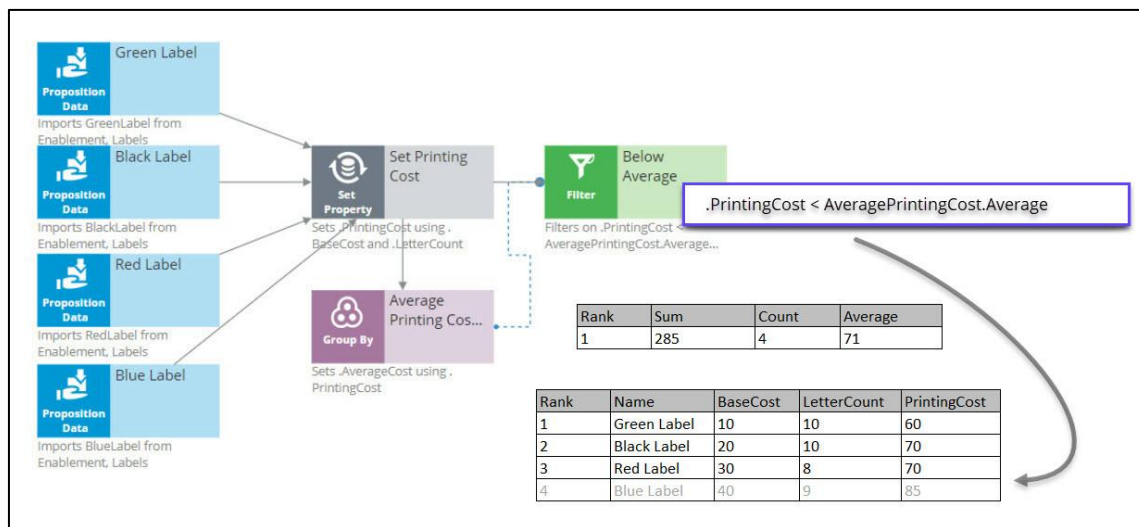
A 'Group by' component offers essential aggregation capabilities, like Sum and Count, that are used in many decision strategies. We will use it to calculate the average printing cost.



Again, we have our set of actions, each with their own specific PrintingCost value. The 'Group by' component combines all actions into one row. How does that work?

Well, it sums the PrintingCost values for all the actions, it counts the actions, and it calculates the average printing cost by dividing the summed printing cost by the count.

In this example, the sum of the PrintingCost values is 285, and the count of the actions is 4, so the average printing cost is 71.



Now that you have calculated the average printing price using a 'Group by' component, configure the Filter component to filter out actions that have a printing cost equal to or higher than this average.

So far in this strategy, we've seen only the solid line arrows, which copy information from one component to another. But now we also see a dotted line arrow.

This tells us that a component refers to information in another component.

Here, the Filter component is referencing the average printing cost that exists inside the Aggregation component. This is an important capability to understand.

The Filter component filters out actions when the printing cost for that action is equal to or above the average printing cost and propagates the other actions.

First, via the solid arrow, the filter looks at the actions sourced from the Set Property component.

Then, it applies the filter condition, which references the average printing cost in the 'Group by' component via the dotted arrow.

The Filter Condition in the Filter component is the Expression: 'dot PrintingCost is smaller than AveragePrintingCost dot Average'.

By using this ComponentName dot Property construct, any decision component can be referenced by any other component by name.

Important to note that the Filter component lets actions through when the condition Expression evaluates to **true** and filters out actions when the condition Expression is not met.

When you refer to a component, you always refer to the first element in the component, the one with Rank 1.

In this case, you are referring to the one and only row in the 'Group by' component, which naturally has Rank 1.

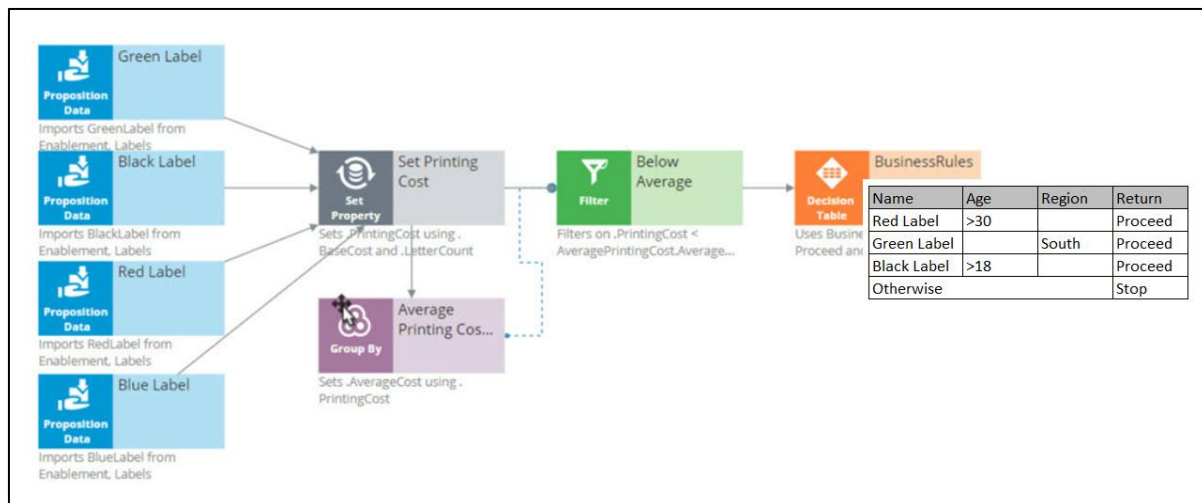
The Rank 1 average equals 71 in the 'Group by' component. This means that the filter will allow Label actions through that have a printing cost lower than 71.

By this standard, the printing cost of the Blue Label action is too high, so it is filtered out. The printing cost of the other Label actions are below 71, so they survive.

The result is that the table contains three surviving actions: Green Label with Rank 1, Black Label with Rank 2, and Red Label with Rank 3.

The next component is a Decision Table. A Decision Table in Pega is an artifact that can be used to implement business requirements in table format.

In a Decision Table, the business rules are represented by a set of conditions and a set of Return values.



The Decision Table receives information about the remaining actions via the solid arrow from the Filter component.

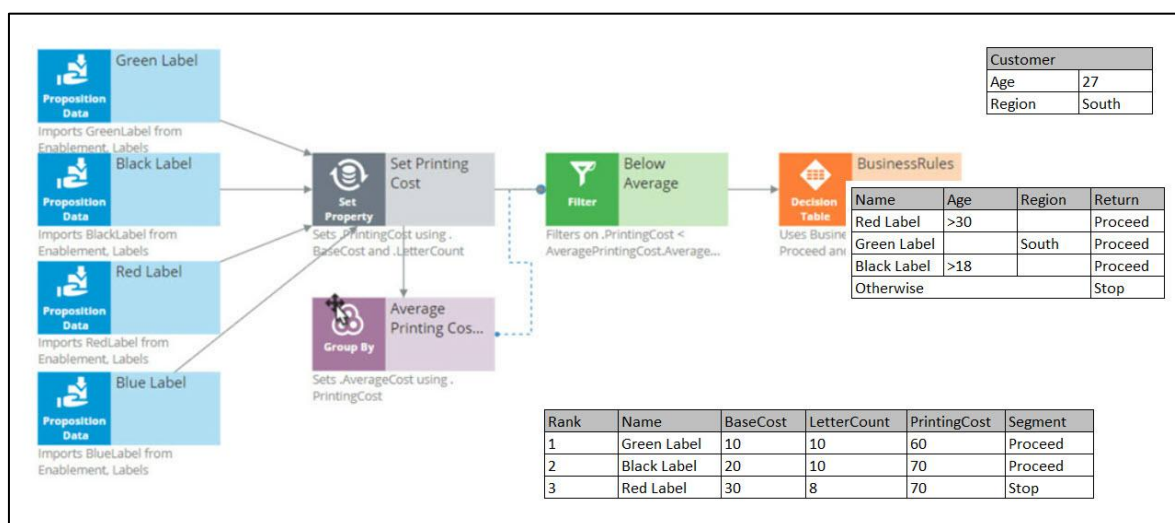
The business criteria say that the Red Label action can be offered if the customer's age is over 30 and they are from any region. If these criteria are met, the Return value is 'Proceed'.

The Decision Table also says that the Green Label action can be offered to anyone in the Southern region. So, if the Region value is South, the Return value for Green is 'Proceed'.

The Black Label action can be offered to anyone over the age of 18.

But in all other cases, or, Otherwise, no Label action meets the criteria, and the Return value is 'Stop'.

As an example, consider a customer with Age 27 and Region South.



Now, the Decision Table applies the business criteria for each action against the customer information and returns a value. The value returned by a Decision Table is also called a Segment.

The Decision Table checks the Green Label action with Rank 1 first, and in this case, it can proceed because the customer's Region is South.

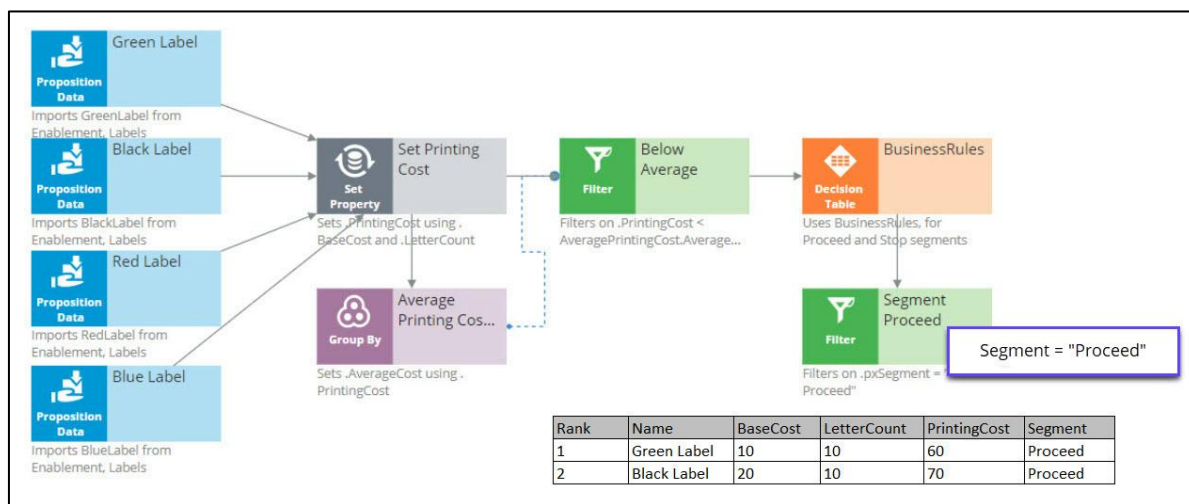
Next, it looks at the Black action and sees that the criteria for Black is that the customer's age is greater than 18. This customer is 27.

Black doesn't care about the Region, so the Segment value for the Black action is 'Proceed'.

Finally, it looks at the Red action, and the Age criteria don't match up, so the Segment value for Red is 'Stop'.

The result of the component is that you get a new segmentation column that flags which of the actions comply with the business rules.

You're now going to filter out the actions that do not match the business rules. This happens in the 'Segment Proceed' Filter component.



Again, via the solid arrow, the strategy copies the data over from the Decision Table component into the Filter component.

Now each action has a Rank, Name, BaseCost, LetterCount, PrintingCost and Segment. The filter condition is applied to this data.

The filter condition says: allow this action through if the Segment value equals 'Proceed'.

What this Filter component now does is go through the list of actions to find the actions with value 'Proceed' in their Segment property.

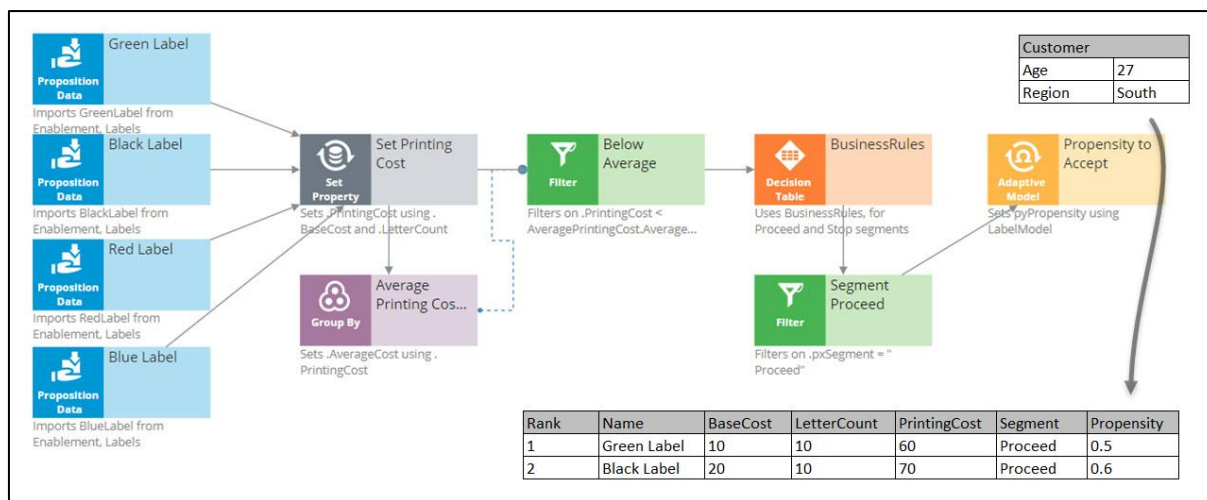
First is the Green Label. Green is allowed through, which means its properties will be available in the new component.

Then the Black Label. It is also allowed through because it also has 'Proceed' in its Segment property.

But the Red Label action is not allowed through, because Red has 'Stop' in its Segment property. Therefore, Red is not part of the output.

The strategy so far has selected two of our original actions, Green and Black.

Now, in the Adaptive Model component, you will use predictive analytics to determine the propensity of each of the remaining actions.



Propensity is the probability that a customer will accept an action, or their likelihood of interest in it.

In order to calculate the propensity, we use an Adaptive Model component. The referenced model is configured to monitor customer characteristics such as Age and Region.

In this case our test customer has an Age of 27 and is from the South Region.

Again, just to keep it simple, we are using a model that makes predictions based on only this information. In reality, models will take into account many more properties.

The Adaptive Model determines the propensity.

First, we supply the action and the customer profile to the Adaptive Model, and the model says: 'Oh, it's the Green Label action; we have some evidence that young people like the Green Label action, but people from the South don't like it.'

Combining both factors, we get an overall propensity of 0.5 for the Green Label action.

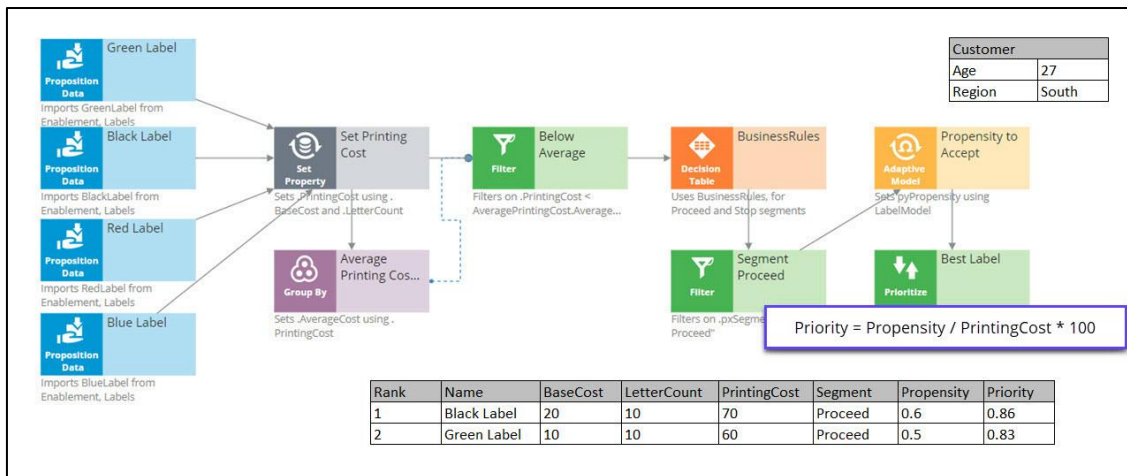
For the Black Label action, the likelihood turns out to be 0.6.

After consulting the Adaptive Model, the Propensity to Accept component sets the Propensity property value for each action.

Remember, the propensity is always a number between zero and 1.

It shows something along the lines of, half of the customers that are like this customer accepted the Green Label action in the past, and 3 out of 5 customers like this customer accepted the Black action last month.

The next component in our chain, called Best Label, is the Prioritize component. This component determines the priority of each action and ranks them. Let's see how this works.



A key element of this component is the priority Expression, which calculates a priority value for each action. According to this Expression, the higher the value, the higher the priority and rank.

In this case, the priority calculation weighs likelihood of acceptance in its equation: 'Propensity divided by PrintingCost times 100'.

When performing this calculation on the Black Label action, we can see that it has a PrintingCost of 70 and a Propensity of 0.6, therefore its Priority is 0.86.

The Green Label action has a lower PrintingCost and a lower Propensity, resulting in a Priority of 0.83.

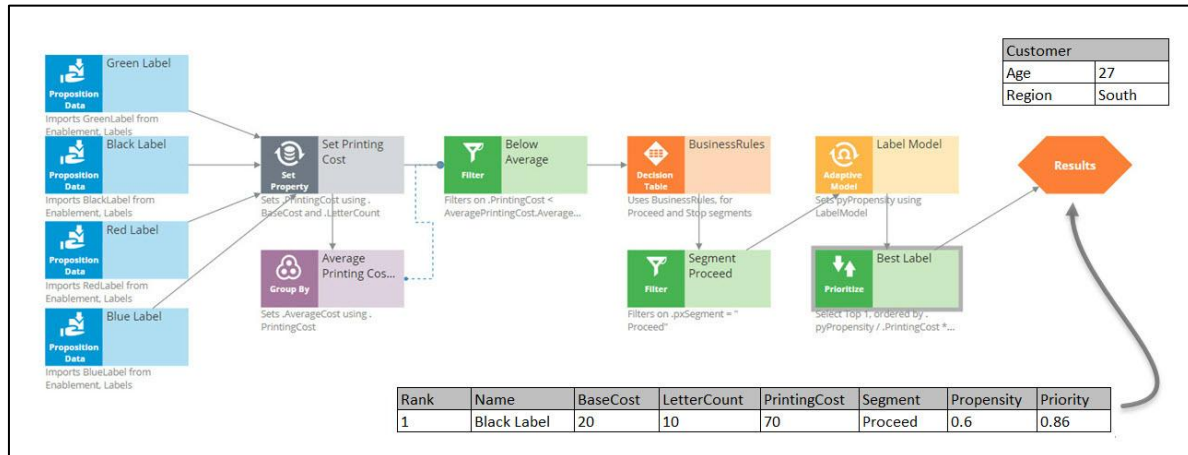
Because 0.86 is higher than 0.83, the Black Label action is now ranked number one.

So, even though the printing cost of the Black Label action is higher than that of the Green Label action, the Black Label action still comes out on top.

In this case, the Priority component reversed the Ranks of the two actions. Black is now the primary action and Green is the secondary action.

The same Prioritization component is also configured to output only the top action.

Therefore, it filters out the Green action altogether, and at the end of our strategy chain, the Black Label is left as our best action.



Creating engagement strategies using customer credit score

Description

A scorecard is a mathematical model that determines a score value based on a set of conditions and a combiner function. The conditions either use customer properties directly, or an expression based on them. The output of a scorecard is the raw score plus a segment, which is obtained by defining a set of cut off values that create a set of score ranges. Learn how a scorecard can be used to determine the customer credit score, and how the credit score can be used in a decision strategy to define suitability rules.

Learning Objectives

- Create a scorecard
- Use the segmentation result and the score value of a scorecard in a decision strategy
- Use a scorecard to determine group-level and action-level suitability

Customer credit score using a scorecard

Introduction

A scorecard is a mathematical model that determines a score value based on a set of conditions and a combiner function. These conditions can either use customer properties directly, or an expression based on them. The output of a scorecard is the raw score and a segment, which is obtained by defining a set of cut-off values that create a set of score ranges.

Transcript

This video explains how a scorecard can be used to determine the customer credit score.

Let's consider a typical loan application scenario for U+ Bank.

The bank wants to automate the home loan requests process by analyzing a customer's credit score based on customer profile information and categorizing it into the right credit score level using a scorecard.

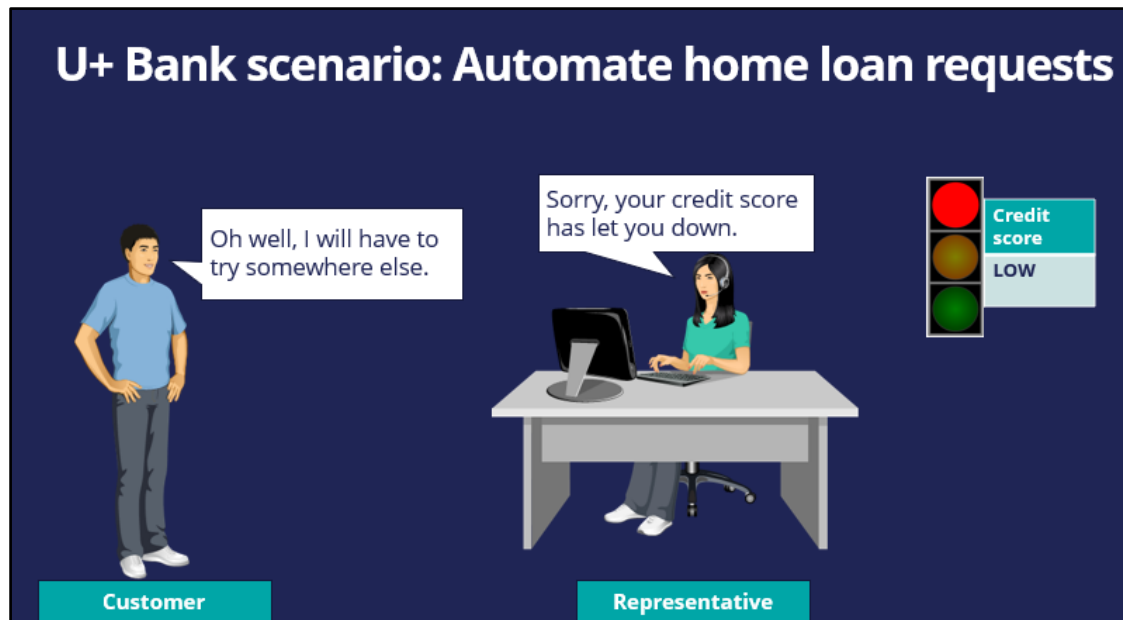
Tom is a U+ Bank customer who visits the bank to apply for a home loan. Iris is a U+ bank loan representative who is responsible for processing loan requests.

Iris gets Tom's profile information. Based on his customer data, Iris calculates his credit score using a scorecard.

Depending on Tom's credit score, a decision is made on his loan application.

The bank has already defined three credit score levels: **Low**, **Medium** and **High**.

For example, if Tom's credit score is **LOW**, he is not qualified to get a loan, and his application is automatically refused.

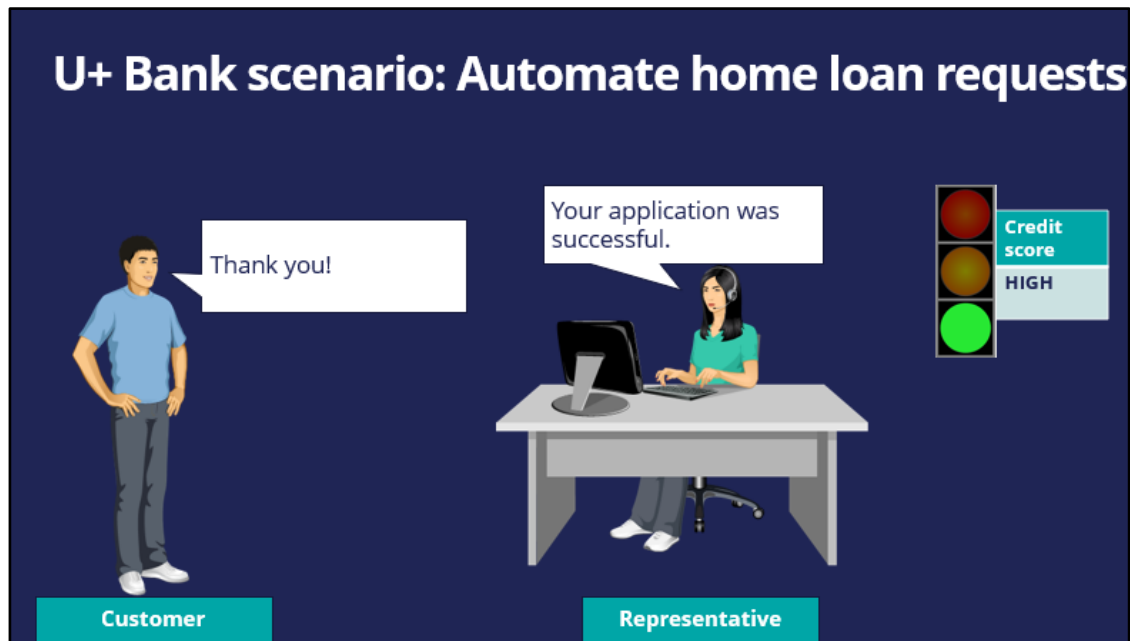


If Tom's credit score is **MEDIUM**, then his application needs to be reviewed further by manager.

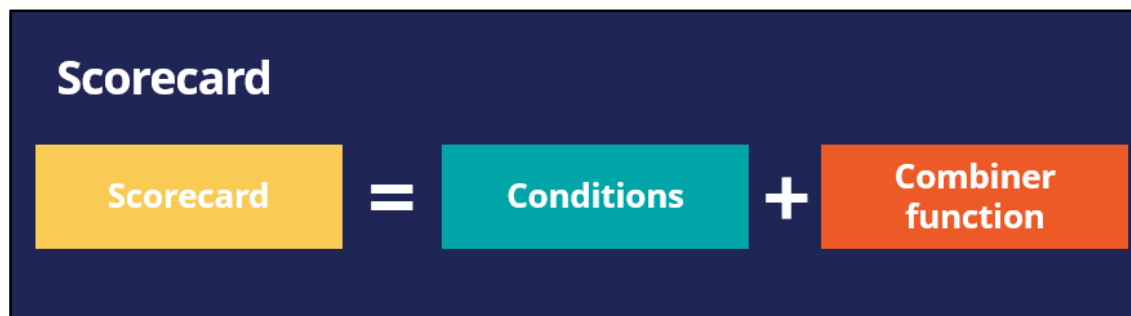


If Tom's credit score is **HIGH**, then he is automatically eligible to get the loan right away.

Let's now learn about the scorecard and how it works by considering the U+ Bank loan application scenario.



A scorecard is a mathematical model that computes a score and outputs a segmentation result based on one or more conditions and a combiner function.



Let's take a look at an example of a scorecard U+ bank could use. Assume that in order to process home loan requests, the bank has identified **three predictors** that can be used in the scorecard calculation. The predictors are **Customer lifetime value, Age, and Account**.

Each predictor has some **conditions** and scores associated with those conditions.

The scorecard enables the bank to assign a **score** to a value or a range of values the predictor can have.

For example, If the **Customer lifetime value** is less than 100, a score of 83 is assigned. If the value is between 100 and 399, a score of 221 is assigned; otherwise a score of 350 is assigned.

If the customers' Age is less than 20, a score of 21 is assigned. If their Age is between 20 and 39, a score of 217 is assigned; otherwise a score of 55 is assigned.

In a similar way, if a customer has an account with U+ bank, a score of 82 is assigned. Otherwise, a score of 10 is assigned.

The combiner function is used to combine the total sum of score values between conditions.

Now that the bank has identified **predictors** and assigned a **score** to a range of values the predictor has, let's see the results of the scorecard.

The output of a scorecard is a **score** and a **segment result**.

First, you will see how to calculate a customer's credit score using the scorecard.

Let's consider an example in which the customer lifetime value is 350, the customer's age is 35, and the customer has a U+ Bank account.

Since the customer lifetime value is 350, he gets a score of 221. For his age, he gets a score of 217, and since he has a U+ bank account, he gets a score of 82. The sum of these three individual scores is 520, representing his final credit score.

The scorecard outputs a **score** as well as a **segment result**.

To process loan requests, the bank has defined three result values. If the credit score is less than or equal to 400, the result is **Not Approved**. If the credit score value is between 401 and 600, the result is **Refer to Manager**. If the credit score is higher than 600, the result is **Approved**. So, the higher a customer's credit score, the better his/her chances of getting a loan approved.

Credit score	Result
< = 400	Not Approved
< = 600	Refer to Manager
Otherwise	Approved

Let's consider the profiles of three customers applying for home loans.

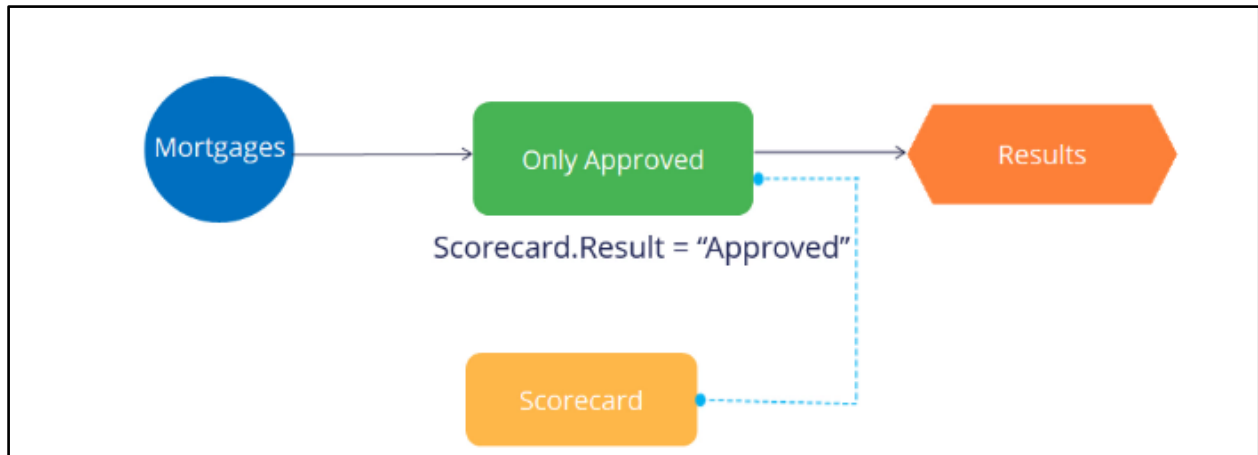
Customer A has a customer lifetime value of 150, their age is 18, and they don't have a U+ Bank account. Therefore, their credit score is 252, and the segment result is **Not Approved**, because their credit score value is less than 400. This means they do not qualify for a loan.

Customer B has a different profile, and their credit score is 415, so the segment result is **Refer to Manager**, because their credit score value is between 401 and 600. This means their application needs further review.

Customer C has a credit score of 649, which is higher than 600, so he is eligible to get a loan right away.

Now that you learned about the scorecard and its results, let's see how to use the scorecard segmentation in a decision strategy.

To use a Scorecard in a decision strategy, use the **Scorecard** component. The **Scorecard** component outputs the result, in this case **Not Approved**, **Refer to Manager**, or **Approved**, which you can use in your decision strategy.



The scorecard also outputs the **raw score value**, this score value can be used directly in the decision strategy.



In summary, the scorecard is a mathematical model that computes a score and outputs a segmentation result based on a set of conditions and a combiner function. The scorecard's score and segmentation result can be used directly in a decision strategy using the Scorecard decision component.

Building a scorecard to calculate the creditscore

Introduction

Scorecard rules are referenced in decision strategies through the scorecard component. Learn how to create scorecard-specific rules to derive decision results from several factors.

Get detailed insight into how scores are calculated by testing scorecard logic using the rule form. Use the test results to view score explanations for all predictors used in the calculation so you can validate and refine the current scorecard design or troubleshoot potential issues.

Transcript

U+ bank wants to build a scorecard that calculates the credit score of a customer to determine if the customer is suitable for a mortgage or not.

The bank has identified three customer properties to use in the scorecard calculation. These are the HasCards (a property that indicates if a customer already has a credit card or not), Income, and Age.

To build a scorecard, navigate to the scorecards landing page and create a scorecard.

Enter a short description for the scorecard.

The Combiner function enables you to select a method for combining scores.



In this scenario, the credit score is the sum of scores attributed to each customer property, so use the Sum method.

The scorecard enables you to assign a score to a value or a range of values the property can have.

For example, the credit card indicator, HasCards property can have the values "Y" or "N".

If a customer has a credit card with U+ bank, assign a score of 100. Otherwise, assign a score of 0.

The screenshot shows a configuration interface for a predictor named '.HasCards'. It has four columns: 'Predictor expression', 'Condition', 'Score', and 'Weight'. The 'Condition' column contains 'Y'. The 'Score' column contains '100'. The 'Weight' column contains '1'. Below the main configuration, there is an 'Otherwise' section with a score of '0'.

Predictor expression *	Condition	Score	Weight *
.HasCards	Y	100	1
Otherwise		0	

You may also sub-divide values of numeric properties into ranges and assign a score to each range.

The next property is Income. In this case you want to split the values for yearly income into three ranges and assign a score to each range.

The data model contains an Income property, which contains the monthly income of the customer. The scorecard allows you to use this property to build the expression to compute the customer's yearly income.

Once the expression is created, you can start assigning scores to each range. If the customer's yearly income is less than or equal to 25,000, assign a score of 50.

If their yearly income is between 25,001 and 50,000, assign a score of 100; and if their income is between 50,001 and 75,000, assign a score of 150.

If their income is higher than 75,000, assign a score of 200, using the **Otherwise** setting.

The screenshot shows a configuration interface for a predictor named '.Income*12'. It has four columns: 'Predictor expression', 'Condition', 'Score', and 'Weight'. The 'Condition' column contains '<= 25000', '<= 50000', and '<= 75000'. The 'Score' column contains '50', '100', and '150'. The 'Weight' column contains '1'. Below the main configuration, there is an 'Otherwise' section with a score of '200'.

Predictor expression *	Condition	Score	Weight *
.Income*12	<= 25000	50	1
	<= 50000	100	
	<= 75000	150	
Otherwise		200	

In a similar way, split the values for Age into five ranges and assign a score to each range. The higher the range, the higher the score you assign.

Age

<= 18 0

<= 25 30

<= 35 50

<= 45 100

<= 55 150

+ Otherwise 200

Once the Scorecard is defined, you can define the results of the scorecard calculation.

When you refresh, the scorecard calculates the Minimum and Maximum scores.

Refresh

Minimum score Maximum score

50.0 500.0

You may define two or more Result values based on the score. In this scenario, you want the scorecard to return a Result value of 'Not Suitable' if the score is less than 250. Otherwise, the Result value is 'Suitable'.

Result	Cutoff value	Interval
Not Suitable	250	< 250
Suitable	Otherwise	>= 250

Save the configuration.

Now, run the scorecard and verify the results.

You can either fill in the property values, or you can test the result for a predefined test case using a data transform. For example, select the customer Troy.

The end result for Troy is that he is Not Suitable for a mortgage, as his credit score is 200, which is lower than the set threshold.

Execution results		
Result	Score	Combiner function
Not Suitable	200.0	SUM
Interval	Minimum score	Maximum score
< 250	50.0	500.0

You can see the **Execution details** for Troy, which show how his credit score is computed. Since he has no cards, he gets a score of 0; for his income, he gets a score of 150; and for his age, he gets a score of 50. That's 200 in total.

Execution details							
Predictor expression	Value	Operator	Condition	Score	Weight	Points	Lost points
.HasCards	N		Otherwise	0	1	0	100.0
.Income*12	54000.0	<=	75000	150	1	150	50.0
.Age	26.0	<=	35	50	1	50	150.0

Now, test the results for customer Robert.

Robert is suitable for a mortgage, as his credit score is 250.

Execution results		
Result	Score	Combiner function
Suitable	250.0	SUM
Interval	Minimum score	Maximum score
>= 250	50.0	500.0

The newly created scorecard is now available on the Scorecards landing page.

This demo has concluded. What did it show you?

- How to create a scorecard.
- How to assign a score to categorical and numerical property values.
- How to use expressions in scorecards.
- How to define scorecard outputs.
- How to test scorecards.

Creating an engagement strategy

This demo will show you how to build a decision strategy that can be used in Next-Best-Action Designer to implement more complex Engagement Policy rules.

Engagement Policy rules are business rules that describe which Actions are appropriate for a customer, expressed in the form of either Eligibility, Applicability, or Suitability rules.

In this video, we will demonstrate the Engagement Policy capability without altering the use case.

Currently, U+ Bank is doing cross-sell on the web by showing various credit cards to its customers. Every time Troy logs in to his accounts page, a credit card offer is shown.

U+ has a new set of Eligibility rules. As a result, Troy only qualifies for the Standard Card offer.

To see the existing configuration, navigate to Next-Best-Action Designer -> Channels.

As you can see, U+ Bank's website invokes the TopOffers real-time container to present offers from the Sales->CreditCards group.

Triggers ?			
Real-time containers ?			
Status	Name	Description	Business structure level
ACTIVE	TopOffers	Top Offers	Sales / CreditCards

Engagement policy

E Eligibility ?
(isCustomer is true)
and (Age is greater than 18)

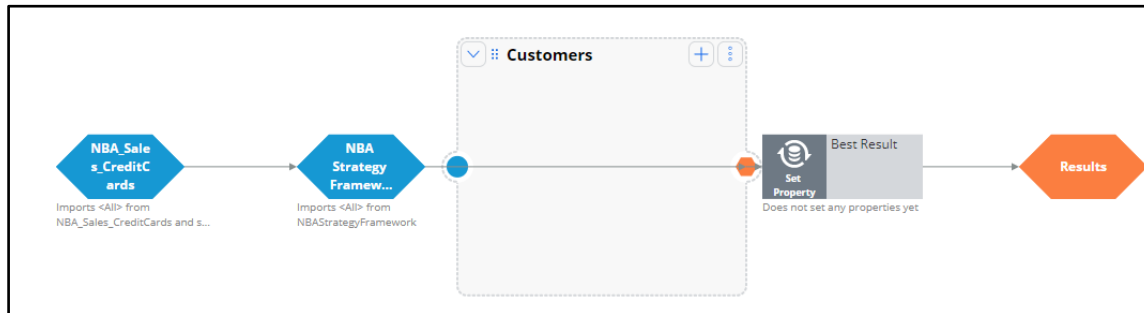
A Applicability ?
(Has Cards is equal to N)

S Suitability ?
No group criteria defined

In the Engagement Policy, the Eligibility and Applicability rules have been defined to reflect the bank's current requirements using properties in the criteria.

Sometimes, implementing a specific use case requires a decision strategy.

To understand how the decision strategy is used to enforce Engagement Policy rules, open the Trigger_NBA_Sales_CreditCards strategy. This strategy is associated with the TopOffers real-time container. Every time a decision is requested from the U+ Bank website, this strategy is executed.

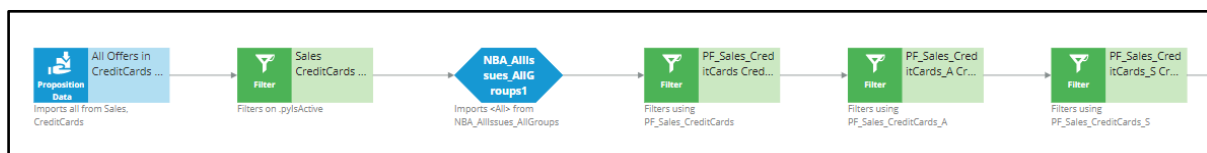


The first component of the strategy is responsible for all Engagement Policy rules.

If you open the strategy, notice that it imports the Actions from the Sales->CreditCards group and then applies the Engagement Policy configuration rules: Eligibility, Applicability, and Suitability.

Each Engagement Policy corresponds to a Filter decision component in the NBA_Sales_CreditCards strategy, and each of these components uses a Proposition Filter rule to implement the rules created in NBA Designer.

A Proposition Filter rule contains the conditions that make certain customers eligible for certain offers.



The decision strategy that implements the new eligibility requirements will be used in this Filter component.

The purpose of this demo is to show the mechanics and required steps for creating an Engagement Strategy, rather than focusing on a concrete use case.

To create a new Engagement Strategy, navigate to the Intelligence -> Strategies and create a strategy with a new canvas.

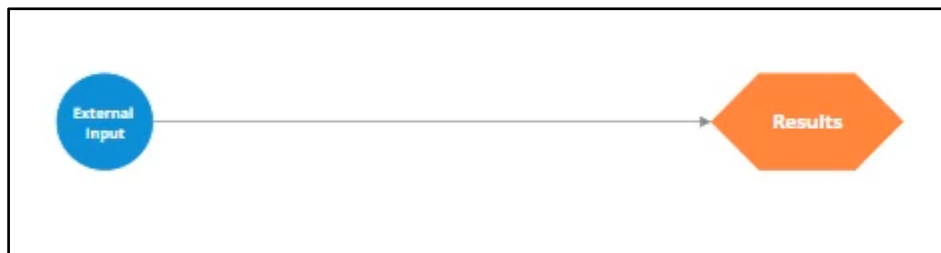
Enter a short description for the new strategy.

Select the business Issue and Group, and 'Apply to' class. Note that the 'Apply to' class is the Customer class from the Primary Context.

Now, open the strategy.

Enable the External Input component on the canvas to represent all Strategy Results (SR) records that are input into the strategy. The strategy will basically be used as a When rule in a Proposition Filter.

Connect the External Input component to the Results component.



Save and test the strategy with the Troy data transform.

For external input you can use the AllCreditCards strategy, as it imports all Sales->Credit Cards. The test shows that all credit card Actions will reach the Eligibility Strategy, nothing is filtered out by the framework.

Notice that the strategy outputs various credit card offers for Troy.

Complex eligibility rules can be implemented in this decision strategy.

For now, to keep it simple and show the mechanics of the Engagement Strategy, consider that customers qualify only for the Standard Card. Everything else is filtered out.

To implement this, add a Filter component to filter out all credit cards except the Standard Card.

Now, configure the Filter component.

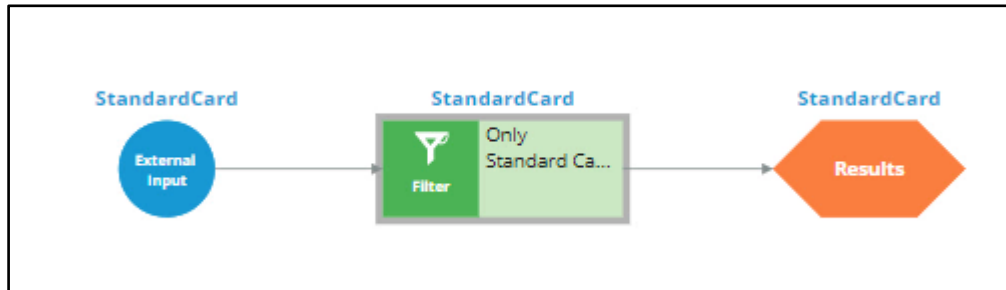
Start by naming the Filter component.

Click the gear icon to open the Expression Editor.

The Filter component should select the Action for which the pyName property is equal to "StandardCard".

Connect the components on the canvas and re-test the strategy.

Examine the output of the Filter component. Now the Filter component outputs only the Standard Card. All other Actions are filtered out.



Make this strategy accessible in Next-Best-Action Designer as an Engagement Strategy.

Once the Record is added, navigate to NBA Designer and open the Engagement Policy to configure this strategy as an Eligibility Strategy for the Group-level Eligibility rules.

Engagement policy

E Eligibility ?

isCustomer is true

and

Age is greater than 18 [Select values](#)

and

Engagement Stra... has results for Only Standard Card

The condition is: Engagement Strategy has results for Only Standard Card.

Saving this completes the required configurations.

Back on the U+ bank website, log in as Troy to see that the Standard Card offer is displayed. Everything else is filtered out by the Engagement Strategy you just created.

This demo has concluded. What did it show you?

- How to build a decision strategy that can be used as an Engagement Policy rule.
- How to define Eligibility rules using a decision strategy in Next-Best-Action Designer.

Using a scorecard in a decision strategy

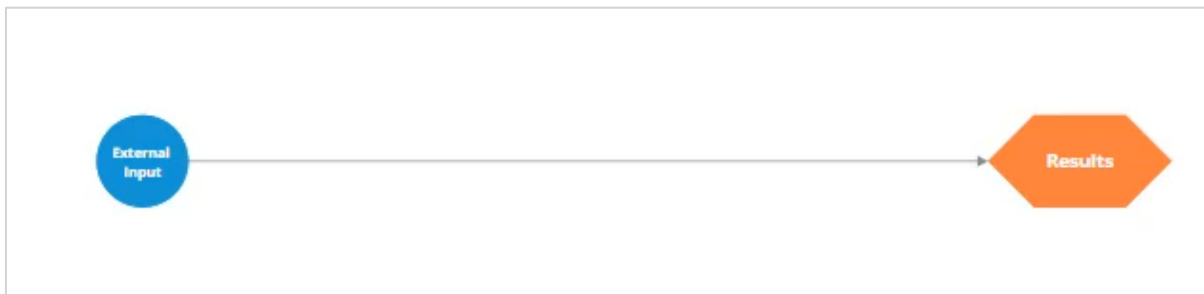
Learn how to use the segmentation result and the score value from a scorecard in a decision strategy. Learn how suitability rules can be defined to reflect the bank's requirements using a decision strategy. Also, learn the basics of strategy optimization.

Transcript

Currently, U+ Bank is cross-selling on the web by showing various credit cards to its customers.

The bank wants to implement a new requirement: All credit cards are suitable only for customers with a credit score greater than or equal to 600.

To implement this requirement, use an engagement policy that includes a decision strategy.



U+ Bank created a Scorecard that computes the credit score of the customer. To use the scorecard in the decision strategy, add a Scorecard component to the canvas and configure it.

Select the *DetermineCreditScore* scorecard model, which U+ Bank has already created.

If you open this scorecard, you can see how the system computes the credit score. Note that the three customer properties are in use, and a score is assigned to the value or range of values that the property can have.

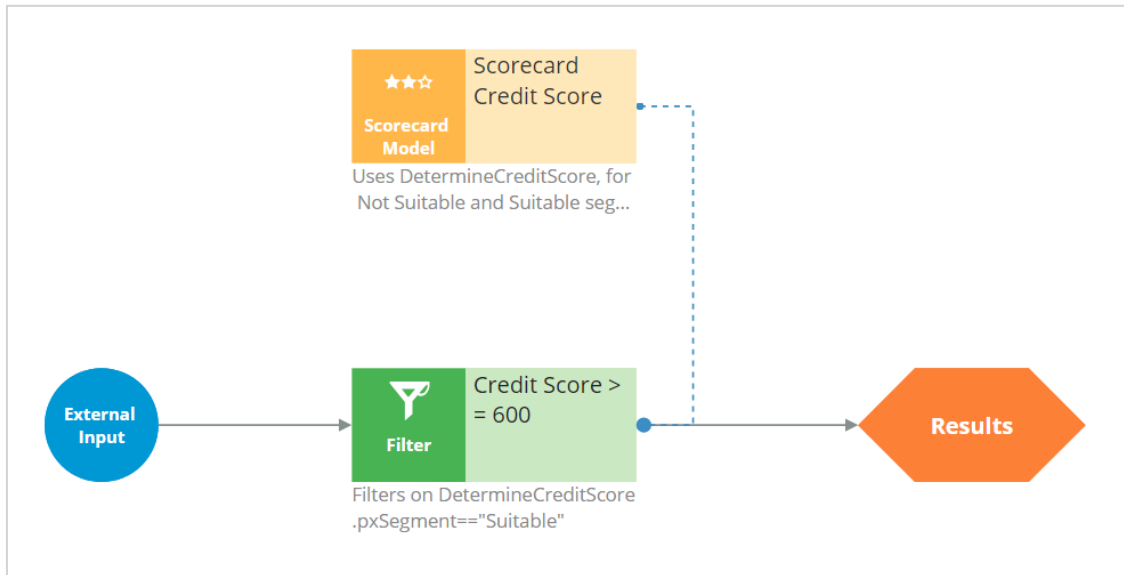
You can also see the segment results. The scorecard returns *Not Suitable* result if the credit score is less than 600. Otherwise, it outputs a *Suitable* result.

To implement the new requirement, use a Filter component to express the condition under which the Actions are suitable.

You want this strategy to output something only if the result of the scorecard is "Suitable". The system stores the result of the scorecard in the *pxSegment* property. Therefore, set the filter condition to *DetermineCreditScore.pxSegment=="Suitable"*.

If the result of the scorecard is *Not Suitable*, this strategy has no results.

Note that to reference a property from a component that is not connected to the Filter component, use the `<ComponentName>.<PropertyName>` construct.



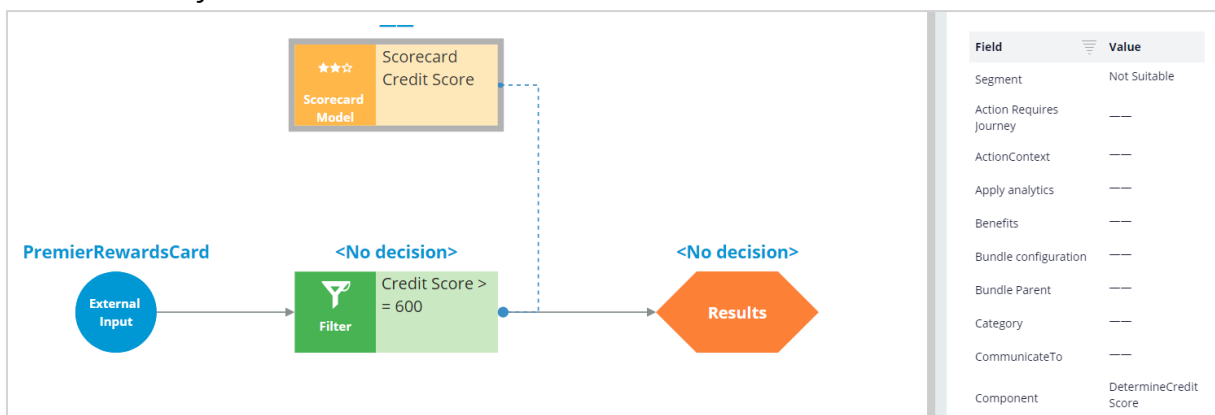
By using the External Inputs component, you can also create more complex conditions, where Action attributes are also in use.

Save the configurations.

Now, test the strategy by using Data Transform for Troy and Robert.

For external inputs, consider all credit cards available.

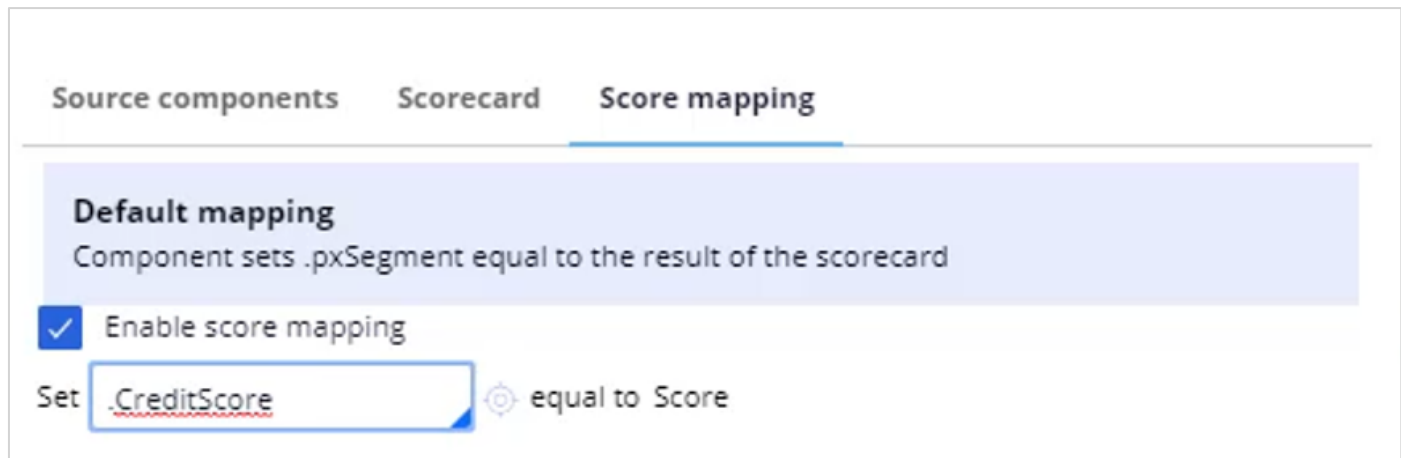
The result of the scorecard is *Not Suitable*. Therefore, the strategy did not output any results for Troy.



Now, repeat the test to verify the results for the Robert Data Transform. The strategy is also not producing any results for Robert, as the segment value is *Not Suitable*.

Now, assume the credit score value for customers is already computed and available in the *Customer* Data Model. However, this value is not set for certain customers, so you want to use the credit score determined by the scorecard itself. To implement this requirement, you must have both scores available and use a switch component to select the right credit score.

To make these adjustments, open the Scorecard component and then map the score computed by the scorecard to the *CreditScore* property. This component now outputs the scorecard calculation in the *CreditScore* property.



Then, add a **Set Property** component, given that the credit score is already available for certain customers.

Use **Add item** to set the same *CreditScore* property to the available credit score value from the *Customer* Data Model.

Define the expression as *Customer.CreditScore*.

If set, this expression results in the credit score from the *Customer* Data Model.

Set property properties

Name★

Data Model Credit Score

Component ID

DataModelCreditScore

Description

☒ Use generated
 ☐ Use custom

Source components

Target

Define action, target, and source

+ Add item

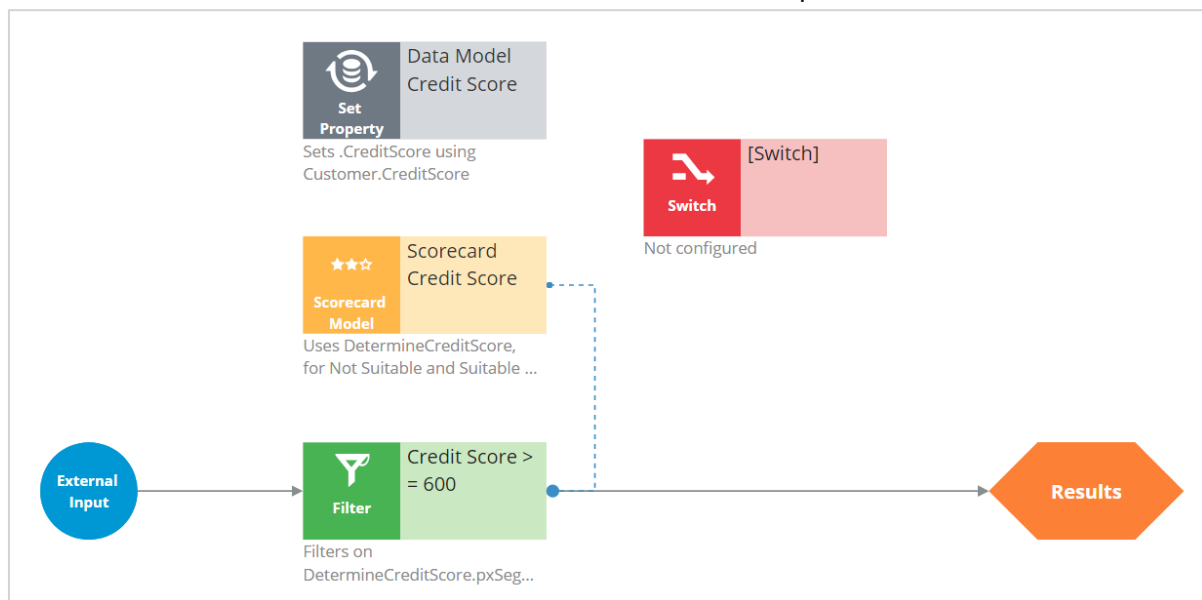
× Delete

Action	Target	Source
Se ▼	.CreditScore	equal to Customer.CreditScore

Cancel

Submit

To select between the two credit scores, add a Switch component.



Set the name of the Switch component to *Final Credit Score* and configure the condition. To build the condition, use the Expression Builder. The condition reads:

Select Data Model Credit Score if @PropertyHasValue(Customer.CreditScore). Otherwise select Scorecard Credit Score.

@PropertyHasValue is a function that checks if a property has a value. In this case, it checks whether the *CreditScore* property of a customer has a value in the *Customer* Data Model.

Switch properties

Name *

Final Credit Score

Component ID

FinalCreditScore

Description

☒ Use generated ☐ Use custom

Switch

+ Add item

✕ Delete

Component	Condition
Select... Data Model Credit Sco ▾	if @PropertyHasValue(Customer.CreditS
Otherwise Scorecard Credit Score ▾	

Cancel

Submit

With this configuration, the Switch component selects the *CreditScore* Data Model only if the *CreditScore* property of a customer has a value. If the *CreditScore* property is empty or does not have a value, the Switch component continues to run the scorecard to calculate the *CreditScore*.

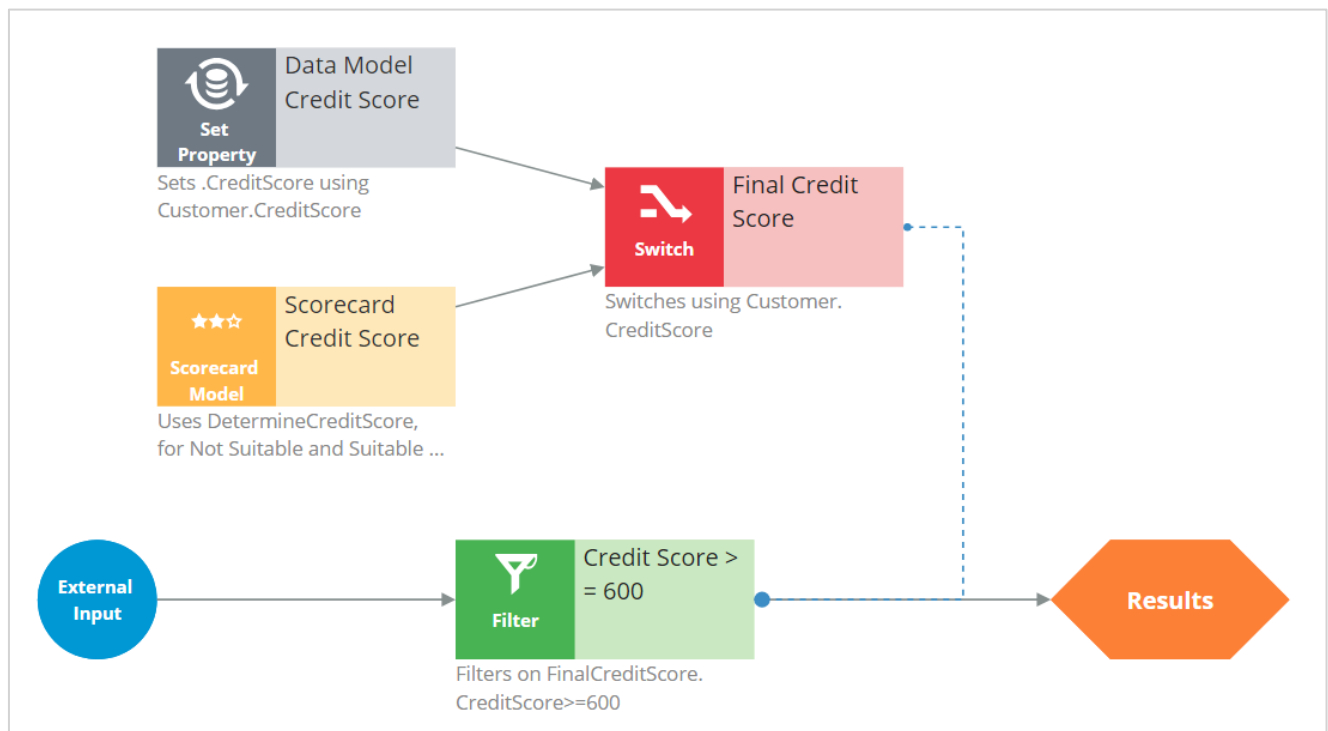
This configuration ensures that the Switch component optimizes the strategy by running the scorecard only for customers without a credit score in the external customer data. It effectively avoids redundant calculations and improves the efficiency of the decision strategy.

The arrows from Set Property and Scorecard Model components point to the Switch component. The system adds them automatically to ensure that the *CreditScore* values determined by these components are copied to the Switch component.

After you configure the Switch component, open the Filter component properties to modify the Filter condition. In this scenario, the bank decides to present various credit cards to suitable customers who have credit scores greater than or equal to 600.

So, open the Expression Builder to modify the condition as *FinalCreditScore.CreditScore* >= 600.

Notice that the Filter component now references data from the Switch component.



Save the configurations.

Re-test the strategy for the Troy and Robert data transforms.

Note that the strategy outputs results for Troy because his credit score, 625, is greater than 600.

If you open the Troy Data Transform, note that the CreditScore in the Data Model is 625.

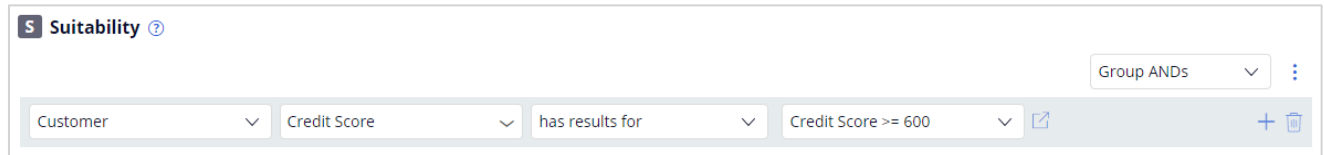
The Switch component picks up the credit score value available in the Data Model (that is, CreditScore = 625) and prevents unnecessary calculation by the scorecard.

The strategy also outputs results for Robert because his credit score is 675. The Switch component also picks up the credit score value available in the Data Model for Robert.

Because you configured the strategy, check it in so that the strategy becomes available on the U+ Bank website.

Now, mark the strategy as a relevant record and associate it with the Suitability category to make it available in the Next-Best-Action Designer engagement policy configuration.

You can now configure this strategy in the Next-Best-Action Designer engagement policy as a suitability condition for the group-level Suitability Rules.



The screenshot shows a configuration window for a 'Suitability' rule. The rule is defined as: Customer Credit Score has results for Credit Score >= 600. The rule is grouped under 'Group ANDs'.

Select the strategy. The condition is *Credit Score has results for the Credit Score >=600*.

Save to complete all the required configurations.

On the U+ Bank website, if you log in as Troy, notice that a credit card offer is displayed. The offer is shown because credit cards are suitable for Troy.

Now, if you log in as Robert, notice that the credit card offer is also displayed.

You have reached the end of this video. What did it show you?

- How to use the segmentation result and the score value of a scorecard in a decision strategy.
- How to use the *PropertyHasValue* function to check whether a *Customer* property contains a value.
- How to optimize the decision strategy by using a Switch component.

Using predictive models

Description

Predictive analytics requires historical data that contains the customer behavior you want to predict. A predictive model is used to predict an outcome based on customer behavior such as offer acceptance and churn based on customer characteristics such as credit risk, income, product subscriptions, etc. A predictive model component references a predictive model, which in turn predicts customer behavior.

Learning objectives

Describe predictive analytics

Describe how to use a predictive model in a decision strategy

Arbitrate between business issues using applicability rules in Next-Best-Action Designer

Predictive models drive predictions

With the decision management capability of Pega Platform™, you can enhance applications to help optimize business processes, predict customer behavior, analyze natural language, and make informed decisions to better meet customers' needs and to achieve positive business outcomes.

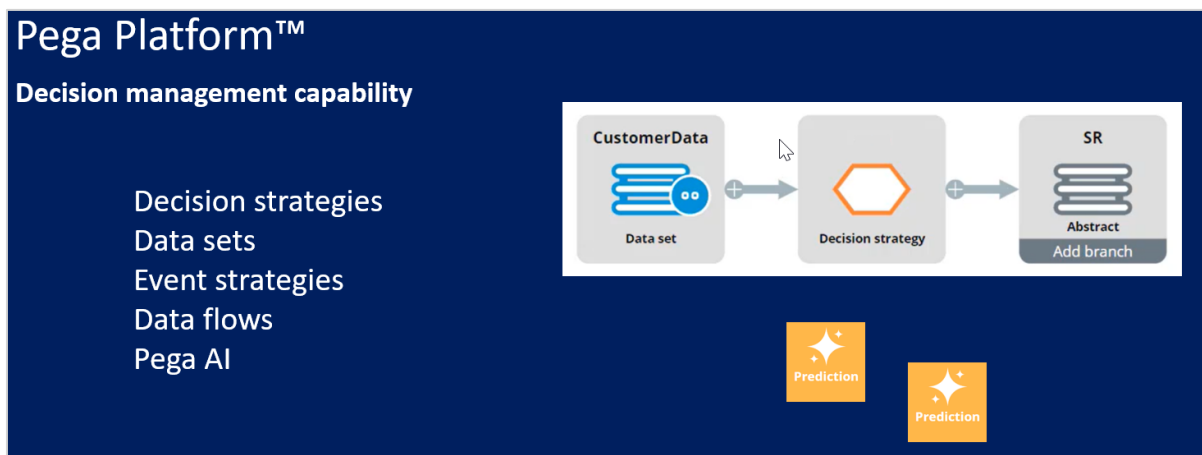
Transcript

This video introduces you to Pega AI, a feature of the decision management capability of Pega Platform™.

Other decisioning features of the Pega Platform include:

- Decision strategies to improve customer experience and deploy intelligent processes based on behavioral and operational data and data sets to read and write the data used in the decision strategies.
- You can use event strategies to detect patterns in data streams and react to them.
- And to ingest, process, and move data from one or more sources to one or more destinations, you can configure data flows as scalable and resilient data pipelines.

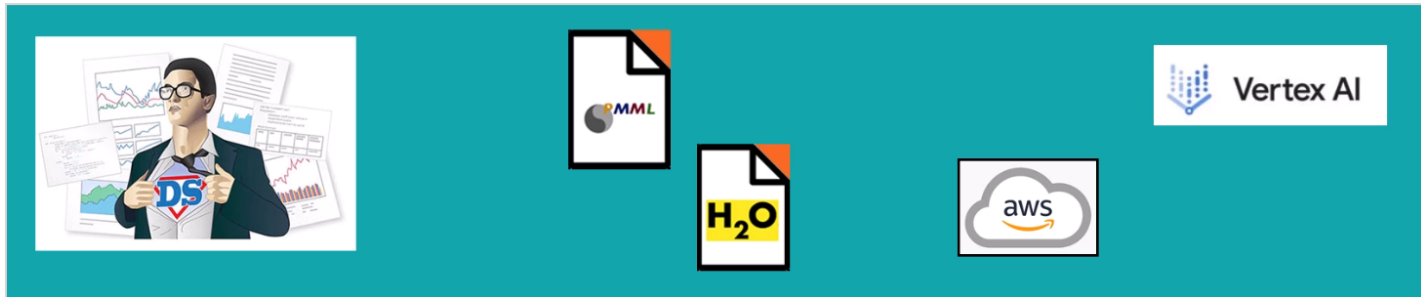
Decision management uses Pega AI to make predictions about customer behavior, successful case completion, the topic of an incoming message, or other subjects to make the decisions more relevant.



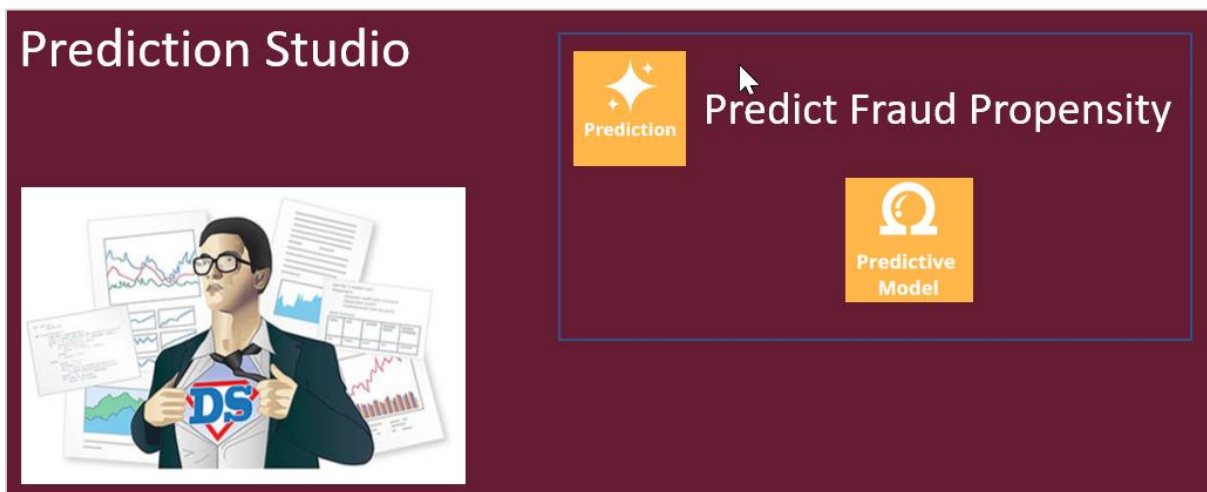
Decision management is a Pega Platform capability. You can apply decision management to any application that is built on Pega Platform.

Predictions differ to suit the domain they are used in, but one or more predictive models drive them all.

A data scientist can create a predictive model in Pega Platform or an external environment that can export the model as a PMML or H2O file. Another option is to connect to a machine learning service such as AWS SageMaker or Google Vertex AI.



If an insurance company wants to use Pega Process AI™ to route incoming claims that might be fraudulent to an expert based on the outcome of a predictive model the data scientist creates a fraud model to drive a new case management prediction in Prediction Studio.



Prediction Studio is the dedicated workspace where you manage the life cycle of predictive models and the predictions they drive.

A prediction is a hand-off to an application developer, who can then use the prediction in a decision step in the case type to route cases more accurately. This strengthens the separation of concerns.

You can use Pega Customer Decision Hub™ to make next-best-action decisions for your customers.

Customer Decision Hub predictions can predict customer behavior, such as which customer is about to churn or predict the likelihood that a customer clicks on a web banner to support the decision on which banner to show to a customer.

Pega Adaptive Decision Manager (ADM), a key component of the decision management capability allows a data scientist to configure self-learning, adaptive models that continuously improve predictions about business processes and customer behavior.

An adaptive model rule typically represents many adaptive model instances because each unique combination of the model context generates a model.

In Customer Decision Hub, adaptive models drive many predictions that come with the product out of the box, such as the Predict Web Propensity prediction that predicts the likelihood that a customer clicks a web banner.

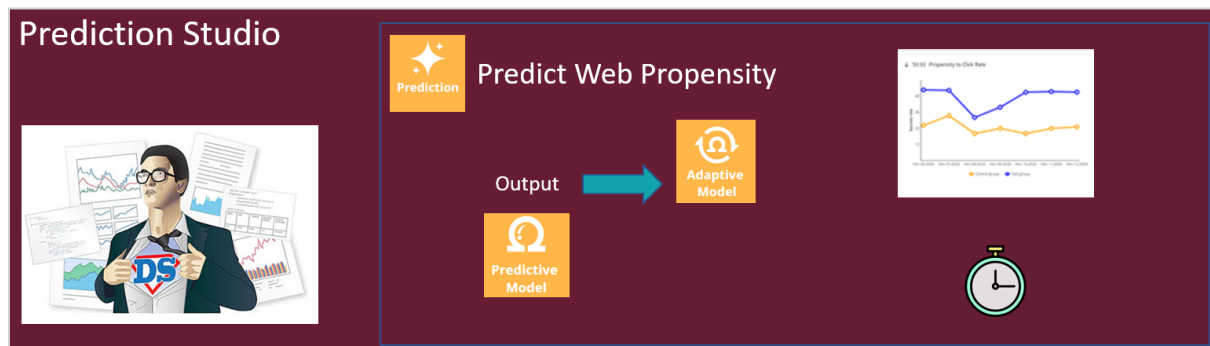
Customer Decision Hub predictions have several features specific for the domain such as a control group for which the prediction outputs a random propensity instead of the propensity that is generated by the adaptive model instance.

Comparison of the control group and the model propensity-based group allows you to measure the lift in a success rate that the AI generates, an important business metric.

Also, Customer Decision Hub predictions feature a response timeout setting. After the timeout expires, a negative response is recorded.

The response timeout setting depends on the use case. For example, in a web use case, several minutes suffice while in an outbound email campaign, the response timeout is set to several days to allow customers enough time to respond.

You can further enhance the prediction by using the output of a predictive model as a predictor in the adaptive model.



The Pega Customer Service™ application uses the natural language processing capability of decision management to analyze incoming text and route the messages based on the topics and entities detected.

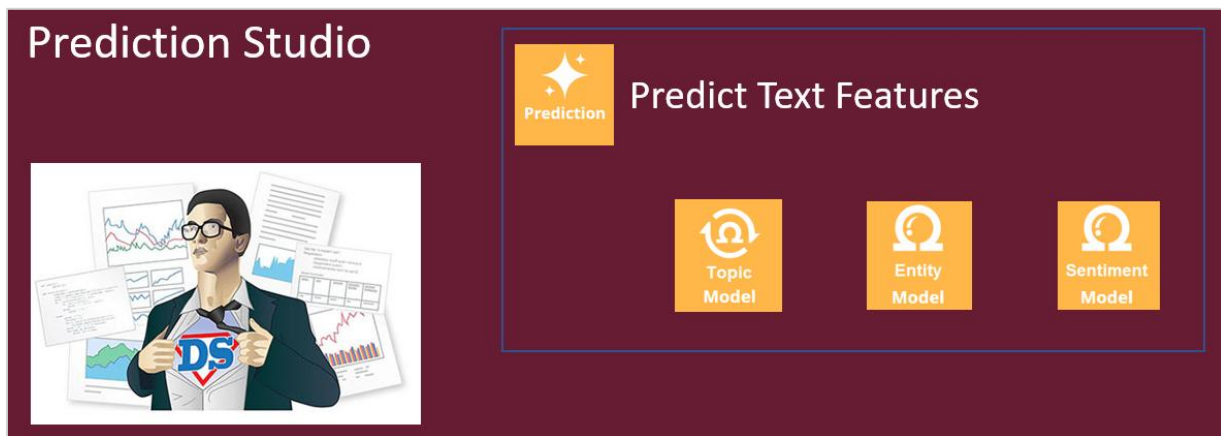
Pega Customer Service uses Text analytics predictions that are distinctly different from both case management predictions and Customer Decision Hub predictions.

Text analytics predictions use predictive models to detect the topic of an incoming message that the application can use to optimize the routing of the message to the relevant department.

Secondly, text analytics predictions use entity extraction models that qualify text as, for example, an account number, a postal ZIP code, or an address.

The application can use this information to fill relevant fields in a case automatically.

Finally, the text analytics predictions come with a sentiment model that can route or prioritize negative messages to improve the customer experience.



Feedback on the detected topics, entities, and sentiment by CSRs improves the performance of the text analytics prediction over time.

This video has concluded. What did it show you?

- Pega AI allows you to improve business processes and customer engagement by using predictions.
- Predictive models drive the predictions.
- The predictive models can be static or adaptive.
- Predictions are managed in Prediction Studio.

Arbitrating across business issues

Pega Customer Decision Hub™ combines analytics, business rules and customer data to make intelligent decisions. Every next best action weighs customer needs and business objectives to optimize decisions.

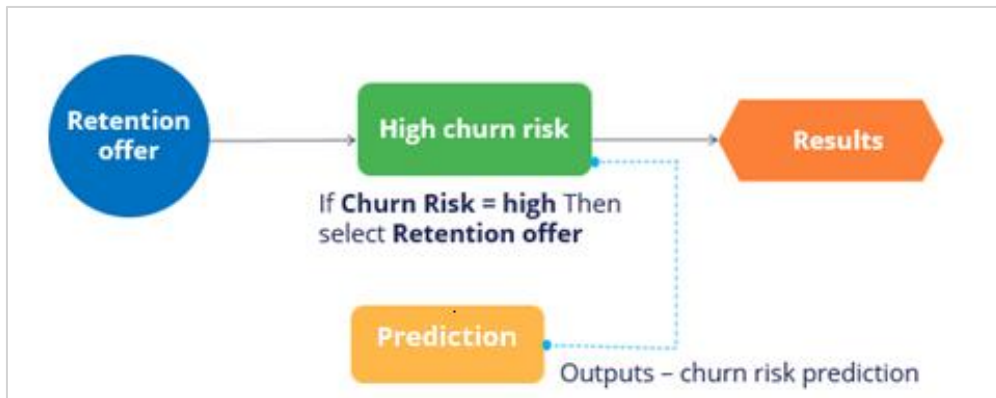


To arbitrate across multiple business issues, you create a decision strategy and use this strategy to define applicability conditions in Next Best Action Designer.

For example, consider a bank who is already doing sales. Now it wants to proactively offer retention offers for customers with high churn risk.

To predict the churn risk, a data scientist creates a churn prediction that calculates the likelihood that a customer will soon leave the bank.

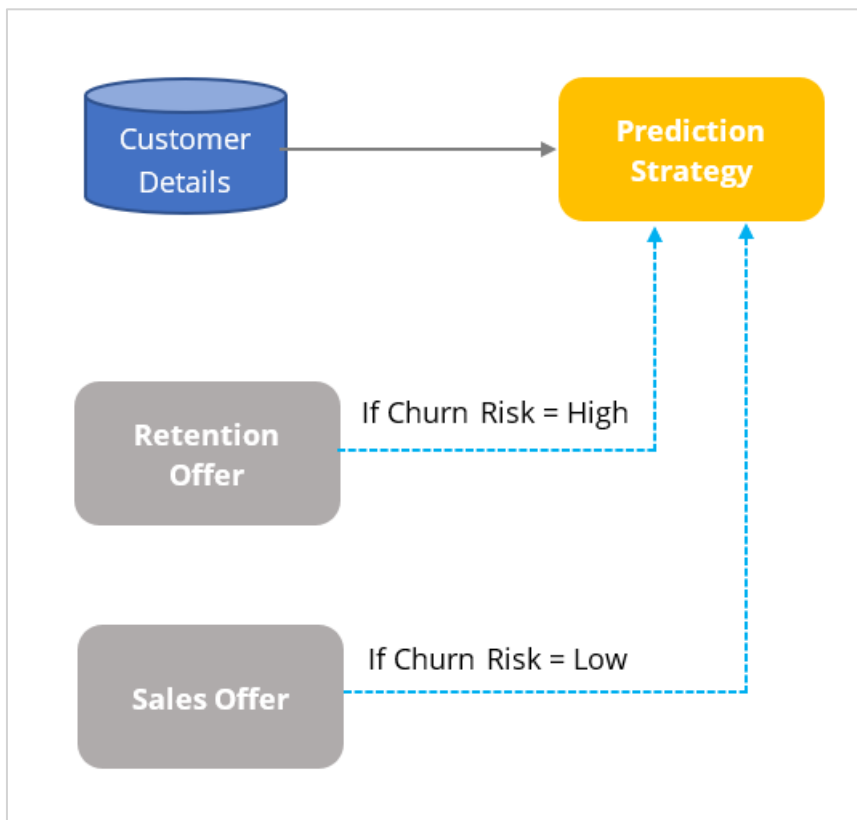
You create a decision strategy that differentiates between high risk and low risk customers that references the churn prediction.



In Next Best Action Designer, you use the decision strategy to define applicability rules for the sales offers and the retention offers.

When the customer has a low churn risk, sales offers are applicable.

Conversely, when the customer has a high churn risk, retention offers are applicable.



Using predictions in engagement strategies

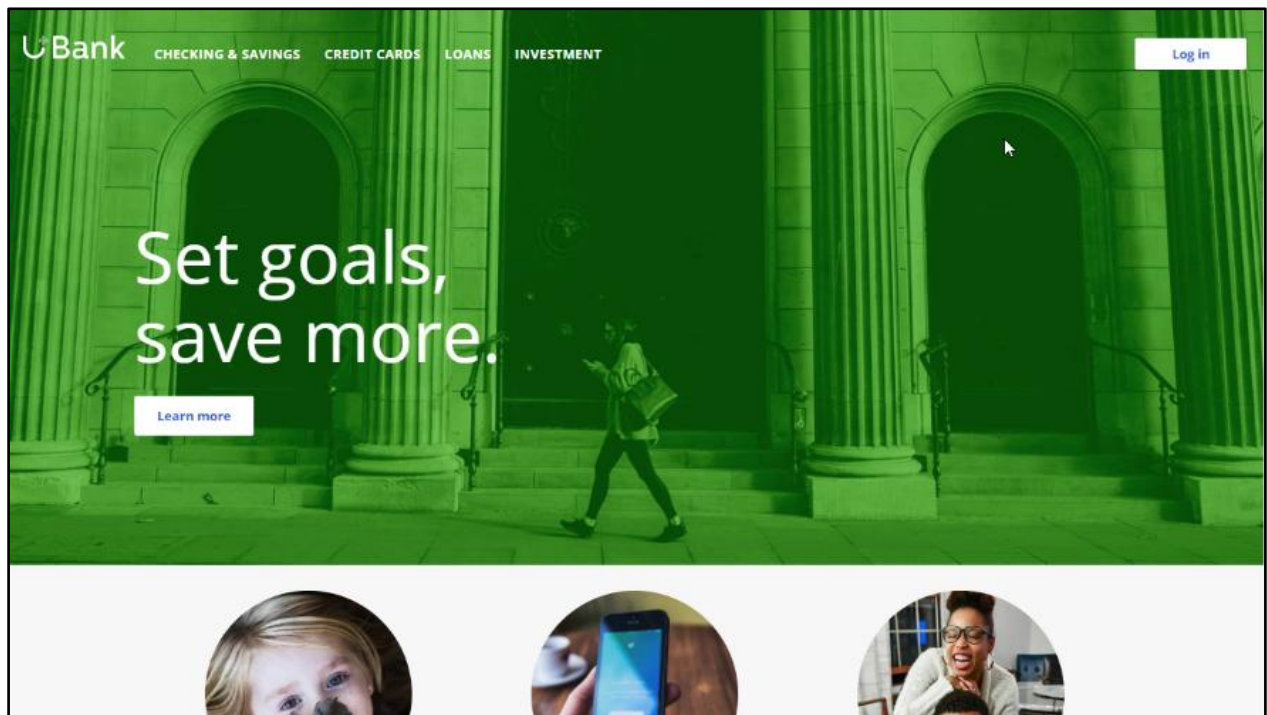
Introduction

A prediction is used to predict customer behavior such as offer acceptance and churn based on characteristics such as credit risk, income, and product subscriptions. Learn how to arbitrate between different groups of actions to display more relevant offers to customers. Gain experience using a prediction in a decision strategy and learn how applicability rules can be defined to reflect the bank's requirements in a decision strategy.

Transcript

This demo shows you how to use a prediction in an engagement strategy to determine customer applicability for a retention offer.

Currently, U+ Bank is cross-selling on the web by showing various credit cards to eligible customers who log in to its website. The bank now wants to show a retention offer, instead of a credit card offer, to customers who are likely to churn in the near future. The credit card offers are shown only to loyal customers.



To meet this business requirement, a decisioning administrator has already set up the taxonomy by defining a new business issue called Retention, and an offer group.

Taxonomy

Business structure



Business structure

Issues / Groups

Retention

ExtraMiles

Sales

CreditCards

This ExtraMiles group contains a retention offer, Extra Miles 5K.

Actions

Search

by name or description

Issue / Group

Retention / ExtraMiles ▼

Showing 1 of 1 results

Extra miles 5K

ExtraMiles5K

The next step is to create an applicability condition that makes a customer qualify for a retention offer when there is a high likelihood that the customer might churn. A data scientist has created a prediction that identifies these high-risk customers. When you open the prediction in Prediction Studio, notice that the possible response labels are **Churn** and

Loyal to predict customer behavior. The result of the prediction is stored in the pxSegment property.

Response labels

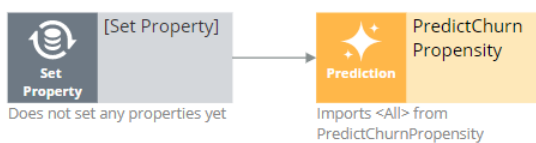
Labels for the possible values of the responses.

Churn

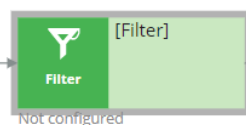
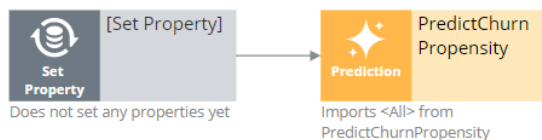
Target label Alternative label

Churn Loyal

To define the applicability condition, you create a decision strategy to output a retention offer only if the response label of the prediction is **Churn**. Add a **Prediction** component to the canvas and configure it to reference the churn prediction. Add a **Set Property** component and connect it to the Prediction component. You can configure the Set Property component at a later point to accommodate parameterized fields.



Next, add a filter component to filter out the loyal customers and pass retention offers to high churn risk customers only.



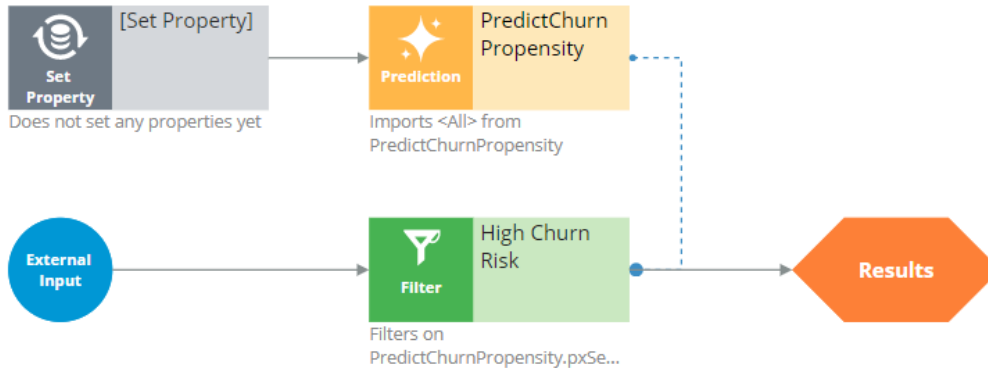
The filter condition is defined to output a retention offer when the pxSegment property of the prediction is equal to **Churn**.

Expression builder

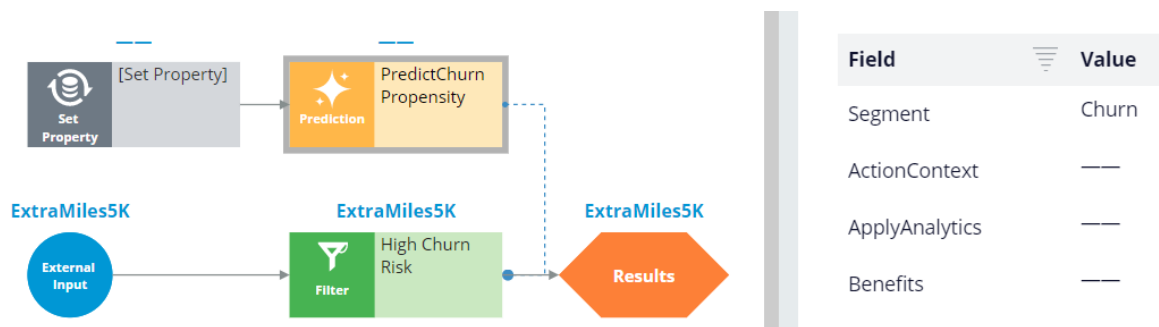
Browse

Test

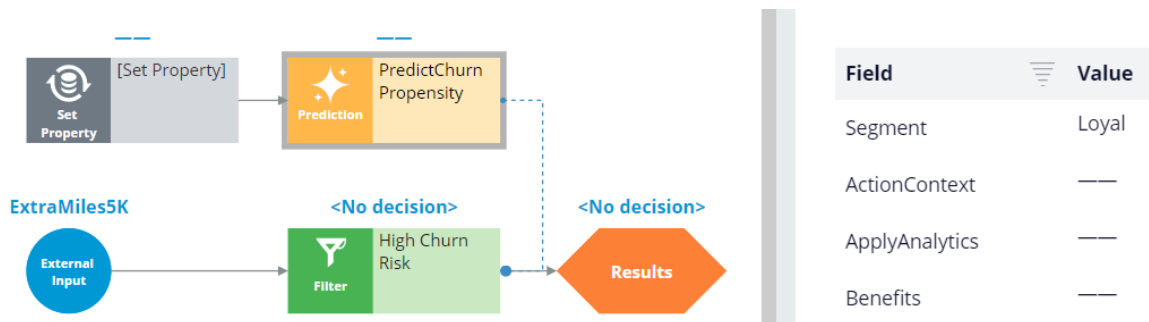
1 PredictChurnPropensity.pxSegment="Churn"



Next, test the strategy using two customer profiles, **Troy** and **Barbara**. For external inputs, consider all available retention offers. The strategy outputs a result for **Troy** because the result of the prediction is **Churn**.



The strategy does not have a result for **Barbara**, because the Segment value is **Loyal**.



By checking in the strategy, you commit your changes so that they go into effect. You can now use this strategy in the Next-Best-Action Designer engagement policy as an applicability condition.

The first business rule you need to implement is that the **ExtraMiles** group is applicable only to high churn risk customers. To implement this rule, in the **Applicability** section, define a condition for the customer field. Select the **RetentionStrategy**. The condition is: the RetentionStrategy has results for the High Churn Risk component.

The second business rule you need to implement is: U+ Bank wants to show credit card offers to low-risk customers only; meaning the **CreditCards** group is not applicable for high-risk customers. To implement this rule, modify the **Applicability** section of the **CreditCards** group. The condition is: the RetentionStrategy doesn't have results for the High Churn Risk component.

Once the applicability conditions are defined, you need to amend the **Channels** configuration. Because U+ Bank introduced a new group, **ExtraMiles**, which belongs to a new business issue, **Retention**, you need to select the results from the appropriate business structure level. In this case, the bank wants to arbitrate between two different business issues: Sales and Retention. Therefore, select All Issues/All Groups from the business structure level. Saving the configuration implements the business requirement.

On the U+ Bank website, when you log in as **Troy**, notice that the retention offer is displayed because **Troy** is predicted to churn in the near future.

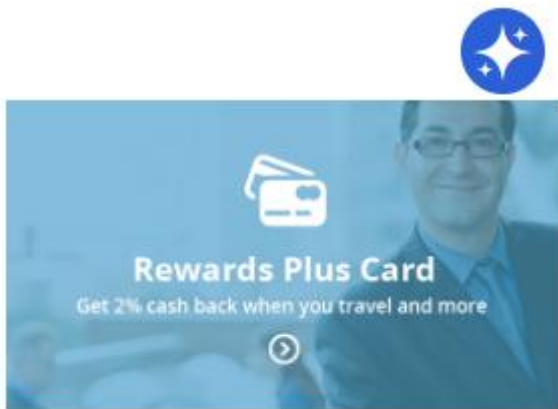


Extra miles 5K

5,000 extra miles

[Learn more](#)

Now, when you log in as **Barbara**, notice that the credit card offer is displayed because she is predicted to remain loyal for now.



Rewards Plus card

Get 2% cash back when you travel and more

[Learn more](#)

You have reached the end of this demo. What did it show you?

- How to use a prediction in a decision strategy
- How to arbitrate between different groups of actions to display more relevant offers to customers
- How to define applicability rules using a decision strategy in Next-Best-Action Designer

Creating parameterized predictors

Pega Customer Decision Hub™ uses Adaptive Models that use a wide range of predictors to optimize customer interactions. You can make input fields that are not directly available in the customer Data Model accessible to the models by configuring these fields as parameterized predictors. Learn how to create parameterized predictors for Expressions, offline model scores, and online model scores.

Transcript

This demo shows you how to create parameterized predictors to make input fields that are not directly available in the customer Data Model accessible to Adaptive Models. We will cover three examples: Expressions, offline model scores, and online model scores.

U+ Bank is cross-selling its credit cards on the web by using Pega Customer Decision Hub™. All customer data, including financial clickstream summary attributes, such as webpage visits, is available to the Adaptive Models that determine which offer to display for a particular customer.

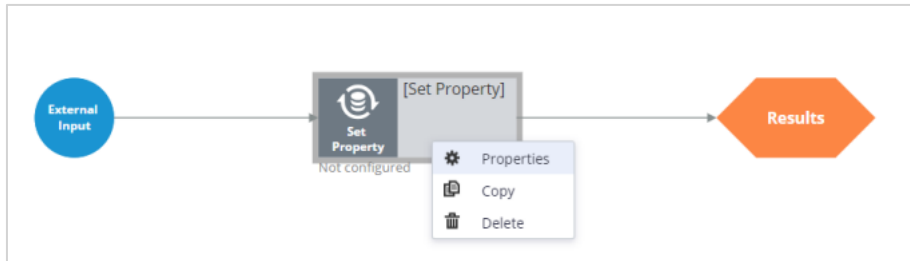
The first parametrized predictor is the ratio of two clickstream summary attributes that denote the number of visits to the U+ Bank Investment webpage in the last 30 days and the last 90 days. An increasing ratio might indicate growing customer interest.

The *Financial Services Clickstream* Data Set contains the clickstream data, which is a record of the user's activity on the website. These entries reflect the *Investment* webpage visits of the customer.

Investment page visits last 1 hour	Investment page visits last 30 days	Investment page visits last 7 days	Investment page visits last 90 days
0.0	0.0	0.0	0.0
2.0	2.0	2.0	2.0

To populate a parameterized predictor, you configure the *NBA Pre-Processing Extension Point* Decision strategy that is included in a change request. The pre-processing strategy runs before the Prediction strategy so that the output of the extension strategy is available as input to the Prediction.

The first example of a parameterized predictor is an Expression that references two clickstream fields. To add a field, you add a Set Property component to the strategy and create a new property in the *Strategy Results* class. Set the property type to **Decimal** to store the ratio of customer visits to a web page in the last 30 days and in the last 90 days.



This Expression returns a value of zero when the number of Investment page visits in the last 90 days is zero. Otherwise, it returns the ratio of the Investment page visits in the last 30 days to the last 90 days. A high value might indicate the increasing interest of the customer in the content of this page.

Expression builder

result

0.50

```

1 @if(DecisionRequestCDH.Customer.FSClickstream.I
investmentPageVisitsLast90Days=0,0, divide(Decis
ionRequestCDH.Customer.FSClickstream.Investment
PageVisitsLast30Days, DecisionRequestCDH.Custome
r.FSClickstream.InvestmentPageVisitsLast90Day
s))

```

Browse Test

Test data

InvestmentPageVisitsLast90Days

InvestmentPageVisitsLast30Days

The second example of a parameterized predictor is offline model scores. A Data Set that is associated with the customer context makes the data available as a data source. Each customer can have multiple scores for different categories or different channels.

To add the model scores as potential predictors to the Adaptive Models, you add a Data Join component to the extension strategy.



The component joins the *Offlinescores* page that contains the model scores to the available data.

Data join properties

Source components **Join** Properties mapping

Join source components with

Type: Pages

Name*: Offlinescores

Class: CDH-SR

To output only relevant scores, you specify the channel and the product category to match the Prediction.

Join when all conditions below are met

+ Add item × Delete

Offline scores	Offlinescores
When .pyChannel	is equal to "Web"
and When .Category	is equal to .Category

☐ Exclude source component results that do not match join condition.

You then create a Decimal property and map it to accommodate the model scores.

Define mapping

+ Add item × Delete

Target	Source (.Customer.Off...)
Set .OfflineProductScore	equal to .Score

The third example of a parameterized predictor is the score of a churn Prediction that runs in Customer Decision Hub. The Data Scientist team develops Predictive Models based on the latest insights and data that drive the churn Prediction.

To make the churn score available to the Adaptive Models as a parameterized predictor, add a Prediction component to the extension strategy. Reference the churn Prediction in the *Customer* class.

Add a Set Property component to the extension strategy to create a new property and map it to the propensity calculated by the churn Prediction.



Run the strategy by using a test customer profile to verify that the strategy outputs include the real-time churn risk score, the offline product scores, and the Expression.

Next, you use Prediction Studio to map three new parameterized predictors in the Prediction. The Predict Web Propensity Prediction calculates the likelihood that a customer clicks on a web banner. Like the new properties, the system saves the Prediction results to the *CDH-SR* class.

Prediction properties

Prediction name
Predict Web Propensity

Outcome
Propensity to Click

Prediction output
Predicting Propensity to Click for each combination of

.pyIssue

and .pyGroup

and .pyName

and .pyDirection

and .pyChannel

and .pyTreatment

+ Add

Save results to
☒ CDH-SR
☐ Data-pxStrategyResult

You then create three new parameterized predictors and map them to the new properties that represent customer behavior, offline scores, and online scores.

Parametrized predictors (5) Pages (1)

Map fields to parameterized predictors to supply this data to this model.

Predictor	Data type	Predictor type	Field
DaysInCurrentStage	Integer	numeric	.DaysInCurrentStage
PriorStageInJourney	Text	symbolic	.PriorStageInJourney
RatioInvestmentPageVisit	Decimal	numeric	.RatioInvestmentPageVisits30to90
OfflineProductScore	Decimal	numeric	.OfflineProductScore
ChurnRisk	Decimal	numeric	.ChurnRisk

+ Add parameterized predictor

When you submit your work for deployment, the application saves all changes made in Predictions to a *Change prediction* change request.

After a review by the Team Lead, a Revision Manager deploys the changes as part of a revision.

You have reached the end of this video. You have learned:

- How to configure the pre-processing extension strategy for parameterized predictors.
- How to add properties as parameterized predictors to the Prediction.
- How to submit the changes for deployment.

Essentials of always on outbound

Description

Learn about the principles of always-on outbound customer engagement and its similarities and differences with traditional outbound marketing. Gain an overview of how the brain works in outbound customer engagement. Study a typical always-on outbound business scenario.

Learning objectives

- Describe the principals of always-on 1:1 customer engagement
- Compare and contrast traditional marketing concepts with always-on outbound
- Describe a typical always-on business use case in the outbound channel

Working of the always-on brain in outbound

What do customers expect from business?

Customers are more empowered than ever before. As a result, they have very high expectations of the experiences they receive from their service providers. These experiences must be meaningful, consistent, and personalized across every channel they interact with.



In alignment with customer expectations, Pega Customer Decision Hub™ is designed to deliver the right message, to the right customer, at the right time, on the right channel.

This approach not only provides a better experience for customers, it also helps the business improve its customer relationships over the long term.

The always-on brain

Pega Customer Decision Hub is the “always-on brain” that acts as a single, centralized decision authority.



The always-on brain carries out 1:1 customer engagement across channels.

“Always-on” means that the brain constantly monitors each customer’s context across channels. When it detects a need, it selects and delivers the appropriate offer, retention message, or service recommendation in the customer’s preferred channel.

The brain uses data about the customer, including past behaviour, profile information, and contextual data that may, for example, stream from their device, as input. It leverages advanced AI techniques to predict customer context, propensities, and relevance. It also uses stored decision strategies to trigger messages and actions at the moment the customer will be most receptive to them. As a centralized resource, the brain enables you to deliver consistent and personalized Next-Best-Actions across all channels.

Customer engagement channels

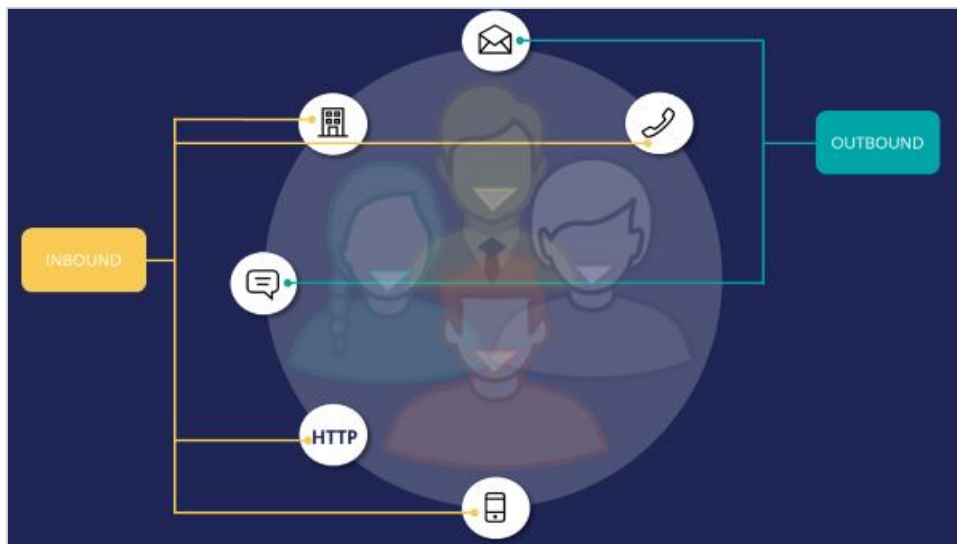
Customer interactions take place on various channels, which can be broadly classified as “owned” and “paid”.



Owned channels are the channels owned by the business, such as a self-service web portal, contact center, or mobile application. In these channels the business has more control over customer engagement activities.

Paid channels are owned by a third party, for example social media platforms such as Google and Facebook. Businesses have to pay to use these channels for customer engagement activities.

Owned channels can be further classified as inbound and outbound channels.



An inbound channel is used when a customer approaches the business, via, for example, a self-service web portal.

An outbound channel is used by the business to send a message to the customer, via, for example, email or SMS.

The flow of information and the mechanics of delivering Next-Best-Actions is different in inbound and outbound channels.

Inbound interactions

When a customer interaction takes place on an inbound channel, the channel identifies the customer, then the brain evaluates the Next-Best-Action for that customer and sends the result back to the same channel, in real-time. The customer's response to the action is recorded by the system, and the cycle repeats.



Outbound interactions

Always-on outbound means that the brain sends outbound messages, via email or SMS, to customers only when it's appropriate.

There are two types of outbound interactions: always-on actions and one-time actions.

Always-on actions

Always-on actions are typically the actions that are available for the Next-Best Action framework (Always-on brain) to select and deliver the appropriate communication to the customer.

This can happen in three ways:

- a. Promotional actions (Default):** The brain is configured to proactively send out messages on a scheduled basis when relevant. It evaluates the Next-Best-Action for each customer identified in a segment, which contains the potential list of customers to whom you want to send messages. In most cases, customer responses arrive after the message has been sent. When customers respond, the responses are recorded in the system and used to evaluate the next-best action. The always-on

brain considers all the engagement policy conditions, applies arbitration, outbound action/channel limits, and contact policies while determining the appropriate action and it delivers the top-ranked action. Promotional actions are the default method of communication.

b. Transactional actions: When a customer event is detected that is significant to the business, for example, a customer abruptly ends an online transaction, Customer Decision Hub receives the data from the event stream. The brain then evaluates the next-best action and sends the resulting action, such as a notification email with a link to continue the incomplete transaction, to the customer. In this case, the system triggers the outbound message only for the customer for whom the event occurred. Transactional actions are regulated by engagement policies, arbitration factors, action limits, and contact policies. However, the outbound channel limits are disregarded, as long as it is one of the qualified actions.

c. Mandatory actions: In certain situations, it might be necessary to inform certain customers about changes such as an increase in interest rates or network outages. These types of communications are referred to as mandatory actions, that must be sent out promptly. These actions are regulated by engagement policies and contact policies. Arbitration, outbound channel limits, and outbound action limits do not apply to these actions. However, contact policies are still applied to these actions to ensure the same actions are not delivered repeatedly.

Here's an illustration of which policies and constraints apply to different outbound interactions.

		Eligibility/ Applicability/ Suitability conditions	Arbitration	Outbound channel limits	Outbound action limits	Contact policies
Always-On actions	Promotional (Default actions)	✓	✓	✓	✓	✓
	Transactional actions	✓	✓	✗	✓	✓
	Mandatory actions	✓	✗	✗	✗	✓

One-time actions

One-time actions are typical batch communication that all or a subset of customers receive at a specific date and time. These actions are executed in a Business Operations Environment. No engagement policies or constraints are applied to these actions, and everyone receives the same action.

a. One-time communication: In exceptional circumstances such as a planned maintenance activity in certain areas, you want to contact all or a subset of your customers outside of the regularly scheduled updates. In such cases, you can initiate a one-time communication, which does not coordinate with the outbound schedule. This type of communication typically applies to urgent or time-sensitive matters and does not repeat automatically.

		Eligibility/ Applicability/ Suitability conditions	Arbitration	Outbound channel limits	Outbound action limits	Contact policies
Always-On actions	Promotional (Default actions)	✓	✓	✓	✓	✓
	Transactional actions	✓	✓	✗	✓	✓
	Mandatory actions	✓	✗	✗	✗	✓
One-time actions	One-time actions	✗	✗	✗	✗	✗

Traditional marketing versus always-on outbound

Overview

As more organizations switch from traditional marketing approaches to 1:1 customer engagement, there is a need to compare and contrast the terminologies used in the two approaches.

Here are some key terminologies and concepts used in traditional marketing, translated into concepts in the always-on, Next-Best-Action approach.

Marketing campaigns and programs

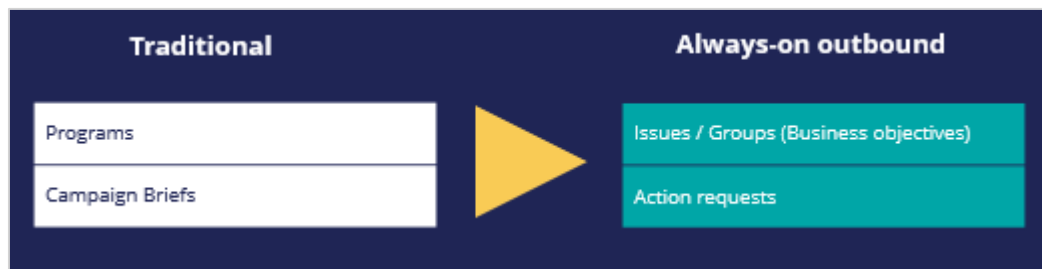
In traditional marketing, a marketing program is a set of activities designed to meet marketing objectives by grouping campaigns into logical business outcomes.

In the always-on approach, marketing programs translate into hierarchies of **Issues** and **Groups**. You can use your existing marketing objectives and desired outcomes to define the Issue/Group hierarchies that best meet your needs.

For example, a marketing program could be designed to address the business objective of decreasing dormancy in credit card usage. In this case, you would design a series of marketing campaigns that target infrequent credit card users, encouraging them to use their cards with various offers such as additional bonus points or discounts. In the always-on approach, this translates into defining the Issue as, in this case, *Dormancy*, and the Group as *Promotions*. Under this group, you would then create actions called *10% additional bonus points*, or *5% discount*, and so on.

As a marketing operations person, you receive campaign briefs, which are documents you can use to create **Actions**.

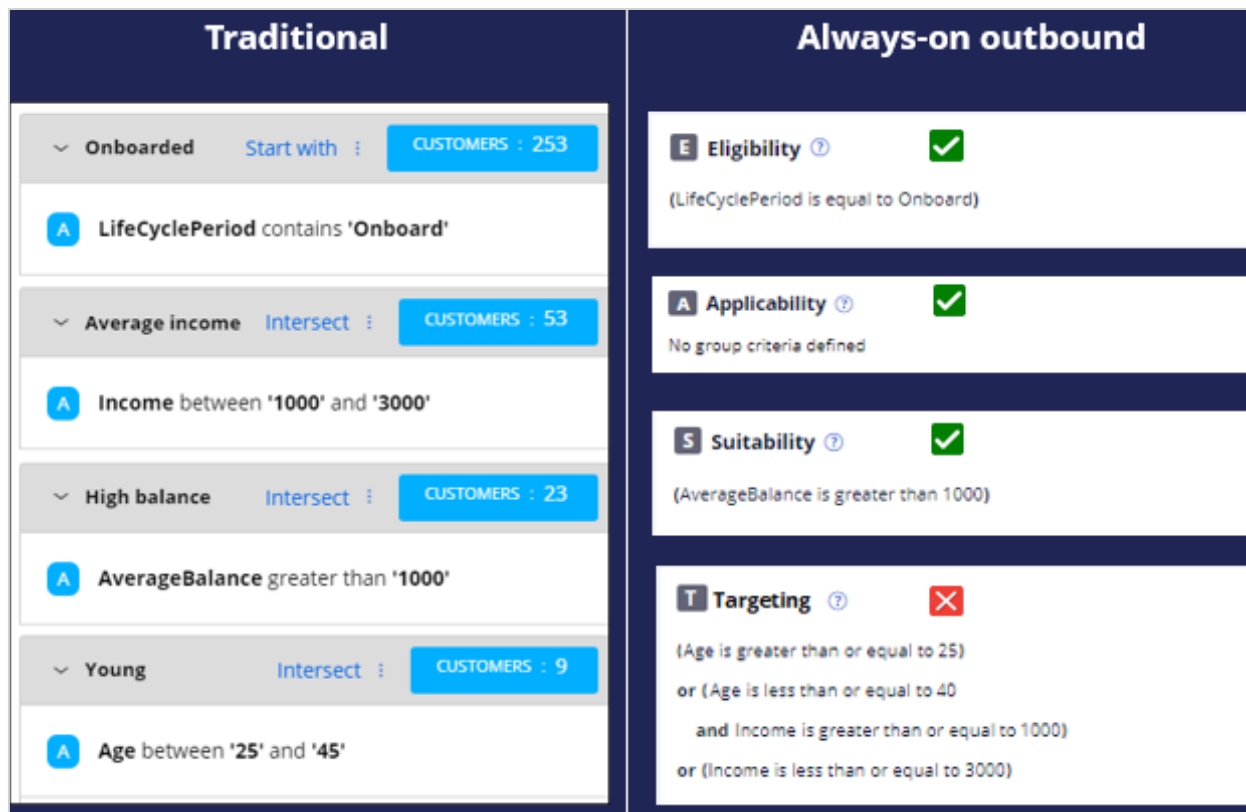
A campaign translates into an action or a set of actions delivered to qualified customers. In the always-on approach, you put an action into or out of play by changing its availability setting. The advantage in the always-on approach is that any adjustment to an action will propagate across all Issues and Groups, which means that you are optimizing across all programs and campaigns at once.



Segmentation

Traditionally, you would use the term segment, audience, or population interchangeably to refer to the target audience of a Campaign, and you would define granular criteria to identify this audience.

In the always-on approach, audience segmentation translates into engagement policies combined with Artificial Intelligence (AI).



By understanding the purpose of traditional segments, you can translate them into eligibility, applicability, suitability and contact policy rules.

When selecting targets, any criteria that are not based on clear business rules should be avoided. For example, targeting a specific demographic such as an age range or income level based on market research or intuition is not necessary. In the always-on approach, it's

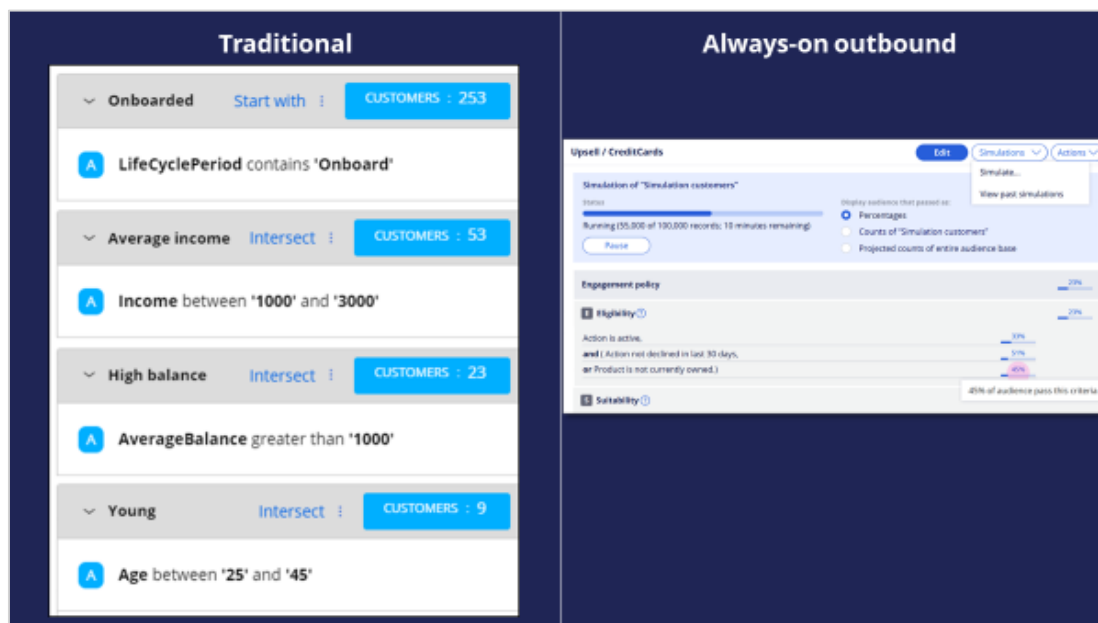
the job of the AI to choose the right action for each customer, once all disqualified actions are filtered out.

In the above example, the lifecycle period criterion is translated into an eligibility condition as it is a definite requirement of the business. The Average balance criterion is translated into a suitability condition as the business thinks the group of actions will be appropriate for customers who have such a balance. However, targeting an age range or income-based demographic are not clear business requirements. These conditions in the traditional approach are coming more from intuition and some offline analysis. Therefore, in the new always-on outbound approach, these conditions are not part of engagement conditions but are left to the AI. The AI will take care of finding the right customer segments that are more likely to have a positive response to the configured offers.

Segments, in the new approach, are used only to identify the starting population for an always-on outbound schedule (a multi-level campaign which initiates outbound actions). The starting population contains the list of potential customers to whom you want to send messages. For example, the starting population could be all customers who have opted in to receive promotional messages.

Segmentation reports

Traditionally, you might have used segments to generate reports on customers who match specific criteria.



In the always-on approach, you use reports generated by the simulation facility in Next-Best-Action Designer to:

- Understand customer counts.
- Validate the effect of changes to engagement policies and AI controls.
- Visualize the action mix.

Volume caps

When dealing with any form of outbound communication, there is a need to limit the number of communications both on a per-customer basis and in terms of total messages generated by the system over a given time period.

In the always-on approach, you use volume constraints, contact limits and suppression rules to set caps on communications.

Volume constraints

Customer contact limits

Channel	Contacts per customer	Duration
Email	1	Weekly
SMS	1	Weekly

Contact policy library

- > 7-day action impressions: Track Impressions for the action over the past 7 days
- > 7-day group clicks: Track Clicks for all actions in the group over the past 7 days
- > 30-day sent count: Track Pending for all actions in the group over the past 30 days
If there are 2 Pending for Email treatments, suppress the action for 60 days

How should multiple actions for a customer be treated?

☒ Individually for each action
☐ As a group for the context (output all actions)
☐ Return any action that does not exceed constraint

Reset constraint counts

☒ Individually
☐ All at once

> Maximum 50 with Channel: Email, Action: StandardCard
 > Maximum 100 with Type: Master

+ Add definition

Scheduling

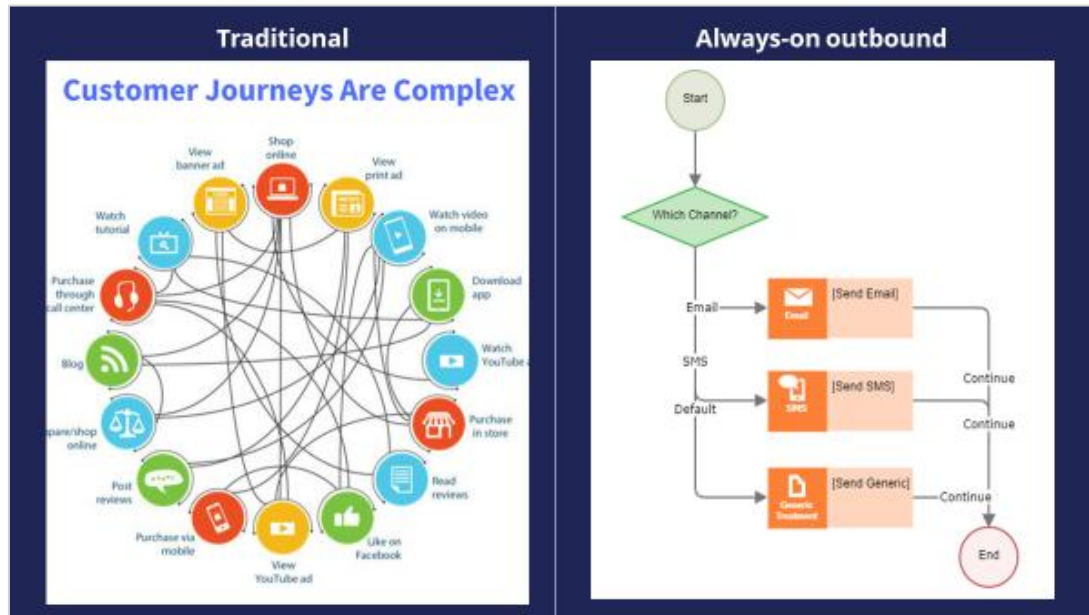
In a traditional marketing approach, there are several options to control the campaign schedule. For example, you can run a campaign as a one-off, or as recurring daily, weekly or monthly.

In the always-on approach:

- The schedule is always-on, it runs at a set frequency, for example on a daily basis.
- Actions are marked as in or out of play using the action 'availability' option.
- Emergency schedules can be set-up as secondary schedules.
- Contact policies help prevent communication fatigue in customers.

Journey guidance

Traditional campaign journeys can be long and complex. They are designed as deterministic journeys in which one campaign triggers the next, which triggers a third, and so on.



The always-on approach turns managing complex journeys into managing experiences:

- Logic in the channels should be minimized to focus on the overall experience. The number of steps involved in outbound communication, represented by action flow shapes, should be limited to 2 or 3 per channel.
- Next-Best-Action combines many actions to optimize experiences. Let the Pega brain decide the next step.
- Action flows shouldn't contain decision logic (that's in the brain) and should not try to adapt to customer or business changes.
- Use business hierarchies (Issues/Groups) to organize the business outcomes and actions that collectively make up experiences.

Business use case: Always-on outbound customer engagement

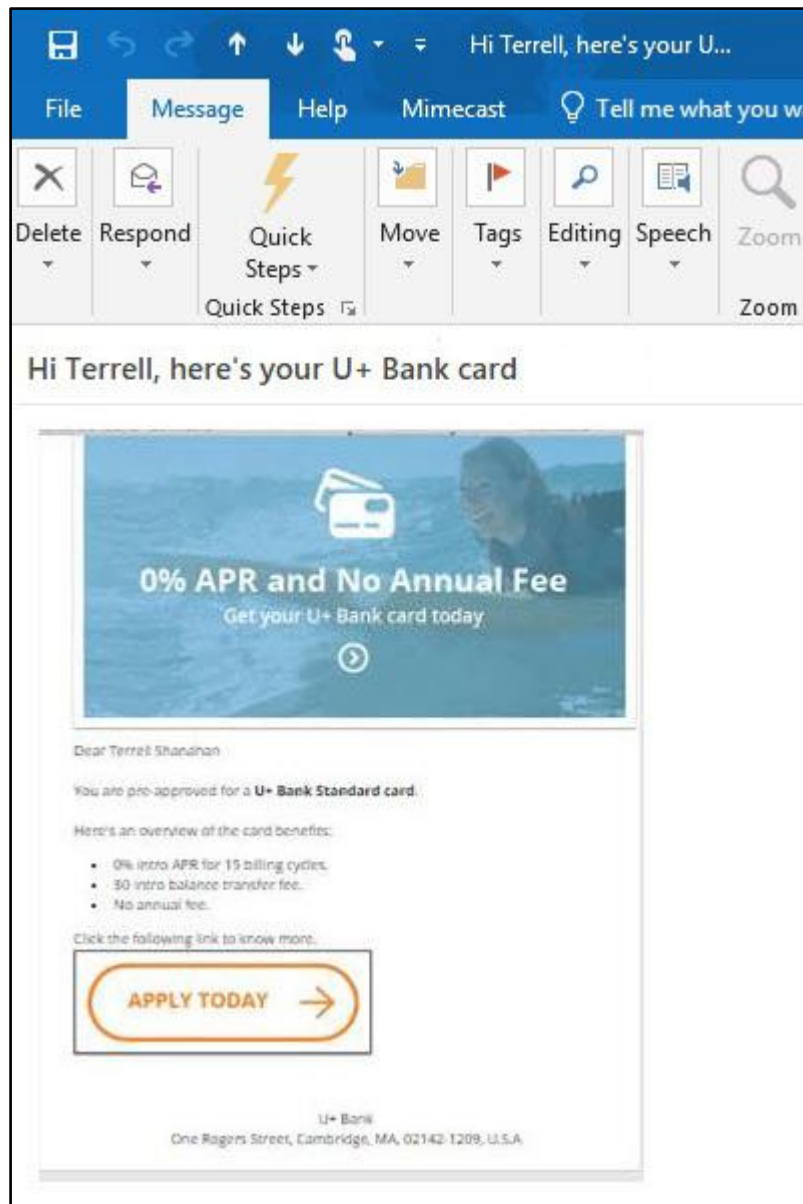
Introduction

U+ Bank has recently implemented the cross-sell on the web microjourney with the goal to increase the engagement with their customers on the web channel. The bank uses Pega Customer Decision Hub™ to recommend relevant banner ads to its customers when they visit their personal portal.

Customer Decision Hub combines customer information, information about their past communications with the bank, current contextual information, business rules and the predicted customer behavior, as calculated by Artificial Intelligence (AI) to select the Next-Best-Action, which in this case is the best sales offer for each customer.

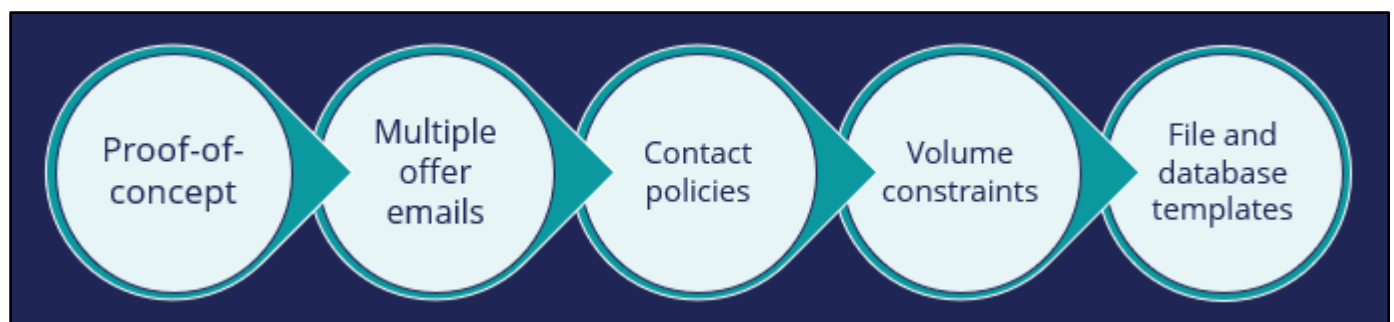
Satisfied with the results of the first microjourney, the bank now wants to extend these Next-Best-Action recommendations to be delivered via one of their outbound communication channels, email.

In this microjourney, the main intent of U+ is to increase the customer engagement on email channel. This can be measured by the click-through rate. A click-through metric is recorded when the customer clicks on the 'APPLY TODAY' button in the email received.



Implementation phases

The marketing operations team plans to implement the requirement in multiple phases.



The first phase is a proof-of-concept phase. In this phase, the goal is to send a credit card offer via email to qualified customers. This requires adding an email treatment and configuring the flow to an existing action, enabling the email channel, and configuring the always-on outbound schedule.

As a result of this phase, the Standard card offer details will be sent to qualified customers in an email. For example, if a customer, Stephen John, qualifies for the Standard card offer, the always-on outbound will send him an email with the offer details. He can click on the 'APPLY TODAY' button, it takes him to the credit cards page on the bank's website where he can read more details about the offer and apply for it, if interested.

In the second phase, the bank plans to include more credit card offers to be promoted via email. For example, if a customer is eligible for more than one credit card offer, he will be presented with the top offer he qualifies for. The prioritization uses AI and other factors such as business weights and levers to select the top offer for a customer.

In the third phase, the bank would like to introduce contact policy rules to ensure that a customer does not receive the same offer message twice within a period of time. For example, a customer will not receive an offer email for 60 days if one was sent in the past 30 days.

In the fourth phase, the bank would like to apply some limitations on the outbound volume due to certain operational constraints. The IT department of the bank has imposed a restriction on the number of emails that can be sent in a day. The marketing team has been asked to apply some limitations on the outbound volumes of the email.

The fifth phase is to share action details with a third-party email distributor. To comply with the security and spamming regulations, the bank has decided to use a third-party email delivery service instead of using the inhouse email server. As a result, the action details need to be written to a database table. The action details will then be shared with a third-party email distributor.

In summary, you will learn more about how U+ bank will leverage the always-on outbound capability in this phase of the project.

Sending offer emails

Description

Learn how to send offer emails to qualified customers. Reuse existing actions and customer engagement policies configured in Next-Best-Action Designer and extend them for outbound customer engagement in the email channel.

Learning objectives

- Configure the always-on brain to send offer emails

Sending offer emails

To market your offers, you can send offer emails to qualified customers. Pega Customer Decision™ Hub enables you to re-use existing actions and customer engagement policies configured in Next-Best-Action Designer and extend them for outbound customer engagement in the email channel.

Transcript

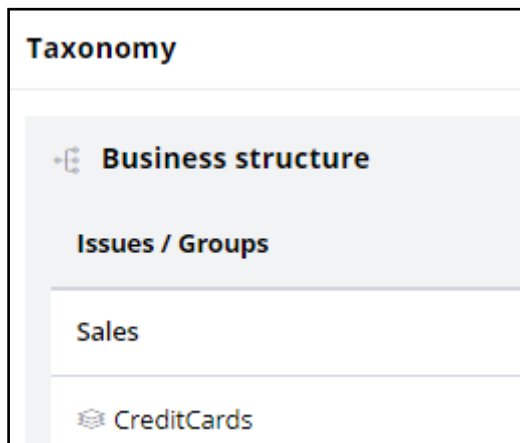
This demo shows you how to send offer emails to qualified customers.

U+, a retail bank, wants to use Pega Customer Decision Hub to send emails related to a credit card offer to qualified customers.

The email contains the offer details and a call to action. When a customer clicks the **APPLY TODAY** call to action in the email, they are directed to the credit cards page on the bank's website, where they can learn more about the offer and apply if interested.

This is the Pega Customer Decision Hub portal. Before configuring an action to send offer emails to qualified customers, look at the Next-Best-Action Designer configured by U+.

The **Taxonomy** tab contains the business hierarchy of issues and groups. Every action presented to the customer is classified within an issue/group hierarchy. In this case, the bank wants to do cross-sell/upsell of credit cards. As a result, the bank created one Issue called **Sales** and a Group called **CreditCards**.

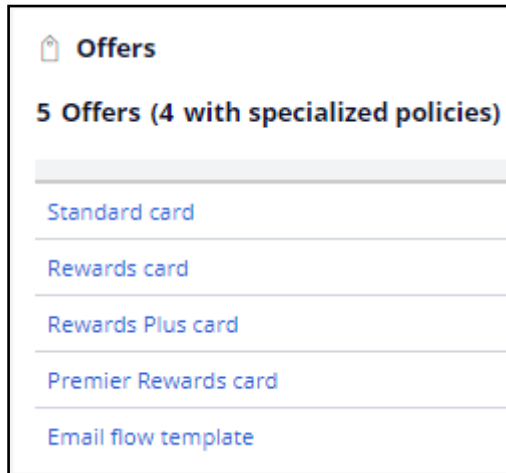


Now, navigate to the **Engagement policy** tab to view the business rules and actions defined for the CreditCards group.

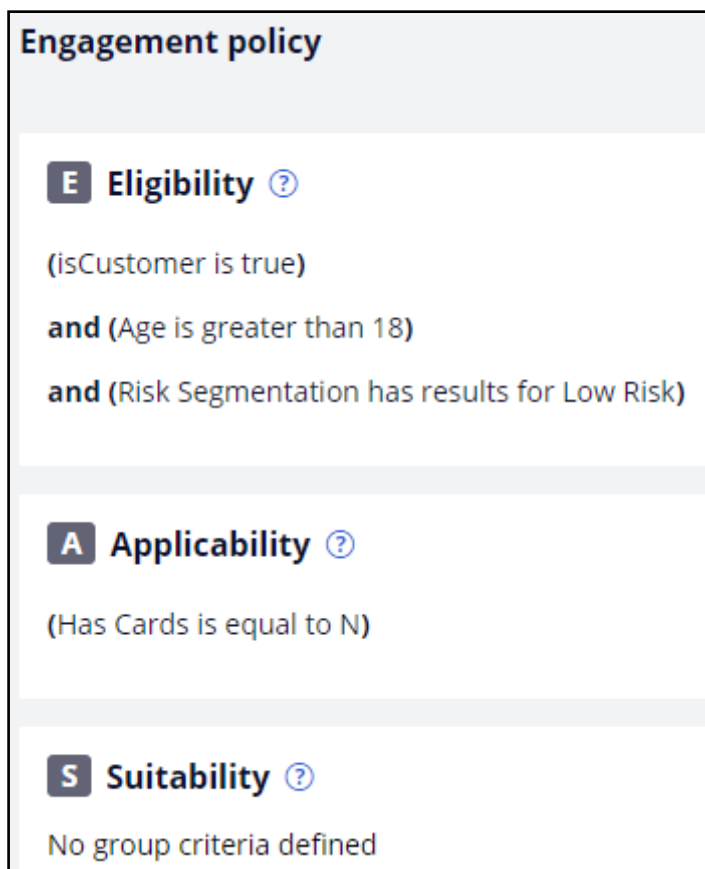
These engagement policy conditions determine which customers qualify for the actions. For example, the eligibility condition **Age is greater than or equal to 18** implies that only customers who are equal to or over the age of 18 are eligible for the credit card offers.

Also, credit card offers are applicable to customers only if they do not currently own a credit card.

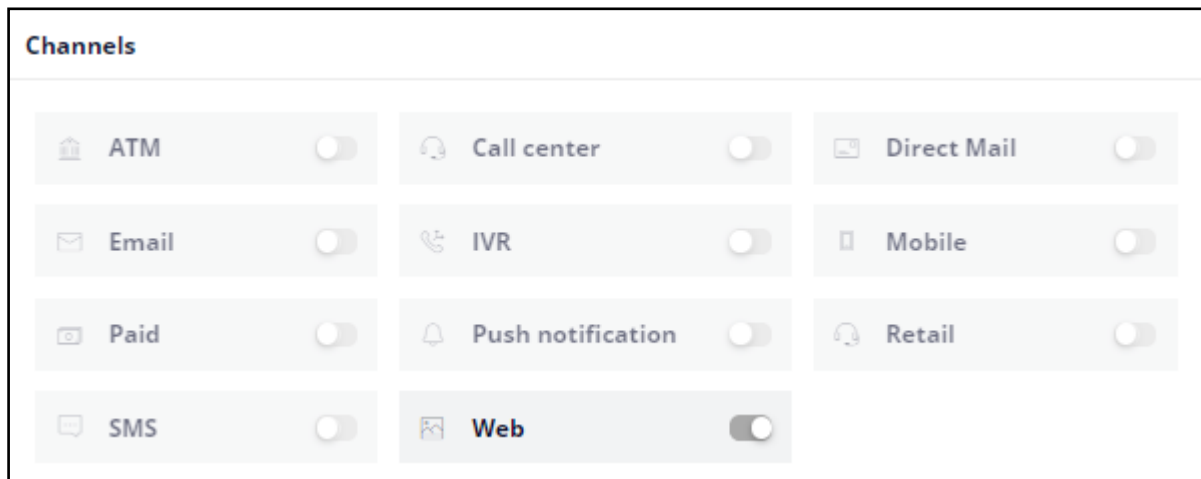
Notice that a consultant has already created a few actions under the Sales/CreditCards hierarchy.



These actions correlate with the credit card offers that the bank wants to promote.



Currently, the bank promotes credit cards on the web channel only. The bank wants to extend this promotion to the email channel.

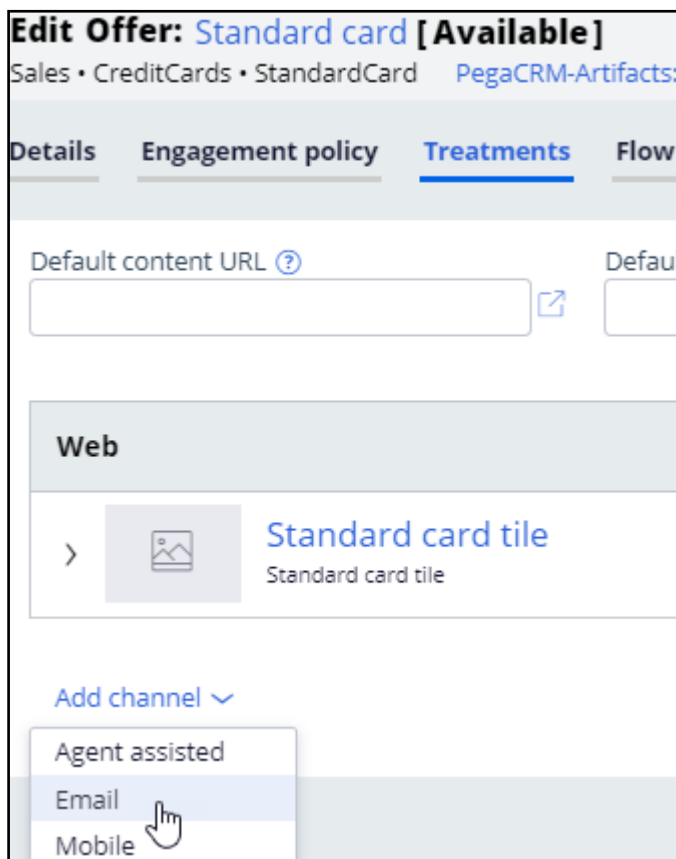


The 'Channels' configuration page displays a grid of channels, each with an icon and a toggle switch. The channels are: ATM, Call center, Direct Mail, Email, IVR, Mobile, Paid, Push notification, Retail, SMS, and Web. The 'Web' toggle is currently turned on, while all other toggles are turned off.

Channel	Status
ATM	Off
Call center	Off
Direct Mail	Off
Email	Off
IVR	Off
Mobile	Off
Paid	Off
Push notification	Off
Retail	Off
SMS	Off
Web	On

The bank wants to begin by sending the Standard card offer emails to qualified customers. To send emails in an always-on outbound environment, you need to add an email treatment to the action.

Open the **Standard card** action to add an email treatment.



The 'Edit Offer: Standard card [Available]' page shows the 'Treatments' tab. The page has tabs for 'Details', 'Engagement policy', 'Treatments', and 'Flow'. Under 'Treatments', there is a 'Default content URL' field and a 'Default' field. Below these, there is a 'Web' section with a 'Standard card tile' (Standard card tile). At the bottom, there is an 'Add channel' dropdown menu with options: 'Agent assisted', 'Email', and 'Mobile'. The 'Email' option is highlighted by a mouse cursor.

Edit Offer: Standard card [Available]
Sales • CreditCards • StandardCard [PegaCRM-Artifacts:](#)

Details **Engagement policy** **Treatments** **Flow**

Default content URL [?](#) [Link](#) Default

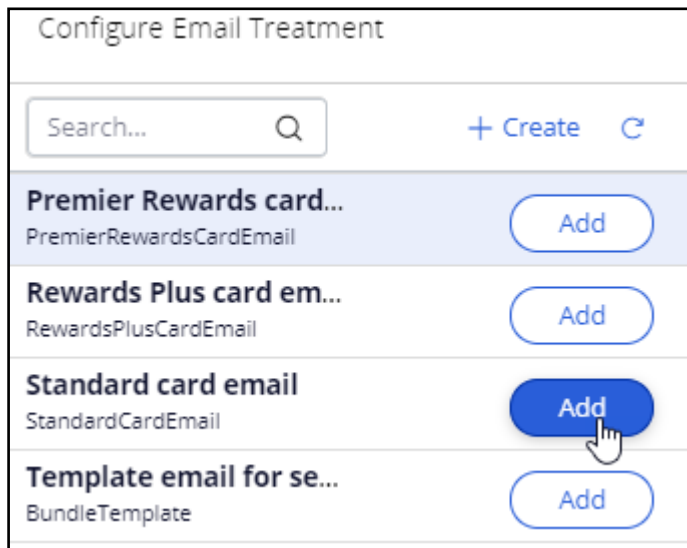
Web

>  **Standard card tile**
Standard card tile

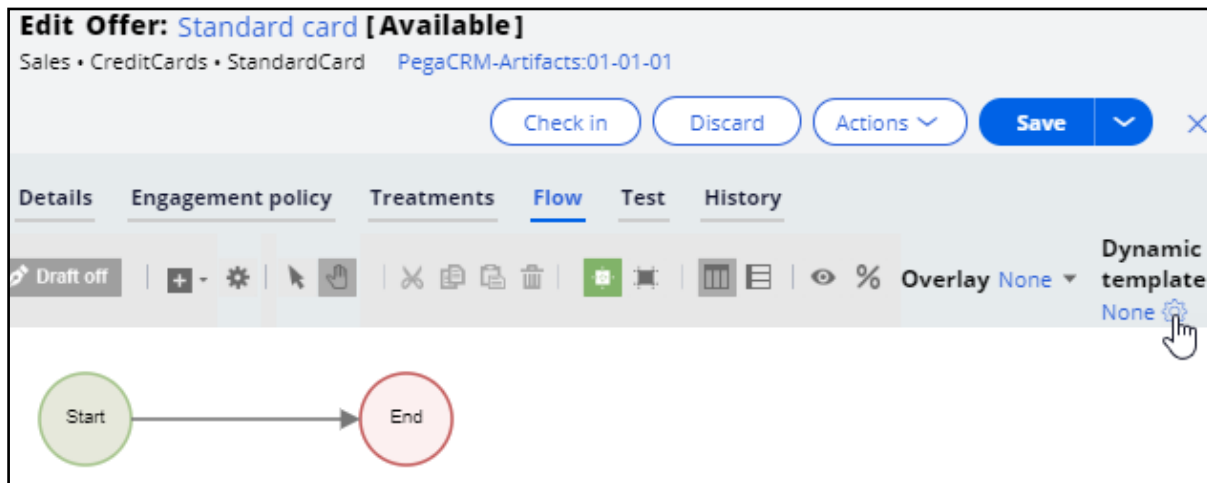
Add channel ▾

- Agent assisted
- Email**
- Mobile

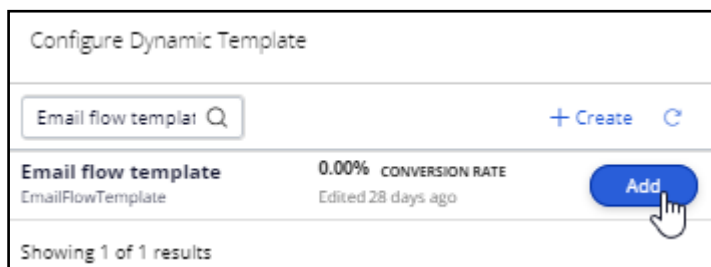
You can use an existing treatment or create a new one. In this case, you use an existing email treatment.



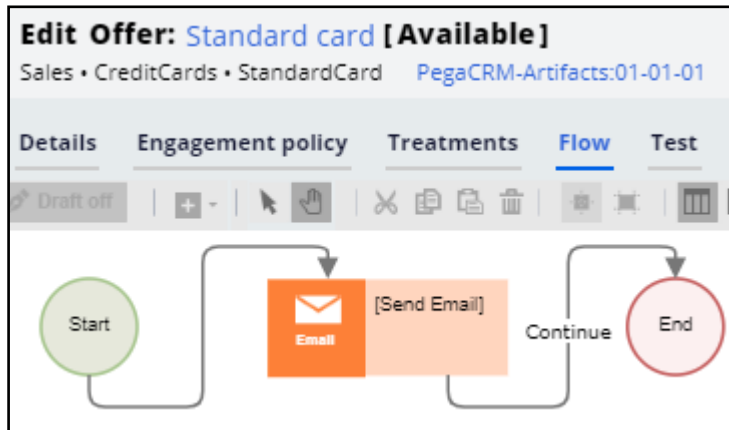
Next, you must configure the action flow. The action flow is a flow diagram that contains the sequence of steps carried out during the lifecycle of an action. You can create action flows once and reuse the flows across actions by using the **Dynamic template** option.



Now, click **Dynamic template** to add an action flow template.



Notice that the flow has only one key shape: the **Send Email** shape. It represents the outbound email delivery.



Now, on the **Channels** tab, you can enable the channels and triggers that invoke a Next-Best-Action evaluation.

In this case, as U+ wants to send out emails, enable the **Email** channel.

The "Channels" configuration interface for "PegaCRM-Artifacts: 01-01-01" (edited 6 minutes ago by CDH Analyst) features a "Save" button and "Cancel" and "Actions" buttons. It displays a grid of channels with toggle switches:

ATM ☐	Call center ☐	Direct Mail ☐
Email ☒	IVR ☐	Mobile ☐
Paid ☐	Push notification ☐	Retail ☐
SMS ☐	Web ☒	

In the always-on outbound paradigm, the brain evaluates the next best action for each customer identified in a segment, which contains the potential list of customers to whom you want to send messages. The system can send these messages at a regular frequency (for example, daily). You configure the **Primary schedule** to set the frequency.

The schedule has two mandatory configurations: **Recurrence** and **Starting population**.

Primary schedule ? Schedule cannot be run. Confirm start date is not in the past, and starting population is selected.		
Recurrence ? Not yet configured	⚙️ Starting population ? Not yet configured	Volume constraint (optional) ? Not yet configured

To configure an outbound schedule, first, set the required **Recurrence** frequency. In this case, retain the default frequency, *Daily*. Then, select the **Refresh the audience** check box. Enabling the **Refresh the audience** option ensures that the latest customer information is always used when running the schedule.

Configure outbound schedule

Recurring by*

Daily ▾

☒ Every weekday
☐ Every day or every nth day

Start

3/12/2020 2:10 AM

End

☒ No end date
☐ Set number of occurrences
☐ End by a date

☒ Refresh the audience

☒ Refresh the audience for each scheduled occurrence
☐ Refresh the audience only for the first scheduled occurrence

☐ Write results using a database template

Cancel

Submit

Next, select the segment that contains the list of customers to be considered by the brain for outbound messaging. Typically, this is a large population of all customers to whom you potentially want to reach out. In this case, select the **All mailable customers** segment.

Configure Audience

+ Create

All available custo...	N/A (0%)	
AllMailableCustomers	Edited less than a minute ago	Add
All Customers	1.1K (100%)	
AllCustomers	Edited 3 months ago	Add
Troy & Barbara	2 (0%)	
TroyBarbara	Edited 4 months ago	Add

With that, all the necessary configurations for this scenario are complete.

Run the schedule. When the date and time for a scheduled run are reached, an entry is displayed with the status **Scheduled**, which indicates that the run is about to begin.

Primary schedule
?
RUNNING

Recurrence ? Daily Start on 3/12/20 2:57 AM No end date Refresh the audience for each scheduled occurrence	Starting population ? All available customers
--	--

Runs

Run status	Scheduled
SCHEDULED	03/12/20 02:57 AM Stop

When you refresh, the status changes to **Running** once processing begins.

Runs		
Run status	Scheduled	
RUNNING	03/12/20 02:57 AM	Stop
> Upcoming runs		

You can refresh to see the latest status. Once the run is complete, you can see the results of the run.

In the completed run results, you can see the number of customers selected in the **Audience** stage, which is the count of customers selected by the Segment.

You can also see the number of actions identified by the strategy, which is the count of customers selected by the brain.

The count in the **Initiated** section represents the number of actions initiated for outbound messaging. The count in the **Result** section is the number of actions that have completed all the steps defined in their action flow.

You can also see the actions in the current run, which the brain selected.

Runs			
Run status	Scheduled		
COMPLETED	03/12/20 02:57 AM		
Audience	Strategy	Initiated	Result
769 customers >	191 action results >	191 actions initiated >	191 completed
03/12/2020 03:00 AM	03/12/2020 03:06 AM	03/12/2020 03:06 AM	
Action	Count		
StandardCard	191		

Qualified customers receive the email. When they click the **APPLY TODAY** call to action, they are taken to the preconfigured URL, which, in this scenario, is the Credit Cards landing page on the bank's website.

This demo has concluded. What did it show you?

- How to enable the email channel in Next-Best-Action Designer.
- How to add an email treatment to an action to have an email offer available for the outbound run.
- How to schedule and run an outbound run.

Defining the starting population

Description

The starting population is the potential list of customers you want the brain to consider for always-on outbound customer engagement. Learn how to create a segment and configure it with basic criteria to identify the starting population for Next-Best-Action outbound runs.

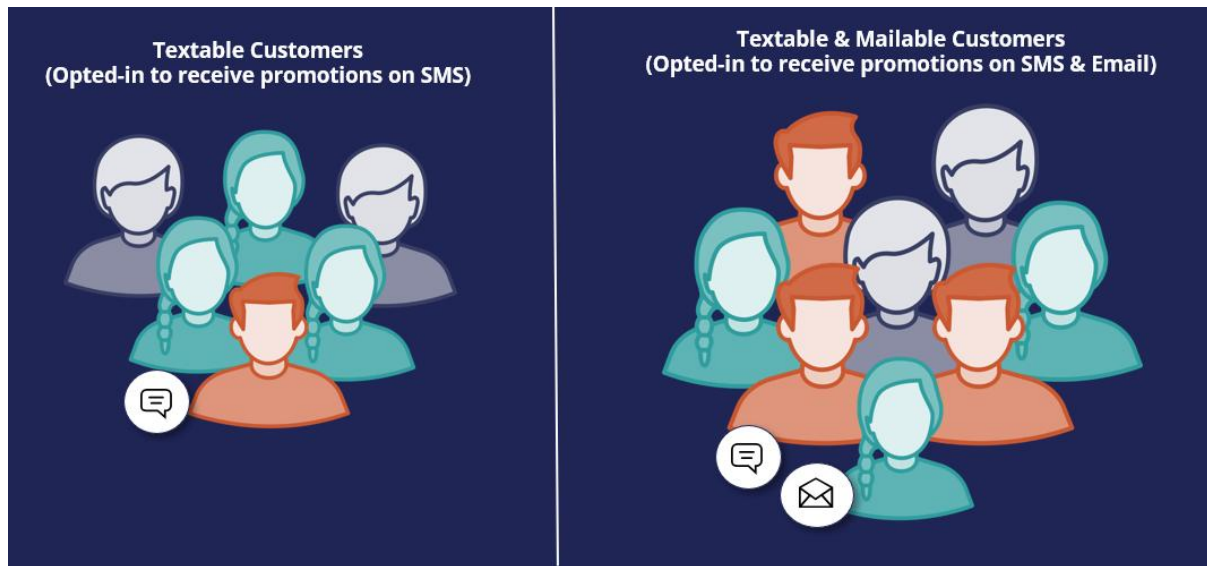
Learning objectives

- Describe the concept of segmentation
- Explain how to create a segment for the starting population of an outbound run

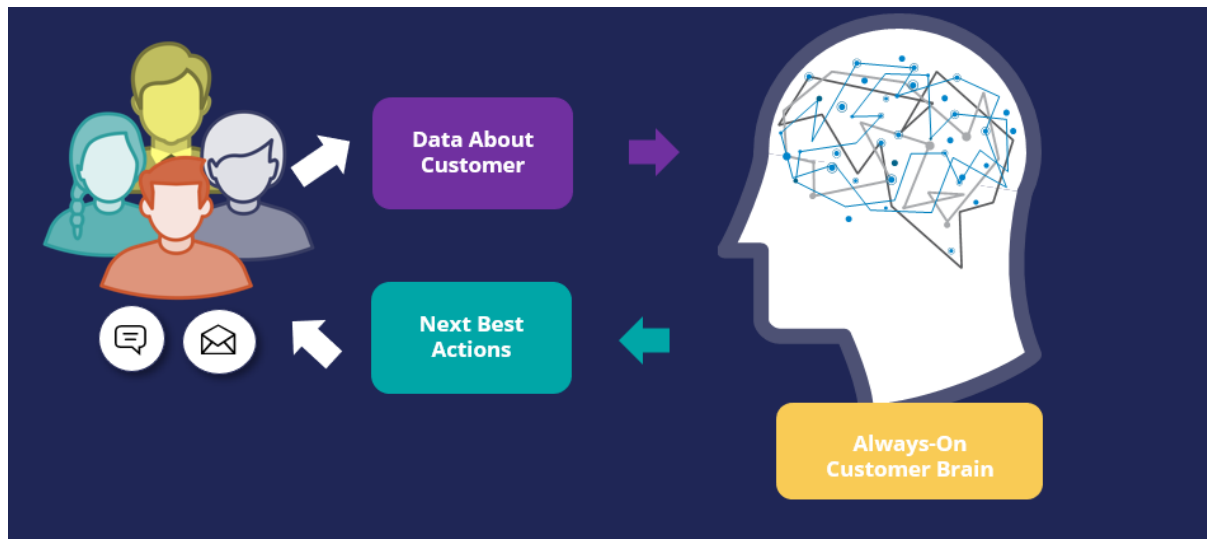
Segmentation

What are segments?

In Pega Customer Decision Hub™, the audience is a list of potential target customers, implemented using the segment component. A segment is a reference to a database table containing a list of customer IDs that match specific criteria.



In the always-on outbound paradigm, the Pega brain evaluates the Next-Best-Action for each of the customers identified in a segment, which contains the list of potential customers to whom you want to send messages.



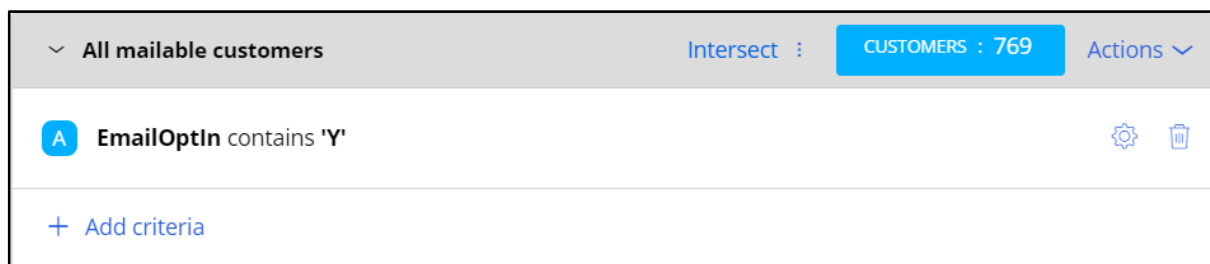
This set of customers is known as the starting population. The customers in this group will be further qualified through eligibility, applicability, and suitability criteria configured in Next-Best-Action Designer.

Criteria in a segment

To select a starting population, you apply a few high-level criteria to a segment. It's best practice not to get too granular at the segment level, rather use eligibility, applicability, and suitability rules configured in Next-Best-Action Designer to fine-tune your criteria once the starting population has been selected.

You can define one or more conditions that must be true for a customer to be included in a segment.

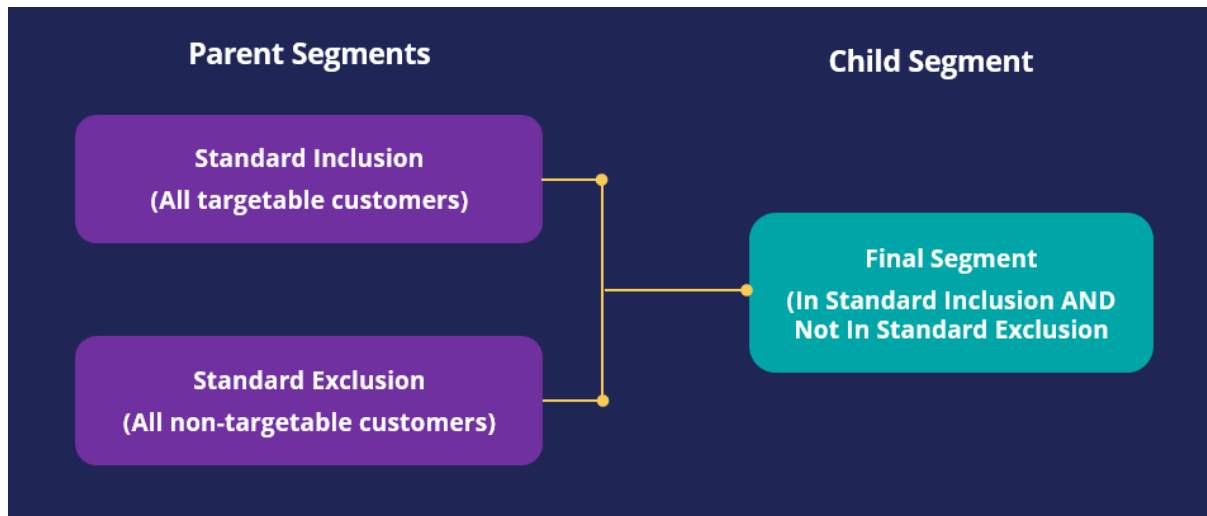
For example, to send emails related to a credit card offer to a target audience, you should first define a criterion that will filter for customers who have opted-in to receive promotional emails.



Segments hierarchy

A segment can reference a “parent” segment, enabling you to create a hierarchy of segments.

For example, you can create top-level segments that identify common lists of customers for exclusion or inclusion in various “child” Segments. Standard top-level segments allow global communication rules to be implemented by forming the basis of customer lists that automatically adhere to these rules. The rules can include, for example, standard exclusions, which are the core customers who should not be contacted, or standard inclusions, which are the core customers who may always be contacted. The resulting customer lists can be used as the starting point for creating the final segment.



If changes are made to global rules, the definitions of the standard top-level segments can be modified accordingly, and as a result, every segment that references them will automatically be re-aligned to the new rules.

Creating a segment

Business scenario

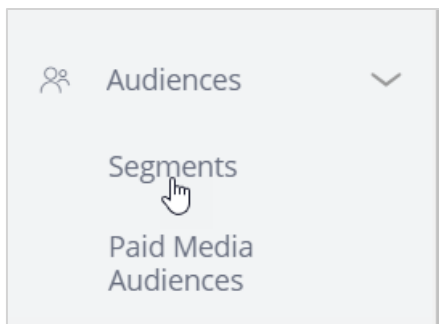
U+, a retail bank, wants to use the always-on outbound approach to send promotional emails to qualified customers. The bank wants to include all customers who have opted in to receive promotional emails as the starting population for the outbound schedule.

Creating a segment

To meet the business requirements, you need to create a segment with two criteria.

1. A criterion to reference the existing top-level segment, **All Customers**, which contains a list of all customers in the customer base.
2. A criterion to check if customers have opted in to receive promotional emails.

Segments are managed on the Segments landing page, which can be accessed from **Audiences** -> **Segments** in the navigation menu.



You can open existing segments or create a new segment from here.

Segments

Create

Help

Issue / Group

Type

All issues / All groups

All types

Filter

Showing 4 of 4 results

All Customers

AllCustomers

1.1K

(100%) customers

Refreshed 1 month ago

Criteria

Edited 4 month ago

Troy & Barbara

TroyBarbara

2

(0%) customers

Refreshed 3 months ago

Criteria

Edited 4 month ago

Provide a short description for the new segment, and the identifier is automatically populated when you tab out.

Create Segment	Create and open
Segment Record Configuration	
All Mailable Customers	Identifier AllMailableCustomers Edit
A short description or title for this record	

Entering the segment criteria

The **Design** tab is where you assemble the criteria required to identify customers of interest.

Segment criteria are grouped for ease of reading. So, before you can add the first criteria, add a criteria group.

Edit Segment: All Mailable Customers [Available]

Actions

Save

×

Design

Options and Schedule

Paid sync

History

Population count: -- of **1,071**

Show Customers

More

+

—

Add group to start building a segment

+ Add group

You can provide a more descriptive name for the criteria group.

+ Set 1

Collapse groups

Expand groups

Update counts

Group 1

Start with : CUSTOMERS : --

Actions

Group 1

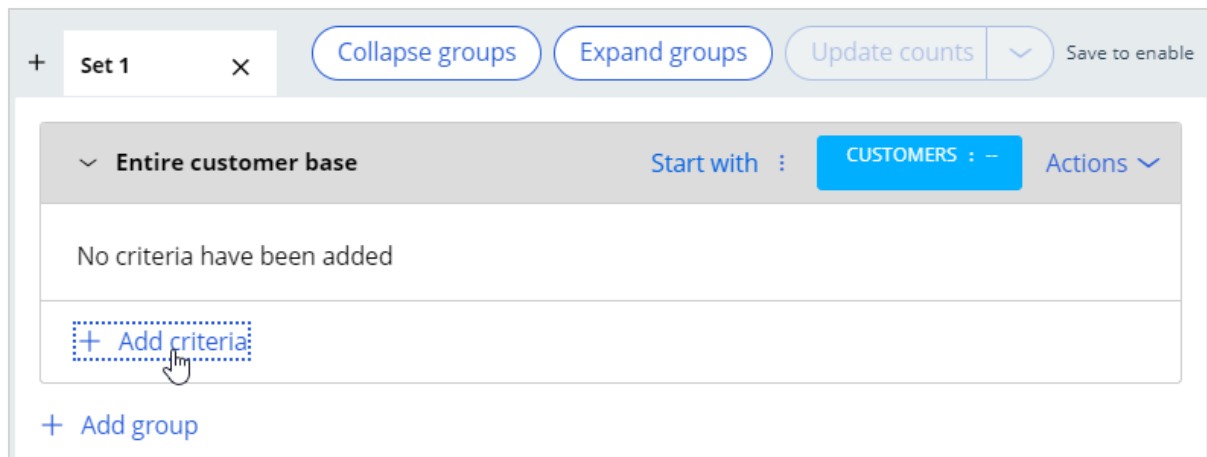
(Double click to edit) been added

+ Add criteria

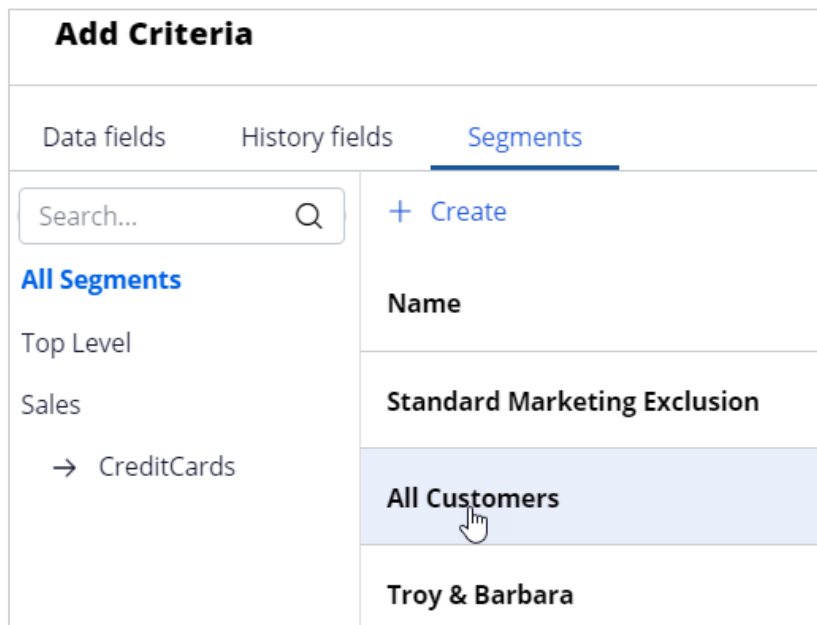
+ Add group

In this scenario, the bank wants to consider all customers in the customer base, then select the customers who have opted in to receive promotional emails. The bank has already created the **All Customers** segment, which contains the list of all customers. You can reference this segment in the first criterion.

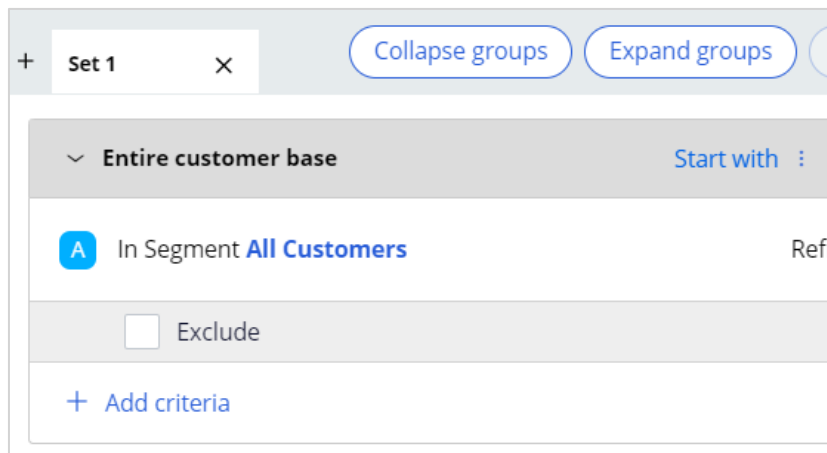
286



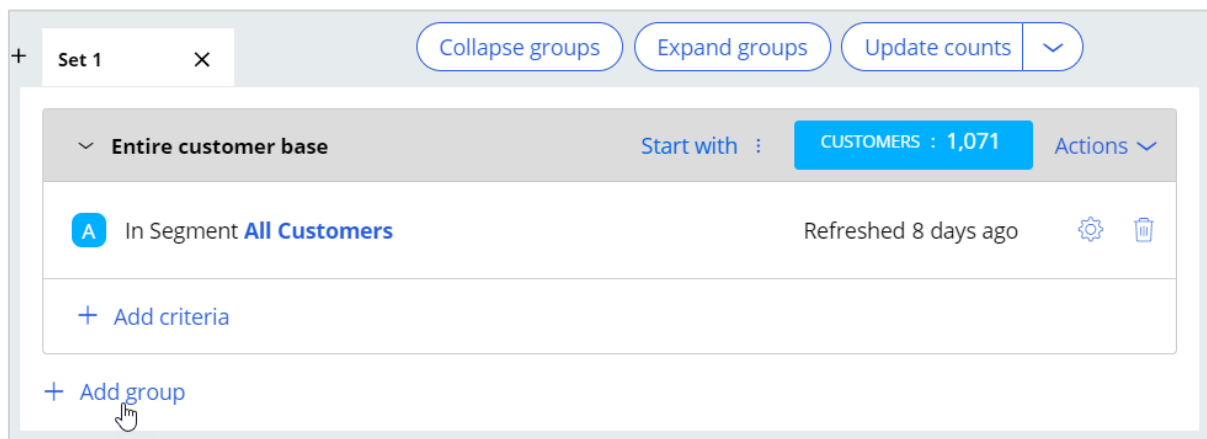
In the **Add Criteria** window, the **Segments** tab lists all available segments. Select the existing **All Customers** segment.



The **All Customers** segment is added as the first segment criterion. The **Exclude** option allows you to exclude the result of a criterion.



The next step is to add another criterion to identify customers who have opted in to receive promotional emails. You can add the new criterion in the existing criteria group or in a new group.



In the **Add Criteria** window, the **Data Fields** tab lists all available customer properties. You can either select the field directly or search for it by entering the partial name in the search field. Then, select the desired field from the search results. In this system, the field **EmailOptIn** contains information about whether a customer has opted in to receive emails or not.

Add Criteria		
Data fields	History fields	Segments
EmailOptIn Customer → History	Name Customer.EmailOptIn	

Once the field is selected, you can configure it to meet the business requirement. In this system, value **Y** indicates that the customer has opted in, and **N** indicates that he/she has not opted in to receive promotional emails.

+ Set 1 X

Collapse groups Expand groups Update counts Save to enable

Entire customer base
Start with CUSTOMERS : - Actions

A In Segment All Customers Refreshed 1 month 13 days ago

☐ Exclude

+ Add criteria

All mailable customers
Intersect CUSTOMERS : - Actions

A EmailOptIn Not yet configured

Exactly Y

☐ Exclude ☐ Include missing values ☐ Ignore case

+ Add criteria

+ Add group

The **Include missing values** option is used to include results that do not have a value specified for the selected field.

The **Ignore case** option is used to perform a case-insensitive search. You can leave both options unselected for this scenario.

The **Update Counts** option is used to update the population count of the segment while you are building it.

Note: The **Update Counts** option is enabled when you save the segment.

You can combine the results of a criteria group with the result from the criteria group above it using one of the three options:

Intersect selects the customers the two results have in common.

Exclude excludes the result of the current criteria group from the result above it.

Merge combines the results of both criteria groups.

Save and run the segment

When you are done defining all the segment criteria, you can save and run the segment. Running the segment will populate the number of customers in a segment out of the total number of customers in your application.

Click **Run** to run the segment.

While the segment is running, you can stop the execution by clicking the **Stop** button.

Once the run is completed, the number of customers in the resulting segment is displayed as **Population count**.

Design
Options and Schedule
Paid sync
History

Population count: **769** of **1,071**
[Show Customers](#)

More

+
Set 1
Collapse groups
Expand groups
Update counts

Entire customer base
Start with
CUSTOMERS : 1,071

A
In Segment **All Customers**
Refreshed 16 days ago

All mailable customers
Intersect
CUSTOMERS : 769

A
EmailOptIn exactly 'Y'

There are **1071** customers in the **All Customers** Segment, out of which **769** customers have opted in to receive promotional emails.

Click the **Show Customers** link to preview the list of customers selected for this segment.

Population count: **769** of **1,071**
[Show Customers](#)

The list is shown in a separate window.

CustomerID* ↑	ACCOUNT ID	Title	Full Name	Gender	Age	Language	MaritalStatus
14			Troy Murphy	M	26		Married
15			Barbara Stockton	F	32		Single
16			Joanna Williams	F	25		Married
17			Robert Walton	M	26		Single
18			John Smith	M	45		Single
19			Arnold Green	M	56		Single
CON-1			Layne McLaughlin	F	19		Single
CON-10			Ezekiel Funk	M	32		Single

Key segment configurations

On the **Options and Schedule** tab, there are two key settings under **Data refresh** that control how data in the segment is refreshed at run-time and what level of control a segment can exert over other segments.

Design
Options and schedule
Paid sync
History

Data refresh

☐ Enable transactional refresh
Select this option for segments that are used for exclusion lists or transactional notifications to customers. Transactional refresh ensures correct segment population in the case of concurrent refreshes.

☐ Enable refresh by parent segment
Select this option to allow other segments that have this segment as part of their criteria to automatically refresh this segment when they are run.

☐ Enable child segment refresh
Select this option to allow the segment to automatically refresh its refreshable child segments when run.

Key Audience ⓘ

☐ Make this segment a Key Audience (0 used of 20)
Select this option to allow this segment to be filtered against in various Discovery Tools.

Sampled segment

☐ Select a sample of criteria results

When the **Enable refresh by parent segment** option is enabled, the segment will be refreshed when the other segments that reference it are run.

The **Enable child segment refresh** option allows you to control the cascading effect of the refresh operation. The segment can automatically refresh data in its child segments if they are marked as refreshable.

Marking a segment as a **Key Audience** makes it accessible in various Discovery tools like Action Performance Tracker. This allows for the action performance analysis of outcomes, related KPIs, and metrics, providing insights into what worked and potential opportunities.

Note that due to computing resource constraints, a maximum of 20 Key Audiences are allowed.

The **Sampled segment** option allows you to select a random sample of a segment result to be selected as the final segment result.

Segment run history

On the **History** tab, you can view the details of previous execution runs. The history lists the runs triggered manually by a user, indicated by **Populate Segment Requested by: <user name>**. It also lists runs triggered by the outbound schedule in Next-Best-Action Designer, indicated by **Populate Segment Requested by: Program run**.

Design	Options and Schedule	Paid sync	History
			
Current run			
This segment is not currently running.			
Completed runs			
Run status	Information	Last run ↓	Count
COMPLETED	Populate Segment Requested by: Program Run	03/27/20 05:37 AM	769
COMPLETED	Populate Segment Requested by: CDH Analyst	03/27/20 05:20 AM	769

Defining an action for outbound

Description

A Next-Best-Action is selected by the brain after it considers customer engagement policies, business objectives and recommendations from the AI. An action can be presented to the customer on various inbound and outbound channels. Learn how to configure an action to make it suitable for outbound customer engagement and design a visually appealing email message using easy-to-use templates. Also, learn how to configure an action flow, which contains the steps involved in delivering an action to a customer.

Learning objectives

- Create an email treatment
- Design visually appealing emails using templates
- Configure actions with re-usable action flows

Email Treatments

Offer emails play a crucial role in attracting customers as part of a campaign over the email channel. With Pega Customer Decision Hub™, you can use email treatments to design visually appealing email messages, and then send your offers to qualified customers in an always-on outbound environment.

In Pega Customer Decision Hub™, email treatments can be Internal or External.

Internal email treatments

You create internal email treatments and email accounts for initiating email distribution within Pega Customer Decision Hub. You can design the email content either in Pega Customer Decision Hub or in an external HTML editing software, such as Dreamweaver, and Stripo. However, the final email assembling happens in Pega Customer Decision Hub.

Pega Customer Decision Hub provides two common patterns for designing an internal email treatment:

- You can design the email content directly within the email treatment in Pega Customer Decision Hub. Use this pattern only when the email content is relatively simple and does not require any complex HTML design.
- Marketing departments can outsource email content designs to professional designing agencies who do not have direct access to Pega Customer Decision Hub. These agencies use HTML editors, such as Dreamweaver, to build visually appealing content. You can import the HTML with the externally designed email content directly into an internal email treatment.

For both scenarios, your Pega Customer Decision Hub instance requires a direct integration with an SMTP server to send the emails. When you run an outbound schedule and the system triggers emails, Pega Customer Decision Hub constructs the email content by replacing the placeholders with personalized data and then sends the content directly to the SMTP server.

With internal email treatments, you can use the email treatment forms to view the content, map placeholders, send test emails, and track impressions and clicks. You then internally assess the performance, throttling, and maintenance.

External email treatments

You create external email treatments in Pega Customer Decision Hub too, but the email content is mapped to a file or database template. Pega Customer Decision Hub writes an outbound schedule run results to a file or database table that is shared with a third-party email service provider for sending the outbound emails.

For external email treatments, Pega Customer Decision Hub does not store email content. In this common case, Pega Customer Decision Hub does not have direct integration with an SMTP server, but a third-party email service provider handles the service. These providers typically rely on file and database integrations and have a defined format of the data that they expect. Their environments host the email design.

When you use external email treatments you create output data from Pega Customer Decision Hub in the format that the integration demands. Typically, the output of the file or table consists of personalization data, a type of identifier that links the email treatment with a template that the service providers use, and additional identifiers to process the email responses that Pega Customer Decision Hub receives from the provider.

With external email treatments, Pega Customer Decision Hub only generates the data that is required to send the emails. The provider designs and sends the email messages and manages the performance and scaling of the whole process. Pega Customer Decision Hub requires additional integration to process the responses, update the interaction history, and train adaptive models.

Creating internal email treatments

Internal email treatments are created within Pega Customer Decision Hub. The email accounts used to initiate email sending are also configured in Pega Customer Decision Hub.

Internal email treatments can be designed and personalized in Pega or in an external tool.

Email content design and personalization in Pega

This demo shows you how to create an internal email treatment and send emails using Pega to present offer details in an email.

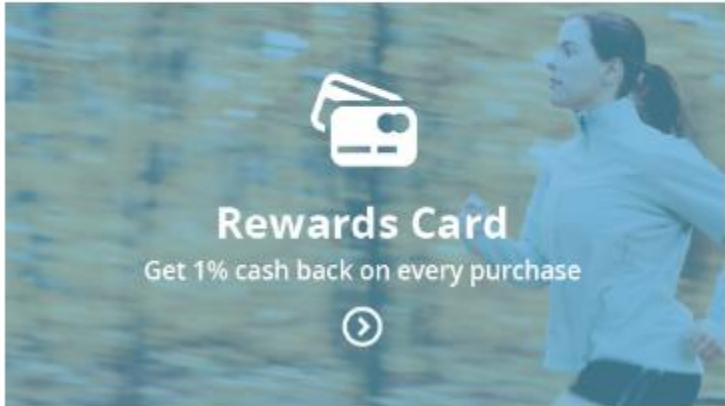
U+, a retail bank, wants to promote their Rewards credit card via email. They want to send the email to qualified customers in an always-on outbound environment.

The email is personalized and contains the offer details and a call to action. When customers click the **APPLY TODAY** call to action in the email, they are directed to the credit cards page on the bank's website to learn more about the offer and apply for it if interested.

Enjoy cashback on every purchase!

U+ Bank

Get 1% cashback on every purchase



Rewards Card
Get 1% cash back on every purchase

Dear Stephen Gold

You are pre-approved for a **U+ Bank Rewards card**.

Here's an overview of the card benefits:

- \$200 cash rewards after you spend \$500 on purchases in the first 3 months from account opening.
- 1% cash back on every purchase.
- No annual fee.

Click the following link to know more.

APPLY TODAY →

U+ Bank
One Rogers Street, Cambridge, MA, 02142-1209, U.S.A.

This is Pega Customer Decision Hub™ portal. To send emails in an always-on outbound environment, you need to add an email treatment to every action that you want to promote through email. An email treatment contains the message that you want to communicate to customers.

In this case, you create and add an email treatment to the Rewards card. Open the Rewards card to add new treatments to the action.

You can manage treatments associated with an action on the **Treatments** tab. To associate a treatment with an action, click **Add channel**.

Edit Action: Rewards card [Available]
 Grow • Creditcards • RewardsCard CDH-Artifacts:01-01-01

Details **Engagement policy** **Treatments** **Flow**

Default content URL ?

Web

>  **Rewards card tile**
 Rewards card tile

Add channel ▾

- Agent assisted
- Email**
- Mobile

You can use an existing email treatment or create a new one. In this case, you want to create a new internal email treatment.

Configure Email Treatment

Search...  **+ Create** 

Premier Rewards card email PremierRewardsCardEmail	Add
Rewards Plus card email RewardsPlusCardEmail	Add

Now, enter an appropriate **short description** to create the new treatment. It is a best practice to create the treatment in the same issue/group hierarchy in which you plan to use it; this will make the treatment easier to access and manage.

Create Email Treatment

Create and open

Email Treatment Record Configuration

Rewards Card Email

Identifier

RewardsCardEmail [Edit](#)

A short description or title for this record

Categorization

Issue

Group

Grow

▼

Credit cards

▼

Then, enter the email content.

Edit Email Treatment: Rewards Card Email [Available]

Content

Details

Test email

Prompts

Pages & Classes

Security

History

Subject

Edit mode ▼

Pick email template

Load template from file

View

Desktop

Logo

Title

600 x 100

Section content

Footer links

First, enter the email subject. You can include both static text and dynamic placeholders in the subject.

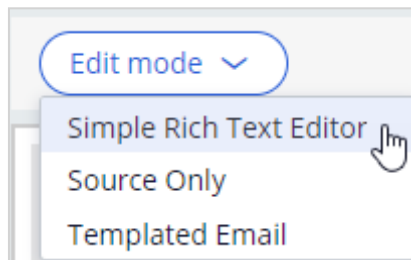
To access dynamic placeholders, start typing dot followed by Customer to access customer properties or OfferData to access action properties.

Dynamic placeholders allow you to personalize the subject. You can construct the placeholders with both customer and offer attribute properties.

At runtime, the properties are replaced with the real values. For example, if the customer's first name is *Stephen*, the generated subject line reads: *Hi Stephen, here's your U+ Bank card*.

Then, in the **Details** tab, enter an appropriate keycode. When the **Track Email Open Rate** option is enabled, the system records an impression when a customer opens an email.

In the **Content** tab, you can design the email using one of the three edit modes: Simple Rich Text Editor, Source Only, and Templated Email.

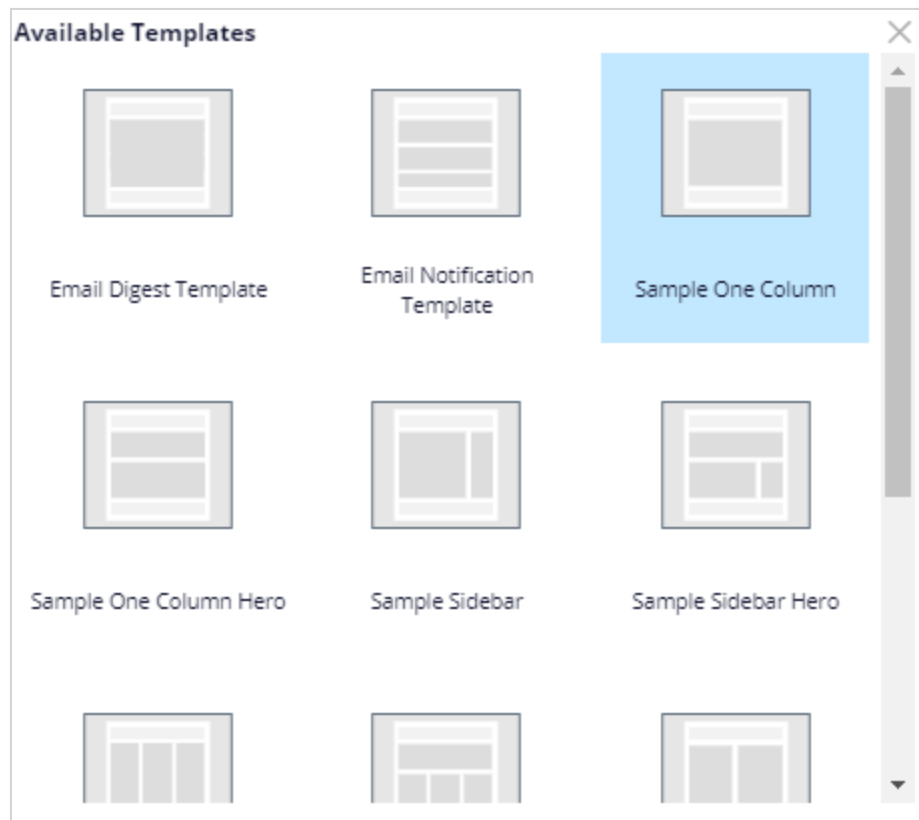


The **Simple Rich Text Editor** provides a blank page with a rich text editor, which allows you to compose an email manually.

The **Source Only** mode allows you to work with HTML content only. If the content is designed in an external tool, you can copy and paste the HTML content in this mode.

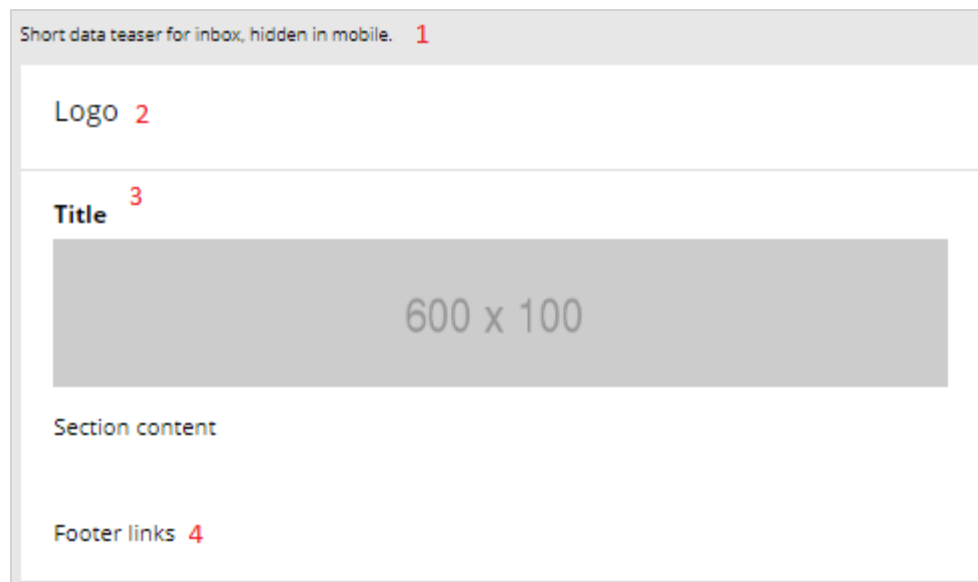
The **Templated Email** mode provides you with several easy-to-use templates for designing appealing emails; this is also the default mode.

These are the available template options.



In this case, you use the default **Simple One Column** template.

The **Simple One Column** template contains four sections: Preheader, Header, Body, and Footer.



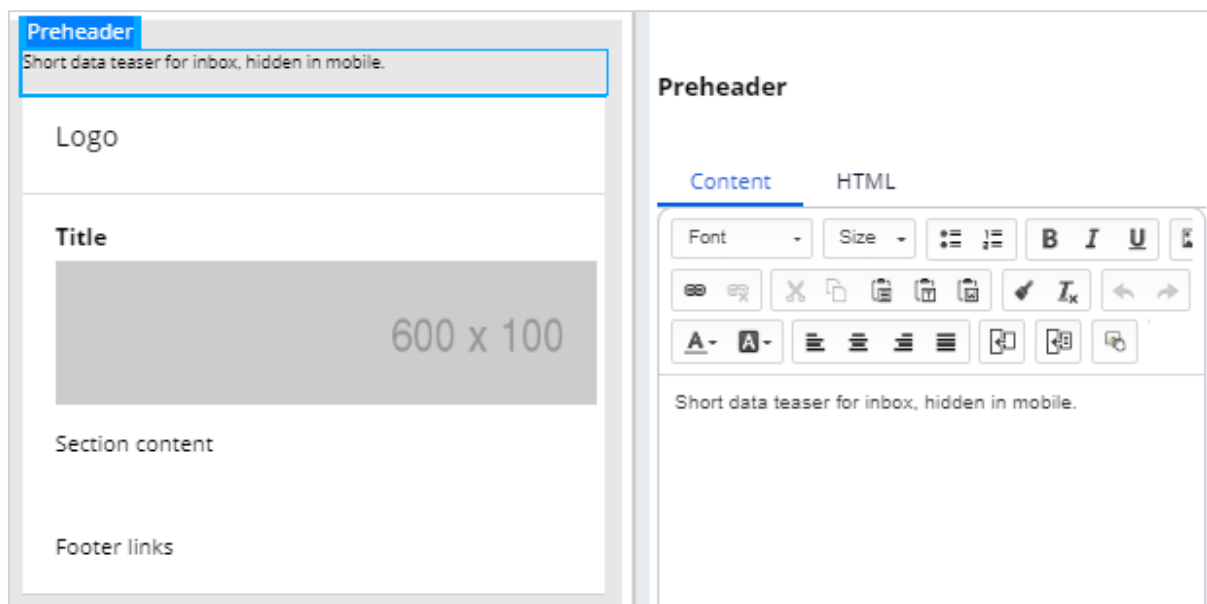
The Preheader section can contain a short **data teaser for inbox** that is intended to persuade customers to read the email further. This text is hidden on a mobile device.

The Header section can contain the organization's logo.

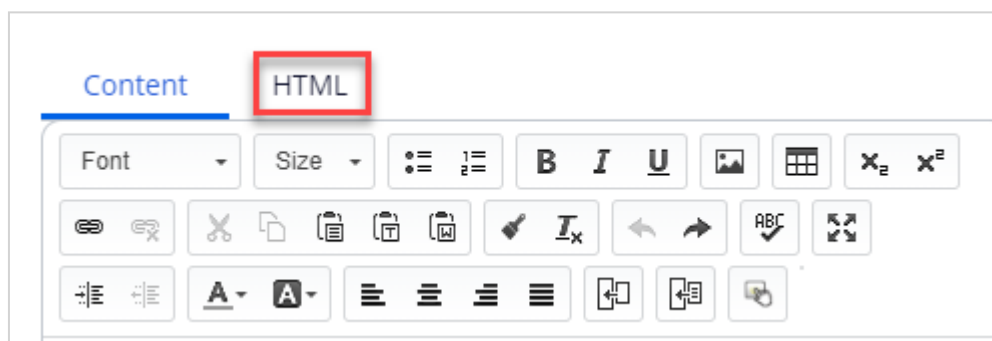
The Body section contains a placeholder for a title, image, text, or buttons as required. This section is where the main content goes.

The Footer section can contain contact details or links, if any.

When you click on the different placeholders or sections in the template, an editing pane is displayed on the right side of the screen.



This editor also allows you to copy and paste HTML content from other tools using the **HTML** tab.

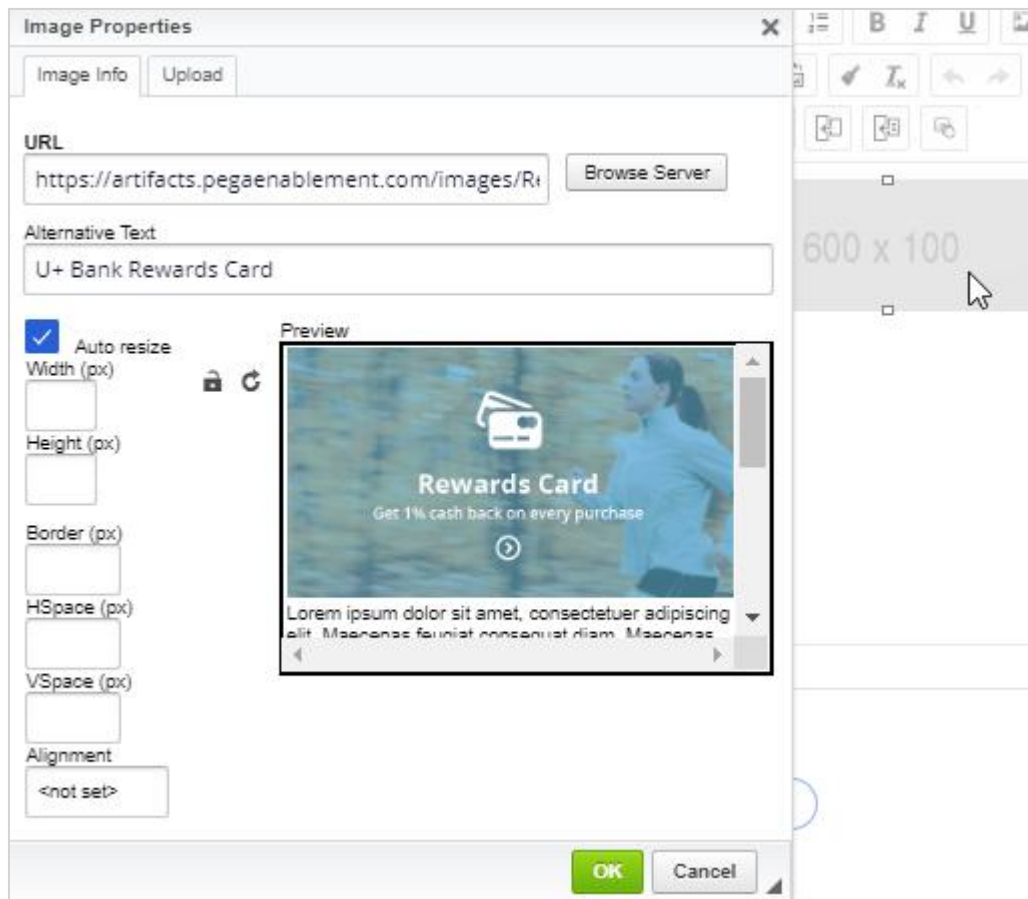


For example, here is how you can create an HTML version of the U+ Bank logo by using HTML code.

[illegible]

To add an image, you can open the image placeholder, which opens the **Image Properties**.





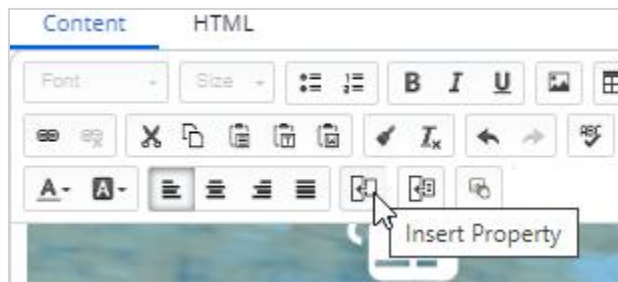
It is best practice to host an image on an external server and reference it in the email. Do not embed images directly in the email, as it makes the email bulky.

In the email content, you can add static content and dynamic placeholders to personalize the message.

For example, the property **.Customer.FullName** can be added as a placeholder. The customer's real full name will replace the placeholder at the time of email delivery.

Dear <<.Customer.FullName>>

To add a customer or offer attribute as a dynamic placeholder, use the **Insert Property** button.



 A screenshot of the 'Property Parameters' dialog box. It has a title bar with a close button (X). Inside, there are three input fields: 'Name' with the value '.Customer.pyFullName', 'Format' (empty), and 'When' (empty). Each field has a small gear icon to its right. At the bottom, there are two buttons: 'Cancel' and 'Save'.

Any property that you add in an email treatment has an equivalent Pega markup tag (pega:reference) to reference customer or offer attributes. After you insert the property, you can view the tag (which is automatically added) in the **HTML** tab. When you design the email in an external application, you can use these tags to add dynamic placeholders, so the personalization works when you import the HTML into the email treatment.

 A screenshot of the 'HTML' tab in the email design tool. It shows the generated HTML code for the email. The code is as follows:


```

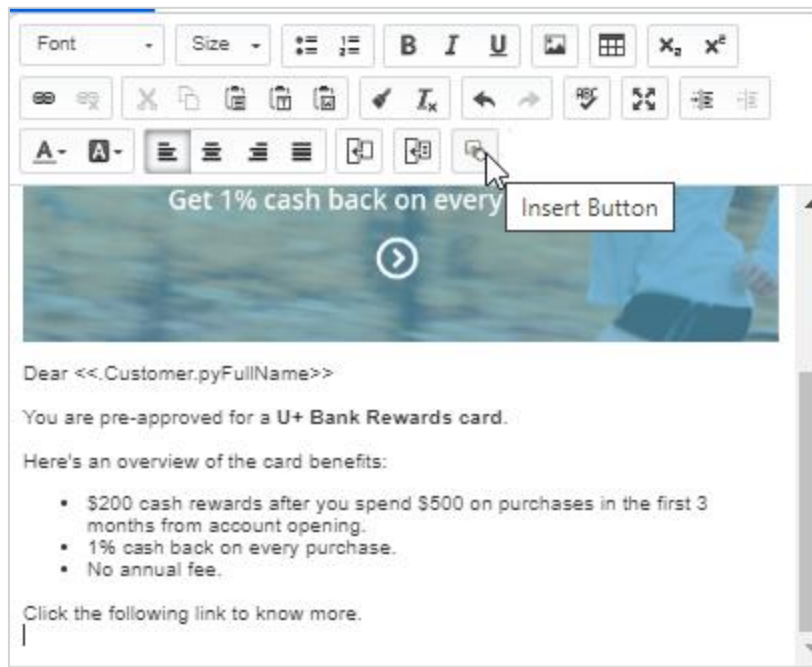
1 
2 <p>Dear <pega:reference name=".Customer.pyFullName"></pega:reference> <br />
3 <br />
4 You are pre-approved for a <strong>U+ Bank Rewards car
  
```

 The second line of code, which includes the Pega reference tag, is highlighted with a red rectangular box.

Note that to add an offer attribute, you can add a dynamic placeholder, which is then replaced with the offer attribute at the time of email delivery. For example, you can use <<.OfferData.pyLabel>> to reference the offer attribute.

In this case, you may want to replace U+ Bank card names with an offer attribute by using the <<.OfferData.pyLabel>> placeholder.

You can also add links or buttons that the customer can click to respond to an offer or view more details. In this case, you add an **APPLY TODAY** call to action button.



In the **Button Parameters**, the **Function** drop-down menu lists the possible functions that you can assign to a button.

Button Parameters✕

Function

Accept action

Redirect to

☒ Response screen

☐ External URL

Response screen

DefaultEmailResponse

☒ Track click rate

Style options

Button text

Accepted

Button image URL

Custom style

Cancel

Save

Now, select **Open external URL** and provide an external URL that opens when the customer clicks the button. Then, provide the button image URL.

Button Parameters✕

Function

Open external URL✓

URL

https://pegasystems.github.io/uplus-wss/retail_bank/cate

☐ Include action data

☒ Track click rate

Style options

Button text

Button image URL

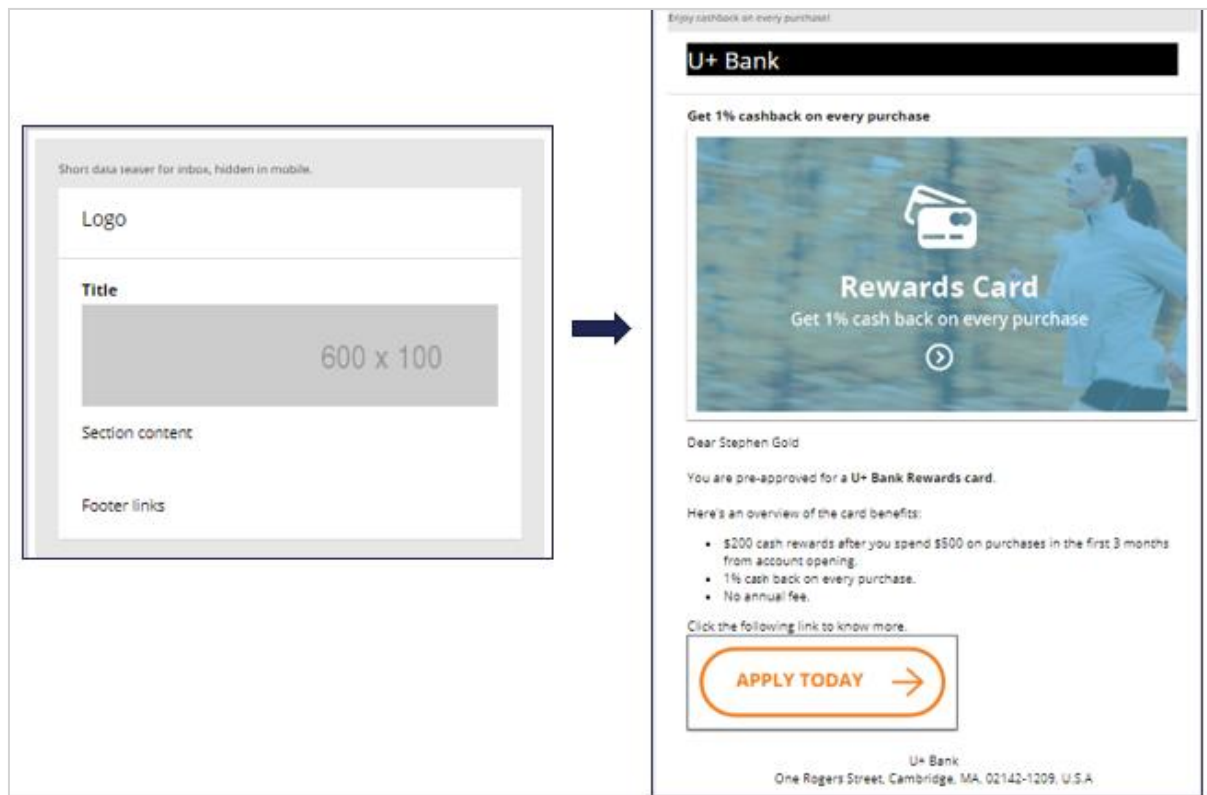
<https://artifacts.pegaenablement.com/images/emz>

Custom style

Cancel

Save

A composed email looks like this.



Now, save the treatment and add it to the Rewards card action.

You can send the email to test accounts or to yourself to test the visualization and rendering of the content on various email clients.

To test the treatment, switch to the **Test email** tab. In this tab, you can specify the target email addresses and the email subject specifically for the test.

To:

☒ Test recipients

☐ Seed list

customer1@enablement.com 

+ Add

Send from

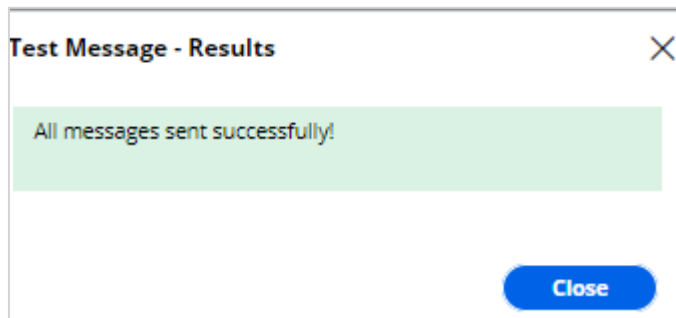
☒ Default email account

☐ Other email account

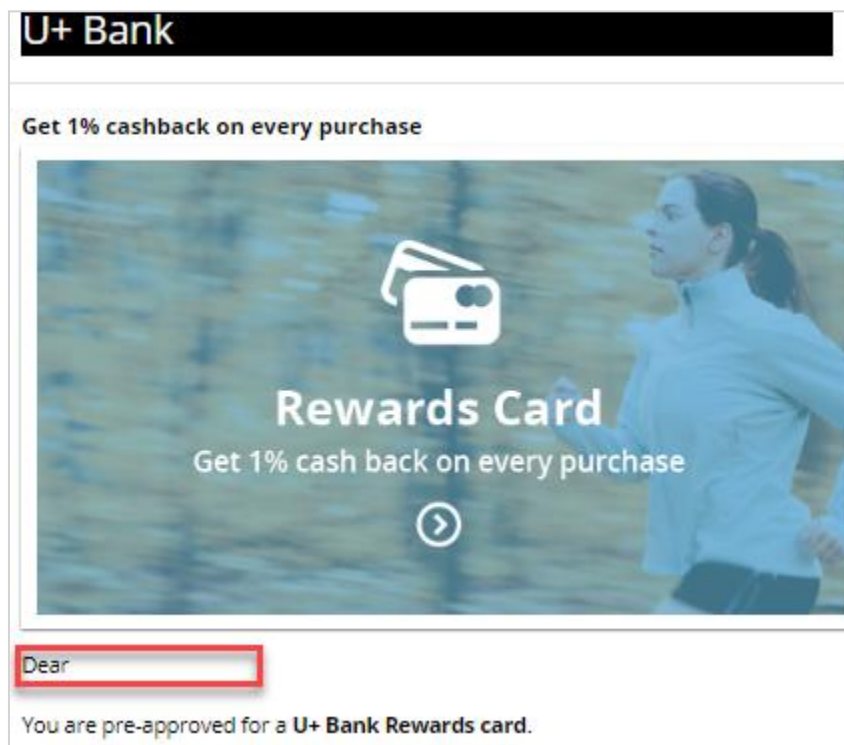
Subject

"This is a test message"   

To test the treatment, click **Send test email**. Once the test is complete, you can check the emails in the email client.



Note that none of the attribute placeholders are populated when you manually enter the recipients' email address. However, you can test the functionality of the buttons and links.



To populate the attribute placeholders, you can use a seed list as test input.

To:

☐ Test recipients

☒ Seed list

Seed list: [View all](#)

Send from

☒ Default email account

☐ Other email account

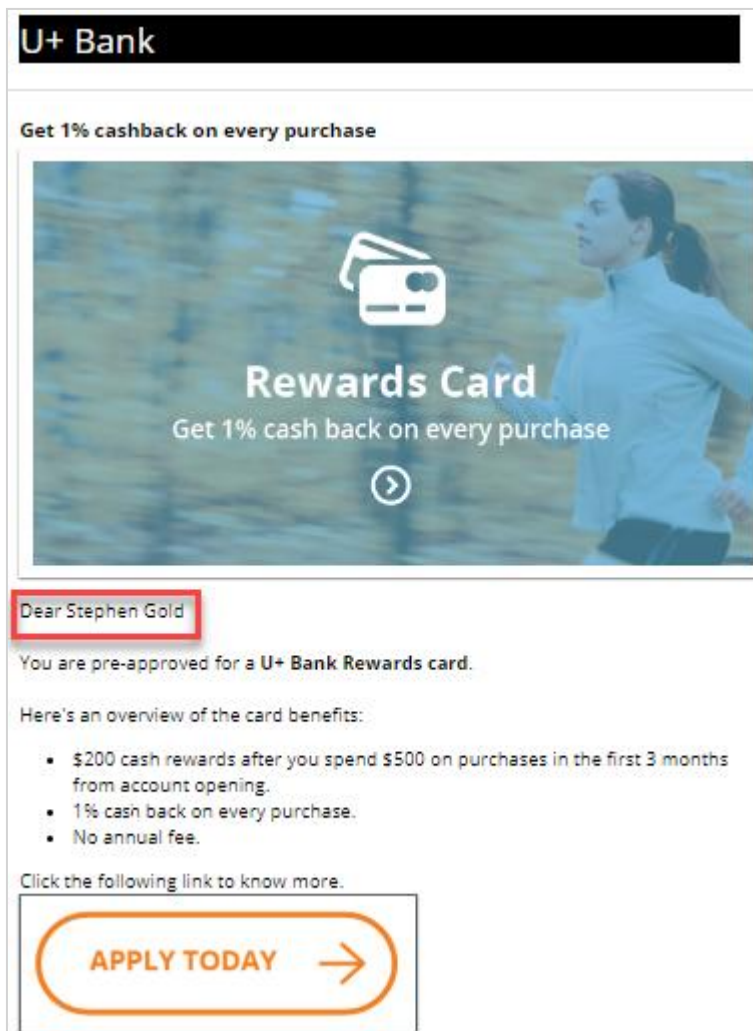
Subject

A seed list contains test customer data. It contains values for customer attributes, including email addresses.

When using a seed list to test the Treatment, the dynamic placeholders are replaced with customer information from the seed list.

Note that the customer name placeholder is replaced with the data from the seed list.



This demo has concluded. What did it show you?

- How to add an email treatment to an action
- How to use dynamic placeholders to populate the customer and offer attributes in an email treatment
- How to use HTML code to generate content in an email treatment
- How to use an image from an external server in an email treatment
- How to add a button to an email treatment
- How to send emails to test accounts to test the visualization and rendering of the email content
- How to use seed lists to test the dynamic placeholders

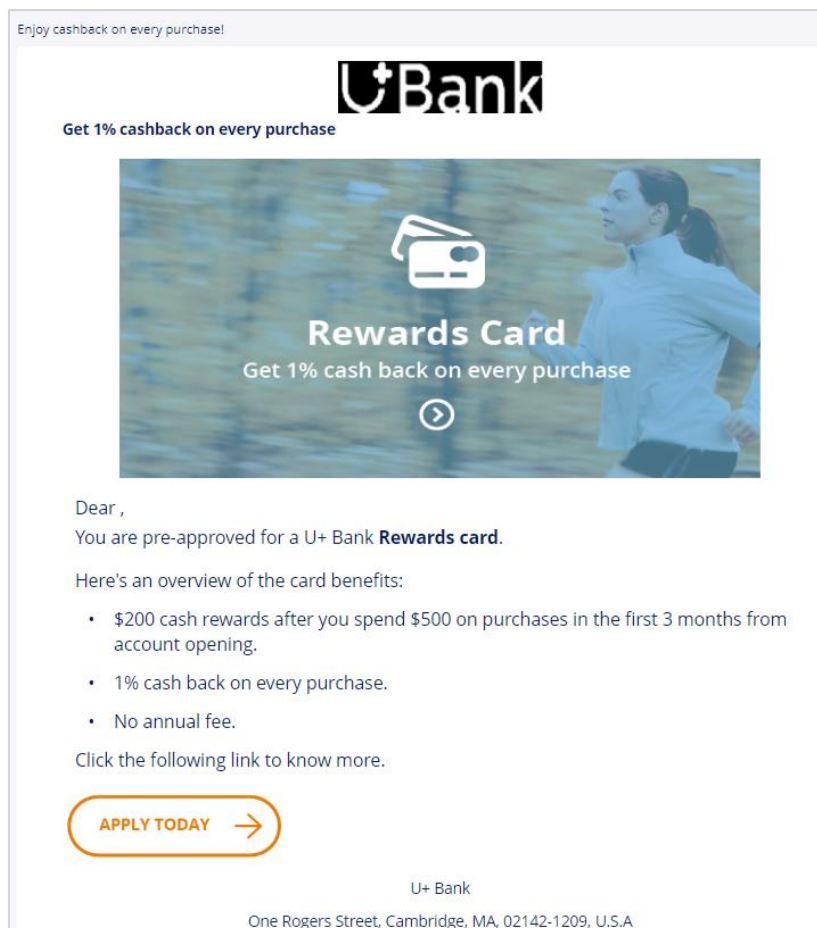
Email content design and personalization in an external tool

This demo shows you how to personalize email content that you create in an external tool and use an SMTP server to send emails from Pega Customer Decision Hub.

Pega Customer Decision Hub comes with the capabilities to create and personalize email content to present offers to customers. However, your organization can use an external tool, such as Dreamweaver, to design and customize email content based on your requirements.

In this example, you will learn how to personalize an email treatment in an external tool and use an SMTP server to send emails from Pega Customer Decision Hub™.

This is the email treatment that was designed in an external tool and the corresponding HTML code.



When you design email in an external tool, you can use Pega markup tags to add dynamic placeholders so that your personalizations work when you import the HTML into Pega

Customer Decision Hub. In this example, the *Pega:reference* markup tag refers to a customer property, Customer FullName.

```
Dear <pega:reference name=".Customer.FullName"></pega:reference>,
```

After completing the email treatment design and personalization, you can create a new internal email treatment for an action, and then load the email content that you designed externally into that treatment. Now, save the treatment and add it to the action.

You can send the email to test accounts or to yourself to test the visualization and rendering of the content on various email clients. Check the email in the email client. Note that the data from the seed list replaces the customer name placeholder.

You have reached the end of this demo. What did it show you?

- How to reference Pega Platform properties in email content that you design in an external tool.
- How to import email content from an external tool into Pega Customer Decision Hub.

Defining the action flow

Business scenario

U+, a retail bank, has designed a new email treatment to promote the Rewards Card offer. Now, an action flow must be created to ensure that the email is delivered when this action is selected for a customer.

Action Flow

The action flow is a flow diagram that contains the sequence of steps carried out during the lifecycle of an action. These steps include delivering the action message via an outbound channel, waiting for a response, updating the Interaction History, sending a follow-up message, and so on. In a flow, each of these steps is represented by a variety of shapes. Best practice is to keep the flow short and simple, preferably not more than 2 or 3 steps per channel. Every additional step taken in the action flow is a missed opportunity to let the Pega brain decide the Next-Best-Action.

A new action contains only the default **Start** and **End** shapes. To send emails in an always-on outbound environment, you need to add a **Send Email** shape to the action flow.



When there are several actions that need the same flow pattern, you can create that flow pattern once and reuse it for multiple actions using the **Dynamic template** option.

Dynamic template None

In the **Configure Dynamic Template** window, select the action that contains the desired flow pattern.

Configure Dynamic Template		
Email flow template		+ Create ↻
Email flow template EmailFlowTemplate	0.00% CONVERSION RATE Edited 28 days ago	Add
Showing 1 of 1 results		

When you use the **Dynamic template** to configure the flow, you cannot change the flow in the referenced action. To edit the flow, you must edit the original action in which the flow was defined.

Edit Action: Rewards card [Available]
[Check in](#)
[Discard](#)
[Actions ▾](#)
[Save](#)

Grow • Creditcards • RewardsCard
CDH-Artifacts:01-01-01

Details
Engagement policy
Treatments
Flow
Test
History

Draft off
+ ▾
🖱️
👤
✂️
📄
📄
🗑️
🔧
📺
👁️
%
Overlay None ▾

Dynamic template
Email flow template ⚙️

```

graph LR
    Start((Start)) --> Email[Email]
    Email --> Continue[Continue]
    Continue --> End((End))

```

Basic email flow template

Let's look at a basic flow pattern for email delivery.

A flow template is just a normal action with the flow configured. In the following example, an action is used as a flow template within other actions to enable them to send emails.

Thus, the **Availability** of the action is set to **Never** to prevent it from being presented to customers.

Action: Email flow template **[Available]**
Grow • Creditcards • EmailFlowTemplate CDH-Artifacts:01-01-01

DetailsEngagement policyTreatmentsFlowTestHistory

Key codeCategory

EMAILFLOW

Next-Best-Action configuration ?

Action Evaluation Criteria ?

Default: Apply arbitration, contact policies and outbound limits

☒ Apply AI to calculate action propensity ?

AI model category ?

Default

Starting propensity

1

Business weighting ?

+

-

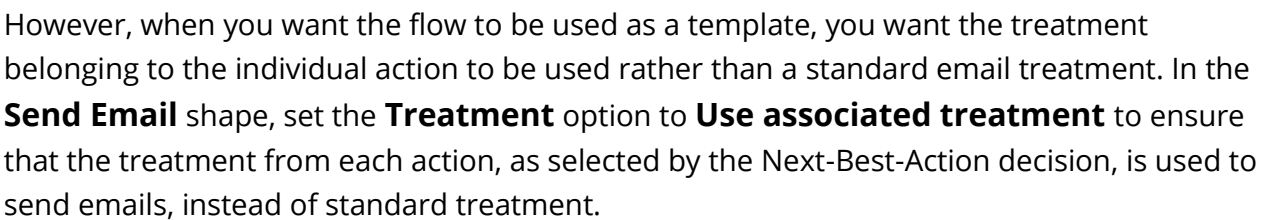
Availability

☐ Always☒ Never☐ Within a defined time period

The **Send Email** shape in the flow typically references the email treatment that contains the email content to be sent.

Grow • Creditcards • EmailFlowTemplate [CDH-Artifacts:01-01-01](#)

Grow • Creditcards • EmailFlowTemplate [CDH-Artifacts:01-01-01](#)



Send Email properties

Send Email: [Send Email]

Configure the content of the email and its delivery.

Treatment

What email treatment should be sent?

☒ Use associated Treatment

☐ Specify Treatment

[?](#)

☐ Wait after sending

Advanced

What else can I do?

▶ Email account

▶ Tickets

Cancel

Submit

This ensures that the email treatment is independent of the flow template associated with the action. For example, when the Rewards Card uses the **Email flow template** as its **Dynamic flow** template, the Rewards Card email treatment will be used for sending the email.

321

Avoiding overexposure of actions on outbound

Description

Contacting a customer too frequently can have a negative impact on the customer's attitude toward further actions by your company. Learn how to define contact limits and use suppression policies to pause actions for a given time period based on past customer behavior.

Learning objectives

- List the types of contact policies
- Explain how to avoid overexposure of actions using contact limits and suppression policies

Contact policy types

Types of constraints

Too many contact attempts over a short period of time can have a negative impact on a customer's attitude toward further actions by your company. To maximize the lifetime value of every customer relationship, organizations must prevent outreach fatigue by optimizing the number of actions taken.

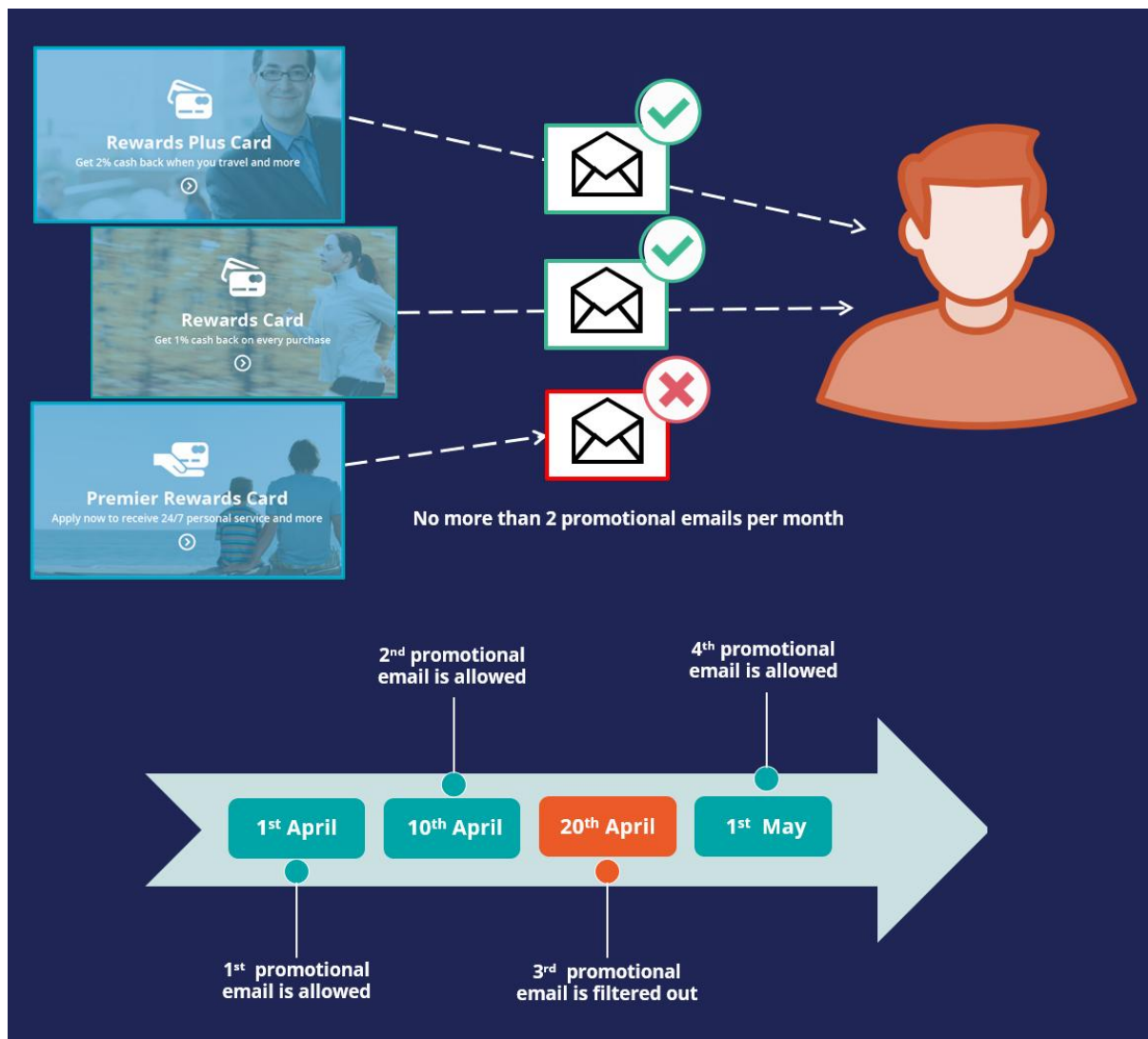
In Pega Customer Decision Hub™, there are two types of contact limits that allow you to limit actions over a given period of time.

1. Customer contact limits
2. Suppression policies

Customer contact limits

Customer contact limits allow you to limit the number of actions that a customer can receive over a given period of time on a specific channel. These customer contact limits prevent an action from reaching a customer on a specific channel, irrespective of past responses to that action by the customer.

For example, you can decide that you do not want your customers to receive more than two promotional emails per month.

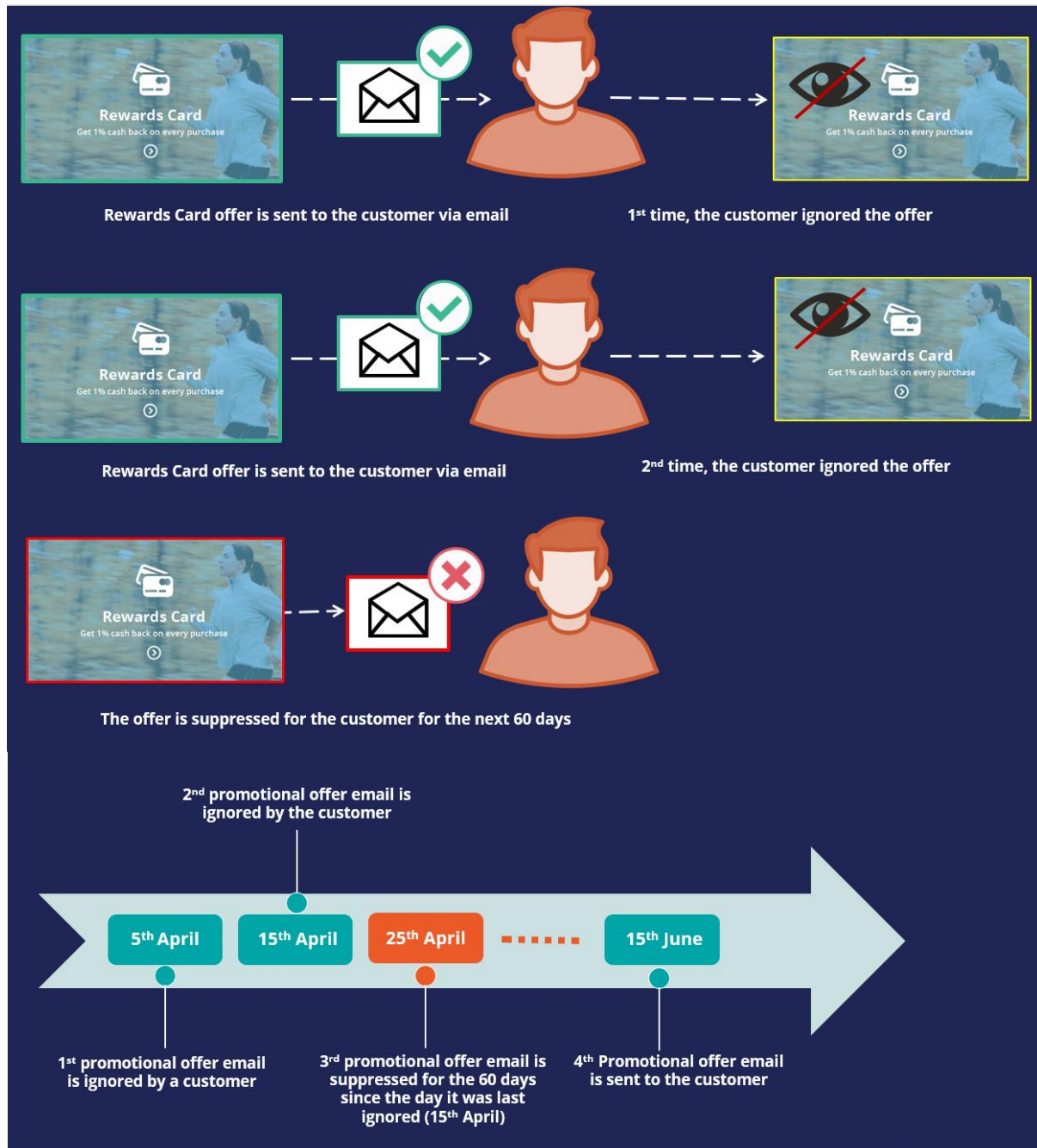


Suppression policies

Suppression policies determine when and for how long an action or group of actions should not be shown to a customer. These suppression policies put an action on hold after a specific number of outcomes are recorded for some or all channels.

Suppressing or pausing an action prevents oversaturation by limiting the number of times a customer is exposed to the same action.

For example, if a customer ignores a credit card promotional offer email twice in the previous 30 days, then the same credit card offer should not be sent to the customer again for the next 60 days.



Avoid sending the same action for a time period

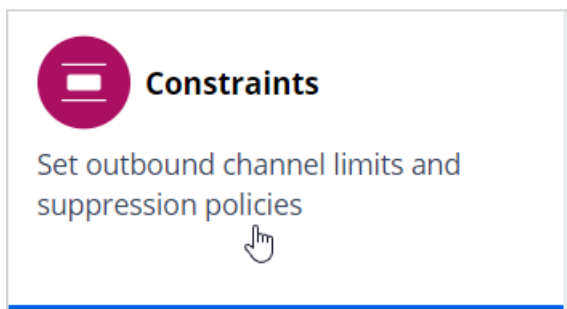
Business scenario

U+ Bank's marketing department currently promotes various credit card offers by sending emails to qualified customers.

Now the bank wants to implement a new set of requirements: they want to limit the number of emails sent to their customers to two per month. Also, the bank wants to avoid sending a credit card offer via email for 60 days if one was sent in the past 30 days.

Updating constraints

On the Next-Best-Action Designer **Constraints** tab, you configure outbound channel limits and suppression policies.



Edit **Constraints** to modify the limits.

ConstraintsCDH-Artifacts: 01-01-01Edited 2 months ago by Decisioning ArchitectEditActions ▾

↑ Outbound limits ?

> All outbound	1 limit defined
> Retail	1 limit defined
> Email	1 limit defined
> Push notification	1 limit defined
> SMS	1 limit defined

Updating customer contact limits

To limit the number of outbound interactions that a customer can receive over a given period of time on a specific channel, you need to set customer contact limits.

↑ Outbound limits ?		
> All outbound	1 limit defined	⋮
> Retail	1 limit defined	⋮
👉 Email	1 limit defined	⋮
> Push notification	1 limit defined	⋮
> SMS	1 limit defined	⋮

In this scenario, the bank wants their customers to receive no more than two emails per month. So, you need to update the existing customer contact policy for the email channel to two emails per month.

↑ Outbound limits ?	
> All outbound	1 limit defined ⋮
> Retail	1 limit defined ⋮
▼ Email	1 limit defined ⋮
Maximum number of actions Within time period	
2	30 days

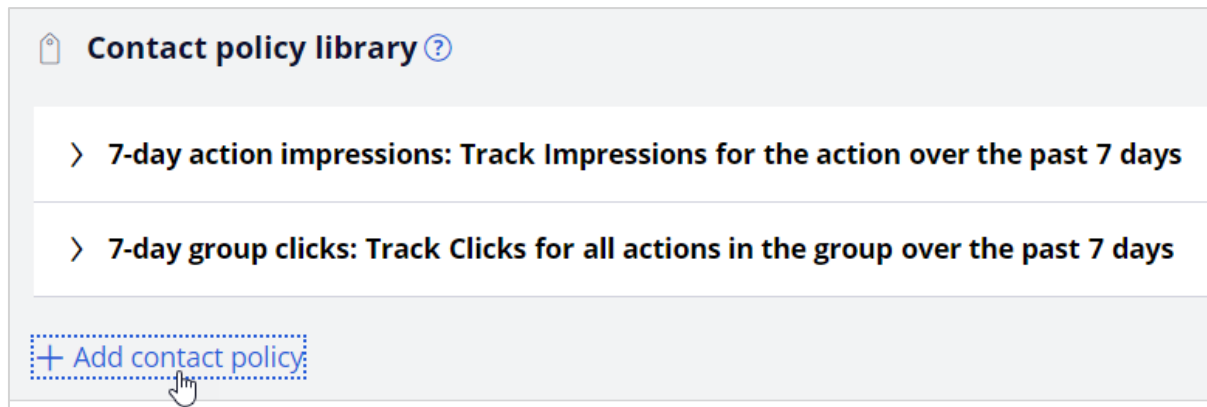
In the contact policy, you can update current limits or add new channel limits.

Note: You cannot repeat a channel in a contact policy.

Defining suppression policies

To suppress a single action or a group of actions for a limited time period, you need to define suppression policies.

In this scenario, the bank wants to avoid sending promotional emails related to a credit card offer for 60 days if one was sent in the past 30 days. So, you need to add a contact policy to put an action on hold for 60 days.



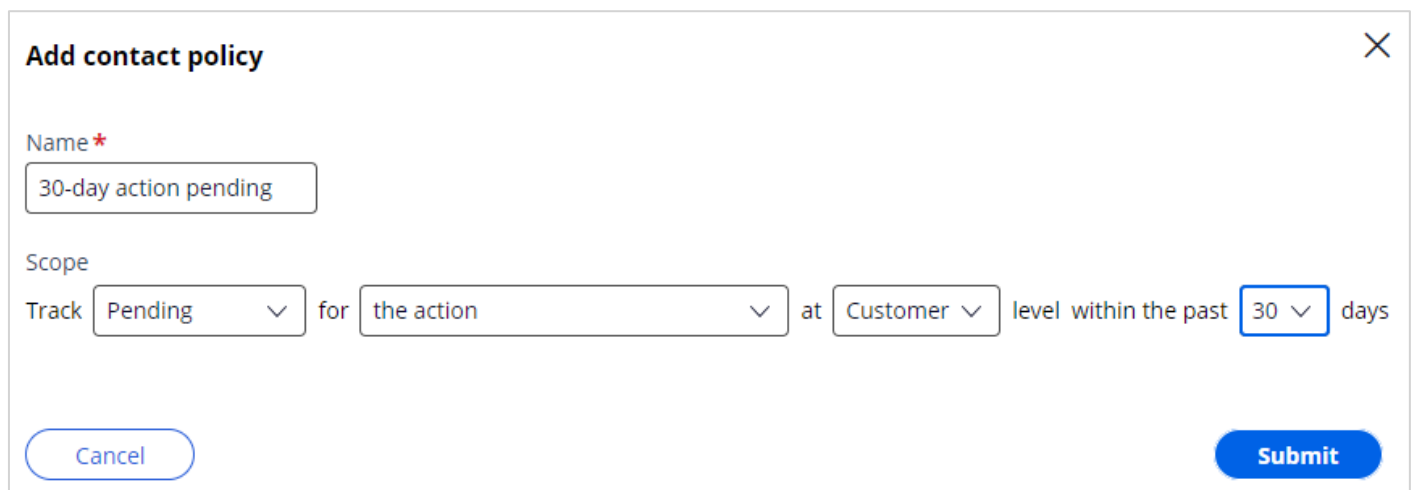
The image shows a 'Contact policy library' interface. At the top, there is a header with a folder icon and the text 'Contact policy library' followed by a question mark icon. Below the header, there are two expandable items, each with a right-pointing chevron icon. The first item is '7-day action impressions: Track Impressions for the action over the past 7 days'. The second item is '7-day group clicks: Track Clicks for all actions in the group over the past 7 days'. At the bottom of the library, there is a button with a plus icon and the text '+ Add contact policy'. A mouse cursor is pointing at this button.

When an email is sent, a record is added to the Interaction History with the outcome value **Pending**.

Provide a name for the new contact policy and then select the type of outcome it will track; in this case it will track outcomes with the value **Pending**.

You can specify whether the responses are tracked for one specific action, or for all actions in the group. Track the responses at the action level, since you want to suppress only credit card promotions in email. You can also track the responses at context level.

You can select the time period over which the responses should be tracked. In this case, responses should be tracked for the past 30 days.



The image shows a 'Add contact policy' form. At the top left is the title 'Add contact policy' and at the top right is a close icon (X). Below the title, there is a 'Name' field with a red asterisk, containing the text '30-day action pending'. Below the name field, there is a 'Scope' section. It starts with the word 'Track' followed by a dropdown menu showing 'Pending'. This is followed by the word 'for' and another dropdown menu showing 'the action'. Then comes the word 'at' followed by a dropdown menu showing 'Customer'. This is followed by the word 'level' and then 'within the past' followed by a dropdown menu showing '30'. Finally, it ends with the word 'days'. At the bottom left of the form is a 'Cancel' button, and at the bottom right is a 'Submit' button.

The business requirement is to suppress the action for 60 days if an email was sent in the past 30 days. In other words, if there is even one pending response for the email treatment

over the past 30-day period, the action must be suppressed. So, you need to enter the number of responses required to fulfill the suppression criteria as 1.

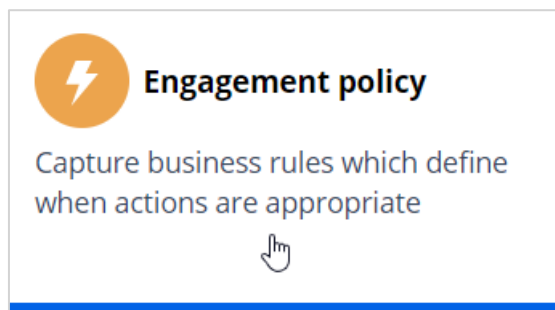
Then you need to select the channel for which the responses are tracked and enter the number of days for which an action should be paused when the suppression criteria are met.

▼ **30-day action pending:** Track **Pending** for the action at **Customer** level over the past **30** days

IF Pending for ▼ THEN suppress

Associating a contact policy with an issue and a group

On the **Engagement policy** tab, you can associate contact policies with an issue and group. The contact policies are reusable across all issues and groups.



As the bank wants to suppress promotional emails related to credit card offers, you need to edit the **Credit cards** group to add the newly defined contact policy to it.

Business structure

Expand All

Collapse All

> All issues

> Acquire

> Grow

> Credit cards

> Deposit accounts

> Mortgages

> Nurture

> Retain

> Collections

> Service

Issue

Group

Grow / Credit cards

CDH-Artifacts: 01-01-01

Edited less than a minute ago by Decisioning Architect

Save

Cancel

Act

> All actions

Policies: **E** **S**

> Customer actions

Policies: **E** **A** **C** **Act**

E Eligibility

Group ANDs

CustomerAge is greater than or equal to18

A Applicability

Group ANDs

CustomerCount of credit card acc... is equal to0

S Suitability

C Contact policy

> 7-day group clicks: Track Clicks for all actions in the group at Customer level over the past 7 days

> 7-day action impressions: Track Impressions for the action at Customer level over the past 7 days

> 30-day action pending: Track Pending for the action at Customer level over the past 30 days

If 1 Pending for Outbound / Email then suppress Action at Customer level for Outbound / Email for 60 days

Limiting action volume on outbound

Description

In outbound customer engagement, you need to cater to different kinds of operational limitations. These may include limits on the number of email communications that can be sent in a day, or the total number of communications that can be sent regarding a particular offer. Learn how to define volume constraints to limit the volume of actions in an outbound run.

Learning objectives

- Limit outbound action volumes using volume constraints

Volume constraints

In Pega Customer Decision Hub™, you can limit the volume of actions that the system delivers to customers through always-on outbound.

Volume constraint modes

Within a volume constraint definition, you can define the combination of constraints for one or more actions with one or more channel types.

In situations where a customer is eligible for multiple actions, you can apply volume constraint with one of three modes, depending on the business requirement. You might specify whether to apply volume constraints to actions as a group (for which a customer qualifies) or evaluate each action for which a customer qualifies separately.

Individually for each action

In this mode, the top action for which a customer qualifies passes through the set of defined volume constraints, and the system validates each action against each constraint type. If the action passes through all the constraints, the system selects the action and delivers it to the customer. The customer always receives a maximum of one action, even though the limits for the other low-priority actions is not reached. The top action is selected based on priority calculations ($p \times c \times v \times l$) defined in Next-Best-Action Designer arbitration.

For example, consider a customer who is eligible for the **Standard card**, **Rewards card**, and **Rewards Plus card** credit card actions, and the **Standard card** is the top priority card. Also, assume that the remaining volume for the top action (Standard card) and priority 3 action (Rewards Plus card) is above zero, and the remaining volume for the priority 2 action (Rewards card) is zero. When you set volume constraints mode to **Individually for each action**, the customer sees only the top priority action, **Standard**

card, as shown in the following figure:

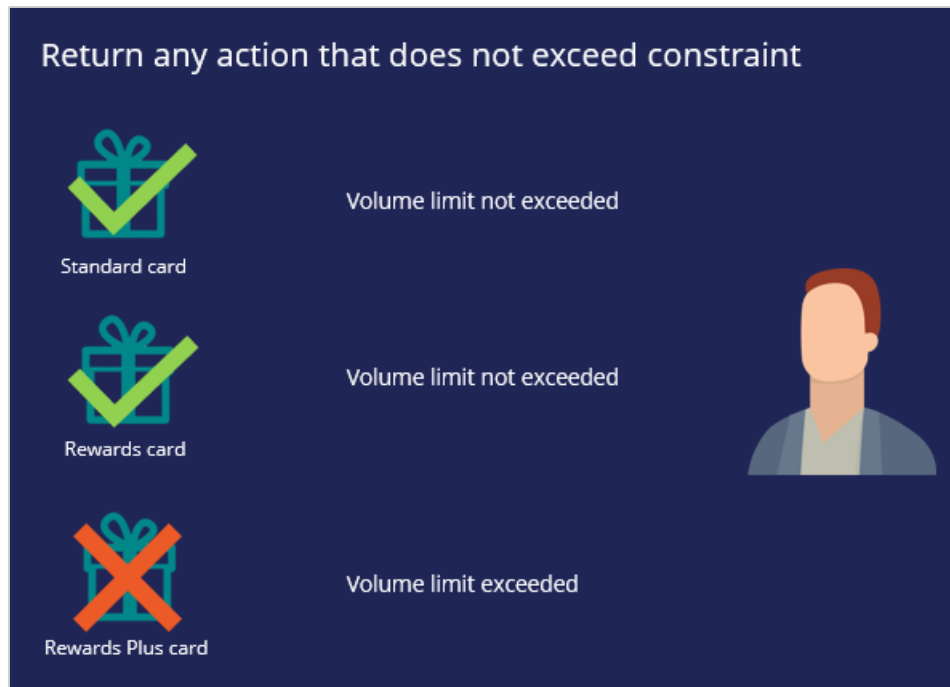


If the volume remaining for the top priority action is zero, then the next priority action is validated against the constraint types.

Return any action that does not exceed constraint

In this mode, each action a customer qualifies for passes through the set of defined volume constraints, and the system validates each action against each constraint type. If an action passes the set of constraints, the system delivers the action. If an action does not satisfy a constraint, the system does not deliver an action. The system considers all actions for which a customer qualifies, and the order in which the check occurs is irrelevant. The result is that a customer receives all the actions for which they qualify provided that the actions do not reach the volume limit. The **Return any action that does not exceed constraint** mode is the recommended approach, even though the system does not consider priority during the volume constraint phase. This mode ensures that the limit handling is separated from arbitration logic.

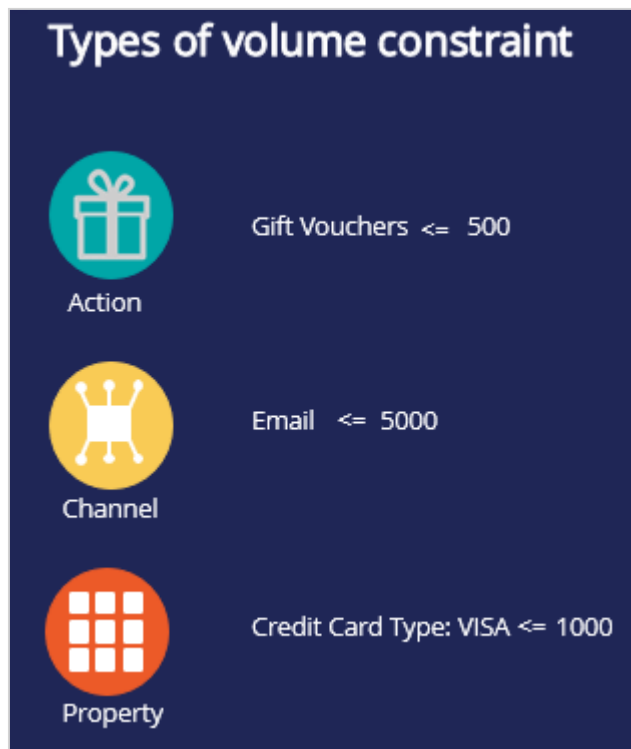
For example, consider a customer who is eligible for the **Standard card**, **Rewards card**, and **Rewards Plus card** actions. Also, the remaining volume for **Standard card** and **Rewards card** is above zero, but the volume of the Rewards Plus card action reached zero. When you set volume constraints to **Return any action that does not exceed constraint**, the customer receives **Standard card** and **Rewards card** but not the **Rewards Plus** card, as shown in the following figure:



When the system evaluates each action separately, Pega Customer Decision Hub can present all actions that pass the engagement policy conditions to the customer.

Volume constraint types

Volume constraints fall into three categories depending on the level at which you apply the constraints: action, channel, or property, as shown in the following figure:



Action constraint

An action constraint limits the volume of actions that the system can send to customers.

An action constraint is useful when you have a limited number of actions that you can send to customers, for example, 500 gift vouchers. Configuring an action constraint ensures that you do not offer more actions than are available.

Channel constraint

A channel constraint limits the volume of actions that the system can deliver through a certain channel.

You can use a channel constraint for channel capacity planning. For example, assume that your call center can only handle up to 1000 inbound calls daily due to limited capacity. If your company sends out 50,000 emails per day to customers, it's reasonable to anticipate that 2-3% of the recipients may follow up with an inbound call, which translates to approximately 1000-1500 calls daily. This volume of calls would exceed the capacity of your inbound call center. Therefore, to prevent the call volume from surpassing the handling capacity, it would be necessary to restrict the number of outbound emails sent to 35,000 per day.

Property constraint

By default, actions fall into the issue-group business hierarchy. By using a property constraint, you can limit the volume of a set of actions across different issues and groups by grouping them using a property value.

For example, you can group all credit card actions by setting a property, *CreditCardType*, to VISA. Then, you can define a constraint to limit the action volume where you do not want to send more than 500 VISA credit cards in a month.

Outbound run scenario

In an outbound run, the system considers a segment of the audience for an outbound communication. When customers are eligible for multiple actions, the system applies volume constraints across customers to limit the volume of actions that it delivers. After the next-best-action logic runs, the system executes the volume constraint limits in a non-predefined order of the customers.

Consider a simplified example of five customers to better understand how the limit constraint engine works. The following table shows the set of customers from the audience, the actions for which they qualify, the channel for which a treatment is defined, and the priority of the action. The priority represents the final priority calculation ($p \times c \times v \times l$) as defined in the Next-Best-Action Designer arbitration.

Interaction ID	Action	Channel	Priority
CUST-01	Gold Card	Push	50
CUST-02	Gold Card	Email	25
CUST-03	BOGO	Push	75
CUST-03	Platinum Card	Email	50
CUST-03	Free Shipping	SMS	25
CUST-04	Free Shipping	Direct mail	50
CUST-05	BOGO	SMS	50
CUST-05	Free Shipping	Push	25

The following table shows the volume constraints configured in the system. There are two types of volume constraints configured:

1. A channel constraint with a limit of 2 actions for the **Push** channel.
2. An action constraint with a limit of 1 for the **BOGO** action.

Volume Constraints

Key	Value	Maximum
Channel	Push	2
Action	BOGO	1

Mode 1: Individually for each action

Interaction ID	Action	Channel	Priority
CUST-01	Gold Card	Push	50
CUST-02	Gold Card	Email	25
CUST-03	BOGO	Push	75
CUST-03	Platinum Card	Email	50
CUST-03	Free Shipping	SMS	25
CUST-04	Free Shipping	Direct mail	50
CUST-05	BOGO	SMS	50
CUST-05	Free Shipping	Push	25



Interaction ID	Action	Channel	Priority
CUST-02	Gold Card	Email	25
CUST-03	BOGO	Push	75
CUST-04	Free Shipping	Direct mail	50
CUST-05	Free Shipping	Push	25

If there are no volume constraints configured for a particular channel, action, or property, the system does not apply limits, and the actions pass through for outbound communication.

Therefore, *CUST-02* and *CUST-04* pass through as there are no limits defined for these actions (**Gold Card** and **Free Shipping**) or channel (Email, Direct mail).

The system considers the rest of the customers in a non-predefined order. Assume that it picks *CUST-03* and *CUST-05* first. Note that for *CUST-03*, the system chooses the BOGO action with higher priority. In this mode, the system delivers only one action for each customer and ignores the other two actions.

CUST-05 qualifies for two actions: **BOGO** (priority 50) and **Free Shipping** (priority 25). Because the system picked the BOGO action for *CUST-03* and exhausted the action limit, it selects the next action, Free Shipping, for *CUST-05*.

Because the system selected two **Push** channel actions and one **BOGO** action, both reach their volume constraint limits, and *CUST-01* receives no action.

Mode 2: Return any action that does not exceed constraint

Interaction ID	Action	Channel	Priority
CUST-01	Gold Card	Push	50
CUST-02	Gold Card	Email	25
CUST-03	BOGO	Push	75
CUST-03	Platinum Card	Email	50
CUST-03	Free Shipping	SMS	25
CUST-04	Free Shipping	Direct mail	50
CUST-05	BOGO	SMS	50
CUST-05	Free Shipping	Push	25



Interaction ID	Action	Channel
CUST-02	Gold Card	Email
CUST-03	Platinum Card	Email
CUST-03	BOGO	Push
CUST-03	Free Shipping	SMS
CUST-04	Free Shipping	Direct mail
CUST-05	Free Shipping	Push

CUST-02 and *CUST-04* pass through as no limits are defined for these actions.

Assume that the system picks *CUST-03* and *CUST-05* first. In this mode, *CUST-03* receives all the actions for which they qualify because the actions did not reach the limit.

CUST-05 receives only the **Free Shipping** action and not the **BOGO** action, as the BOGO action reaches the volume constraint limit when the system offers the action to **CUST-03**.

Finally, *CUST-01* does not pass through because the Push channel reaches the volume constraint limit.

Configuring a volume constraint

Business scenario

U+ bank has been running always-on outbound and now they would like to apply some limitations on the outbound volume. They have the following three different kinds of operational constraints to implement.

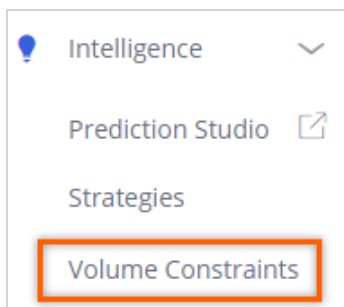
- The IT department has enforced a limit of 1000 emails per week to avoid being classified as spammers. Hence, the marketing team wants to adhere to the limits.
- The bank would like to restrict the number of Standard card offer emails to only 100 per week due to a business requirement.
- The bank would also like to limit offer emails related to credit cards of type “Master” to only 400 per week due to a logistical issue with their fulfillment vendor.

Creating a volume constraint

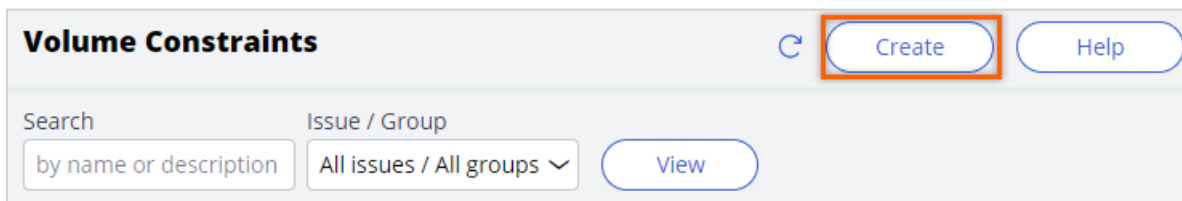
A constraint is an optional configuration element of always-on outbound. When configured, it will limit the volume of actions that will ultimately be initiated.

To limit action volume on the email channel, you need to configure a volume constraint for the always-on outbound.

The volume constraint landing page can be accessed from **Intelligence** -> **Volume Constraints** from the navigation menu.



You can add a new volume constraint from this page.



Provide a short description for the new volume constraint and the identifier is automatically populated when you tab out.

Note: As a best practice, the volume constraint must be created at the top level of your hierarchy for it to be used in the Next-Best-Action Designer outbound schedule.

Create Volume Constraint

Create and open

Volume Constraint Record Configuration

Limit Offers

A short description or title for this record

Identifier
LimitOffers Edit

Categorization

Issue
Select Issue ▾

Group
Select Group ▾

Configuring a volume constraint

The **General** tab is where you configure the different types of volume constraints.

Edit Volume Constraint: Limit Offers [Available]
Actions
Save

Top Level • LimitOffers CDH-Artifacts:01-01-01

General History

How should multiple actions for a customer be treated?

☐ ?
 ☒ Individually for each action
 ☐ As a group for the context (output all actions)
 ☐ Return any action that does not exceed constraint

Reset constraint counts

☒ Individually
 ☐ All at once



Constraint definitions have not been added.

Add definition

Note: The **As a group for the context (output all actions)** constraint mode is considered deprecated and may be removed in future versions of the product.

In this scenario the bank wants to implement three types of volume constraints. As a first step, add a channel constraint that limits the number of outbound messages to 1000/week on the email channel.

Maximum 1.0K Weekly with Channel: Email

Minimum volume

Maximum volume

Reset interval

Weekly

Channel

Email

Action

Select action

+ Add Property

The **Reset interval** option determines how frequently the volume limit is reset to the full quota. There are a number of reset interval options available, including: *Manually*, which will allow you to reset the constraint limits manually using the **Reset** button.

Reset interval

Weekly

Manually

Each time it is accessed

Daily

Weekly

Semi-Monthly

Monthly

Quarterly

Yearly

The other options in this list can be used when you want the system to automatically reset the constraint. For example, *Weekly* means that the system will reset the limits the first time they are applied in a particular week, Sunday being considered the first day of the week.

The remaining quota of the volume constraints, if any, in a given reset interval will be used in the following scheduled run. For example, if only 300 Rewards card emails can be sent in a week, the scheduled run might send 250 emails based on action prioritization. The remaining 50 emails will be sent in the same week during the next scheduled run.

In this case, configure the **Reset interval** as *Weekly* for both channel and action constraints.

Next, add an action constraint that will restrict the Standard card offer emails to only 100 per week.

> Maximum 1.0K Weekly with Channel: Email 1,000 remaining

Maximum 100 Weekly with Channel: Email, Action: StandardCard

Minimum volume Maximum volume 100 Reset interval Weekly

Channel Email Action StandardCard

+ Add Property

Finally, as per the requirements, add a property constraint that will limit offer emails related to credit cards of type “Master” to only 400 per week.

> Maximum 1.0K Weekly with Channel: Email 1,000 remaining ☒	
> Maximum 100 Weekly with Channel: Email, Action: StandardCard ☒	
< Maximum 400 Weekly with Channel: Email, Type: Master ☒	
Minimum volume	Maximum volume
	400
Reset interval	
Weekly	
Channel	Action
Email	Select action
Property	Value
Type	Master
+ Add Property	

Configuring volume constraint in the Next-Best-Action Designer

To implement this business requirement, you need to configure the Next-Best-Action Designer to perform always-on outbound customer engagement with the volume constraint configured.

On the **Channels** tab, configure the **Primary Schedule** to achieve this.

📅 Primary schedule ⓘ Schedule cannot be run. Confirm start date is not in the past, and starting population is selected. ⋮		
Recurrence ⓘ ⚙️ Not yet configured	Starting population ⓘ ⚙️ Not yet configured	Volume constraint (optional) ⓘ ⚙️ Not yet configured

The schedule has two mandatory configurations, **Recurrence** and **Starting population**. To include the volume limits on outbound, you must configure the **Volume constraint**.

📅 Primary schedule ⓘ DRAFT		
Recurrence ⓘ ⚙️ Daily Start on 4/2/20 1:33 PM No end date Refresh the audience for each scheduled occurrence	Starting population ⓘ ⚙️ All mailable customers	Volume constraint (optional) ⓘ ⚙️ Limit Offers

With that, all the necessary configurations for this scenario are complete.

Run the schedule. Once the primary schedule has run, you can check the remaining volume limits for the constraints. The remaining quota of the volume constraints, if any, in a given interval will be used in the following scheduled run.

How should multiple actions for a customer be treated? ?	Reset constraint counts
☒ Individually for each action	☒ Individually
☐ As a group for the context (output all actions)	☐ All at once
☐ Return any action that does not exceed constraint	

> Maximum 50 Daily with Channel: Email	0 remaining	☐	:
> Maximum 20 Daily with Channel: Email, Action: StandardCard	1 remaining	☐	:

Sharing action details with third-party distributors

Description

Sending outbound communications via email and SMS has its challenges, including various operational, security and legal requirements. Sometimes, it's easier to let an external email service provider handle message delivery for you. Learn how to share action details with an external service provider using files and database templates.

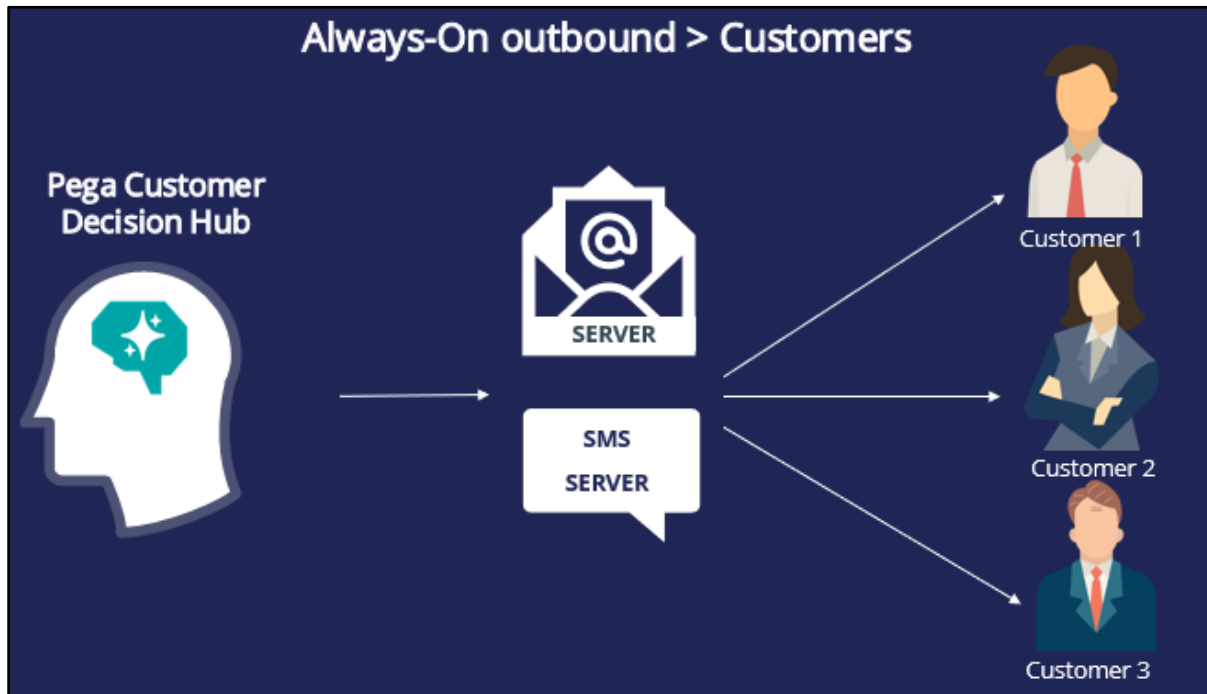
Learning objectives

- Explain outbound file and database templates
- Write action details to files or database tables to send to third-party email service vendors

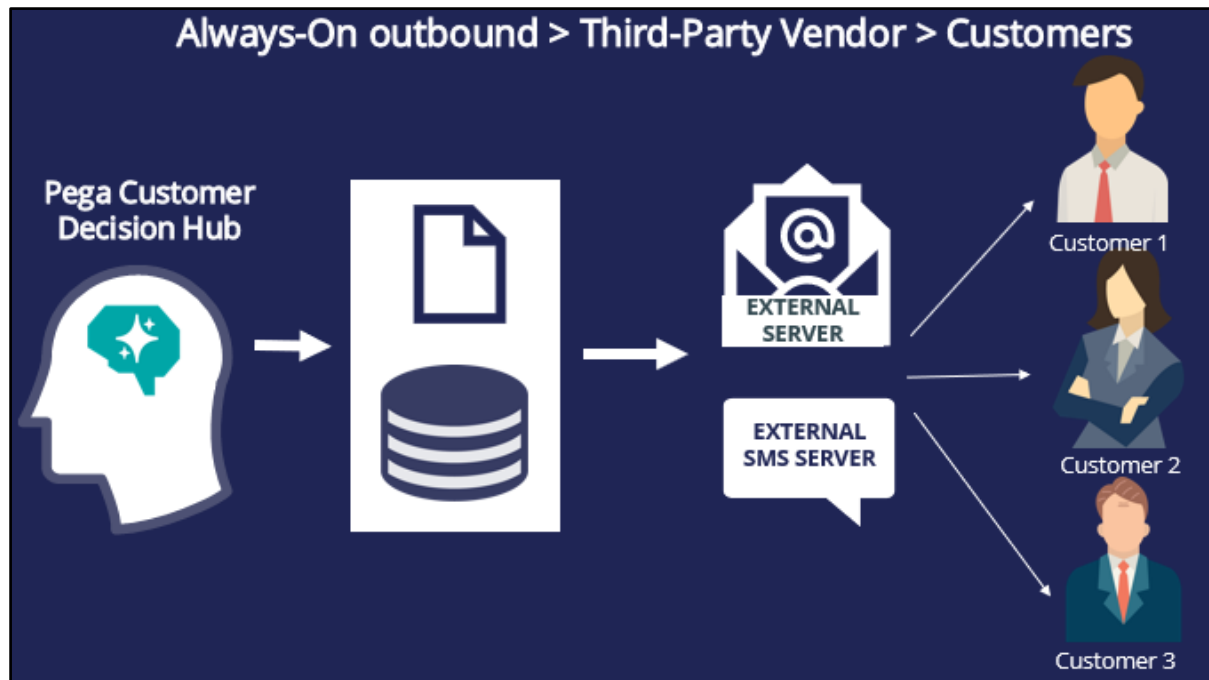
File and database templates

Why do you need outbound templates?

In outbound customer engagement, Pega Customer Decision Hub sends action messages to customers directly via email or SMS. That is, Pega Customer Decision Hub directly communicates with the email or SMS servers to send out outbound messages to qualified customers.



However, sometimes the necessary infrastructure to send action messages directly to customers may not be available. In such cases, you need to use a third-party email/SMS distributor. You need a medium to transfer the action and customer details, to a third-party distributor, which is typically a file or a database table.



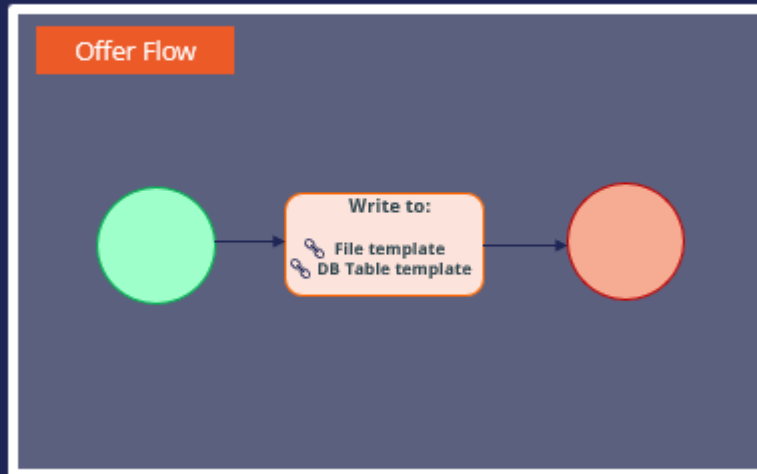
Pega Customer Decision Hub enables you to write the file in one of the following cloud-based destinations as well as the local filesystem.

- JFrog Artifactory
- Amazon S3
- Microsoft Azure

Writing action details to a file or database

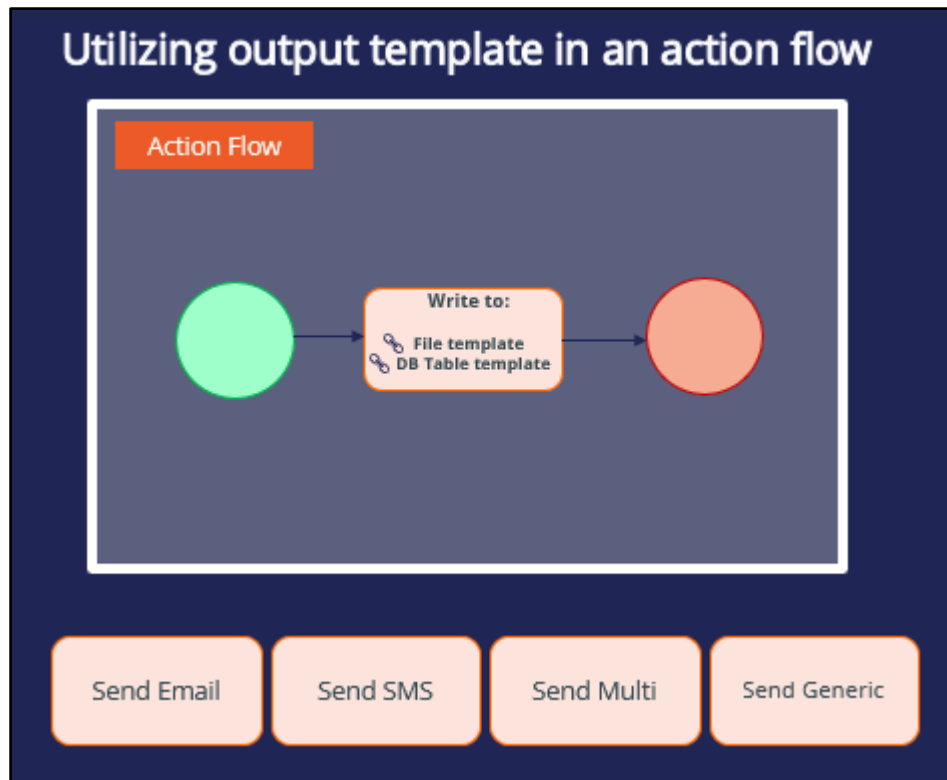
Pega Customer Decision Hub enables you to easily write action details to a file on the local system or on a cloud-based destination such as Amazon S3 or to a database table, which can be sent to a third-party vendor or application for distribution. To achieve this, you need to configure an action flow to include a Send shape with the file or database template option enabled.

Utilizing output template in an action flow



The four available Send shapes that can be used for this purpose are: **Send Email**, **Send SMS**, **Send Multi**, and **Send Generic**. Any one of these shapes can be used to write action details to a file or a database table. However, when you know that the action messages will be sent eventually via Email or SMS by the third-party vendor, it is better to use the corresponding shape, as this will clearly illustrate the purpose of the component and the channel will be recorded as an Email or SMS in the Interaction History.

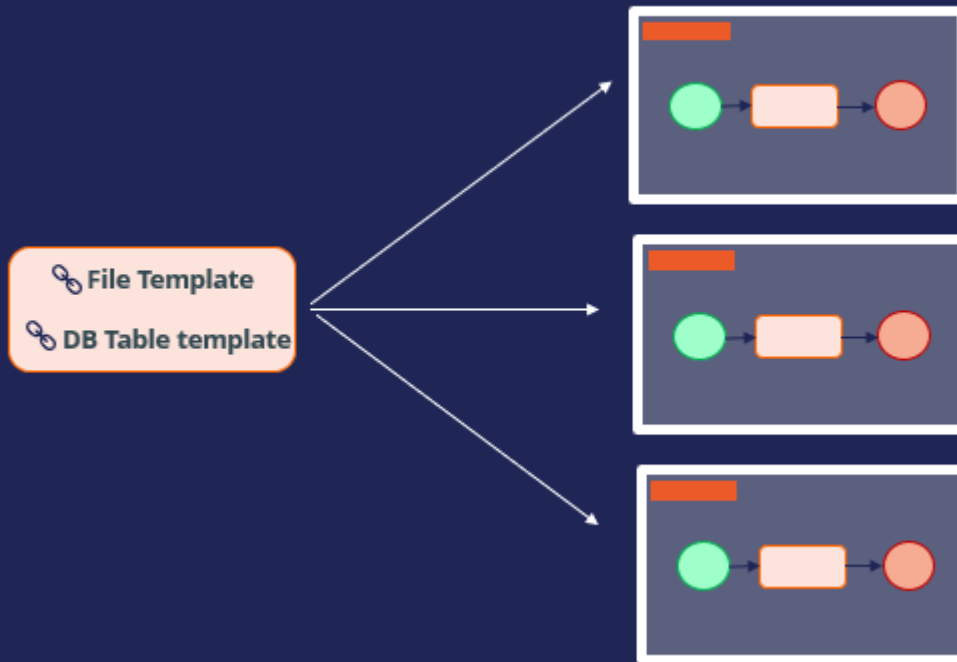
If you are unsure of the communication channel, or if it is a channel that Pega Customer Decision Hub cannot directly integrate with, use the Send Generic shape.



Multiple action details in a single location

Details of multiple actions can be written to the same file or database table. To do this, you need to configure the same file/database table template in multiple action flows. This functionality is useful when the **Next-Best-Action outbound schedule** includes multiple actions. This approach consolidates multiple action details into a single location.

One file template > Multiple action flows



Creating an external treatment to share action details in a file or database

Outbound emails are sent either directly by Pega Customer Decision Hub or by a third-party email service provider. Use external email treatments to send the necessary customer data to email service providers in the form of a file or a database table. When you use external email treatments, Pega Customer Decision Hub™ does not store email content. In this case, Customer Decision Hub does not have direct integration with an SMTP server, but a third-party email service provider handles the service. These providers rely on file or database integrations and have a defined format of the data that they expect.

In such cases, create the file or database integrations in Customer Decision Hub with all the information you want to share with the third-party email service provider. Then, associate the file or database template with an external treatment. With external email treatments, Customer Decision Hub generates the data that the third-party email service provider requires to send the emails.

Business scenario

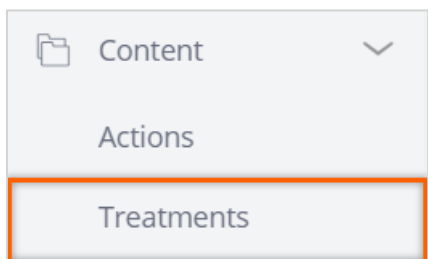
U+ Bank, a retail bank, sends credit card offers to eligible customers by email. However, to comply with the security and spamming regulations, the bank wants to use a third-party email delivery service instead of using the in-house email server. As a result, the offer details need to be written to a file that can be shared with a third-party email service provider and mapped to an external email treatment.

Creating a file template

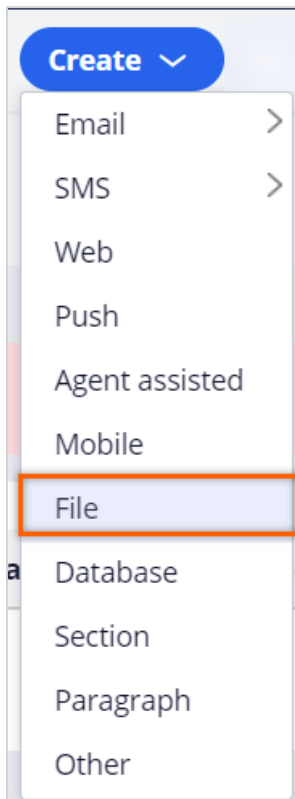
Pega Customer Decision Hub™ enables you to write action details to a file that can be sent to a third-party vendor or application for distribution.

To implement this business requirement, you need to configure a file template. The file template landing page can be accessed from the navigation pane, **Content** >

Treatments.



You can create a new file template from this page.



Provide a short description for the new file template, and the identifier is automatically populated when you tab out.

A screenshot of the 'Create file output template' form. The form has a title bar with the text 'Create file output template' and a blue 'Create and open' button. Below the title bar is a section titled 'Output Template Record Configuration'. It contains a text input field with the value 'Generic File Template' and a label 'Identifier' to its right. Below the input field is a small text label 'A short description or title for this record'. To the right of the input field, the identifier 'GenericFileTemplate' is displayed with an 'Edit' link. Below this is a section titled 'Categorization' with two dropdown menus: 'Issue' (with 'Select Issue' as the selected option) and 'Group' (with 'Select Group' as the selected option).

Creating a repository

When configuring a file template, provide details on an existing repository or create a new repository where the file needs to be stored.

In this case, you create a new repository.

Edit file output template: [Generic File Template](#) [Available]
 Top Level • GenericFileTemplate • File [CDH-Artifacts:01-01-01](#)

Definition Fields Finalize History

Repository name *

Local File System

Provide a short description and a name for the repository to create one.

Create Repository **Create and open** Cancel ?

Short description *

Local file repository

Repository name

Local file repository

Select a **Repository Type** where you want to store the file.

Repository type

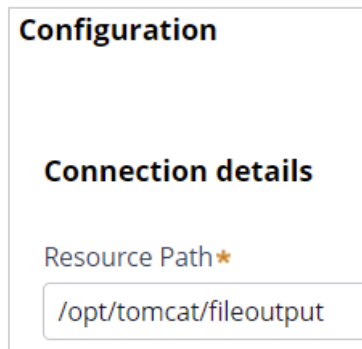
Select

Pega Customer Decision Hub supports various cloud-based destinations as repository types, such as **JFrog Artifactory**, **Amazon S3**, and **Microsoft Azure**, in addition to the local file system.

Select repository type

Pega® JFrog Artifactory AMAZON S3 FS File system Microsoft Azure

When you select the **File system** repository type, in the **Resource Path**, provide a directory path in the file system to where you want to store the file.



Configuration

Connection details

Resource Path *

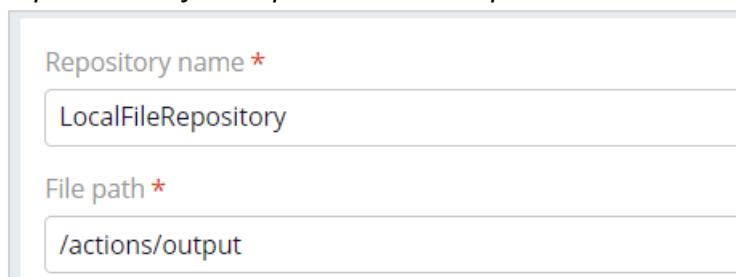
/opt/tomcat/fileoutput

Configuring a file template

In the **Edit file output template** page, continue configuring the file template.

Select the repository and provide a path where the file needs to be stored. The location is a sub-directory under the directory specified in the file system repository. The format for the file path and name is folder/filename.

For example, if the repository path is */opt/tomcat/fileoutput* and the file path is *actions/output/mailling-list.csv*, then the file will be created under */opt/tomcat/fileoutput/actions/output*.



Repository name *

LocalFileRepository

File path *

/actions/output

Finalizing the output template

Finalization is the technical process of writing data from an internal staging area to the final file. Finalized data is ready to be consumed by a different system. The system can trigger finalization manually or automatically based on a schedule. Select the **Finalize template after Action Initiation** option to trigger the finalization after each run.

By finalizing a template at the end of each run, you ensure that all data in the file is the result of a single run. That is, the final output includes all data related to the run that triggered the finalization. If you want the data from multiple outbound runs to be written to the same file, leave this option unselected. When you leave this option unselected, you must configure a separate finalization schedule in the **Finalize** tab or finalize the file manually in the **Treatments > File** landing page.

If you choose to finalize at the end of each run, select **Include run ID in file name** to include the run ID for easier identification of the files generated in each run.

Repository name *	
Local file repository	
File path *	
/opt/tomcat/fileoutput/actions/output	
☒	Finalize template after Action initiation ?
☒	Include run ID in file name
☒	Include finalization date-time in file name

In the **Fields** tab, you can configure the information elements that you want to output.

You can configure the customer and action details that you want to share with the third-party email service provider. In the **Name** field, you enter a name for the field. In the **Content** field, you select the corresponding property. Use the *.Customer.* construct to access customer properties and *.OfferData.* construct to access action properties. As shown in the example, adding the treatment name as an information element helps to map the actions with the corresponding external treatments.

Definition	Fields	Finalize	History
Name	Type	Content	Format
Customer_ID	Data F ▾	.Customer.Custo	n/a
Customer_Name	Data F ▾	.Customer.FullNa	n/a
Customer_Email	Data F ▾	.Customer.Prima	n/a
Offer_Key_Code	Data F ▾	.OfferData.KeyCo	n/a
Offer_Name	Data F ▾	.OfferData.pyNar	n/a
Treatment_Name	Data F ▾	.OfferData.pyTre	n/a

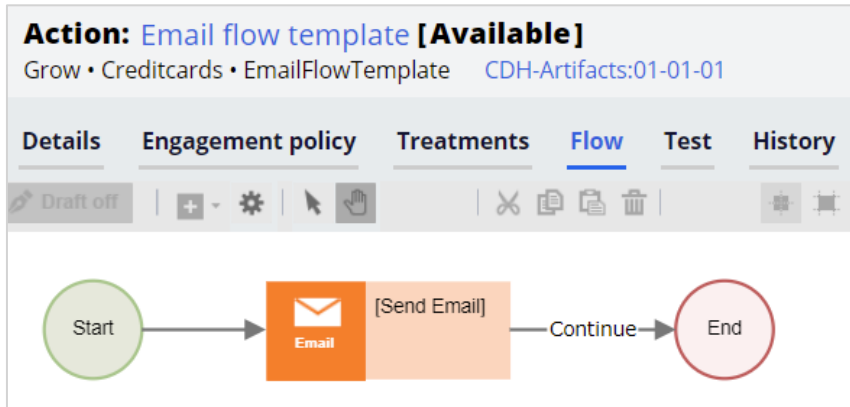
On the **Finalize** tab, you can configure further finalization options.

Definition	Fields	Finalize	History
Schedule ☐ Enable schedule Delivery options ☐ Send Email notifications when finalized from the Landing Page			

The **Advanced** section can be used for additional processing during the finalization process. For example, you can use it to initiate the file transfer to a particular location.

Using the file template in an action flow

You need to configure one of the **Send*** shapes, that is, Send Email, Send SMS, Send Generic or Send Multi shapes, in the action flow to reference the file template so that the action details are written to the output file during an outbound run.



To write action details to a file template, select the **Use associated Treatment** option. This option ensures that the treatment is associated with the action.

The screenshot shows the 'Send Email properties' dialog box. At the top, it says 'Send Email: [Send Email]' with a subtitle 'Configure the content of the email and its delivery.' Below this is a section titled 'Treatment' with the question 'What email treatment should be sent?'. It contains two radio buttons: 'Use associated Treatment' (selected and highlighted with a red box) and 'Specify Treatment'. There is also a checkbox for 'Wait after sending'. At the bottom, there is an 'Advanced' section with the question 'What else can I do?' and two expandable items: 'Email account' and 'Tickets'. At the very bottom are 'Cancel' and 'Submit' buttons.

Creating an external email treatment

Once you integrate the customer and action details into the file template, create an external email treatment. With external email treatments, Customer Decision Hub generates the data that the third-party email service provider requires to send the emails.

For this scenario, you create a new external email treatment, **Standard card email**. Add a short description and an appropriate **Keycode** for the email treatment. Then, select the file template to write the action details. You use the file template that you created earlier, which the system uses to write the action details that you want to share with the third-party email service provider. Next, add an email subject. You can specify a specific email subject that you want the third-party email service provider to use while sending the outbound emails. You add the `.OfferData.pyEmailSubject` property to the file or database template to include the subject as part of the details of the shared actions.

Details

Name

Standard card email

Description

Standard card email

Type

External

Language

Availability

☒ Always
☐ Never
☐ Within a defined time period

Channel eligibility

☐ ☒ Apply

Treatment eligibility

Key code

STANDARD

Content

Template type

File

File template

GenericFileTemplate

Subject

"Test Message"

Running an outbound schedule

To write the action details to a file, run an outbound schedule. The file with action details is stored in the specified repository.

```
Customer_ID,Customer_Name,Customer_Email,Offer_Key Code,Offer_Name,Treatment_Name
CUST1605,Larissa Schuster,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST682,Anahi Torphy,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST5388,Sedrick Kutch,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST8480,Walton Daugherty,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST4058,Abby Russel,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST2954,Armani Hessel,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST1758,Asa Buckridge,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST10887,Madison Ondricka,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST7548,Arvilla Bartell,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST8634,Rodger Borer,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST9863,Bethel Greenfelder,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST1887,Morris Littel,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
18,John Smith,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST5918,Daija Walker,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST6540,Maeve Bauch,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST982,Kobe Waelchi,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST4119,Quinton Herman,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST3444,Tomas Schneider,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST4322,Myra Donnelly,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST7168,Oceane Muller,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST8997,Janessa Zboncak,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST4205,Nathaniel Block,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST3526,Angelica Collins,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST8695,Isabelle Predovic,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST844,Icie Trantow,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST3105,Jalen Rolfsen,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST3404,Kyleigh Stroman,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST7290,Eldora Schneider,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST6031,Clotilde Balistreri,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST4730,Verna D'Amore,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST4185,Laron Price,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST4321,Howard Feeney,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST1186,Norma Bechtelar,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST3265,Omari Bogan,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST3351,Bart Durgan,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST2066,Unique Marquardt,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST6392,Kaitlyn Spinka,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
CUST9109,Javonte Rodriguez,customer1@enablement.com,REWARDSPLUSCARD,RewardsPlusCard,Rewards Plus card email
CUST2722,Charlene Conn,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST1287,Gilbert Bergnaum,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST8053,Ransom Adams,customer1@enablement.com,STANDARDCCARD,StandardCard,Standard card email
CUST9195,Dejon Little,customer1@enablement.com,PREMIERREWARDSCARD,PremierRewardsCard,Premier Rewards card email
CUST6161,Vallie Kling,customer1@enablement.com,REWARDSCARD,RewardsCard,Rewards card email
```

The file contains the fields as configured in the file template.

Writing action details to a database

Like a file template, you can map an external email treatment to a database template and make the outbound run write details to the database table. The process of creating a database template is similar to creating a file template. Instead of the repository, file path, and file name configurations, you must provide the **Database** name and **Table** name.

Edit database output template: [Generic Output Template \[Available\]](#)

Actions ▾ Save ▾

Definition Fields Finalize History

Database ★

ExternalIMKTData

Table ★

NBA_OUT

☐ Finalize template at the end of each outbound run

Writing option

☒ Overwrite existing data

☐ Append to existing data

Bypassing action flow processing

In the always-on outbound scenario, you can bypass the action flow processing and write action details to a database table directly with a database template. Use this feature when you do not need to perform multiple steps in the life cycle of an action (such as send an action message, wait for a response, or take appropriate action upon response).

To use this feature, go to **Next-Best-Action Designer, Channel**. In the **Primary schedule** section, click the **Gear** icon next to **Recurrence** to access the outbound schedule configuration. Enable the **Write results using a database template** option to add a database template.

Note: Here, you can configure only database templates that have the **Writing option** set to **Append to existing data**.

Configure outbound schedule

☒ Every weekday

☐ Every day or every nth day

Start

4/23/2020 1:03 AM

End

☒ No end date

☐ Set number of occurrences

☐ End by a date

☒ Refresh the audience

☒ Refresh the audience for each scheduled occurrence

☐ Refresh the audience only for the first scheduled occurrence

☒ Write results using a database template

GenericDBTemplate

+ Add template

Capturing responses

When you use an internal email treatment and send the email content directly to the SMTP server, Customer Decision Hub captures the customer response (clicks and impressions). Because Customer Decision Hub does not have direct integration with the SMTP server in the case of external email treatments, the third-party email service provider receives the responses to all emails. In this case, an integration is necessary to send the captured responses to Customer Decision Hub to ensure that the system updates the interaction history and trains the AI models with the received responses. External systems can send the responses using a REST integration, calling the **Capture Response API**, or creating a data flow to process the responses from a file, stream, or database table.

Business agility in 1:1 customer engagement overview

Description

Learn the processes involved in creating a new action in a business operations environment and propagate the changes to the production environment.

Learning Objectives

After completing this module, you should be able to:

- Describe business agility and its importance in one-to-one customer engagement
- Distinguish between business-as-usual and enterprise changes
- Describe the steps involved in managing business changes in one-to-one customer engagement

Agility in a customer engagement project

What is agility?

Agility means that your organization is able to react quickly to changes in the marketplace, an important capability in marketing. In the digital age, things change constantly, and taking weeks or even months to translate a good idea into an actionable plan is bad for business.

Pega 1:1 Operations Manager increases your agility in the digital channels, giving business users everything they need to quickly transition to new content or messaging as needs change or trends emerge.

Business value of agility

Generally, changes in an enterprise application require IT involvement and a full IT development cycle. But business users often want to change things like the description of a product or its expiration date. In most enterprise applications, even these kinds of changes can be costly.

Pega 1:1 Operations Manager empowers business users to make these sorts of 'business-as-usual' changes themselves. This not only preserves resources, it enables business teams to be more responsive to changing business needs and trends in the marketplace.

Business changes vs enterprise level changes

Business-as-usual changes are small, day-to-day updates that result from normal business operations in digital touchpoints. It typically falls to the business operations team to satisfy ad-hoc requests from business teams to make these types of incremental changes to optimize existing artifacts. These are usually smaller pieces of work that need fast turnaround, such as:

- Adding a new Action (such as offer or message) with treatments to production
- Removing or disabling an Action in production
- Modifying a group-level Engagement Policy
- Enabling an integrated channel
- Fixing a typo in a call center message provided by Pega Customer Decision Hub™

Enterprise changes tend to require larger pieces of strategic development work and usually disrupt normal operations. These tasks may introduce something new or implement a change in the way something existing is presented or works.

- Adding new data attributes to the customer profile
- Integrating a new channel
- Implementing an approval flow for change requests

Pega 1:1 Operations Manager delivers business agility

Pega 1:1 Operations Manager provides a guided process for managing changes to decisioning artifacts. Business users determine what must change in a collaborative and unified way, and the system helps the user implement the changes by:

- Simplifying change processes and reducing administrative tasks
- Providing an intuitive, task-driven interface that guides the user from task to task
- Facilitating collaboration between operations, business, and technical teams

Change management process

Introduction

When business requirements change rapidly, the software development process needs to be more agile, while still producing high-quality, reliable software. This topic covers the importance of the change management process, and how it works in a one-to-one customer engagement project for Pega Cloud® customers.

Transcript

This video describes the change management process in a one-to-one customer engagement project.

Let's start by understanding some background on change management in enterprise software development projects.

In recent decades, organizations have been using computer software to automate many traditionally manual tasks.

Business processes need to constantly evolve as customer behavior and market conditions change. Naturally, the software that supports business practices needs to evolve as well. As the pace of change in business requirements increases, the software development process needs to be more agile, while still producing high-quality and reliable software.

Here's a simplified view of an enterprise software development cycle. It consists of four high-level stages.

Developers develop new software or update existing software.

The work from several developers is merged into a single system in the integration phase.

The new software version goes through testing, and the final, approved software (or a software change) is deployed into production.

This cycle repeats for new as well as incremental updates to existing software.

A software development process is supported by different environments.

- A development environment is one in which developers create new versions of the application by adding enhancements or fixing issues. It is referred to as system of record (SOR) for Pega applications.
- A staging environment is used for various testing such as functional testing, unit testing, and user acceptance testing.
- The business operations environment (BOE) is a replica of the production environment. However, it contains only a sample of the production data. This is where the business operations team creates and tests new business artifacts and conducts simulations.
- The production environment is the main system that propagates the next best actions to external channels, collects customer responses, and is where the AI learning happens. It is also used for live monitoring of key performance indicators.

In a one-to-one customer engagement project, changes to the application can be classified into two categories: enterprise changes and business changes.

Enterprise changes are the changes that developers make to the Pega application. An example of enterprise changes are extensions to the core Pega application and its integration points with external systems.

Developers make these changes in the development environment. Changes to the application are pushed to other environments through the enterprise-change pipeline managed by the Pega Deployment Manager™.

Business changes are small, day-to-day updates made as part of normal business operations. Examples of business changes include creating a new action or updating an existing action with new treatments or engagement policies. Also, this environment is used to carry out various simulations and analyses, for example, to test if there is an ethical bias in the decisions made by the next-best-action strategy framework. Business changes are made by the business operations team in the business operations environment.

The business content team uses the 1:1 Operations Manager portal to initiate changes in the business operations environment.

In the BOE, the changes are carried out in an application overlay. The application overlay defines the scope in which business users can change the application (for example, by modifying actions, treatments, decision strategies, and so on) to accommodate the constantly changing business conditions and requirements.

Changes from the business operations environment are pushed to the development environment and from there to other environments through the business change pipeline.

You have reached the end of this video which showed you:

- The importance of the change management process in an enterprise software development project.
- The high-level software development cycle.
- The cloud environments provided by Pega for a one-to-one customer engagement project using Pega Customer Decision Hub.
- The flow of enterprise and business changes through the enterprise and business change pipelines.

Pega 1:1 Operations Manager overview

Description

Learn how Pega 1:1 Operations Manager helps streamline the change management processes that affect one-to-one customer engagement orchestrated by Pega Customer Decision Hub™.

Learning Objectives

After completing this module, you should be able to:

- Explain the lifecycle of a change request
- List of the types of change requests
- Describe the various personas involved in the change management process

Building Your Business Operations Team in Pega 1:1 Operations Manager

Introduction

In today's experience-driven world, organizations must be able to respond quickly to changing customer needs. In Pega Customer Decision Hub™, this agility is enabled by the Business Operations Team - a cross functional group working inside the Business Operations Environment (BOE) - their mission is simple but powerful: deliver the right action, to the right customer, at the right time, across all channels.

What the Business Operations Team Does

The Business Operations Team is responsible for implementing, managing, and continually improving business-as-usual change requests. These changes include updating actions, adjusting treatments, refining policies, and managing the logic behind Next-Best-Action decisioning.

To support consistent, intelligent customer engagement, the team focuses on several key goals:

1. Increasing agility in change management.
2. Responding rapidly to changing customer needs.
3. Enabling safe updates with minimal technical complexity.
4. Delivering changes reliably into production.

Key Roles in the Business Operations Team

A high-performing Business Operations Team consists of several roles, each with a distinct function:

Business User provides strategic context and submits business requests.

Main responsibilities:

- Creating new change requests, such as new offers, updates, and bulk changes.
- Providing business objectives, audience details, and descriptive content.
- Collaborating with the Team Lead on priorities and timelines.

Team Lead guides and orchestrates the Business Operations workflow.

Main responsibilities:

- Triaging and prioritizing change requests.
- Maintaining a healthy, up-to-date backlog.
- Approving requests and assigning work to Next-Best-Action Specialists or Next-Best-Action Designers.

Next-Best-Action Specialist implements and tests business changes at scale in 1:1 Operations Manager.

Main responsibilities:

- Building and updating Actions and Treatments.
- Configuring channels, and eligibility rules-code tools.
- Ensuring that content adheres to brand guidelines and business objectives.

Next-Best-Action Designer shapes the underlying logic of Next-Best-Action decisioning in Customer Decision Hub.

Main responsibilities:

- Configuring and maintaining NBA Designer settings.
- Designing and updating:
 - Taxonomy,
 - Engagement policies,
 - Arbitration logic,
 - Real-time containers and channel configurations.
- Implementing strategy extensions without modifying the core framework.

Revision Manager manages larger changes that require structured governance.

Main responsibilities:

- Creating and governing revisions that impact decision rules or underlying artifacts.
- Coordinating review, approval, and deployment processes.
- Ensuring quality control

Communication in the Business Operations Team

Successful collaboration within the Business Operations Team depends on a structured workflow that ensures clear communication and smooth hand-offs between roles. The revision management system in Pega 1:1 Operations Manager signals when each team member needs to take action in the process. When a Business User creates a change request, the system notifies the Team Lead to review, approve, and triage the request to an NBA Specialist or NBA Designer, who are responsible for building and testing the revision. Once the work is complete, the system notifies the Team Lead or Revision Manager that the revision is ready for approval and deployment. This automation clearly defines ownership and next steps throughout the process.

You have reached the end of this video. What did it show you?

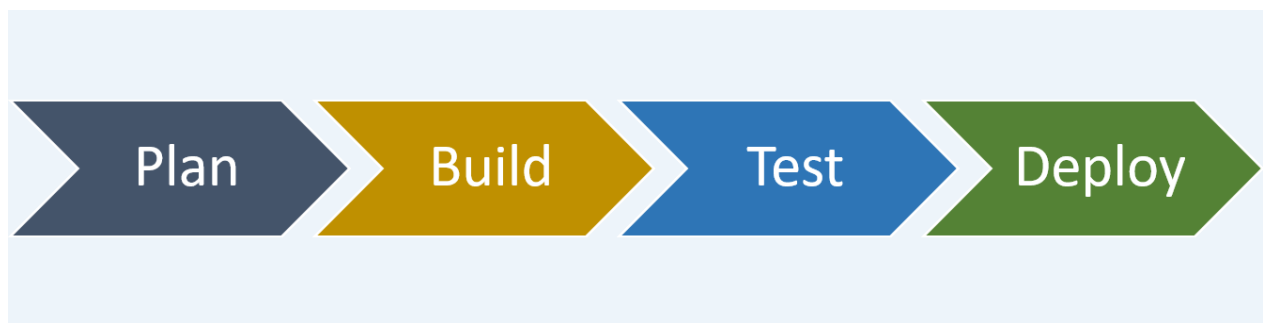
- The main roles of the Business Operations Team
- The main responsibilities of the Business Operations Team members.
- The main goals of the Business Operations Team.

Lifecycle of a change request

Change request stages

In Pega 1:1 Operations Manager, a change request represents a change to one or more next-best-action artifacts in Pega Customer Decision Hub™. Together, business users determine and agree upon what needs to change, and the system guides the next-best-action specialist to make those changes.

A change request goes through four stages in its lifecycle. Each stage encapsulates the various tasks required to carry out the change effectively. In each stage, a designated user or set of users carries out the required tasks. Once the necessary tasks are complete, the system automatically manages the movement of the change request from one stage to another.



The lifecycle of a change request contains the following four stages:

- Plan
 - A business user creates the change request.
 - **Key** information about the change is captured from the business user directly into Pega 1:1 Operations Manager.
 - The team lead quickly **plans** and prioritizes the request so that the operational team can focus on more high-value work.
- Build
 - The operations team **builds** the next-best-action artifacts using a simple, guided process.
 - Next-best-action specialists translate the change request details into corresponding next-best-action artifacts in Pega Customer Decision Hub.
 - The system automatically creates or updates the corresponding artifacts.

- Test
 - The system recommends that the next-best-action specialists verify and test the generated or modified artifacts to ensure that the change meets the business' expectations.
 - Changes can be tested in-context to reduce QA cycles.
- Deploy
 - The team lead approves the change request and transfers it to the team responsible for deploying the changes to the production environment.
 - Pega Deployment Manager enables the deployment team to safely **deploy** the changes to a production pipeline.

Change request types

Introduction

Business requirements change rapidly and typically have a different release cycle compared to the enterprise release cycle.

To ensure logical separation between technical and non-technical changes in change management, business changes or non-technical changes are made in the Business Operations Environment (BOE), according to business requirements.

You can make two types of business changes to your Customer Decision Hub application from the BOE:

- High-volume day-to-day business changes, such as creating new actions and treatments, and updating existing action and treatment details.
- Low-volume changes such as changes to taxonomy, arbitration, and group-level contact policies.

As a business user, you create a change request to initiate the change management process in 1:1 Operations Manager to make business-as-usual changes to the Pega Customer Decision Hub.

Three types of change requests are currently supported. Selecting the right change request category initiates the appropriate change management process flow.

Create new action

Use the **Create new action** category when submitting a request to create a new action.

Create Action

OUTBOUND

OUTBOUND

OUTBOUND INBOUND

**Re-engagement**
Promotional

Re-engage customers who have expressed interest. Examples are a shopping cart abandonment or an indication of interest.

OUTBOUND INBOUND

**Retention**
Promotional

Engage with customers to ensure they remain loyal, to prevent them from leaving, or win them back. Examples are a one-time credit of \$50 or a discount on your existing services.

OUTBOUND INBOUND

**Sales**
Promotional

Promote a new or upgraded product or service. Examples are marketing or promotional offers for a new credit card or phone upgrade.

OUTBOUND INBOUND

**Announcement**
One-time

Send a message to a specific group of customers on an alternate schedule. Examples are the closing of a retail location or message from the CEO.

OUTBOUND

**Emergency**
One-time

Send a message to a specific group of customers on an alternate schedule. Examples are a service outage or other disruption of service.

OUTBOUND

Change request name *

Promote new card on the web - cashback 5%

Completion date *

8/8/2023

Description

Create new leads from web channel for new Cashback 5% credit card.

Attach files

Filename

Attach

Remaining: 934 characters

Are you making this change to fix a production defect? ?

☐ Yes ☒ No

Cancel

Create

375

Update existing action

Use the **Update existing action** category when submitting a request to update an existing action.

Update existing Actions

Name *

Extend sign-up bonus period - Cashback 5%

Completion date *

8/8/2023

Are you making this change to fix a production defect? ?

☐ Yes ☒ No

Business issue ?

Grow

Group ?

Credit cards

Description

Extend sign up bonus period by 4 weeks on the Cashback 5% card.

Remaining: 937 characters

Attach files

Filename

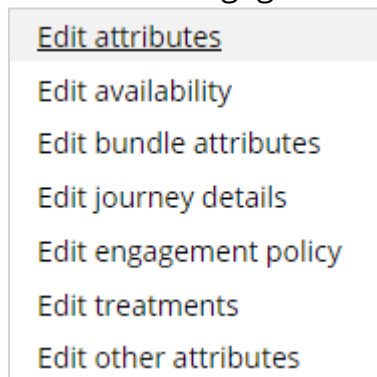
Attach

Cancel

Create

As part of updating an existing action, you can request one or more changes at the action level. The available tasks enable you to add a new treatment, modify the

action-level engagement policy and modify the action details.



Request type Other

If the change request is neither creating a new action nor updating an existing action, then you can select the **Other** category. This case type is best suited to making changes that are not related to a single action, such as editing engagement

policies, changing arbitration rules, and so on.

New operations change request

Name *

Add applicability condition to Credit cards

Select type *

☒ Other

Completion date *

8/8/2023

Are you making this change to fix a production defect? ?

☐ Yes ☒ No

Business issue ?

Grow

Group ?

Credit cards

Description

Credit cards are applicable only for the customers with income more than 10000 USD.

Remaining: 917 characters

Attach files

Filename

Attach

Cancel

Create

A change request with **Other** as its category is assigned to a team lead, who then adds one or more tasks from the predefined list of objectives according to the

business requirement. These tasks are typically assigned to an NBA designer.

T

Add Task
Due 2 days from now

Objective *

Select...

New internal email treatment

New internal SMS treatment

New when rule

New external treatment

Add or edit business taxonomy

Manage Real-time containers, Events and Outbound schedules

Manage group-level Engagement policies

Manage prioritization settings (Arbitration)

Edit Contact policies, Channel and Action limits

Edit existing internal email treatment

Edit existing internal SMS treatment

New audience

New DB or File treatment

Revision Management

If the required business change is beyond the scope of the three change request types, such as edit a strategy, or edit a scorecard, then the team lead initiates the change by creating a new revision in the revision management section of the 1:1 Operations Manager.

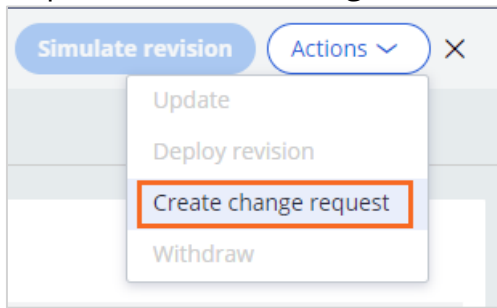
CDH standard release

Update business rules

 R-1
Due 08/08/2023 • **IN PROGRESS** • change requests 1

Then, in the Customer Decision Hub portal, the team lead creates a change request within the revision created in the 1:1 Operations Manager. The team lead includes all rules that are required to carry out the change and typically assigns the change

request to an NBA designer.



Fast-track change request

You implement business changes in the business operations environment (BOE) by using revisions. Each revision consists of one or more change requests. After individually implementing these change requests, when they are ready for deployment, the Revision Manager deploys all the change requests together as a release. This process is a standard release.

Fast-track change requests offer a means to efficiently implement urgent or unplanned business demands and deploy them immediately.

Mark the change request as a production fix to convert it into a fast-track change request. This step ensures the change request is added to fast-release revision.

Update existing Actions

Name *

Fix the typo in action descriotion

Completion date *

8/8/2023

Are you making this change to fix a production defect? ?

☒ Yes ☐ No

Business issue ?

Grow

Group ?

Credit cards

Description

Fix the typo in the Standard Card action description - change "fro" to "for".

Remaining: 923 characters

Attach files

Filename

Attach

Cancel

Create

Once the change requests in a revision are individually implemented and ready for deployment, the Revision Manager deploys all the change requests using business pipelines. The standard revision uses the Standard business pipeline while the fast-release revision is deployed using the Fast Release pipeline.

Brand Voice Management with Pega GenAI™

Description

In this module, learn about the importance of a brand's voice in today's competitive market and how it reflects a company's personality and values. Explore how to choose the right brand voice by aligning tone and style with the company's values and customer expectations. Additionally, discover how Pega GenAI™ can help create highly personalized marketing treatments that adhere to your brand voice and style guidelines. The module will guide you through the process of setting up global directives and creating a brand voice using the Pega 1:1 Operations Manager portal.

Learning objectives

- Define and implement global directives to maintain a consistent brand voice across all communications.
- Create and submit a brand voice change request in Pega 1:1 Operations Manager.
- Utilize Pega GenAI™ to generate personalized, compliant content that aligns with your brand's voice and style guidelines.

Brand Voice

Transcript

In today's competitive market, a brand's voice is vital – it reflects the company's personality and values, and shapes communication and relationships. But what is brand voice? It is the unique tone and style that convey a company's core values in every message. Whether you aim to convey trustworthiness, friendliness, innovation, or a sense of community, consistency and authenticity are key.

Choose the right brand voice by aligning the tone and style with the company's values and customer expectations. A strong brand voice aids in clear communication and strengthens the overall brand identity. Use the brand voice to define brand guardrails and establish core values and tone that align with the brand and create comprehensive style guidelines. These guidelines serve as a blueprint for the brand, ensuring every piece of content speaks in the same voice.

Pega GenAI™ helps you create highly personalized marketing treatments. By using data-driven insights, Pega's GenAI™ tools can tailor your messages to resonate with specific segments of your audience, ensuring relevance and engagement. With generative AI, you can automate the creation of content that adheres to a specific brand voice and style guidelines. Pega GenAI analyzes vast amounts of data to generate content that is consistent and personalized for the audience. The system, then checks for compliance with brand guidelines, ensuring that all content meets established standards.

Pega 1:1 Operations Manager provides a Brand Voice landing page to integrate the distinct voices that you create, generated through analysis of existing materials or manual crafting, to enhance content authenticity. Best practice is to define brand guidelines for tone and style across all communications by using Global Directives. These directives serve as the foundation for maintaining a consistent brand voice, ensuring that all content reflects the company's values. The brand voice applies these global directives to establish a unique and authentic tone, so that businesses can enhance customer engagement, build trust, and differentiate themselves in a competitive market.

Using the Brand Voice landing page, you can:

- Set global directives, update global directives, and view existing directives.
- Create your brand voice and view existing voices.

- Test drive your voice.

You have reached the end of this video. What have you learned?

- A brand's voice reflects its personality and values, which is essential for clear communication and strong brand identity.
- Pega GenAI creates personalized, compliant content using data-driven insights, automating adherence to brand voice and style guidelines.
- The Brand Voice landing page helps you set and update global directives, create and test brand voice, ensuring consistent and authentic communication.

Creating Global directives

Define brand guidelines for tone and style across all communications by using Global Directives. Global directives serve as the foundation for maintaining a consistent brand voice, ensuring that all content adheres to the guidelines outlined and coherence and consistency across all communications.

Transcript

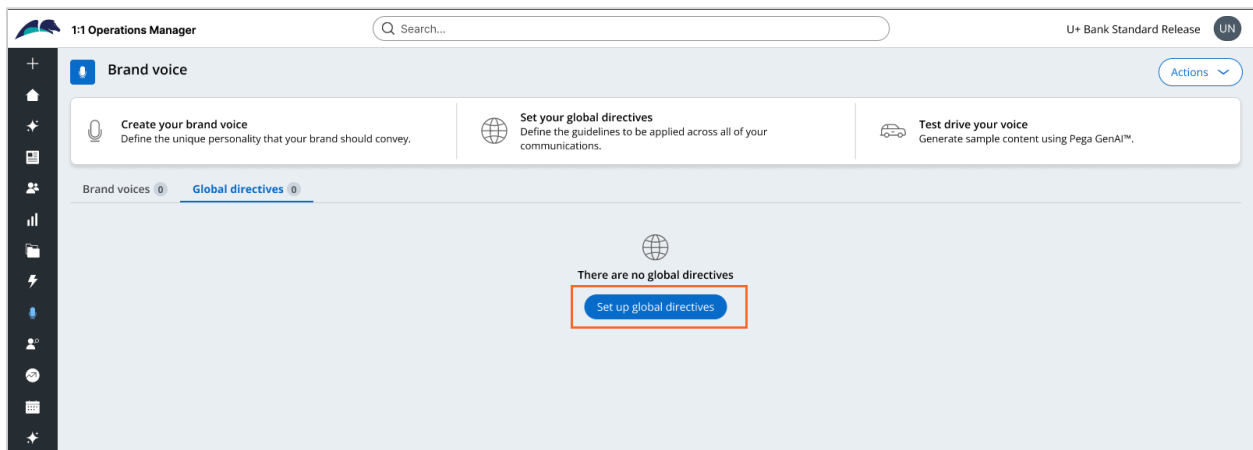
This video shows you how to create and approve global directives for a brand voice.

As a Business User, log in to the Pega 1:1 Operations Manager portal.

In the navigation pane, click **Brand voices** to open the Brand voice landing page. On this landing page, you can create your brand voice, set up global directives, and test the content generated using Pega GenAI™.

The landing page contains two sections: Brand voices and Global directives.

On the **Global directives** tab, set up some global directives. Global directives define the guidelines to be applied across all communications that use the brand voice.



Fill in the **Change request name**, **Completion date**, and **Description** fields to initiate a change request to create a global directive.

Create global directives

Change request name *

Completion date *

Create global directives

01/01/24

Description

Provide additional details about the request

Remaining: 1000 characters

Attach files

Drag and drop or [choose files](#)

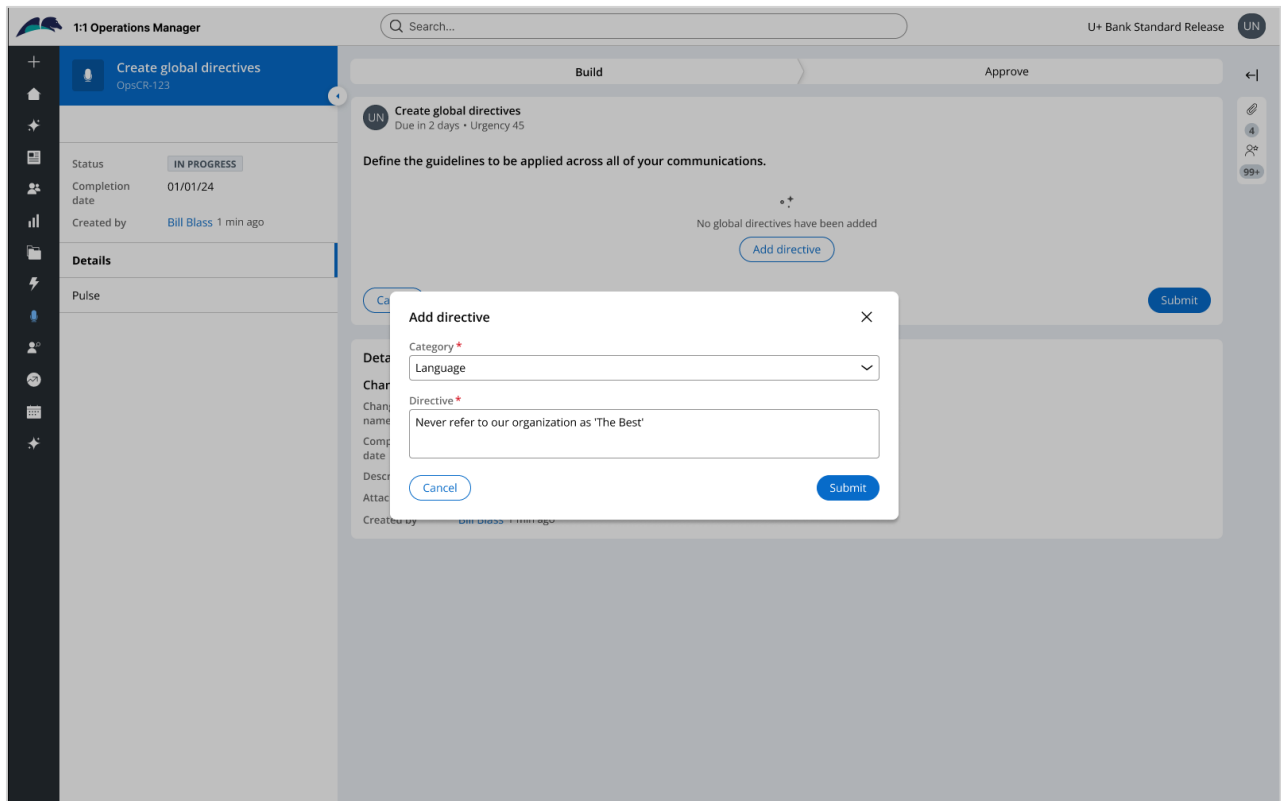
Cancel

Submit

Now, you can add a directive.

There are various categories, such as Style, Grammar, Language, and Compliance for which you can add directives. Select a category for the directive that you want to create.

Next, add the guideline. These guidelines act as the foundation for tone and style to be applied in all communications and maintaining a consistent brand voice.



You can add multiple directives to the same change request.

UN
Create global directives
Due in 2 days • Urgency 45

Define the guidelines to be applied across all of your communications.

Category	Directive
Language	Never refer to our organization as 'The Best'

+ Add directive

Cancel
Submit

Other directives can include:

- Style: Do not use contractions.
- Grammar: Always use sentence case.
- Compliance: The phrase 'U+ Bank' should have a trademark symbol next to it.

- Language: Do not use passive voice.



Create global directives

Due in 2 days • Urgency 45

Define the guidelines to be applied across all of your communications.

Category	Directive		
Style	Do not use contractions		
Grammar	Always Use sentence case		
Compliance	The word "U+ Bank" should have a trademark symbol next to it in sentences		
Language	Do not use passive voice		
Language	Never refer to our organization as 'The Best'		

[+ Add directive](#)

Cancel

Submit

You can edit or delete an already added directive.

Once all the required directives are added, click **Submit** to submit the change request.

The request is now routed to the Team Lead for approval.

As a Team Lead, log in to Pega 1:1 Operations Manager. The **Approve global directives** task is listed in the **My Worklist** section for the Team Lead's review.

The Team Lead reviews the global directives and can either approve or reject them.

Rejecting the changes will send the change requests back to the Build stage, where the business user needs to make the required changes and re-send them for approval.

Once the global directives are approved, the change request is complete.

You can now see the approved global directives on the Brand voice landing page. The system uses these directives while formulating the brand voice and any other content that you generate using Pega GenAI, such as Email treatment content.

1:1 Operations Manager U+ Bank Standard Release UN

Brand voice Actions

Create your brand voice
Define the unique personality that your brand should convey.

Set your global directives
Define the guidelines to be applied across all of your communications.

Test drive your voice
Generate sample content using Pega GenAI™.

Global directives 5 **Brand voices** 0

Search... 5 results Update global directives

Category	Directive
Style	Do not use contractions
Grammar	Always Use sentence case
Compliance	The word "U+ Bank" should have a trademark symbol next to it in sentences
Language	Do not use passive voice
Language	Never refer to our organization as 'The Best'

You have reached the end of the demo. You have learned:

- How to create and approve global directives that define communication guidelines.

Creating Brand voice

A brand voice captures a company's unique tone and style, reflecting its personality and values in marketing content. Integrate the organization's distinct voice, generated through analysis of existing materials or manual creation, to enhance content authenticity.

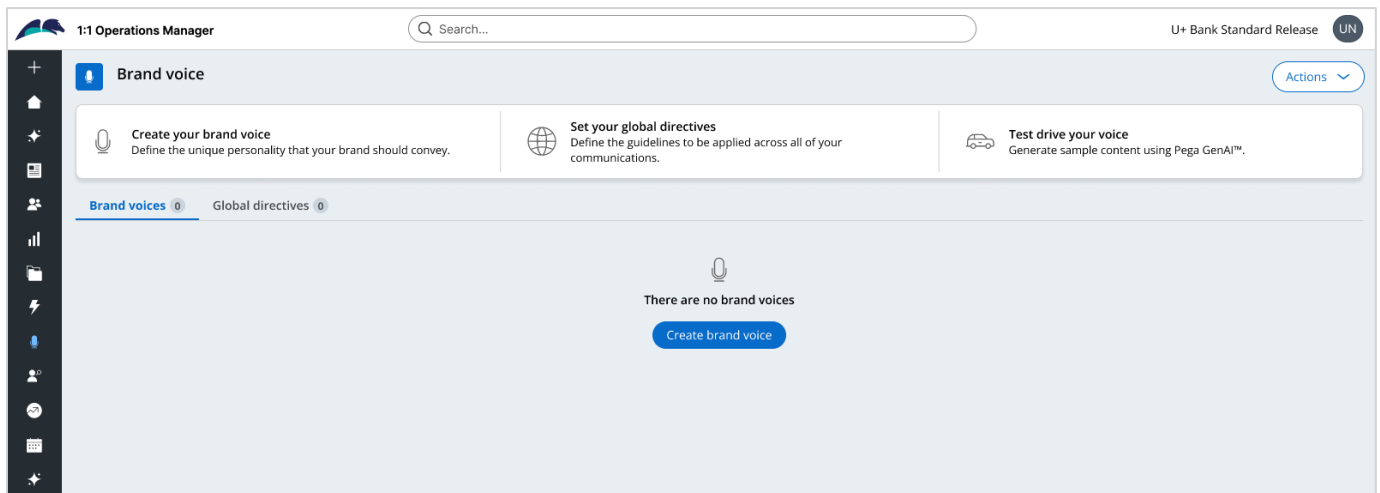
Transcript

This video shows you how to create a brand voice. By establishing a unique and authentic tone, businesses can enhance customer engagement, build trust, and differentiate themselves in a competitive market.

As a Business User, log in to the Pega 1:1 Operations Manager portal.

In the navigation pane, click **Brand voice** to open the landing page.

On the **Brand voices** tab, click **Create brand voice**.



Fill in the **Change request name**, **Completion date**, and **Description** fields to initiate the change request, and then click **Submit**.

Create brand voice

Change request name *

Create brand voice

Date *

01/01/24

Description

Provide additional details about the request

Remaining: 1000 characters

Attach files

📎 Drag and drop or [choose files](#)

Cancel

Submit

In the **Select usage** section, select the Business Issue and Group for which the brand voice will generate treatments. By default, the system considers All Issues and groups if you do not select a business issue and group.

Optionally, if you have multiple brand voices for the same Business Issue and Group, you can set the current brand voice as the default for the specific issue and group.

Choose whether the brand voice should be active for Treatment generation by selecting one of the radio buttons.

UN

Create brand voice

Due in 2 days • Urgency 45

Define attributes

Analyze content

Finalize voice

Define the attributes of the brand voice.

Brand voice name *

Corporate voice

Language of brand voice *

English

This will be the language of the generated content

Description of brand voice

The purpose of this voice is to be an overall representation of our organization.

Remaining: 919 characters

Select an icon to help identify your brand voice

Select icon

Hide additional configurations

Issue

All issues

Group

All groups

Make brand voice active for treatment generation?

Yes

No

Back

Next

In the **Define attributes** step, name your brand voice, and select the language of the generated content. You can also add a brief description about the intended purpose of the voice.

Pick an icon that helps you identify the brand voice.

Select an icon to help identify your brand voice

Select icon

Save

392

In the **Analyze content** step, you can add the content that matches the brand voice. The system analyzes the provided content to inspire a voice that represents the brand. For analysis and inspiration, you can select:

- **Text** - Any text content that represents that brand, such as marketing emails, company mission statements, social media posts, and so on.
- **Internal treatment** - The content of an existing email treatment.
- **File upload** - Upload files that represent the brand. The system supports PDF, DOC, TXT and HTML formats.
- **URL** - URL to the brand's website or an online content folder.

Provide the content and analyze the content.

Create brand voice
Due in 2 days • Urgency 45

Define attributes — **Analyze content** — Finalize voice

Add content that matches your desired brand voice.
The system will analyze this content for tone and then use that analysis to inspire a voice that represents your brand. You may skip to the "Finalize voice" step if you'd like to define your brand voice directly.

Add content [X]

Type
☒ Text ☐ Internal treatment ☐ File upload ☐ URL

Text *

A warm and hearty welcome to U-Plus Bank, where banking meets excellence and your financial aspirations find a true partner. We are thrilled to have you on board as a cherished member of our banking family, and we look forward to serving you with dedication and commitment.

As you embark on this banking journey with us, we want to assure you that U-Plus Bank is more than just a financial institution: we are your reliable companion in achieving

[Cancel] [Analyze]

Next

You can review the generated analysis and update the provided content, if required.

After updating you can reanalyze the content so that the system generates a new analysis.

You can add multiple pieces of content to analyze and optionally reanalyze all the content at once. Note that providing content to analyze is an optional step.

UN

Create brand voice
Due in 2 days • Urgency 45

Define attributes

Analyze content

Finalize voice

Add content that matches your desired brand voice.

The system will analyze this content for tone and then use that analysis to inspire a voice that represents your brand. You may skip to the "Finalize voice" step if you'd like to define your brand voice directly.

Re-analyze all

Generated with AI

You may modify before submitting.

▼

A warm and hearty welcome to U-Plus Bank...

TEXT

⋮

Analysis

We want our language to be concise and engaging because tech doesn't need to sound complex and boring. We look for ways to infuse our communications with energy and wit.

▼

Account sign up holiday offer email

TREATMENT

⋮

Analysis

We're a company with a beating heart, we talk to people like people and humanize the brand to earn a place in our customers' hearts.

▼

24-jan-open-account-email.html

FILE UPLOAD

⋮

Analysis

The brand has a sense of vibrancy and movement. We believe the future will be better than the past because our brand, our people and our network are catalysts for good.

▼

uplusbank.com/design

URL

⋮

Analysis

Our way of communicating is inclusive because we want everyone to join in on the fun. When we talk tech, we make it simple and clear, but not too serious because tech talk can feel like too much like homework and not enough like a conversation.

Next, in the **Finalize voice** step, review the generated brand voice definition, and if necessary, you can edit it. If there is no content analyzed in the previous step, you can manually provide the brand voice definition.

If you are not happy with the generated definition, you can reformulate and test a different variation of brand voice definition that is generated by AI.

Use the **Test drive your brand voice** section to test the new brand voice in real-time. Enter a prompt and choose whether or not to apply existing global directives and then generate sample content to test the brand voice.

UN

Create brand voice

Due in 2 days • Urgency 45

Define attributes

Analyze content

Finalize voice

Finalize brand voice definition.

This brand voice definition will be combined with your global directives when you generate content to ensure consistency across communications.

Brand voice definition *

✦ Re-formulate

Engaging Simplicity: We communicate concisely, infusing our language with energy and wit to make tech accessible and enjoyable.
Human Connection: We humanize our brand by speaking to people as people, earning a cherished place in their hearts through authentic communication.
Vibrant Optimism: Our brand exudes vibrancy and movement, believing in a brighter future fueled by our collective efforts for positive change.
Inclusive Conversations: We foster inclusivity in our communication, inviting everyone to join the conversation and making tech discussions clear and approachable, without sacrificing the fun.

Test drive this brand voice

Tell us what you want to write in this brand voice

Paste an example of marketing text that you want to re-write using the brand voice to sample it

☒ Apply global directives to sample

✦ Generate sample

Back

Submit

Review the generated content and click **Submit** to submit the change request.

The request is now routed to the Team Lead for approval.

The Team Lead logs in to Pega 1:1 Operations Manager. The **Approve brand voice** task is listed in the **My Worklist** section for the Team Lead's review.

The Team Lead reviews the brand voice and can generate additional sample content to test the brand voice.

They can choose to either approve or reject the brand voice. Rejecting the changes will send the change requests back to the build stage, where a business user must make the required changes and re-send it for approval.

TL

Approve brand voice
Due in 2 days • Urgency 45

Review and approve the following brand voice.
Rejecting will send the change request with your comments back to the build stage.

Brand voice name
Corporate voice

Description
The purpose of this voice is to be an overall representation of our organization.

Brand voice definition
Engaging Simplicity: We communicate concisely, infusing our language with energy and wit to make tech accessible and enjoyable.
Human Connection: We humanize our brand by speaking to people as people, earning a cherished place in their hearts through authentic communication.
Vibrant Optimism: Our brand exudes vibrancy and movement, believing in a brighter future fueled by our collective efforts for positive change.
Inclusive Conversations: We foster inclusivity in our communication, inviting everyone to join the conversation and making tech discussions clear and approachable, without sacrificing the fun.

Test drive this brand voice

Tell us what you want to write in this brand voice

Paste an example of marketing text that you want to re-write using the brand voice to sample it

☒ Apply global directives to sample

✦ Generate sample

Please enter your review comments *

Remaining: 1000 characters

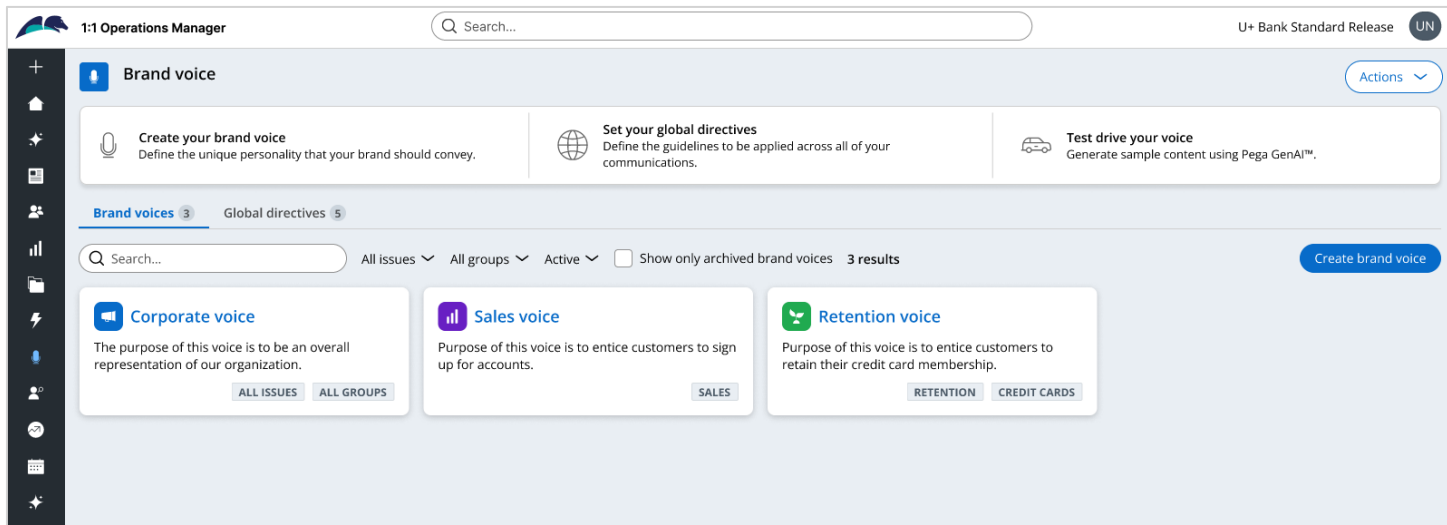
Cancel

Reject

Approve

Once the brand voice is approved, the change request is complete.

You can now see the brand voice on the Brand voice landing page. The system will use this brand voice, along with global directives to generate content with a distinct and consistent voice reflecting organization's unique tone and style.



You have reached the end of this video. You have learned:

1. How to create and submit a brand voice change request in Pega 1:1 Operations Manager.
2. How to analyze and finalize the brand voice content.

Accelerating 1:1 engagement with blueprint import

Description

Learn how to accelerate 1:1 Customer Engagement implementations by importing Customer Engagement Blueprints into Pega Customer Decision Hub™. This module walks you through the end-to-end process—from uploading a blueprint file in 1:1 Operations Manager to mapping strategic elements and generating operational artifacts using Pega GenAI™. You'll explore how blueprint components like Outcomes, Products, Experiences, and Messages are transformed into Issues, Groups, Actions, and Treatments, and how to verify and refine the import for production readiness.

Learning objectives

- Import a Blueprint into Customer Decision Hub

Importing a Customer Engagement Blueprint

Introduction

Explore one of the most powerful features in Pega Customer Decision Hub™: Importing Customer Engagement Blueprints. Whether working with marketing campaigns, customer experience initiatives, or comprehensive engagement strategies, this import capability enables you to transition seamlessly from blueprint design to live customer interactions.

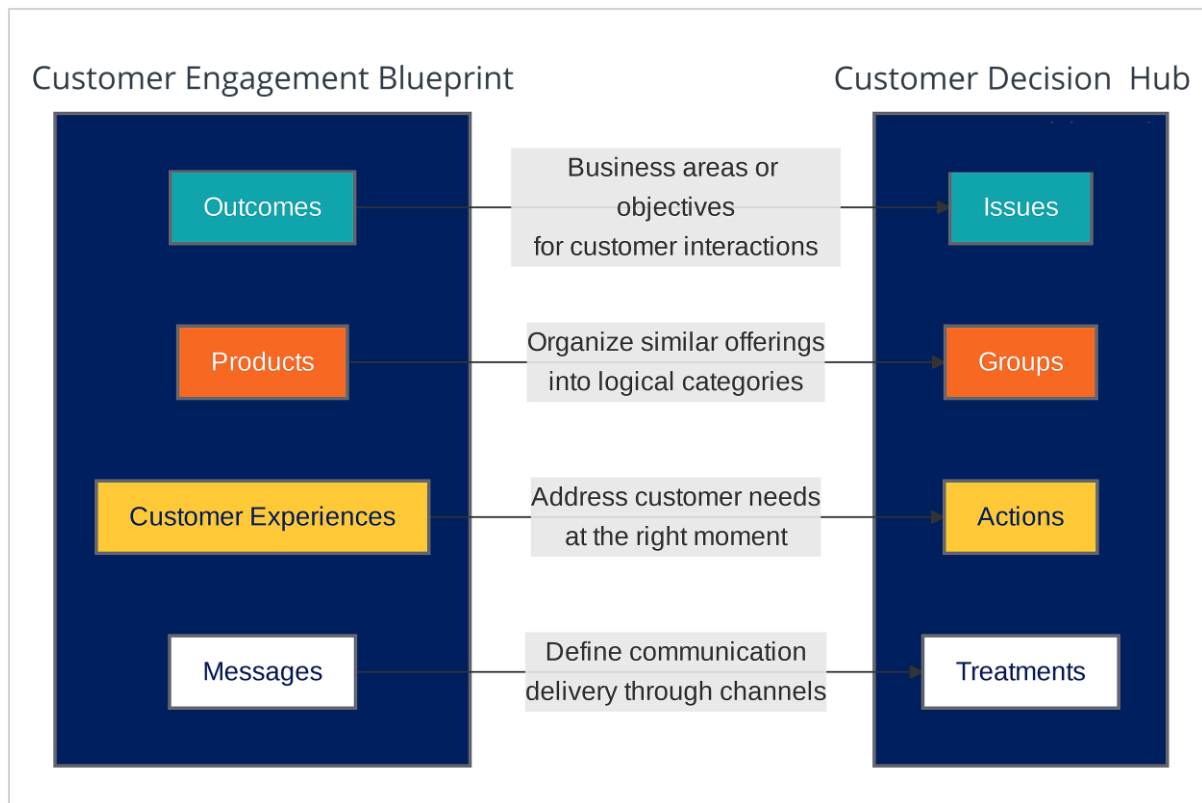
You take a blueprint file and import it directly into 1:1 Operations Manager, where it generates the necessary artifacts to accelerate your 1:1 Customer Engagement implementation.

Understanding Blueprint-to-Hub Mapping

The strategic elements defined in a Customer Engagement Blueprint are systematically translated into operational structures within Customer Decision Hub. This integration uses advanced Pega GenAI™ technology to enhance the design process for customer engagement strategies.

Here is how the transformation works:

- Outcomes from the Blueprint are mapped to Issues in Customer Decision Hub, representing the business areas or objectives that customer interactions target, for example, retention or growth initiatives.
- Products defined in the Blueprint correspond to Groups in Customer Decision Hub, which organize similar offerings into logical categories for more effective management.
- Customer Experiences outlined in the Blueprint transform into specific Actions within Customer Decision Hub, each designed to address customer needs or opportunities at the right moment in their journey.
- Messages articulated in the Blueprint are implemented as Treatments in Customer Decision Hub, defining how communications are delivered through various channels.



Importing a Customer Engagement Blueprint

To demonstrate the import process, consider this example: U+ Bank wants to introduce a new Cashback credit card to enhance its competitive positioning in the financial services market while delivering meaningful value to customers seeking everyday financial rewards.

The U+ Bank marketing team has created and downloaded a Customer Engagement Blueprint that contains customer experiences to attract new customers and deepen relationships with existing ones.

Pega Sites
Hello Hans

Dashboard
Pega GenAI + Blueprint Customer Engagement

1 Context
2 Setup
3 Personas
4 Brand
5 Experiences
6 Journeys
7 Data
8 Summary

BANKING • CDHBP-137024

Introducing the new Cashback credit card

Congratulations on charting the path to customer engagement! Share your Blueprint and prototype instantly by exporting below.

Download PDF
Download Excel
Download Blueprint
Share

Potential value of Pega Customer Decision Hub

Calculated additional value for 10,000,000 customers

\$265,936,694 per year ⓘ

Download calculation
Recalculate

Customer Engagement strategy needs

[Edit this section](#)

Who is this for?

Organization name	Website	Industry
U+ Bank	https://app-switcher.34a239b178c132.pegaenablement.com/ubank-website	Banking

What should the strategy focus on?

Objective details for your messaging

Objective: Our new cashback credit card enhances our competitive edge while offering meaningful rewards to customers. It expands our product portfolio to attract new users and strengthen existing relationships through personalized incentives that align with spending habits and financial goals. Subject: Market research highlights key customer needs: immediate cashback on everyday spending, frustration-free rewards programs, and financial flexibility without hidden conditions. This card caters to price-conscious consumers seeking transparency and value, providing both short- and long-term benefits. Expected Outcomes: We project a 15% increase in new customer acquisition within six months and a 20% boost in transaction volume among existing customers. Customers will enjoy up to 3% cashback, streamlined financial management via digital tools, and improved satisfaction scores. Business Rules: Eligibility: No credit cards for those under 18; premium banking requires a \$100K minimum balance. Applicability: Mortgage refinancing for existing holders; investment suggestions only during business hours. Suitability: No high-risk investments for conservative profiles; no additional loans for those with recent defaults.

Back

When you begin the blueprint import process, you first need to access the 1:1 Operations Manager portal, either as a Business User, Team Lead, or NBA Specialist. Upon selecting the Create from Blueprint option, you'll be presented with a window where you can upload your Customer Engagement Blueprint file.

The image shows a dark-themed dropdown menu from the PEGA 1:1 Operations Manager. At the top, there's a header with the PEGA logo and the text '1:1 Operations Manager'. Below the header, the word 'Create' is displayed with a close icon on the left and a chevron on the right. A list of options follows: 'Action', 'Action update', 'Customer Journey', 'Create from Blueprint' (which is highlighted with an orange rectangular box), and 'Other'.

401

The system processes this file and displays a preview of the assets that will be generated for your engagements. By default, you see three items from each category, though you can expand this view by clicking "Show more" to see additional Actions or Treatments that will be created based on your blueprint.

Create from Blueprint

Please upload a Customer Engagement Blueprint that you generated on pega.com/cdh-blueprint

Blueprint file*

Introducing the new Cashback credit card :

Upload

Delete

Below are the artifacts that will be generated for your engagements. The Blueprint content will be merged with existing artifacts. You will be able to select which artifacts to merge or keep in the case.

Customer Journeys 3

Actions 20

Treatments 40

Unlocking Everyday Rewards

Discovering Cashback Rewards for Everyday Purchases

Elevating Customer Loyalty

Maximizing Cashback Benefits for Existing Customers

Attracting New Customers

Seamless Transition to Enhanced Financial Rewards

Show more Journeys

Mapping the business structure and channels

The mapping stage represents a critical part of the import process. Here, the system presents your blueprint's business structure and channels alongside your existing Customer Decision Hub business structure and channels. This side-by-side comparison allows you to properly align the two environments.

Map the business structure

Please map the Blueprint business structure to your system issue and group to import these artifacts. If unsure, you can update these later in the process. You can also skip importing all artifacts related to that Blueprint business structure. [Learn more](#)

Blueprint business structure		System issue / group*
All issues / All groups	→	All issues / All groups
Acquire / Cashback Credit Cards	→	Acquire / Credit cards ▼
Grow / Cashback Credit Cards	→	Grow / Credit cards ▼

Map channels

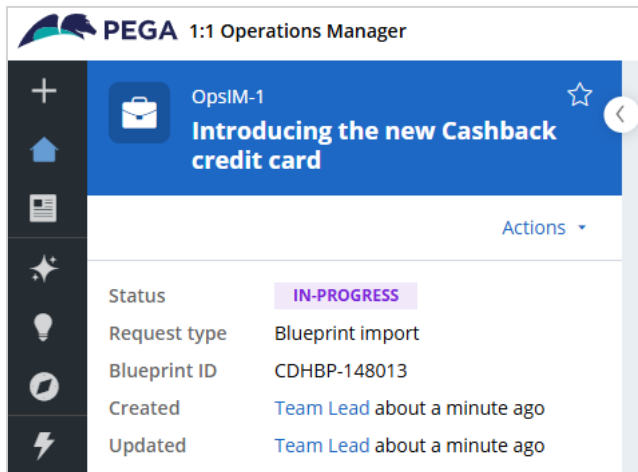
Please map the Blueprint channel group to your system channel group and channel to import these artifacts. If unsure, you can update these later in the process. [Learn more](#)

Blueprint channel		System channel group / channel*
Email	→	Email / Email
Web	→	Web / Web ▼

To facilitate this process, the system attempts to automatically map elements where possible, using fuzzy matching to identify potential correspondences. However, you may need to manually adjust these mappings to ensure proper alignment between your blueprint design and implementation environment.

Generating artifacts

When you proceed with the import, the system creates an **Operations Import Management** Case to track the import process. An OpsIM Case is a specialized transformation process, providing full visibility into the progress and maintaining an audit trail of all changes.



The actual generation of artifacts transforms your blueprint specifications into tangible implementation components. The system creates Journeys, Actions, and Treatments during this phase.

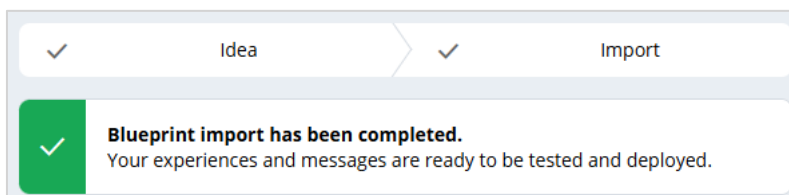
Once artifact generation is complete, you can review the results through a verification task. This step ensures that all imported elements align with your expectations and system requirements.

Verify imported artifacts

Customer Journeys 3

Name	Stages	Issue	Group	Import option	Import status
Unlocking Everyday Rewards	5	Acquire	Credit cards	Create new artifact	IMPORTED-NEW
Elevating Customer Loyalty	5	Grow	Credit cards	Create new artifact	IMPORTED-NEW
Attracting New Customers	5	Acquire	Credit cards	Create new artifact	IMPORTED-NEW

When verification is complete, submitting the case finalizes the import.



Important Considerations

Post-Import Refinement: The imported artifacts need further refinement before they are deployed to production. Remember that imported elements require customization and optimization based on your specific business requirements and customer engagement strategies.

Revision Management: To minimize disruption for other users, it is recommended to import to a new revision whenever possible. This approach allows you to manage changes effectively and maintain system stability during the implementation process.

Best Practices for Success

To maximize the value of your Customer Engagement Blueprint imports, consider these best practices:

1. **Plan Your Business Structure Mapping:** Before importing, review your existing Customer Decision Hub business structure and plan how blueprint elements should align.
2. **Use New Revisions:** Always import to a new revision to maintain system stability and change management capabilities.
3. **Verify Thoroughly:** Take advantage of the verification step to ensure all imported elements meet your requirements before finalizing the import.
4. **Plan for Refinement:** Budget time for post-import customization and testing before deploying to production environments.

Launching a new offer on the web

Description

Learn about the processes involved in creating a new Action in a business operations environment and propagate the changes to the production environment.

Discover how to use the power of Pega GenAI™ to simplify your daily tasks in Pega 1:1 Operations Manager.

Learning Objectives

After completing this module, you should be able to:

- Use Automated Insights suggestions.
- Submit a request for a new Action.
- Manage change request priorities.
- Build the Action with the appropriate details.
- Move the changes to the production environment.
- Create treatments using Pega GenAI.

Using Automated insights when creating treatments in 1:1 Operations Manager

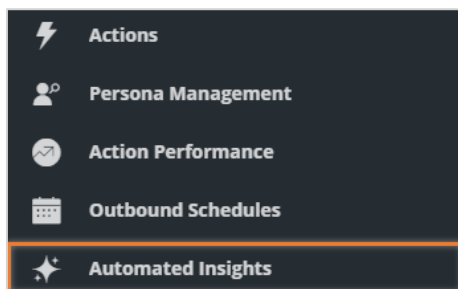
Introduction

Pega Infinity™ '23, introduces new features that use the power of Pega GenAI™ to simplify your daily tasks in Pega 1:1 Operations Manager. One of the main generative AI features available in 1:1 Operations Manager is Automated insights.

Transcript

This video shows you how to use **Automated insights** to make the change request creation process more efficient and effective.

Automated insights combine the power and features of Pega Value Finder analysis with Pega GenAI, to detect underperforming Next-Best-Actions and provide actionable recommendations for improving actions and treatments. The suggestions are available in 1:1 Operations Manager, in the **Automated Insights** section.



U+Bank has several active credit card offers. Based on a Value Finder analysis, the treatments associated with the actions do not bring the maximum business value. The bank aims to increase the accept rate of existing actions.

On the **Automated insights** tab, you can explore the recommended solutions to enhance actions and boost business value.

New change request: Update action treatments



Generated with Pega GenAI™
This change request will include AI-generated treatment suggestions. You will have the opportunity to decline or modify this content, or add your own treatments

Change request name *

Add treatments to Rewards card

Action

Rewards card

Completion date *

10/16/2023

Description

Add the recommended treatment(s) to the Rewards Card

Remaining: 947 characters

Attach files

Filename

Attach

Cancel

Submit

In the **Define channels and treatments** stage, you can observe two treatment recommendations for the action. U+ Bank aims to maximize the interest in the action, so proceed with both recommended options.

Each recommendation provides two variants of predefined treatments with Pega GenAI-generated images. Additionally, you can also observe the initial **Rewards card tile** treatment. Remove the variants that are less appealing, then set the **Placement type** to **Tile** and continue.

Automated insights



Create treatments for Superior Credit Elite

Use and refine

Superior Credit Elite have a low response rate for this action. Having treatments that appeal to this customer type may increase your business objective of increasing Grow of Creditcards. We have generated sample treatment options for multiple channels.

Selecting "Progress to plan stage" will initiate the process to update this action, where you can review, accept, reject, edit or reconfigure the recommended content.

Recommended content configuration

Channels	Web
Principle	Cialdini's principle of authority
Tone	Formal
Variants	2



Preview treatment suggestions



Create treatments for Low-income long-term residents

Use and refine

After you successfully create the change request as a Business User, log in as a Team Lead and prioritize the change request.

409

The next step is to complete the action build task. Log in as an NBA Specialist and check if you see the Design web treatment tasks for each of the newly created treatments. Assign the Design web treatment tasks to yourself and complete them one by one. As an NBA Specialist, you can also regenerate Pega GenAI-generated treatment images if they don't meet the business requirements. Pega GenAI-generated images can be used as an inspiration. However, the final decision about the content rests with the operations team.

From this point, the NBA Specialist, the Team Lead and the Revision Manger can finish the process until the new changes are deployed to production.

You have reached the end of this video. What did it show you?

- What Automated Insights are in 1:1 Operations Manager.
- How to use Automated Insights recommendations to make the Change Request creation process more effective and efficient.

Submitting a request for a new action

Introduction

Pega 1:1 Operations Manager streamlines the business change management process. With the Pega 1:1 Operations Manager, users introduce changes to Pega Customer Decision Hub™ by using a safe and guided process, test the changes, and conduct simulations before pushing the changes to the production environment.

Transcript

This video explains how to submit a change request in 1:1 Operations Manager.

The marketing team at U+ Bank, a retail bank, uses the web self-service portal as a marketing channel. The bank wants to promote using credit cards for utility bill payments to all customers who log in to the self-service portal.

The bank wants to introduce a new cashback offer of 5% to the customers who make bill payments with the credit card.

Business users and next-best-action specialists use Pega 1:1 Operations Manager to work collaboratively in a business operations environment.

A business user first creates a change request in Pega 1:1 Operations Manager to initiate adding a new action. A change request represents a change to one or more next-best-action artifacts.

As a business user, you create a change request to capture the business context of the required change.

The change request category indicates the type of change. In this case, you want to introduce a new offer, so click **Create >Action**.

In the action creation window, you can select the pre-defined action type, that most closely matches the use case or you can create the custom action change request. Opting for the predefined action type automatically populates certain data within the change request.

The bank wants to introduce a new offer, so select the category **Sales**.

In the change request form, enter a name that describes the purpose of the request.

As a business user, you provide the completion date as the expected timeframe in which the next-best-action specialists complete the request.

You can use the **Description** section to provide any additional business details that are useful for the next-best-action specialists.

Create the new change request. The new change request has a unique ID.

The change request is currently in the **Plan** stage.

Observe that the first task to be completed is **Define attributes**. The purpose of this task is to capture additional details from the business user about the new action to help the next-best-action specialists who work on it later.

In the **Define attributes** section, enter a name for the new action. In this case, the *Cashback 5 card*, add the description of the card and select the appropriate Business issue and Group if you know it. These details can be updated later in collaboration with the next-best-action specialist.

In the **Define attributes** Stage, you can also provide details about the purpose of your action or upload the marketing brief file to generate the Marketing Summary. A marketing brief is a document that defines the goals, target audience, and strategy for a marketing campaign. It contains key information about the campaign, offer, channels, timelines, and success metrics.

The Marketing Summary captures key business information about the product, including:

- Action details
- Campaign details
- Marketing context
- High-level description of the intended customer interaction

Customer Decision Hub uses this information as input for large language models (LLMs), along with elements such as Brand Voice and Cialdini's principles, to generate consistent and effective treatment content across channels.

Without the Marketing Summary, the system might lack sufficient context. As a result, the generated content might be less accurate or inconsistent, because the LLM might attempt to infer missing details.

The Marketing Summary feature is available only when Pega GenAI™ capabilities are enabled.

Continue to define the availability.

In the **Define availability** section, you can provide details on action availability.

Click **Continue** to skip this step and define the engagement policy.

In the **Define engagement policy** section, there are two options to define the engagement policy details.

You can describe the requirements using business language. The NBA Specialist is responsible for implementing these requirements later in the build stage.

You can also select the **Use condition builder** option to see four categories to define the criteria.

Eligibility rules are rules that qualify a customer for an action. For example, the age of the customer must be greater than or equal to 18.

Applicability rules are factors that determine if an action is appropriate at this point for this customer. For example, the customer does not own any credit cards yet.

Suitability rules are conditions that determine if an action is deemed appropriate and is in the best interest of the customer. For example, customer's debt-to-income ratio should be less than or equal to 48.

Contact policy conditions help avoid customer fatigue through over-communication. For example, hide if an offer is already accepted.

In this case, you add an eligibility rule: `Annual Income is greater than 10000`.

Continue to define the channels.

Finally, in the **Define channels** section, you can select the channel and add details about the channel in which the action is presented. As you opted for the predefined "Sales" action type at the beginning of the change request creation process, two channels—E-mail and Web—are preselected at this stage. In this case, the bank wants to display this offer on the web channel. Therefore, delete the E-mail channel group. In the **Web channel group** window, you can provide details for one or more web treatments (for example, the availability date and the placement type such as hero or tile). In this case, a tile.

Finish the task.

Notice that there is a new task in the **To do** section: **Rank change request**. As a business user, you are unable to work on these tasks as are intended for a team lead.

You have reached the end of this video. What did it show you?

- How to submit a change request in 1:1 Operations Manager as a business user.

Prioritizing change requests

Introduction

Prioritizing the available change requests helps the NBA Specialists to plan their day and work on the most important tasks first.

Transcript

This video explains how to prioritize a change request and submit it to the next-best-action specialist (or, NBA Specialist) in 1:1 Operations Manager.

A business user submits a change request to create a new action intended to promote using credit cards for utility bill payments. The business user has provided details for the action attributes by specifying all the details for the new action.

As a team lead, you are responsible for two tasks in the **Plan** stage.

The first task is to prioritize the available change requests so that the NBA Specialists can plan their day and work on the most important tasks first.

The second task is to assign peer reviewers to verify the engagement policy defined in the **Build** stage.

You must first rank the change request.

By default, the rank of a new change request is 0. In the **Rank** field, provide a numerical value that represents the relative priority of the change request compared to others in the work pool.

Proceed to the next task.

Now assign a peer reviewer. A peer reviewer can be any operator who can verify the change request details given by the business user against the configuration made by the NBA Specialist. In this case, the peer reviewer is the business user.

Complete the task.

Notice that there are new tasks that correspond to the **Build** stage of the change request in the **To do** section.

In this case, because the change request is a **Create new action** type, the following tasks are created: Define action details, Configure engagement policy, and Define web treatment.

The NBA Specialists are responsible for the tasks.

You have reached the end of this video. What did it show you?

- How to prioritize a change request and assign a peer reviewer to the request as a team lead.

Completing the action build tasks

The build stage is where an NBA Specialist completes the various build tasks generated by the system to create an action. This is the step in which you map the business requirements to specific settings in Pega Customer Decision Hub™ so that the system can auto-generate the relevant artifacts.

Transcript

This video shows you how to complete the action build tasks in 1:1 Operations Manager as a next-best-action specialist, or NBA Specialist.

A business user has recently submitted a change request to create a new action to promote credit cards for utility payments. The team lead has assigned a high priority to the change request so that you can work on it as an NBA specialist.

As an NBA Specialist, you can access the change request that is in the queue on the **Change requests** landing page. Open the request. As an NBA Specialist, you have various build tasks to complete that the system generated to implement the business requirements that the business user defined. In this case, you have three tasks. You need to assign any task to yourself before beginning work so that the system prevents a second person from picking up the same task.

The **Define action details** task corresponds to defining the basic action attributes. Assign the task to yourself and continue. The fields are prepopulated with values based on the information that the business user provided when creating the change request. However, you can change the prepopulated values in this **Build** task.

The fields correspond to the action attributes in Pega Customer Decision Hub™. For example, **Name** is the action name, and **Business issue** and **Group** decide the categorization of the action in the business hierarchy. Ensure that the **Availability>Always** is selected. Complete the task.

The **To do** list now has just two tasks remaining. The next task is to define the journey stage of the action. Assign the task to yourself.

On the **Define journey stage** tab of the task pane, you can mark the action to be available only when a customer is on a specified customer journey stage. Click continue to skip this step and define the engagement policy.

On the **Configure engagement policy** tab, you can view the engagement policy that the business user defined per the business requirement.

In this case, the business user defined the eligibility rule: **Annual income is greater than 10000**. Continue the task.

The next step is to verify if the engagement policy is correct. In this case, select Joanna, a customer who is supposed to receive the **Cashback 5 card** action, as her annual income is greater than 10000, the defined eligibility value. Run the validation and continue. Add a relevant comment and sent the task for peer review.

The last task is to design a web treatment for the action. Enter the respective details and complete the task.

The change request creation is now completed. Because the team lead assigned a peer reviewer to this change request, you now need to send it to the reviewer. In this case, the reviewer is the business user.

Once the business user reviews and approves the change request, you need to review all the completed tasks and generate artifacts from tasks as an NBA Specialist. When the artifacts generation is complete, refresh the change request page. Finally, validate and approve all the artifacts. Alternatively, if you want to change any attributes of the newly created artifacts, you can click **Return to build** to change the values and then regenerate the artifacts.

Now, as the Team Lead, open the change request to verify it. Approve the change request to promote it to the **Deployment** stage.

You have reached the end of this video. What did it show you?

- How to complete the action build tasks in 1:1 Operations Manager as an NBA specialist.
- How to review a task as a business user.
- How to, as a team lead, validate tasks that the NBA Specialists developed.

Deploying changes to production

In this stage you push the changes made by the business operations team to the pipeline for deployment.

Transcript

This video shows you how to deploy changes that are made in the business operations environment to the production environment.

To create a new action that promotes credit cards use for utility payments, a next-best-action specialist, or NBA Specialist, has completed all the **Build** tasks and validated the generated artifacts, such as actions and treatments.

Then, the team lead promoted the change request to the revision manager to further push the change request to deployment.

As a revision manager, you need to push the changes made by the business operations team to the pipeline for deployment. Access the change request by clicking **Revision Management** in the navigation pane.

You can see the change request in this revision. Now, continue to the validation stage, write a comment, and continue.

Check the status of the artifacts to validate the revision. In this case, the status is pass. Now, you can deploy the revision and complete the change request.

Observe that the revision changes are first queued and then get merged to the deployment pipeline. This process might take a while to load.

With this pipeline, you can merge changes to the development system of record, version the application, and generate a release artifact.

Deployment Manager then deploys the artifacts to the production environment.

In the production environment, you can select a subset of users to test the modifications in a production environment, and then roll out the changes to all users when the test results are acceptable. In this case, you activate the change request right away.

Complete the revision.

You have reached the end of this video. What did it show you?

- How to deploy changes made in the business operations environment to the production environment.

Creating treatments with GenAI

Introduction

Pega software suite, Pega Infinity™ '23, introduces new features that use the power of Pega GenAI™ to simplify your daily tasks in Pega 1:1 Operations Manager. One of the main generative AI features available in 1:1 Operations Manager is treatment creation.

Transcript

This video shows you how to create a treatment in 1:1 Operations Manager, using Pega GenAI features.

A treatment represents a message to be communicated to a customer. With Pega GenAI, designing persuasive web and e-mail treatments becomes easier and more efficient.

To enable the image generation functionality, you must configure your own generative AI image provider and set a provider key. Without this key, the application will not generate images.

U+Bank plans to announce a new, Travel Rewards card offer to its customers, through web and e-mail channels.

To begin, create a new change request of the **Create > Action** type, give it an appropriate name and description, and select the completion date.

Create Action

Select the pre-defined Action type that most closely matches your use case. These types pre-populate certain attributes, including if it's an Always-on or One-time Action.

Search...

Change selection

Sales

Promotional

Promote a new or upgraded product or service. Examples are marketing or promotional offers for a new credit card or phone upgrade.

OUTBOUND INBOUND

Change request name *

New, Travel card offer

Completion date *

10/16/2023

Description

Unlock a world of possibilities with the Travel Card – the ultimate companion for your globetrotting adventures! Elevate your travel experience and turn every journey into a memorable adventure with exclusive perks and benefits.

Remaining: 772 characters

Are you making this change to fix a production defect? ?

☐ Yes
☒ No

Attach files

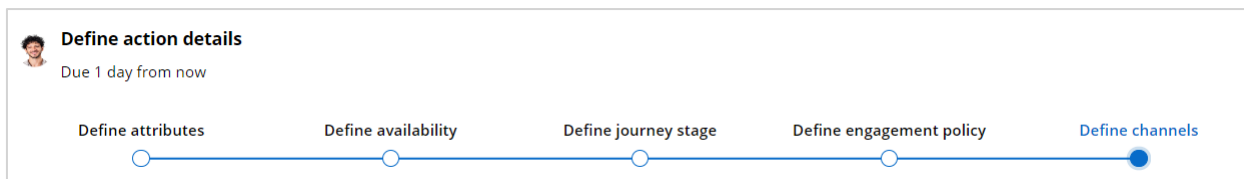
Filename

Attach

Cancel

Create

In the Plan stage of the change request completion process, you can define the attributes, availability, journey stage, and engagement policies. Once completed, you proceed to the **Define channels** stage.



In the **Define channels** stage, two treatment creation windows are open: e-mail and web. In this case, these treatment types are predefined because you selected the Sales action type at the beginning of the process.

The Pega GenAI feature is available in both web and e-mail treatment creation windows, after you click the purple **Polaris** icon.

When creating an email treatment, Pega GenAI assists in generating a message to a customer, based on the provided input details.

You then select one of seven Cialdini's Principles of Influence to specify the aim of the message.

Depending on the selected principle, the generated message will be authoritative, empathetic, or focused on the scarcity of a particular offer.

After selecting the principle, determine the tone of voice for the message. Finally, outline the specific items you wish to emphasize in the treatment.

The screenshot shows the 'Configure AI' dialog box for 'Treatment 1'. The 'Principle' dropdown is set to 'Cialdini's principle of social proof' and the 'Tone' dropdown is set to 'Formal'. Under 'Generate fields', the checkboxes for 'Headline', 'Subject', 'Body', and 'Image' are all checked. The 'Generate treatment' text area contains the text: 'U+Bank would like to present the new, exclusive, travel rewards card offer to their loyal, long-term customers.' At the bottom, there are 'Cancel', 'Preview prompt', and 'Generate' buttons.

Before generating the e-mail, click on the Preview prompt button, to view the instructions and the details used by Pega GenAI to generate the final message.

The screenshot shows the Pega GenAI interface. On the left is a sidebar with navigation options. The main area displays the 'Email channel' configuration. A 'Channels' timeline at the top shows steps: Define attributes, Define availability, Define journey stage, Define engagement policy, and Define channels. The 'Email channel' section includes a 'Treatment' configuration dialog box. This dialog box shows the same settings as the previous screenshot: Principle (Cialdini's principle of social proof), Tone (Formal), and Generate fields (Headline, Subject, Body, Image). The 'Generate treatment' text area contains the same text. Below the dialog box, there are fields for 'Name', 'Key code', 'Subject line', and 'Offer message'. The 'Subject line' field has a placeholder text: 'Provide a standard email subject line'. The 'Offer message' field has a placeholder text: 'Provide a headline to be show in email'. At the bottom right, there are 'Preview prompt' and 'Generate' buttons.

After clicking Generate, Pega GenAI creates a formal e-mail within seconds. You can review the generated content and make updates if necessary,

Subject line	Headline
Introducing the new Travel Rewards Card - elevate your travel experience!	Unlock a world of possibilities with the ultimate travel companion!
✦ AI options	✦ AI options
Offer message	
Dear valued customer, We are thrilled to introduce our latest offering - the Travel Rewards Card! As one of our loyal, long-term customers, we believe this exclusive card is the perfect companion for your globetrotting adventures. With the Travel Rewards Card, you can elevate your travel experience and turn every journey into a memorable adventure. Enjoy a range of exclusive perks and benefits designed to enhance your travels, such as complimentary airport lounge access, priority boarding, and travel insurance coverage. As part of our commitment to providing exceptional service, we have partnered with leading airlines, hotels, and travel providers to offer you special discounts and privileges. Whether you have a dream destination in mind or simply love exploring new places, the Travel Rewards Card will help make your travel dreams a reality. Apply for the Travel Rewards Card today and unlock a world of possibilities. Start planning your next adventure with confidence, knowing that you have the ultimate travel companion by your side. Sincerely, [Your Name]	
✦ AI options	
Image	
	
✦ AI options	

Each part of the message, such as the **Subject line**, the **Headline**, the **Offer message**, and the **Image**, can be re-generated or edited separately.

Headline
Unlock a world of possibilities with the ultimate travel companion!
✦ AI options
Re-generate Elaborate Shorten Configure
is the perfect companion for your globetrotting adventures

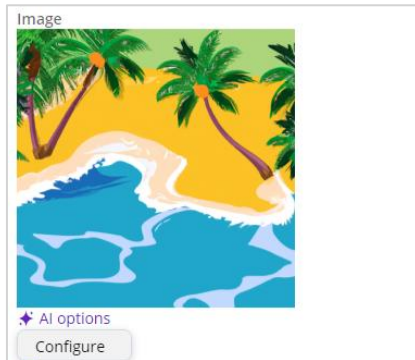
The other elements of the e-mail treatment, for example **Name**, **Availability** and **Business weight** must be set manually.

For the web treatment, which is the visual presentation of the offer on the website, Pega GenAI can generate an image that matches the offer, based on the given details.

Web channel group	
Treatment 1 Cialdini's principle of liking • Formal ✦ ⋮	
✦ Configure AI ✕	
Principle	Tone
Cialdini's principle of liking	Formal
Generate fields	
☒ Image	
Generate Treatment	
U+Bank wants to offer a new Travel Rewards Card to <u>their</u> valued customers.	
Cancel	Preview prompt ✦ Generate

You can select the **Principle** and the **Tone**, write the description in natural language and click Generate to see the AI-generated image.

If the image does not meet the business requirements, you can regenerate it by clicking the **Polaris** icon and then clicking **Configure**. In the **Configure AI** window, you can write a new description and generate a new image.



Set the remaining treatment elements manually and **Finish** the task.

After you successfully create the change request as a Business User, log in as a Team Lead to prioritize the change request.

The next step is to complete the action build task. You log in as an NBA Specialist and check for tasks related to the New, Travel card offer.



Assign the tasks to yourself and complete them one by one.

Finalize the first task by submitting the action details. Then complete the second task without adding a journey stage or engagement policies.

In the Design web treatment task, review the details of the treatment. As an NBA Specialist, you can also regenerate the image using the Pega GenAI feature if it doesn't meet business requirements. AI-generated images can be used as an inspiration. However, the final decision about the content rests with the operations team.

In the Design e-mail treatment task, review the details of the treatment and if needed, regenerate them using Pega GenAI. As an NBA Specialist, you must also complete the Destination field. Select Email output template from the dropdown list and then complete the task.

Business user and NBA Specialist, both have the right to use Pega GenAI capabilities and the Team Lead can review the contents created by Pega GenAI and approve it. It ensures that a chain of people checks the content generated by the AI.

Following the submission of updates by the NBA Specialist, log in again as a Team Lead to approve the updates and promote them for deployment.

The final step in the process is for the Operations Manager to deploy the changes to production.

You have reached the end of this video. You have learned:

- How to streamline the process of creating treatments using Pega GenAI features.
- The benefits of using Pega GenAI features.

Anticipating customer outreach

Reach explorer enables business users to explore the potential reach of new actions based on defined engagement policies.

Users can estimate the impact of their customer engagement policies without requiring technical expertise, enabling them to make data-driven decisions and assess how well the new action reaches its audience.

Reach explorer enables users to test-drive the actions by applying policies and learning about anticipated volume estimates at each engagement level, before deploying actions to production.

When should you use Reach explorer?

Use Reach explorer when you need to:

1. Estimate potential customer reach before launching a new action
2. Test different engagement policy combinations
3. Validate Action effectiveness before deploying the changes to production
4. Optimize customer engagement strategies based on anticipated volumes

Transcript

U+ Bank is preparing to introduce a new credit card promotion. The new offer is designed for current account holders aged over 25 years. Prior to implementing the full-scale launch, the content management team seeks to assess the potential reach among targeted customers.

To implement this requirement efficiently, log into Pega 1:1 Operations Manager as a Business User.

Navigate to **Reach explorer** landing page and create a new exploration. Select the business issue and group. The group level engagement policies (defined in the Next-Best-Action designer) will be inherited from the group by default. You can choose to apply them or ignore them.

Reach explorer: New exploration

Exploration focus
New Action

Issue*
Grow

Group*
Credit cards

Context
Customer

Engagement Policy

Experiment with criteria and see how it affects your volume. The policy will include criteria inherited from the group by default.

ELIGIBILITY

APPLICABILITY

SUITABILITY

CONTACT POLICY

Inherited from Creditcards

All actions
(Customer: Relationship length in days is greater than 1
and Customer: Is in collections is false)

Inherited from Creditcards

Customer actions
(Customer: Age is greater than or equal to 18)

and ⓘ

Customer

Select...

The **Anticipated reach** section provides a detailed overview of the expected reach based on the engagement policy configured. It provides a graphical and tabular view of reach reductions at every policy phase, helping business users in the decision-making process.



The starting population of the anticipated reach is based on the sample size setting in the data migration configuration.

Data sampling

Transfer the inbound and outbound data from the production environment to the business operations environment. Sampled Data Sets will be generated using random sampling up to a maximum of 20% of the total customer population in production.

Data to transfer *

Data-Decision-Request-Customer-CDH

This also includes data from Interaction history and Adaptive Models.

Inbound data sampling

Select the timeframe for the sampled inbound data. The daily sampling percentage is calculated using the timeframe and the average number of decisions per day in production while the total number of decisions to be migrated will be fixed at 20% of the population in production.

Timeframe (between 1 and 31 days)

Last days

Outbound data sampling

Select the percentage of outbound data to migrate, up to 20% of the population in production.

10%

Estimated sample sizes

Provide input data that is representative for your production environment to estimate the size of the sampled Data Sets. In production, the actual population and number of decisions per day are used.

Input data

Customer population

10,000,000

Inbound decisions per day

5,000,000

Calculated sample data set sizes

Inbound data set

1,995,000 decisions over 7 days (5.7% sampling rate)

Outbound data set

1,000,000 customers (10% sampling rate)

Add the new criteria in the Engagement policy section:

Eligibility: Age is greater than or equal to 25 years

Engagement Policy

Experiment with criteria and see how it affects your volume. The policy will include criteria inherited from the group by default.

ELIGIBILITYAPPLICABILITYSUITABILITYCONTACT POLICY

Inherited from Creditcards

All actions

(Customer: Relationship length in days is greater than 1

and Customer: Is in collections is false)

Inherited from Creditcards

Customer actions

(Customer: Age is greater than or equal to 18)

☒ Apply

and ①

Customer

Age

is greater than or equal to

25

Group ANDs

Once the criteria have been added, refresh the counts with the latest engagement policy to see how the anticipated reach updates.

Anticipated reach

as of July 16 2025 05:40 AM EST

400.0K

of 2.0M (20%)

Error threshold +/-10k

Now, you can analyze the anticipated reach.

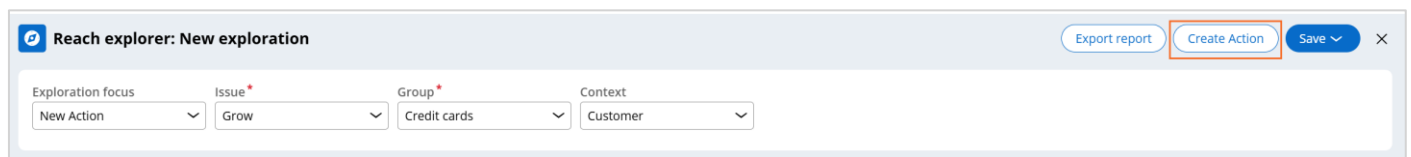
Anticipated reach numbers show expected customer volume based on defined engagement policies.

Engagement levels help identify how different customer segments respond to specific policies, enabling fine-tuning for maximum effectiveness.

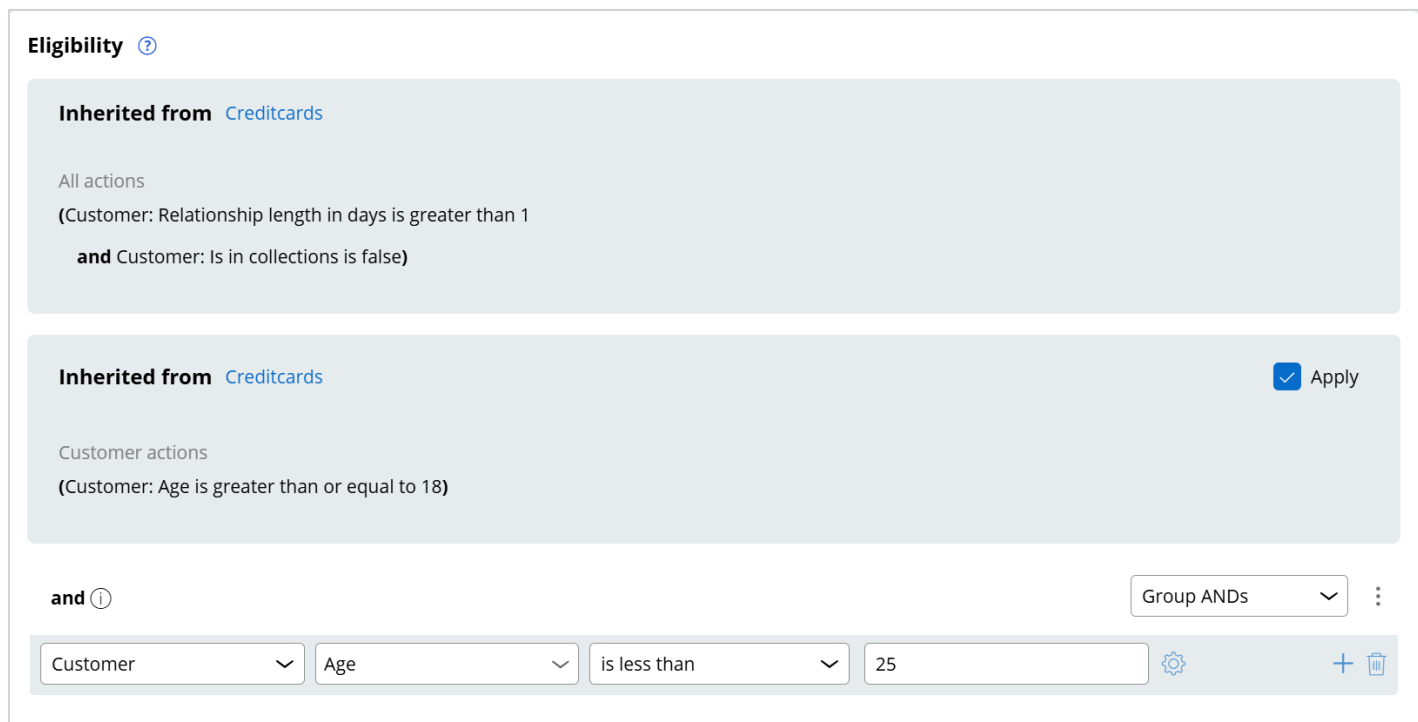
Save the exploration.

You can modify the Engagement policy with different criteria and iterate the exploration until you reach the optimal results.

After evaluating engagement policies and results, you can create a change request for the new action from the same landing page.



The system prepopulates the **Create Action** change request with Business issues/group, and defined engagement policy.



You have reached the end of the video. You have learned:

1. How to create an exploration to identify the potential reach of a new action.
2. How to apply different engagement policy criteria and observe the anticipated reach.
3. How to save an exploration and create a change request for the new action with a predefined engagement policy criteria.

Update existing actions

Description

Pega 1:1 Operations Manager currently supports three types of change requests. Choosing the right change request category initiates the appropriate change management process flow. In this module, you learn about the change management process to update existing actions.

Learning objectives

After completing this module, you should be able to:

- Update existing actions using 1:1 Operations Manager.

Update existing actions

Introduction

In 1:1 Operations Manager, there are three types of change requests currently supported. Selecting the right change request category initiates the appropriate change management process flow. In this topic, you will learn the change management process of updating existing actions.

Transcript

This video explains the concept of updating existing actions by using Pega 1:1 Operations Manager™.

In 1:1 Operations Manager, there are three types of change requests that are currently supported. Selecting the correct change request category initiates the proper change management process flow.

In this topic, you learn how to update existing actions in 1:1 Operations Manager.

You can request one or more changes at the action level when updating an existing action. Depending on the type of update required, you can select the task from the available list.

For example, if the two credit card actions you want to update are the Rewards Card and Rewards Plus Card, you can modify only the action details for the Rewards card, and you can modify the engagement policy and action details for the Rewards Plus card action.

Any change that a business user initiates goes through the change management process flow that majorly involves four roles and five different steps.

1. The business user starts the process by defining the change request.
2. Then, the team lead prioritizes the change requests that are received.
3. The NBA Specialist then configures the change request and submits it back to the team lead.
4. The team lead promotes the change request for deployment.
5. And finally, the revision manager deploys the revision.

As a business user, you define the change request for the NBA Specialist to understand the changes to make.

In this step, you can choose the actions that you want to update and select the tasks that you want to modify to those actions.

Notice that multiple actions can be modified as part of one change request, and each action can have its own set of changes. For example, while updating Action 1, you can change only the Engagement policy, while for Action 2 you can change the Web treatment and Engagement policy.

In the change management process flow, the second step is to prioritize the change request created by the business user. In this stage, the team lead can also assign a peer reviewer to review the engagement policies created. However, this task is optional.

Once the change request is assigned a rank, a team of NBA Specialists gets to work on that change request. As an NBA Specialist, you can see all the tasks related to all the actions of the change request once you start working on it. You can start working on them by assigning any of the tasks to yourself.

In 1:1 Operations Manager, while updating a group of actions, modifying the configuration of each action is an independent process. As an NBA Specialist, once you assign a task related to one action to yourself, you can see only the tasks related to that action. You need to verify the artifacts and then complete configuring all the tasks related to that action before you work on the next action of that change request.

Finally, once you complete all the tasks of that change request, you validate all the artifacts configured and submit the change request back to the team lead.

In the process of change management flow, the next step as a team lead is to verify the change request configured by the NBA Specialist and approve it.

Once approved, the changes are made available or submitted to the revision manager, who can deploy the changes to production and complete the revision.

You have reached the end of this video. What did it show you?

- How to update existing actions using 1:1 Operations Manager.

Updating existing actions in bulk

Introduction

One of the change requests currently supported in 1:1 Operations Manager is the **Action update** change request. Initiating this request triggers a process for updating the properties of single or multiple actions. Within the **Action update** change request, the **Bulk Edit** option is available, streamlining the creation of change requests aimed at updating several actions with one specific modification.

Transcript

In 1:1 Operations Manager, there are three types of change requests that are currently supported:

- Create Action
- Create Action update
- Create Other

In addition to single action updates, the **Action update** change request type enables you to perform bulk updates on always-on actions. A bulk edit feature is a valuable option when you need to implement a specific change across multiple actions. For instance, if a business requirement entails modifying the availability of 100 actions, instead of creating change requests and modifying settings separately for each action, you can make a unified modification. The bulk update simplifies the process of creating change requests for multiple actions.

Consider the following scenario: U + Bank, a retail bank, wants to limit the availability of two actions: the Rewards Card and Rewards Plus card, and make them available only for the next two weeks.

To meet the business requirement, you need to design a bulk edit change request. As a Business user, create the **Action update** change request and select the credit card actions

that require editing.

Update existing Actions

Name *

Update the availability

Completion date *

8/17/2023

Are you making this change to fix a production defect? ?

☐ Yes ☒ No

Business issue ?

Grow

Group ?

Credit cards

Description

Update the availability of the Rewards and Rewards Plus cards: Available within a defined period of time from 10.08.2023 to 24.08.2023

Remaining: 865 characters

Attach files

Filename

Attach

Cancel

Create

In the **Detail Updates for Selected Actions** stage, the **Bulk edit** option becomes accessible when you choose two or more actions from the list. In this case, select the Rewards Card and Rewards Plus Card, and proceed with the bulk update. The bulk edit option supports several predefined tasks. In this case, modify the action availability.



Detail updates for selected Actions

Due 6 days from now •

Select actions to update

Detail updates for selected actions

Search...

2 results

Bulk edit

☒	Action	Con	Issue	Group	Treatments
☒	Rewards card	Cust	Grow	Creditca...	1
☒	Rewards Plus card	Cust	Grow	Creditca...	1

Back

Edit attributes

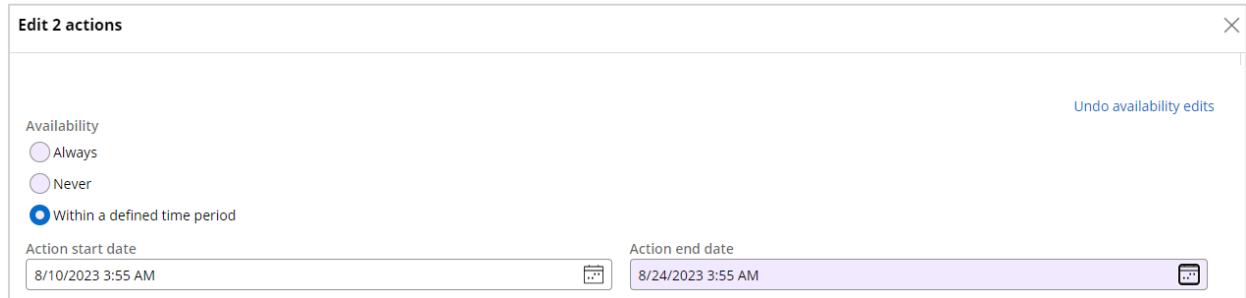
Edit availability

Edit bundle attributes

Edit treatments

Edit other attributes

Within the **Edit 2 actions** window, you can set the actions as available at all times (always visible to customers), unavailable (never active), or within a defined time period (visible temporarily). Adjust the availability timing according to the requirement, and submit the change request.



The screenshot shows a window titled "Edit 2 actions" with a close button (X) in the top right corner. Inside the window, there is a section for "Availability" with three radio button options: "Always", "Never", and "Within a defined time period". The "Within a defined time period" option is selected. To the right of these options is a link that says "Undo availability edits". Below the availability options, there are two date and time pickers. The first is labeled "Action start date" and shows "8/10/2023 3:55 AM". The second is labeled "Action end date" and shows "8/24/2023 3:55 AM". Both pickers have calendar icons to their right.

After you successfully create the change request as a Business User, log in as a Team Lead to prioritize the change request.

The next step is to complete the action build task. Log in as an NBA Specialist and check if you can see two tasks, one for each action. Despite having created a single bulk edit change request for multiple actions, as an NBA Specialist, you should complete tasks individually.

Assign the first task to yourself and finalize the task by reviewing the availability setting. Given that the Business User has updated availability during the planning stage, the build stage only requires verification and confirmation of the changes. Upon completing the build stage, review and submit the task. Repeat the same process for the second task and then submit the changes.

Following the submission of updates by the NBA Specialist, log in again as a Team Lead to approve the updates and promote them for deployment.

The final step in the process is to deploy the changes to production using Operations Manager.

Implementing a business change using Revision Management

Description

Business requirements change rapidly and typically have a different release cycle than the enterprise release cycle.

Change request types in the 1:1 Operations Manager portal support most business changes. However, for some low-volume business changes, such as changing decision strategies and editing decision data rules, you use the revision management capabilities in Pega Customer Decision Hub.

Learn how to make such low-volume business changes in the BOE environment and deploy them to production.

Learning objectives

- Initiate a change request for low-volume business change in the BOE.
- Implement the change request as an NBA Designer.
- Approve and deploy the changes to all environments using the business change pipeline.

Modifying a decision strategy

Business requirements change rapidly and typically have a different release cycle than the enterprise release cycle.

To implement any business change, you create a change request in 1:1 Operations Manager. Such changes include creating and modifying actions, treatments, group-level eligibilities and so on.

Every change request requires an associated revision. When you create a new change request, the system automatically associates the change with an existing revision. If an existing revision is not available, a new revision is created within revision management. All the changes made to the change request reflects in the revision management.

The change request types in the 1:1 Operations Manager portal support most business changes. However, for some low-volume business changes, such as changing decision strategies and editing decision data rules, use the revision management capability to create a new revision and implement the business request. You can implement such changes using revision management in the Customer Decision Hub portal.

As a best practice, use 1:1 Operations Manager portal to initiate the change requests from the existing change management flows to avoid creating conflicts between the two portals.

Transcript

This demo shows you how to create and implement a change request using Revision Management.

U+ Bank uses Pega Customer Decision Hub™ and cross-selling on the web by showing various credit card offers to its customers.

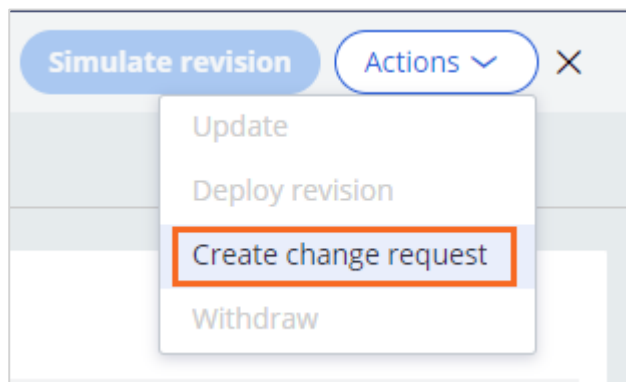
The bank wants to modify the credit score decision strategy that segments customers into two categories based on the customer credit score: **Suitable** and **Not Suitable**.

Such a low-volume business change cannot be achieved by the change request types available in 1:1 Operations Manager. So, you must initiate and implement such change requests using the revision management capabilities of Pega Customer Decision Hub. To carry out the business change, as a team lead, create a revision manually in the Revision Management section of 1:1 Operations Manager.

A dialog box titled "Create Revision" with a close button (X) in the top right corner. The main text reads "New Overlay standard release CDH". Below this, it says "Choose the closing date for this revision". There is a "Due by *" label followed by a date input field containing "9/1/2022" and a calendar icon. At the bottom, there are two buttons: "Cancel" on the left and "Submit" on the right.

Note that only one revision can be active at a time, and you cannot create a revision when there is an existing revision in an open state.

Once you create the revision, you switch to Customer Decision Hub to access the revision created in 1:1 Operations Manager. Now, within the same revision, you create a new change request using the Revision Management feature in the Customer Decision Hub portal.



In this case, you create a new change request to edit the engagement strategy and assign the change request to NBA designer.

When you create a change request in 1:1 Operations Manager, the required rules are automatically added to the revision and are available for the NBA designer to edit based on the objective of the task.

When the change request is created in the Customer Decision Hub portal, you must manually add the rules that are necessary to complete the new change request to the revision. This step is to ensure ensures that the rules are available for the NBA designer to implement the change.

For this change request, add the **Credit Score** rule of the Strategy type and submit the change request.

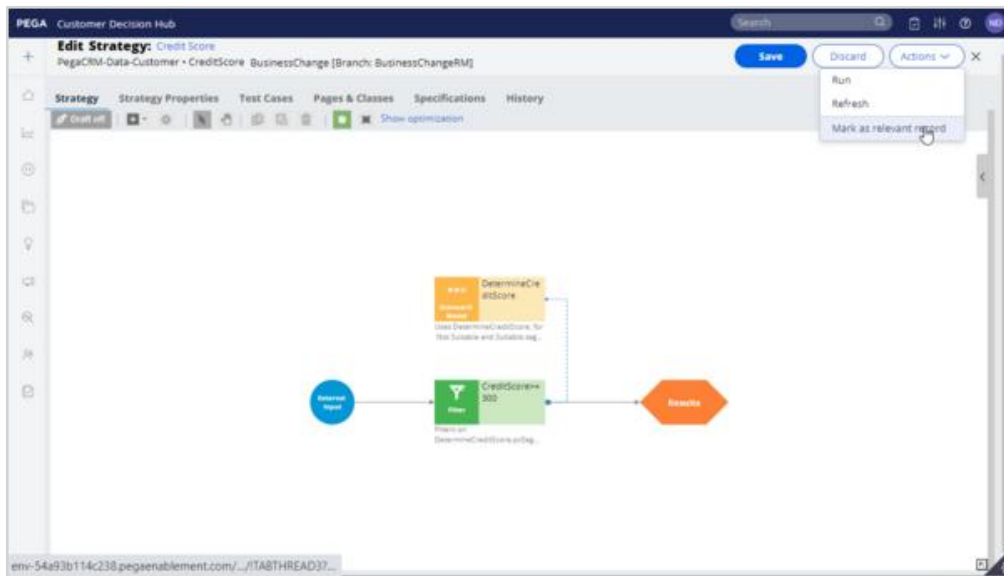
Once the change request is submitted, as an NBA designer, using revision management, you can access the change request assigned to you and the rules associated with it.

In the Revision Management landing page, the **My Work** section displays all the change requests that are assigned to the NBA designer. All the change requests created in 1:1 Operations Manager and in Customer Decision Hub are visible in the list of change requests. The **Scope of changes** section displays all the rules that are available to complete the change.

An NBA designer can send the change request back to the team lead if additional rules are required to complete the change request. The NBA designer can also create new rules, and those new rules are automatically added to the change request.

The NBA designer then modifies the engagement strategy that uses a scorecard to determine whether a customer is suitable to receive the credit card.

To make the decision strategy available in the Next-Best-Action Designer, the NBA designer marks the strategy as a relevant record, if not marked already and then submits the change request for approval to the team lead.



In a real-life implementation, at this stage, the NBA designer typically submits the change request for testing to ensure that the business requirement is properly implemented. For this demo, the change request is submitted directly to the team lead for approval.

Name	Type	Updated	Updated by	Previous comment
CreditCards	Next-Best-Action Config	1 day 1 hour ago	CRMDecisioning Administrator	

Name	Type	Updated	Updated by	Previous comment
Credit Score	Strategy	5 minutes ago	NBA Designer	---

On the Revision Management landing page, the team lead can access the change request, and then approve it. The status of the change request changes to *Resolved-Completed*.

Once the change request is complete, the changes are available to the revision manager, who can deploy the changes to production.

You have reached the end of the video.

What did it show you?

- How to create a new revision in 1:1 Operations Manager.
- How to create a change request by using revision management in the Customer Decision Hub portal.
- How a team lead can include one or more rules for editing in a change request.
- How an NBA designer can implement a change request in revision management.

Editing a group-level engagement policy

Pega 1:1 Operations Manager currently supports three types of change requests. Selecting the correct change request category initiates the proper change management process flow and ensures that the appropriate rules are copied to the revision, to provide a smooth user experience.

Transcript

This demo shows you how to initiate a business change in 1:1 Operations Manager and implement it using Revision management in Customer Decision Hub portal.

U+ Bank uses Pega Customer Decision Hub™ and currently cross-sells on the web by showing various credit card offers to its customers. The bank now wants to offer credit cards to only those customers with a credit score greater than or equal to 300. So, the bank wants to add a group-level suitability condition in the engagement policy to implement the business change.

Such a change is classified as a low-volume business change and is treated as an “**Other**” type of change request. The objective of this change request is to edit the group-level engagement policy condition. This change request type has similar stages to creating or updating action change requests.

In 1:1 Operations Manager, as a business user, you start implementing the business requirement by creating a change request to capture the business context of the required change. The change request category indicates the type of change, in this case **Other**.

The second step in the change management process flow is to prioritize the change request created by the business user. In this stage, as the team lead, you access the change request created by the business user from the **Change Requests** landing page and assign a rank to the change request. Then you add the tasks required to implement the business change.

Every task has an objective selected by the team lead from a predefined list of objectives. Selecting the right objective is important because depending on the objective selected, the right rules are automatically made available to the NBA Designer to make changes during the build stage. This means that in the background, these rules are automatically added to the revision.

In this case, since the business use case is to offer the actions only to those customers with a credit score greater than or equal to 300, you select the objective **Manage group-level Engagement policies** and then assign it to the NBA designer.

Once the change request is submitted, as an NBA designer you log in to the Customer Decision Hub portal to access the change requests assigned by the team lead.

When you open the change request, in the Scope of changes section, the rule required to edit the engagement policy and add the suitability condition is available.

To add the suitability condition, access Next Best Action Designer and then open the engagement policy for the specific business issue and group. In the **Suitability** section, enter the right engagement policy condition, in this case, *Credit Score higher or equal to 300*, and then save the engagement policy. Then submit the change request.

Once the changes are complete, the change request moves to the test phase and is routed to the NBA specialist for validation. The NBA specialist validates all the artifacts configured and then submits the change request to the team lead.

The team lead then reviews the artifacts and approves them to complete the change request and promotes it to the revision manager for deployment. The status of the change request changes to **RESOLVED-COMPLETED**.

Once the change requests are complete, the changes are made available to the revision manager, who can deploy the changes to production.

You have reached the end of the demo. What did it show you?

- How to create a change request of **Other** type.
- How to add tasks to a change request and assign it to an NBA Designer.
- How an NBA designer implements a change request in the Customer Decision Hub portal.
- How a team lead can approve and promote the changes to deployment.

Implementing a fast release revision

Description

Learn how to efficiently implement and deploy critical and emergency business changes by using the CDH fast release functionality.

Learning objectives

- Explain how the fast release capability of Pega 1:1 Operations Manager works.
- Differentiate the change management process of a fast-track change request from a standard change request.

Fast-release revisions

You implement business changes in the business operations environment (BOE) by using revisions. Each revision consists of one or more change requests. After individually implementing these change requests, when they are ready for deployment, the Revision Manager deploys all the change requests together as a release. This process is a standard release.

However, you might need to implement some unplanned business changes that are of high priority. These unplanned changes are emergency changes to implement and deploy immediately. Such change requests are called fast-track change requests.

Fast-track change requests

Fast-track change requests effectively handle urgent business demands. A fast-track change request offers a means to efficiently implement critical changes without interfering with current revisions. Revision Management in Pega 1:1 Operations Manager addresses the fast-track changes by using fast release revisions.

Examples of fast-track change requests include:

1. Fixing a typo in the action that was deployed to production (updating an existing action).
2. Deactivating an action from production (updating an existing action).
3. Communicating with customers in an emergency (creating a new action).

With fast-release revisions, the business content team can implement and deploy critical business changes without having to wait for other change requests to be implemented and ready for deployment.

To create a fast-track change request, when you create a request, you mark the change request as a production fix. By completing this action, you add the change request to the fast-release revision, with the release type **CDH fast release**.

Update existing Actions

Name *
Fixing a typo in the Standard Card action de

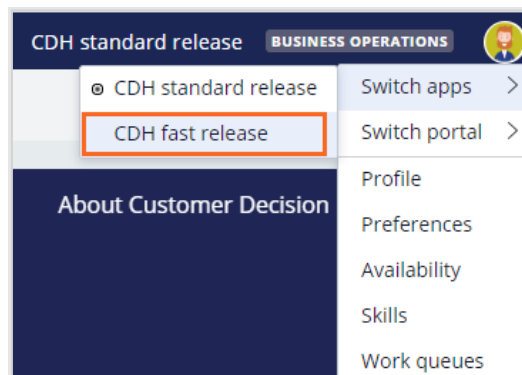
Completion date *
8/25/2023

Are you making this change to fix a production defect? ?
☒ Yes ☐ No

Business issue ?
Grow

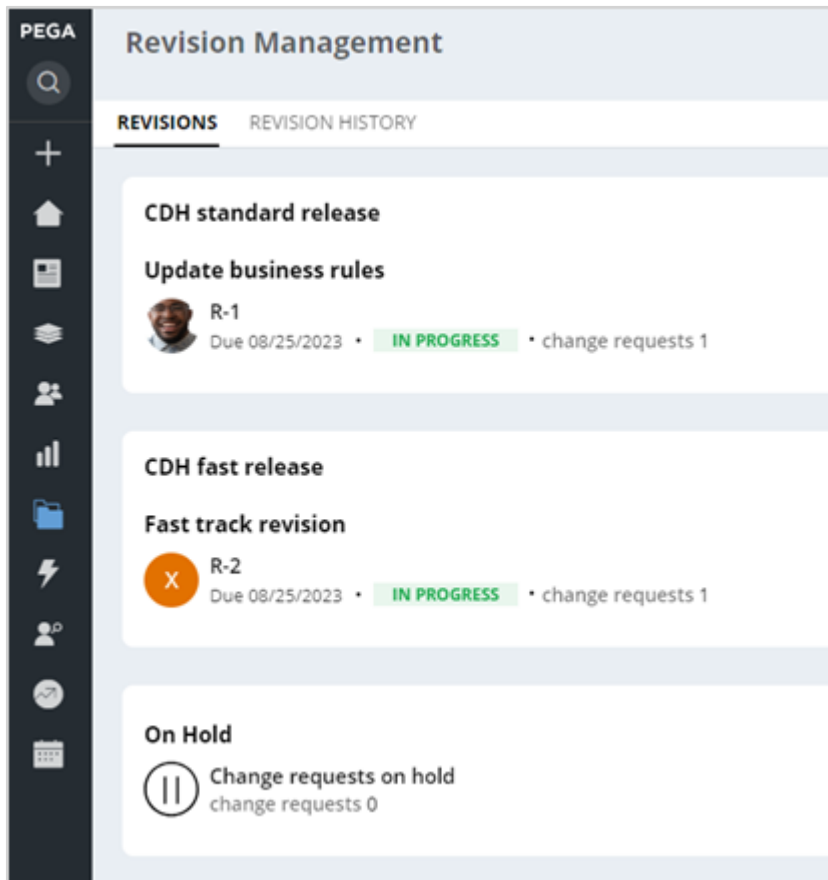
Group ?
Credit cards

The implementation of the fast-track change is similar to a standard business change. During the deployment process, the revision manager switches to the CDH fast release application to deploy the fast-release revision through the **fast release pipeline**.



Like a standard revision, a fast-release revision can also have multiple change requests. You can track the fast-track change requests in the **CDH fast release** section of Revision Management in Pega 1:1 Operations Manager.

The **CDH standard release** section displays the existing standard revision. You can access the list of change requests that are associated with a revision. The **On hold** section lists the change requests that are put on hold.



Note that there can be only one revision for a release, that is, one standard revision in a CDH standard release and one fast-release revision in a CDH fast release.

In summary, you implement and deploy business changes in the BOE in two types of revisions:

- Standard release revisions for regular business change requests
- Fast release revisions for emergency and high-priority change requests

Implementing outbound communication in the BOE

Description

Discover how to implement outbound customer engagement in a Business Operations Environment (BOE) and deploy necessary changes to production. Explore how you can create essential artifacts for outbound communication by using Pega 1:1 Operations Manager.

Learning objectives

- Create and deploy one-time Actions in a BOE.
- Create and deploy artifacts required for implementing outbound communication.

One-time actions

Effective communication is critical for a business, especially when it comes to delivering timely and urgent messages to customers. In exceptional circumstances, businesses may need to contact all, or a subset of their customers, outside of their regularly scheduled updates. For example, if U+ Bank temporarily closes one of its branches due to maintenance activity, it should send out an email communication to all customers, or those who are affected.

In such scenarios, you can send out the communications using one-time actions.

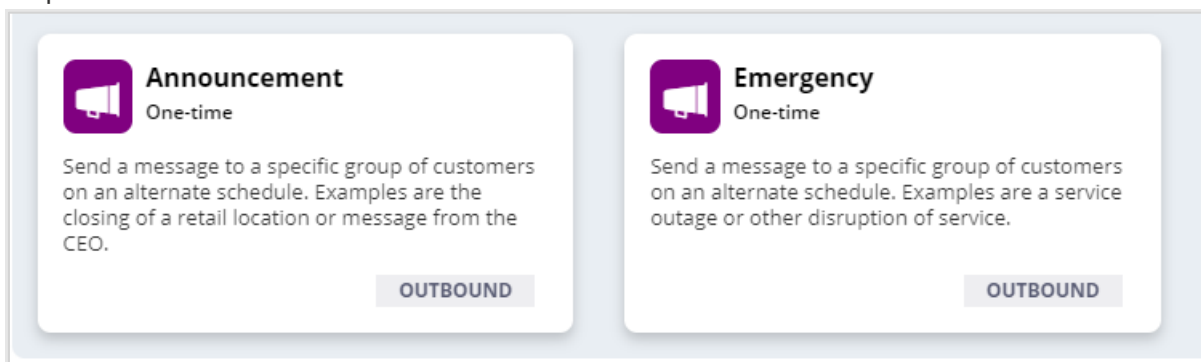
A one-time action is a batch communication that all or a subset of customers receive at a specific date and time, that is not coordinated with the always-on outbound schedules. These actions are created in a Business Operations environment to deliver one-time urgent or time-sensitive communications that do not repeat automatically.

When should you use One-time actions?

One-time actions are sent when the communication:

1. Must be sent to all or a group of customers.
2. Must be sent at once to all the customers and should not be repeated.
3. Communication is to be sent outside the regular outbound schedules.

To create a one-time action, you must choose the relevant tile while creating the change request.



Examples of one-time action change requests include:

- An emergency communication to all the customers from the CEO.
- Compliance notice notifying customers of changes in benefits and terms.

- Announcement of a branch closure.
- Communication of services outage due to maintenance activity in an area.

Unlike always-on actions, no engagement policies or constraints apply to one-time actions. One-time actions use a defined audience, and all the members of that audience receive the same message at the same time. These actions can be created and deployed to production through both standard release and fast-release revisions. However, as most one-time actions are used for immediate communication, it is recommended to use fast-release revision for deploying one-time actions.

The following figure shows which policies and constraints apply to different outbound interactions:

		Eligibility/ Applicability/ Suitability conditions	Arbitration	Outbound channel limits	Outbound action limits	Contact policies
Always-On actions	Promotional (Default actions)	✓	✓	✓	✓	✓
	Transactional actions	✓	✓	✗	✓	✓
	Mandatory actions	✓	✗	✗	✗	✓
One-time actions	One-time actions	✗	✗	✗	✗	✗

Creating a One-time action

One-time actions are created in 1:1 Operations Manager in a Business Operations environment, to deliver one-time, urgent, and time-sensitive communications that do not repeat automatically.

Transcript

This video demonstrates how to create a one-time action in 1:1 Operations Manager.

U+ Bank intends to temporarily close its operations at the Brickell Square branch because of planned maintenance work. The bank wants to communicate the message to all customers or those who are affected, through an email channel.

The process of creating a one-time action is the same as creating a new action in 1:1 Operations Manager.

To begin, as a Business User, you create a new change request of the **Create > Action** type and select the appropriate tile. In this case, **Announcement**. Enter an appropriate name and description for the change request and specify the completion date.

Create Action

Select the pre-defined Action type that most closely matches your use case. These types pre-populate certain attributes, including if it's an Always-on or One-time Action.

Announcement
One-time

Send a message to a specific group of customers on an alternate schedule. Examples are the closing of a retail location or message from the CEO.

OUTBOUND

Change selection

Change request name *
Brickell Sq Branch is closing

Completion date *
2/6/2024

Description
The U+ Bank Brickell Sq Branch will be closed temporarily from Feb 10th, 2024 until further notice.

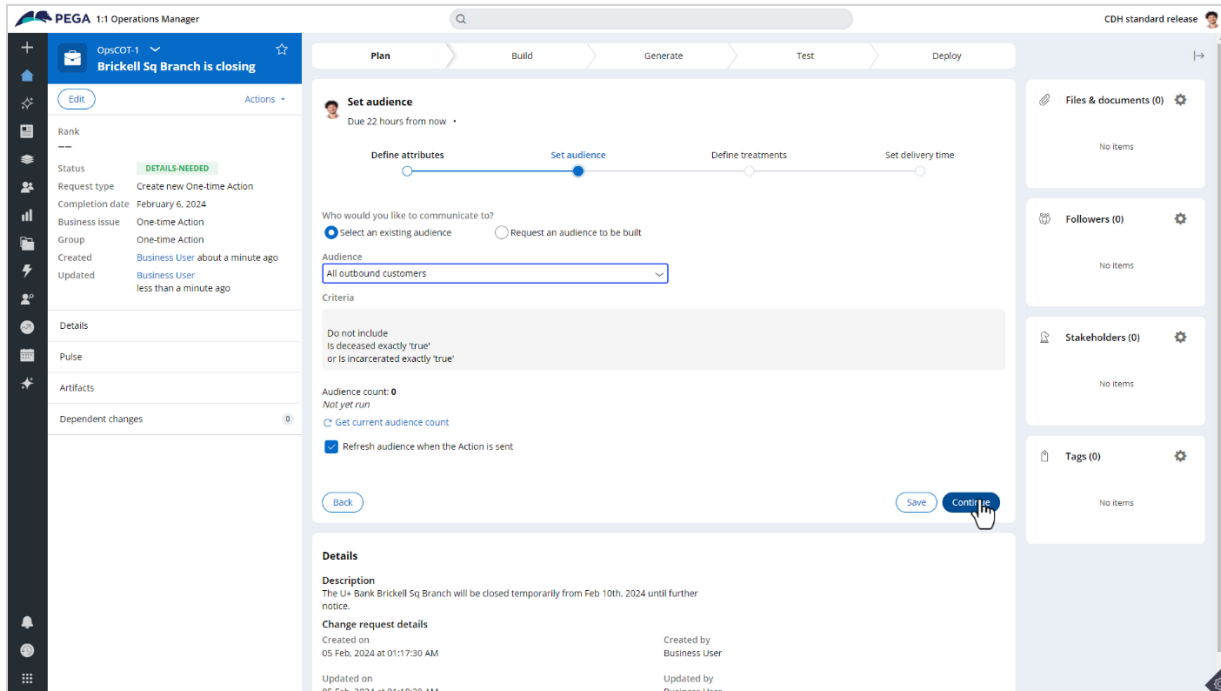
Attach files
Filename

Remaining: 900 characters
Are you making this change to fix a production defect? [?](#)
☐ Yes ☒ No

In the **Plan** stage of the change request process, you define the attributes. In the **Define attributes** section, note that the Business issue and group default to One-time action. Enter a description and continue to set the audience.

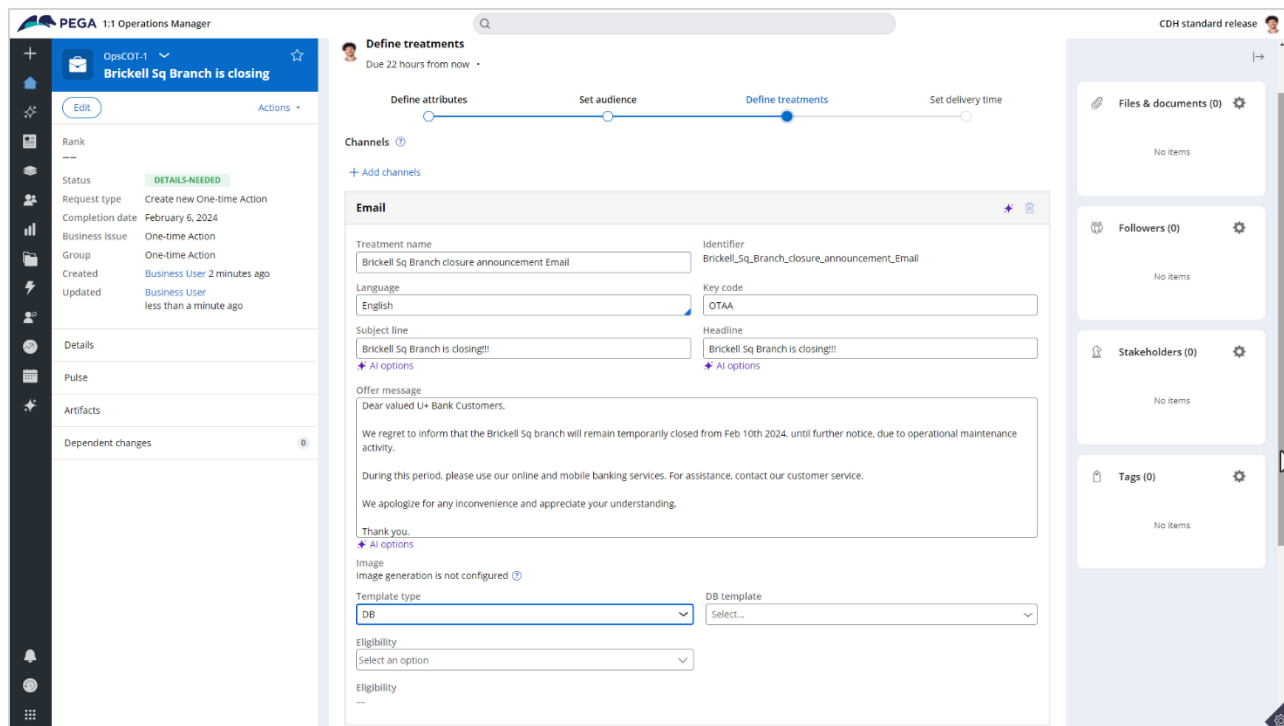
Audience refers to a list of potential target customers, which is implemented using the segment component. A segment is a reference to a database table containing a list of customer IDs that match specific criteria.

You can either select an existing audience or request a new audience to be built by NBA Designer. If you choose to request a new audience, the system creates a separate change request, called *Create an audience*. NBA Designer must complete this change request before the current change request moves to the Build stage. This ensures that the NBA Specialist can utilize the audience created by the NBA Designer while implementing the current change request.



Note that the existing audience is the list of the segments that are available in the overlay.

In the **Define treatments** task, enter the treatment name, email subject line, headline, and offer message, which forms the email body. You can use the Pega GenAI feature to generate the contents of the email. Additionally, you can specify the output template type as either DB or File.

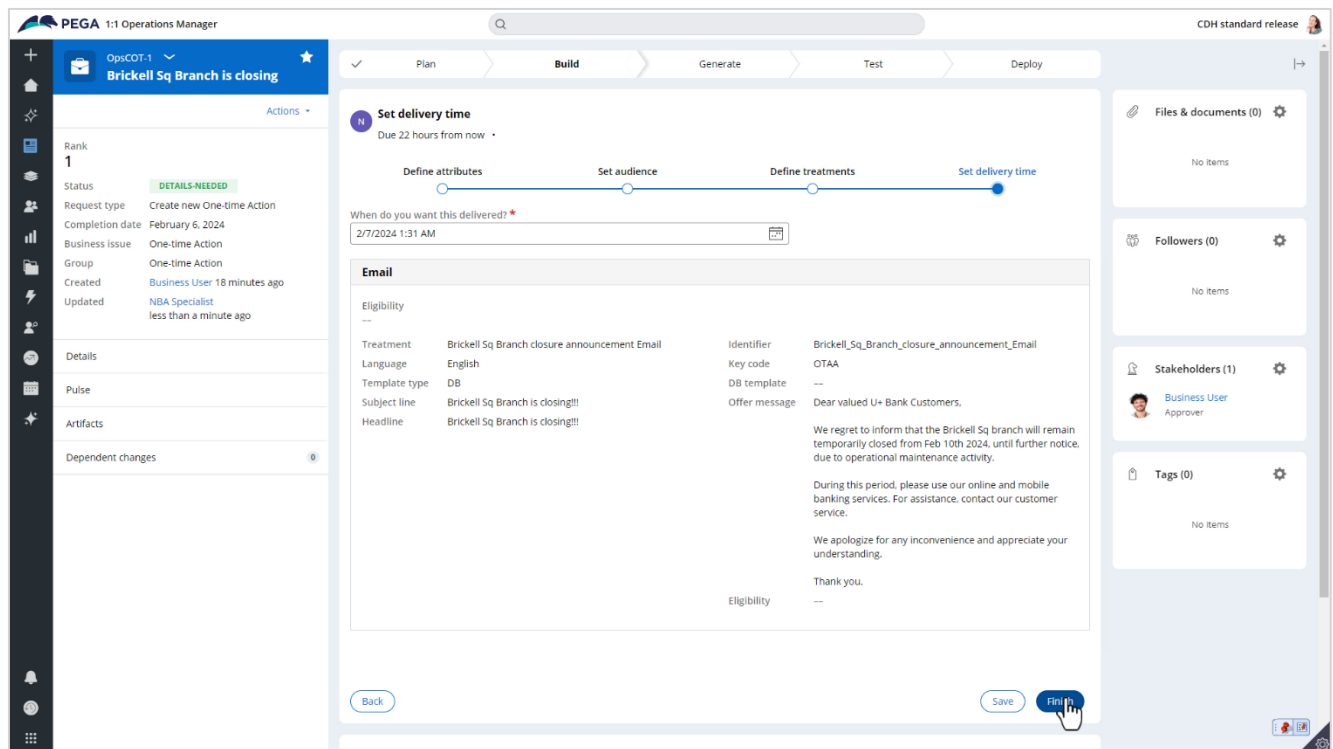


Next, you set the delivery time and finish the task.

After you create the change request as a Business User, log in as a Team Lead to prioritize the change request.

The next step is to log in as an NBA Specialist and complete the action build tasks.

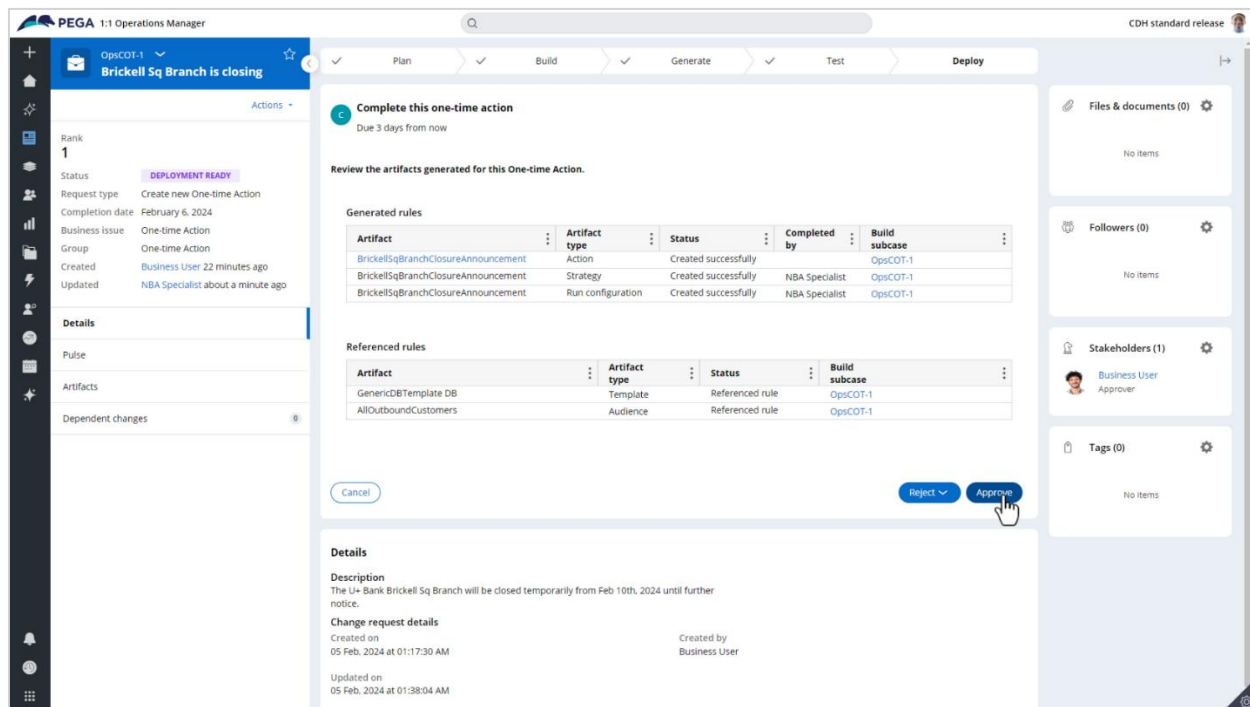
In the first step, finalize the action attributes. In the Set audience step, ensure that the right audience is selected. Then, define the treatments. Review the treatment details and make edits if necessary. As an NBA Specialist, you also need to configure the **Template type** field. Select the Email output template from the drop-down list.



Review the time of delivery for the one-time action and finish the task. Then, complete the **Generate artifacts** task.

As an NBA Specialist, access the **Test and validate artifacts** task to review and submit the artifacts generated for the One-time action.

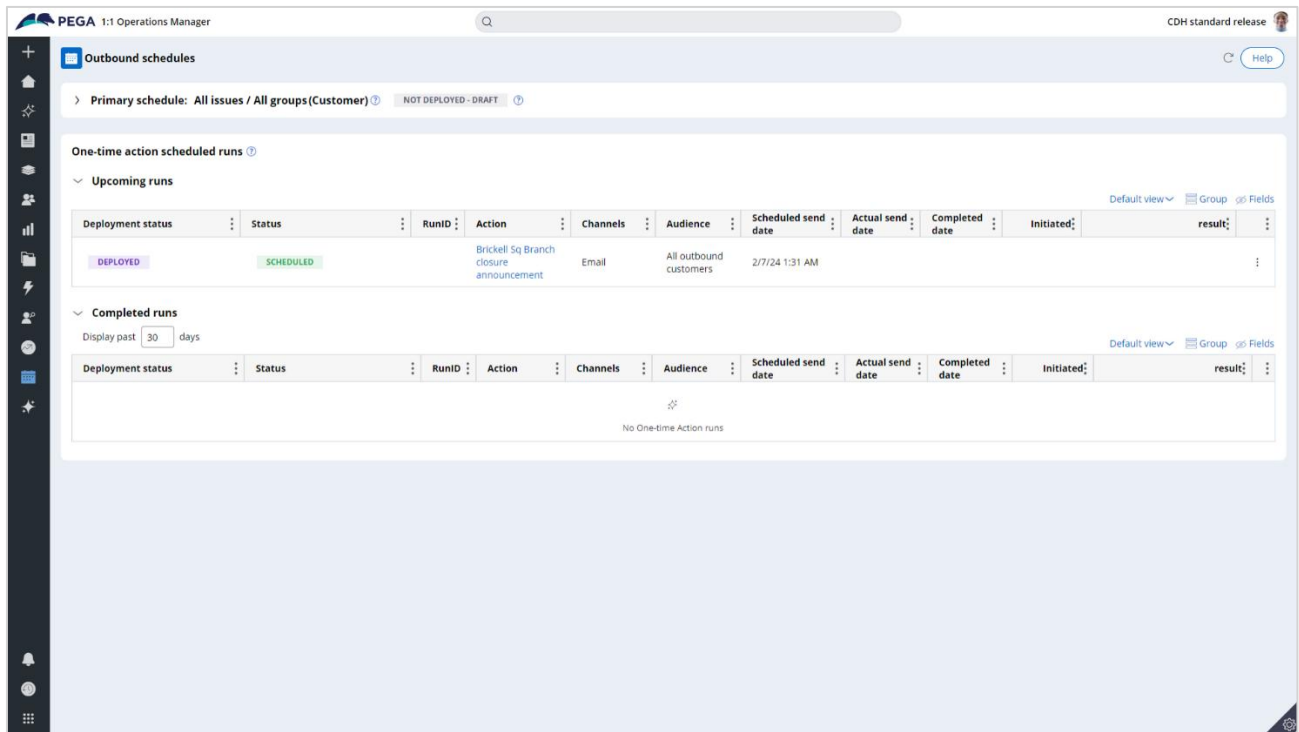
Following the submission of updates by the NBA Specialist, log in again as a Team Lead to approve the updates and promote them for deployment.



The final step in the process is for the Revision Manager to deploy the changes to production.

After the one-time actions are deployed to production, the communication is sent out according to the delivery time defined during the creation of the action.

You can monitor the deployment and run status of the schedules in the Outbound Schedules landing page within 1:1 Operations Manager. The Outbound Schedules landing page provides an overview of all outbound schedules, including both always-on and one-time action schedules.



You have reached the end of the demo. What did it show you?

1. How to create a one-time action in 1:1 Operations Manager.
2. How to define attributes for the one-time action, including setting the audience using segments.
3. How to monitor the deployment and schedule run status of one-time actions in 1:1 Operations Manager.

Enhanced email authoring tool

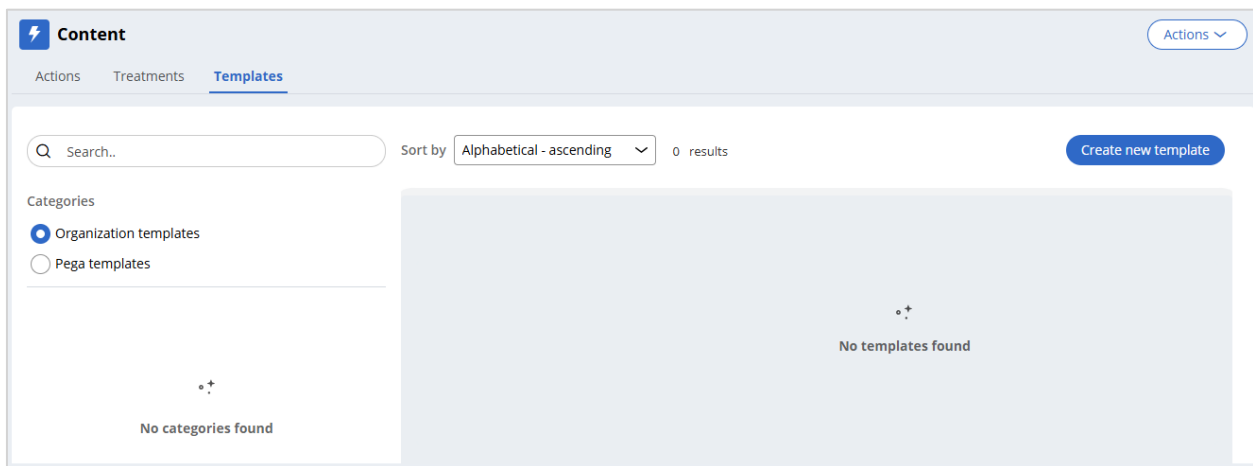
The enhanced email authoring tool is a feature in Pega 1:1 Operations Manager to create internal email treatments with visually engaging templates. Users can either customize a pre-built template or create a new one to use as an organization email template. The drag-and-drop interface of the tool makes it easy to design email treatments with content blocks. Use organization templates that focus on your use case.

Transcript

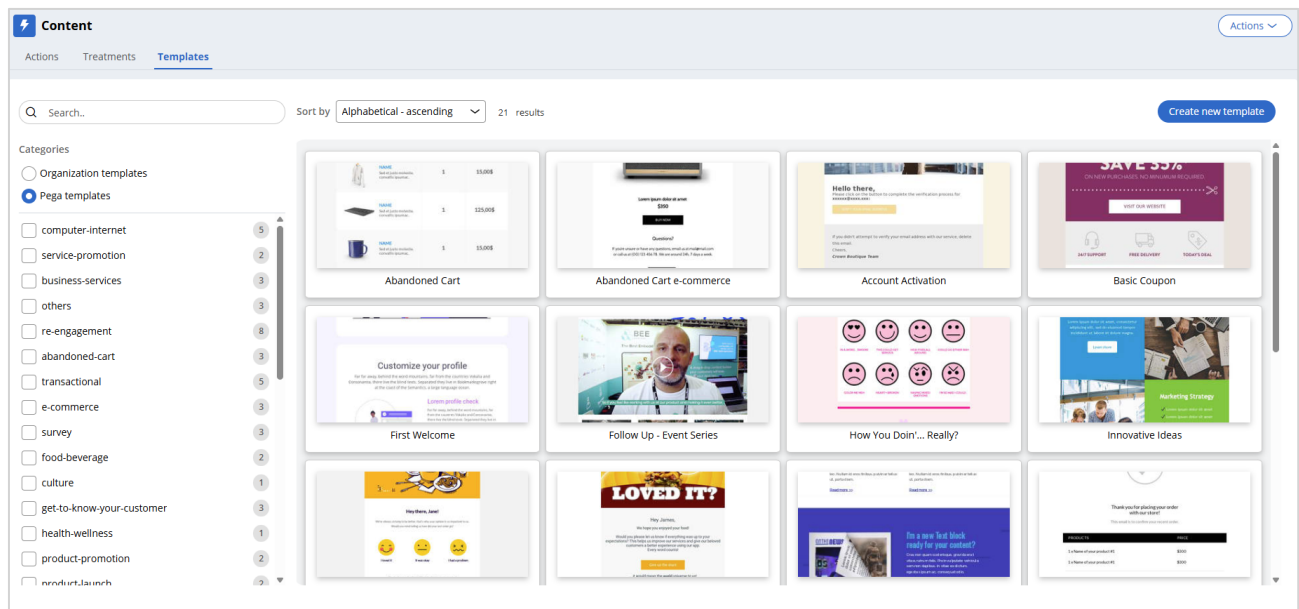
In this video, you learn how to use the enhanced email authoring tool in Pega 1:1 Operations Manager to create an intuitive email treatment.

An email treatment is a personalized message that helps engage customers. U+ Bank wants to send a visually appealing and engaging welcome email to the newly onboarded customers who have just completed their online account registration.

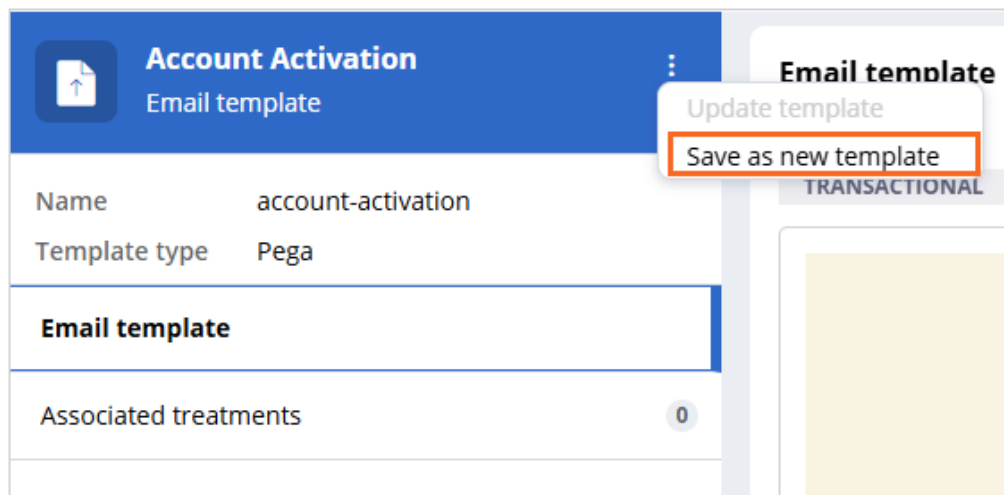
1:1 Operations Manager provides a range of templates that you can use to create email treatments. The Content Lead is responsible for enabling and managing these templates. Navigate to the **Content** landing page and select the **Templates** tab to view available email templates. You can create a new template or select an existing one.



In the **Categories** section, select **Pega templates** to see the system-provided templates. A variety of email templates are readily available to suit your different needs. Select the template that best fits the current business need.



To make the template an organization template, click **More > Save as new template**. Fill the change request form.



The Content Lead can customize the template by adding, removing, or rearranging the content blocks, and changing brand elements such as colors, fonts, and logos. Three editing sections are available in the tool. On the **Content** tab, you can add, replace, and modify the content blocks. On the **Fragments** tab, you can add and manage reusable content fragments. Fragments help maintain consistency across email communications by allowing Content Leads to use standardized sections, such as headers, footers, or promotional banners. On the **Settings** tab, you can configure template properties.

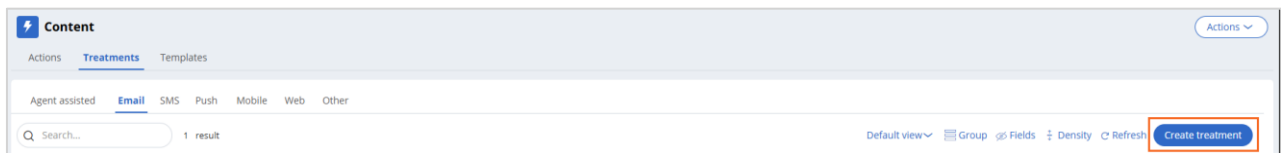
For example, to update the brand element with the U+ Bank reusable banner image and the subject line fragment use the drag and drop feature. Update the fixed elements of the

template, enter a name and category for the template, and then submit. The template is accessible on the content landing page.

Now, the Content Specialist can create new email treatments according to business requirements. The email treatment can be designed only using the **Organization templates**.

As a Content Specialist, navigate to the Content landing page. The Content landing page includes separate **Treatments, Templates and Fragments** tabs for relevant teams and users to manage content independently from actions.

Click the **Treatments** tab to create a new email treatment. On the **Email** tab, click **Create Treatment**.



Complete the details in the change request form, and then submit. The next step is to complete the email authoring task.

On the **Content** tab, provide the basic configuration of the email. Give a **Subject line**, and **Preheader**, then select the template that is relevant to the email. You can select any Organization template.

A screenshot of the 'Author Email Treatment' form. The 'CONTENT' tab is selected. The 'Subject line' field contains 'Welcome to U+ Bank!' and the 'Preheader' field contains 'Start enjoying your U+ Bank account benefits today'. Below these fields, there is a message 'No template selected' with a subtext 'Select a template to start designing'. A red box highlights the 'Select template' button. At the bottom, there are 'Cancel', 'Save', and 'Submit' buttons.

Now customize the content by using the enhanced email authoring tool. You can add customer properties to the text using merge tags option. For the current requirement, update the text for the welcome email.

You can change the template as needed. Note that the changes you make here only apply to this treatment, not the template.

After you finish authoring, click the **Details** tab to set the following treatment attributes: **Name**, **Language**, **Keycode**, and **Availability**.

On the **Preview and Test Email** tab, preview the treatment, and then send a test email by selecting a Persona.

The screenshot shows the 'PREVIEW AND TEST' tab of an email authoring interface. At the top, there are three tabs: 'CONTENT', 'DETAILS', and 'PREVIEW AND TEST', with the last one being active. Below the tabs, there is a section titled 'Send test email' with a subtext: 'Sending a test email will allow you to preview and check your formatting.' This section contains several dropdown menus: 'Persona' (set to 'Troy'), 'To' (set to 'customer1@enablement...'), 'From' (set to 'Default email account'), 'Reply to' (set to 'Default email address'), and 'Action' (set to 'Select Action...'). Below these is a 'Test subject line' field containing the text 'Welcome to U+ Bank!'. At the bottom left, there is a 'Preview email' link. At the bottom right, there are two buttons: 'Download PDF' and 'Send test email', with the latter being highlighted by a red rectangle.

Click **Send Test Email** to review the actual email appearance. Verify that all elements and appearance are displayed correctly.

Return to 1:1 Operations Manager, and then submit the treatment for review and approval.

Log in as a Content Lead to review and approve the treatment and attributes. Provide a comment, and approve the treatment to finish the task.

The email treatment is now available in the treatment library and can be associated with relevant customer actions.

You have reached the end of this video. What did it show you?

- Features of the enhanced email authoring tool in Pega 1:1 Operations Manager.
- How to use the enhanced email authoring tool to create an email treatment.

Creating and managing customer journeys

Description

Customer journeys are the sum of the experiences that your customers go through when interacting with your organization. Rather than looking at just part of an experience or transaction, the customer journey documents the full spectrum of the customer experience. Customer journeys give you a familiar mental model to manage and work with their creative content. You can create customer journeys directly in Pega 1:1 Operations Manager and map customer actions to different journey stages.

Learning objectives

- Create a customer journey, set criteria, and manage Actions and Stages.
- Navigate through the Plan, Build, Generate, Test, and Deploy Stages of a customer journey.

Pega Customer Journeys

Customer journeys are a sum of the experiences that your customers go through while interacting with your enterprise. Rather than reviewing only part of an experience or transaction, the customer journey documents the full customer experience.

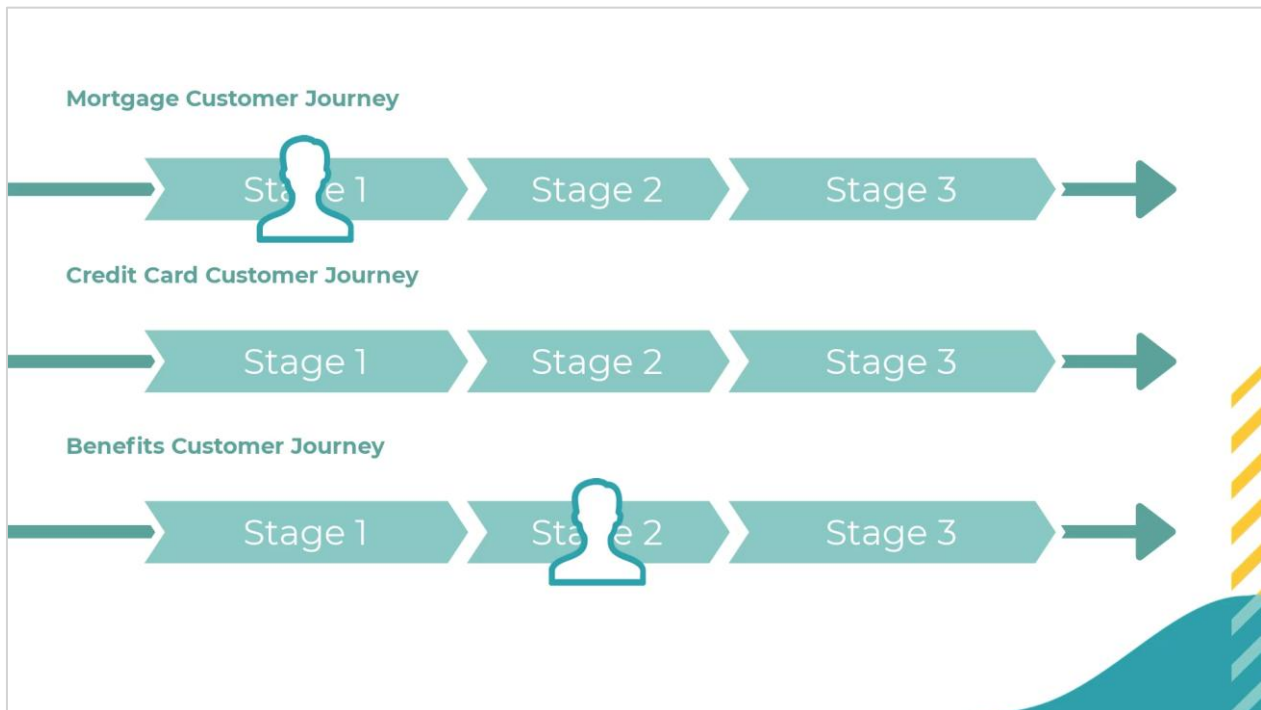
Transcript

Industry standard customer journeys are used to script the customer experience, which often results in a customer getting stuck on a path of offers that does not lead to a relevant outcome. Pega Next-Best-Action Customer journeys take a transformational approach to the industry standard tool that are the customer journeys.

Pega customer journeys and actions in them are prioritized using real-time AI, which provides you the following benefits:

- Allows you to build meaningful customer journeys
- Stays true to the Next-Best-Action paradigm
- Delivers a more relevant customer experience

With Pega customer journeys, customers might find themselves in multiple journeys or switching from one to another depending on what is most relevant to them at that point in time.

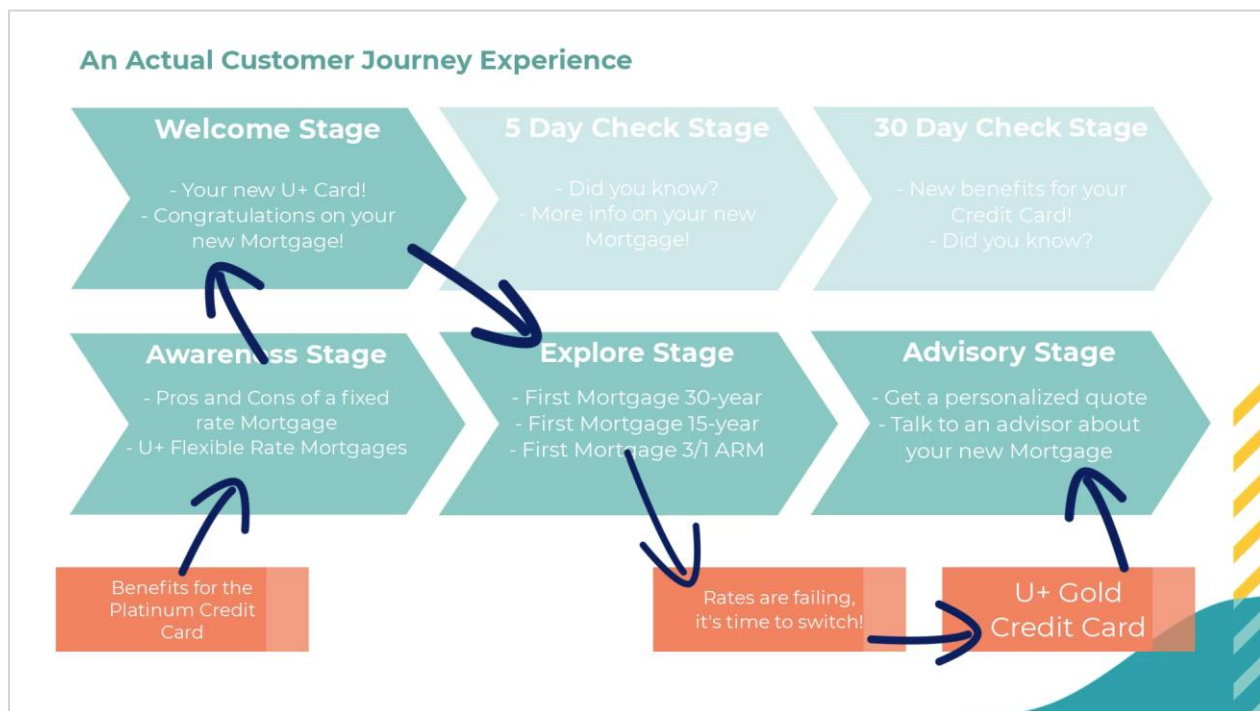


Customer journeys give you a helpful mental model and allow you to influence the customer experience while remaining true to the Next-Best-Action paradigm. Instead of scripting the entire customer experience offer-by-offer, you can add multiple journeys and stages with actions to your system and let AI leverage real-time data to determine which journey or action in a stage is most relevant to the customer at that time.

You can apply customer journeys to multiple business issues, for example:

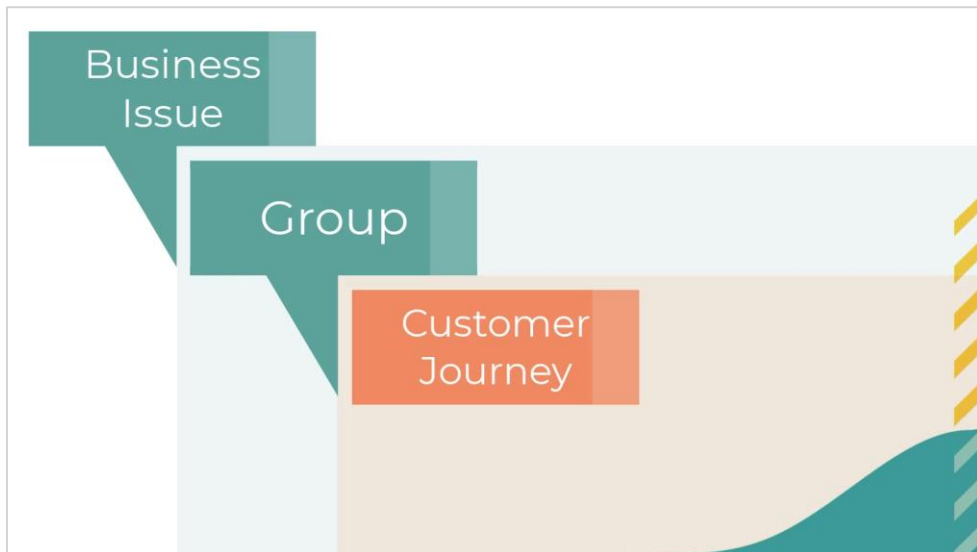
- Periodic check-ins during the onboarding period. You can have an initial welcome stage, followed by a five-day check stage, and then finally, a 30-day check stage.
- Familiarizing and leading the customer to a new mortgage. In this journey, we first raise awareness about mortgages, and then once familiar with the concept, we invite the customer to explore various mortgage offers. Finally, once engaged in the explore phase, we can provide an advisor to help the customer to develop a detailed mortgage offer.

Customers can be a part of many journeys, which are continuously prioritized. Customers can be in one stage of each of given journey, and then progress through the stages sequentially. The system ensures that the customer receives the most relevant action, even if an action is not a part of any journey, which means the actual customer journey might look very different from what you originally had in mind.



You manage customer journeys through 1:1 Operations Manager portal. There, you can define a customer journey and the business issue and group that it will be nested under, which means that this journey inherits the Engagement Policies of that business issue and group.

You can also set your journey to cover all issues and all groups for a broader scope of actions.

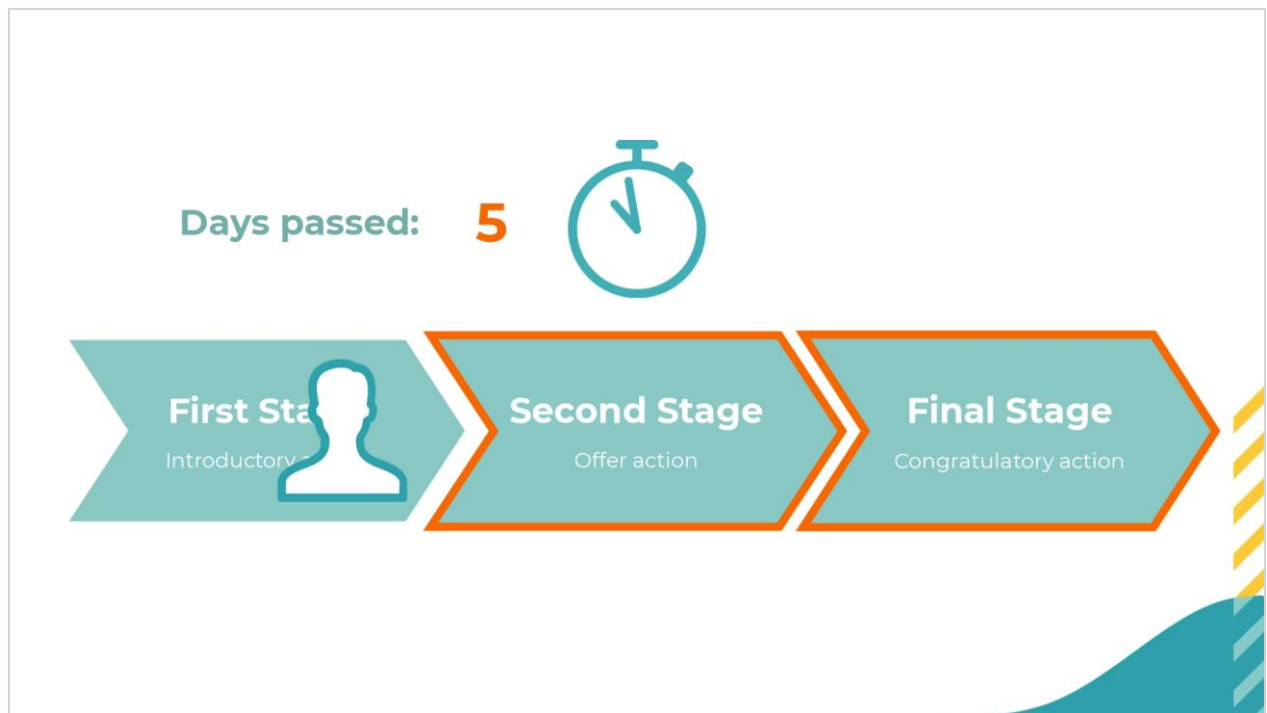


After setting up the journey, you define the number of stages and their names. The customer will progress through these stages in a sequential order. You then add relevant actions to each stage. The actions that you have added come with their available treatments. Customers in each stage see and interact with these actions, and the system recognizes these actions as a part of a particular stage in a customer journey.

If you add an action to a customer journey, you can decide if you present the action as only part of the journey, or both as a part of the journey and as a standalone action. The system records interactions for the action separately.

Before customer progresses from one stage to another, they need to satisfy the entry criteria of the next stage. It is not recommended to use very rigid entry criteria with multiple conditions, as the AI can guide the customer through different journeys and standalone actions.

Entry criteria can be as simple as 30 days passing since the customer has joined the bank and as complex as a customer having engaged with a set of mortgage offers in the last week, showing interest in talking to an advisor.



Take a look at an example of how entry criteria work and where they start to take effect in the prioritization. Say your system has 30 actions, and it is time to present the best three of them to a particular customer. The 12 orange actions are a part of various customer journeys.

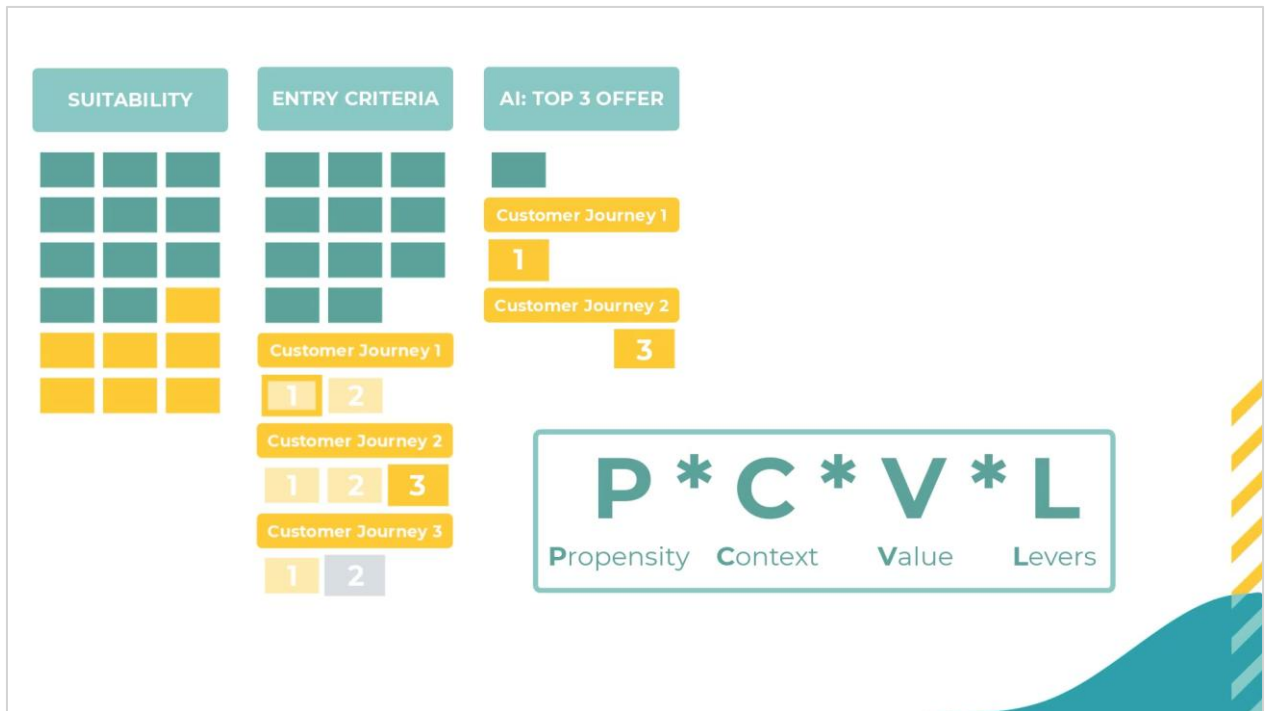
First, the system applies the standard engagement policies. Consequently, the eligibility, applicability, and suitability policies of the business issue, group, and actions are applied, which leaves us with 18 actions, out of which, seven are part of various customer journeys.

Now let's expand to see that the customer journey actions are a part of different journeys, and that each action is a part of a different stage. As you can see, different actions are relevant for the customer in the various stages due to the entry criteria set up by the Decisioning Architect. In this example, the customer:

- Passes the entry criteria to the first stage in the first journey
- Is in the third stage of the second journey, and it passes its entry criteria
- Is in the second stage of the third journey, but it does not pass its entry criteria

From the seven actions, which progressed through the suitability and are part of a journey, the customer actually qualifies for only the two highlighted actions.

At this point, AI selects among the 13 actions the best three actions to show to the customer based on the PCVL calculation (propensity * context * value * levers).



In summary, each component of the policy filters the initial set of 30 actions:

- 24 eligible
- 21 applicable
- 18 suitable

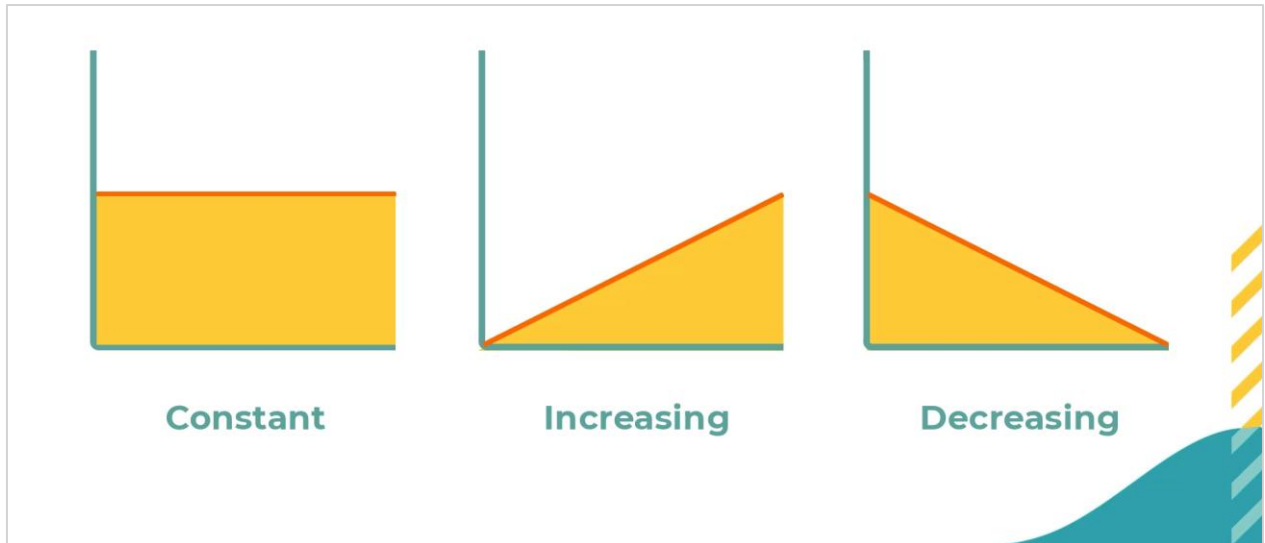
From the 18 suitable actions, 11 are standalone, not part of any journey and two actions from the remaining seven pass the entry criteria from the various journeys and stages defined. The remaining 13 actions, which pass the conditions are prioritized by the AI, and then, the best three are selected. The selected actions can be one of the standalone actions, an action from a journey, or an action from a journey that is already in progress.

Customer journeys can influence the PCVL formula in two ways.

The first way to influence the propensity occurs passively as you add customer journeys to your system. Customer journeys come with predictors that begin to function as your customers interact with the journeys that you have designed for them. These predictors will influence the propensity directly.

The second way is to use stage upweighting. Stage upweighting applies a numerical upweight value to actions in that stage and is used to increase or decrease actions promotion level. You can apply it to any stage, and it is a part of the Business levers in the Arbitration.

Upweighting can be constant, increasing or decreasing over time. For example, you might want to upweight actions of a stage for the first 10 days that the customer is in this new stage. During the first 10 days, the upweight will decrease steadily to avoid annoying the customer with a single offer.



In summary, customer journeys provide a good mental model for managing content and influencing next-best-action decisions to present suitable actions seamlessly for your customers.

Creating a customer journey

Customer journeys encompass all customer experiences that are related to completing an objective. Journeys can involve complex Stages or be very simple. These journeys provide a mental model for managing the different Actions by highlighting any gaps in content toward achieving the objective. Customer journeys also influence Next-Best-Action decisions, which lead to more consistent and improved customer outcomes.

Transcript

This video shows you how to manage and optimize customer engagement strategies by using customer journeys.

U+ Bank wants to use a customer journey to increase the number of mortgage applications from qualified customers. By using customer journeys, U+ Bank puts Actions and treatments into Stages in a sequential format that guides customers toward mutually beneficial outcomes.

To implement this use case, a business user first creates a customer journey in Pega 1:1 Operations Manager. In the **Create journey** window, you can select the predefined journey type that most closely matches the use case, or you can create a custom journey request. To preview what the journey might look like, click the **Help** icon on the tile. You can view examples of the types of Actions expected at each Stage.

Create journey

Select the pre-defined journey type that most closely matches your use case. These types pre-populate certain attributes of the customer journey.

Search...

Credit card promotion

Business issue	Group	Channels
All Issues	All Groups	Email

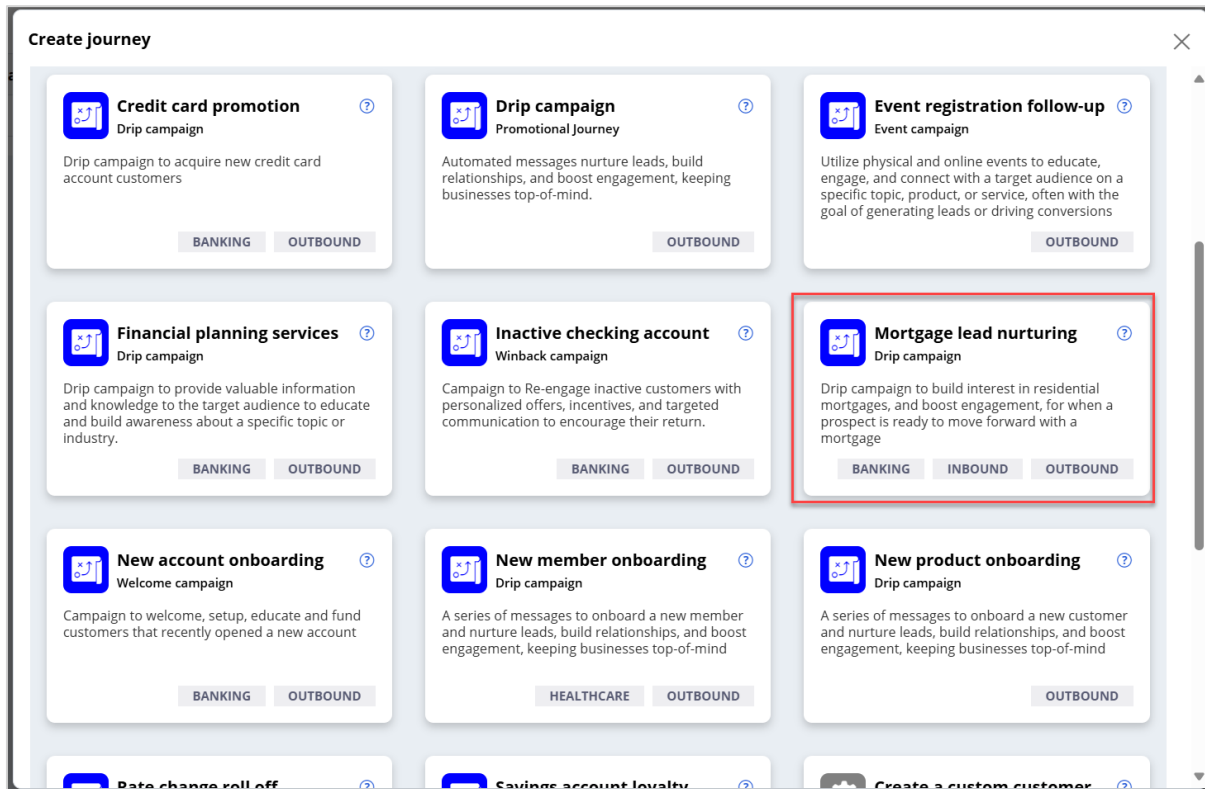
Initial card offer	Detailed benefits	Comparison & ince...	Final reminder
Sample Actions to consider: - Special card offer for you - Introduction to credit card offer - Send introduction to card offer	Sample Actions to consider: - Maximize your rewards with our card - Send explanation of rewards	Sample Actions to consider: - See how we stack up - See how we stack up against competitors	Sample Actions to consider: - Ready for funding - Send instructions on funding account

Remaining: 1000 characters

Cancel Create

Using the predefined journey type automatically populates certain data in the change request.

The bank wants to introduce a journey for mortgages to acquire new customers, so select the category **Mortgage lead nurturing**.



A new journey creation results in a change request creation. In the change request form, enter a name that describes the purpose of the request.

As a business user, you provide the completion date as the expected timeframe in which the NBA Specialists complete the request.

You can use the **Description** section to provide any additional business details that are useful for the NBA Specialists.

Create journey

Mortgage lead nurturing ?
Drip campaign

Drip campaign to build interest in residential mortgages, and boost engagement, for when a prospect is ready to move forward with a mortgage

BANKING INBOUND OUTBOUND

Change selection

Change request name*
Discover and Apply for a Mortgage

Completion date*
1/31/2025

Description
A customer journey to acquire new mortgage account customers.

Release
CDH standard release

Remaining: 939 characters

Cancel Create

Create the new change request. The new change request has a unique ID.

The change request is currently in the **Create** Stage. Proceed further to complete the journey details.

In the **Define journey details** section, enter a name for the new customer journey. In this example, enter Discover and Apply for a Mortgage.

Select the appropriate business issue and group if you know it. In this example, you select the **Grow** issue and **Mortgages** group. You can change these details in collaboration with the NBA Specialist.

If you want to include actions from multiple business issues and groups in your journey, select **All Issues** and **All Groups**. In the **Journey description** field, enter relevant information about the customer journey and its outcomes.

There are three options to determine which Stage the system considers during Action arbitration:

- Forward progress (cannot go backwards)
- Right-most eligible stage (default)
- Eligible Stage with highest priority Action

In this example, retain the default option, Right-most eligible stage (default).

Optionally, to indicate the total duration a person can spend on a journey, enter the value in the **Time frame** field.

In the **Acceptance Criteria** section, in the **Criteria** field, enter the requirements that the customer journey must meet. You can also attach a document to this change request that provides a brief overview of the requirements, criteria for the journey, and the desired outcome.

If you selected any of the predefined customer journey types at the beginning, some information might be prepopulated by default.

**Define Journey details**
• Due 10 days from now

Journey name *

Discover and Apply for a Mortgage

A recognizable name to convey the purpose of this journey

Journey identifier *

DiscoverAndApplyForAMortgage

A unique journey ID that cannot contain spaces or begin with a number

Business Issue

Grow

Group

Mortgages

If you want to include Actions from more than one issue and group in your journey, select "All Issues / All groups". Otherwise, select a specific issue / group.

Campaign name to associate with this Journey

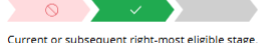
Campaign code

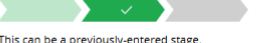
Journey description

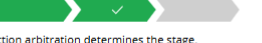
A customer journey to acquire new mortgage account customers.

Remaining: 939 characters

How to determine which stages will be considered in Action arbitration

☐ Forward progress (cannot go backwards)

Current or subsequent right-most eligible stage.
Use for a sequential set of steps such as compliance notifications on day 5, 10, and 25.

☒ Right-most eligible stage (default)

This can be a previously-entered stage.
Use when customer moves forward in the journey but might move backwards due to inactivity, such as Credit Application Abandonment.

☐ Eligible stage with highest priority Action

Action arbitration determines the stage.
Use when a customer qualifies for 1 or more stages and the top ranked Action decides the best stage, such as Discover & Apply for Mortgage.

Time frame ⓘ

What is the time frame of this journey?

Acceptance criteria ⓘ

Please provide any supplementary details or requirements that the journey should meet, as well as any specific outcomes that must be avoided. Feel free to define any key stages of the journey to ensure clarity and align the experience with your objectives effectively.

Criteria	
⋮	

+ Add acceptance criteria

Cancel

Save

Submit

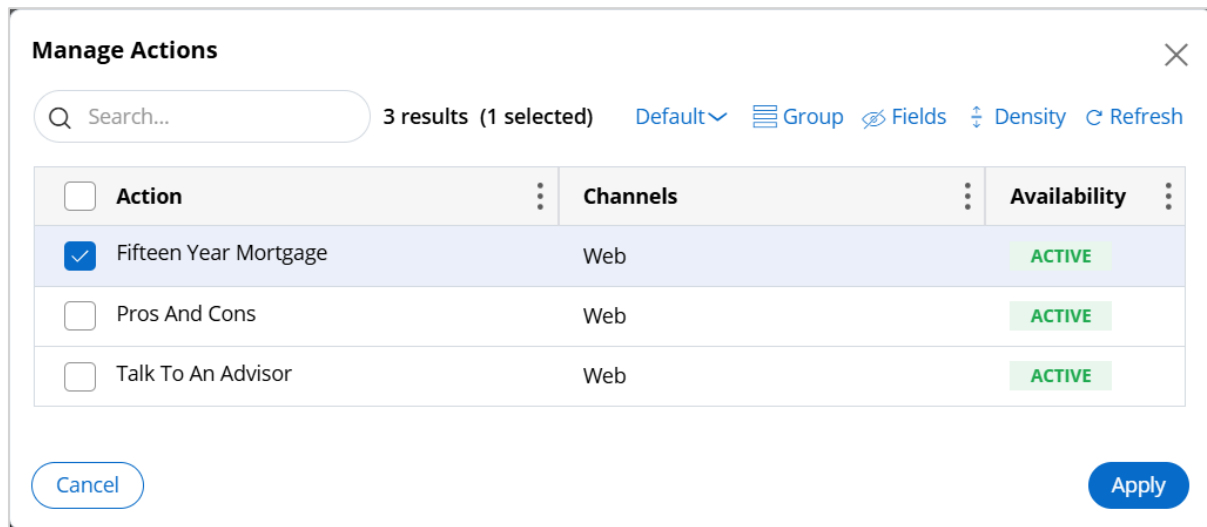
Now, you can follow the typical change management process to prioritize, define a peer reviewer if required, and assign the task to the NBA Specialist.

Build your customer journey by adding or deleting Stages, Actions, and defining the entry criteria. If you selected any of the predefined customer journey types at the beginning, some of the information might already be included by default.

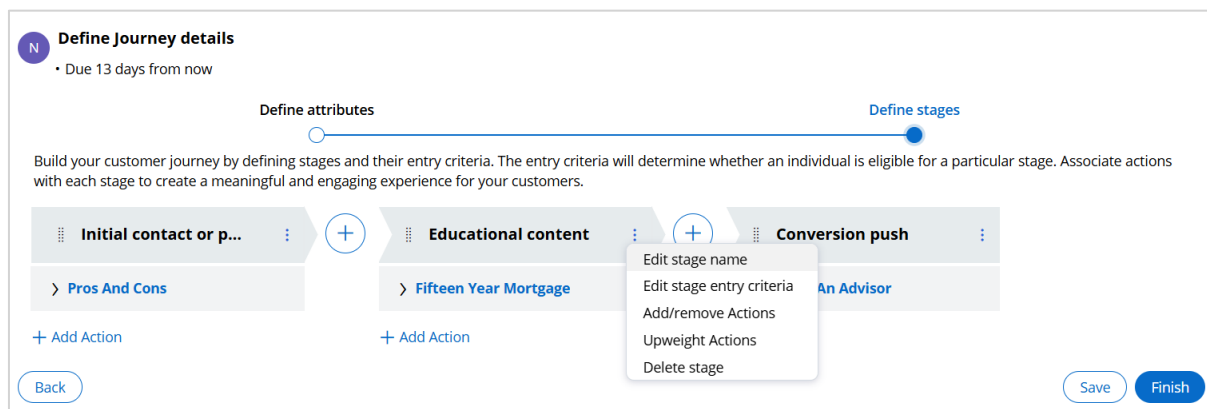
You can modify any journey Stage details, add entry criteria, upweight Actions, or add more Actions to a Stage.

473

To add an Action to the Stage, select the desired action from the list in respective Stage. You can add more than one Action to each Stage.



Now, add the entry criteria that determine whether an individual is eligible for a particular Stage of the journey.



You can enter items in the **Behavioral entry criteria** section to use a previously curated set of common conditions that help you build entry criteria for the journey Stage or use the **Profile entry criteria** section to select the context and the set of conditions that define the Stage entry Rules.

In this example, the behavioral entry criteria to enter the first Stage is that customer must have clicked on any item from the Grow/Creditcards issue/group on the Web channel in last 7 days.

The system generates all the artifacts that are necessary to output this customer journey.

The NBA Specialist can now review and validate the generated artifacts.

Finally, submit the change request back to the team lead.

In the process of change management flow, the next step as a team lead is to verify and approve the change request configured by the Specialist.

After approval, the system makes changes available or submits them to the revision manager, who can deploy the changes to production and complete the revision.

You have reached the end of this video. What did it show you?

- How to create a customer journey, set criteria, and manage Actions and Stages.
- How to navigate through the Plan, Build, Generate, Test, and Deploy Stages of a customer journey.