PEGA

How an *always-on brain* makes one-to-one engagement possible

Create customer-centric experiences with AI-powered decisioning

Introduction

Attention spans are short. Our lives take place online more than ever before. And the COVID-19 pandemic substantially shifted many of our daily activities into the digital universe. Many businesses saw this as a greater opportunity to connect with their customers. But pushing out more messages doesn't equal more engagement. In fact, being constantly interrupted by irrelevant messages about products and services customers don't want or need only generates more of one thing: frustration. It was already happening before the pandemic. And now, customers have lost all patience with brands constantly targeting them. They demand better experiences, and rightly so.

Marketers can't afford to fail. Brands need to deliver on the promise of relevant and empathetic messages, or risk customers tuning out, disengaging, and even walking away entirely. The days of using dated off-the-shelf systems batching customers into segments for broad campaigns are over. There are better ways for brands to understand their customers on an individual level. And when they are being judged primarily on the overall customer experience they deliver… Providing consistent, contextual, and personalized experiences that treat customers as unique individuals is the only way to succeed.

Listen to signals – so you can deliver customer centricity

Every time you meet someone, you learn something about them. Most people appreciate when you remember what they said because it shows you listened, that you made the effort to know them better. That's an example of an empathetic interaction. In today's demanding market, brands need to do the same thing to build long-term customer relationships. People will always pay for value – sometimes with money, but more often with time. Investing in customer-centricity is about relevance. Start with earning your customers' attention – then when the time is right, you can work to earn their business. Customers want personalized and relevant experiences but also boundaries. They want to feel they are being heard and respected. It's up to brands to find the balance between personalization and overreach.

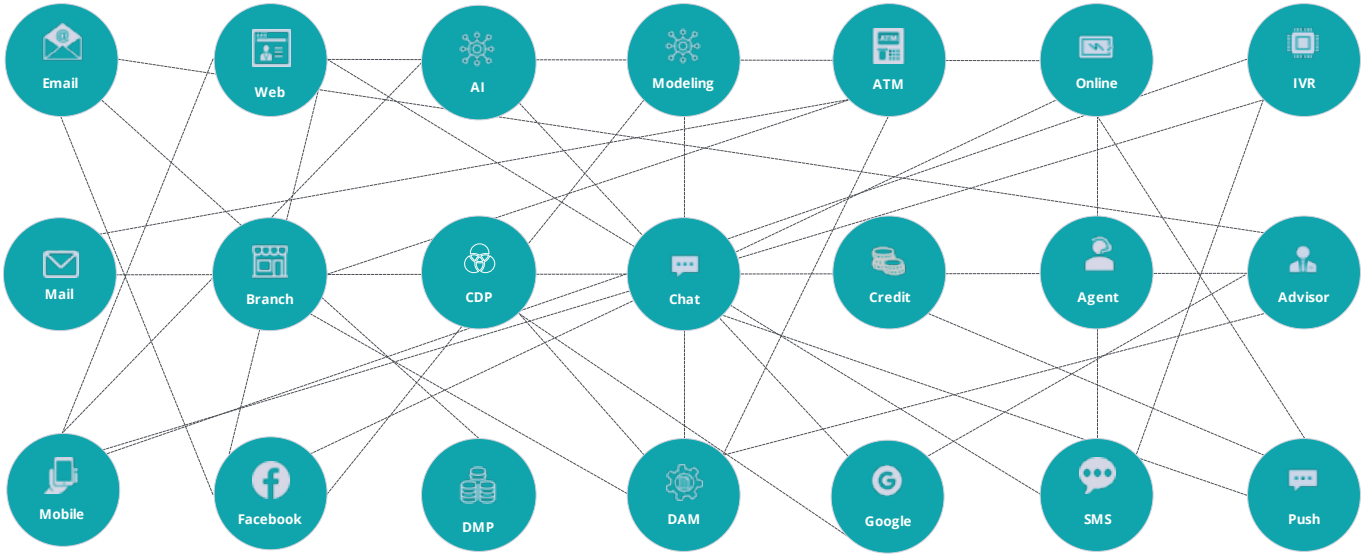
After all, customers may interact with your products and services regularly, like a banking customer who checks their available balance every morning. Or maybe they only check once or twice a year, like an insurance customer reviewing their annual policy renewal and rates. You need to be prepared to deliver the same level of experience, regardless of how frequently they interact with you. Storing and recalling communication preferences, purchase history, loyalty status, profile states, impressions, browsing history, and more sets up opportunities to personalize your service – ultimately deepening your relationship with your customers and enhancing customer lifetime value (CLV).

However, this simply isn't possible with most traditional marketing and customer engagement solutions. These technologies rely on a campaign management framework. They were designed to only sell products and services to groups of customers with shared attributes through specific channels via point solutions. The messages are predetermined and static – they can't change and evolve with the customer as they navigate the experience. If every time you talked to someone, they tried to sell you something, eventually you'd stop listening, right?

> Investing in customer-centricity is about *relevance* – start with earning your customers' attention, then you can work to earn their business when the time is right.

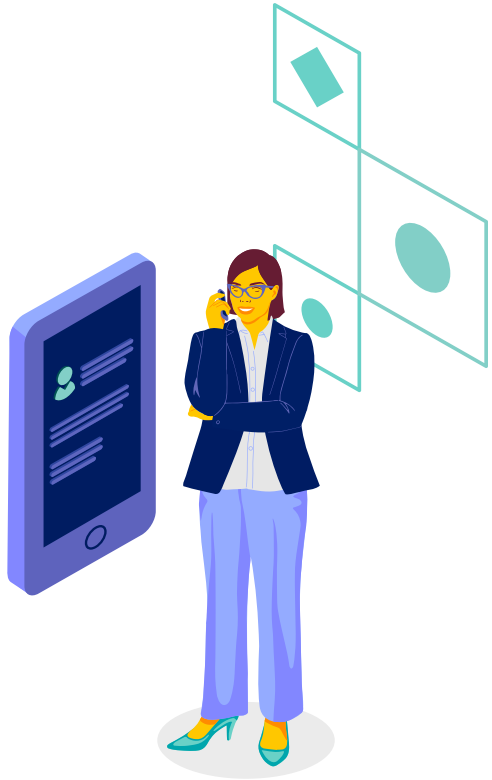
Traditional marketing technology stacks

DISCONNECTED DATA SILOS, POINT SOLUTIONS



To avoid being ignored, less than half of what a brand says to customers every day should be focused on selling. To build great relationships, the majority of conversations should focus on things like service, retention, education, and nurture. You must earn the right to sell, only at the appropriate time.

This requires a complete switch from a channel-driven campaign framework to an always-on approach.



What is an always-on approach?

Campaign management			Always-on engagement	
Offers	Messages that are designed to **sell products and services** to customers.	⇨	**Actions**	Messages that address **multiple business issues** like sales, retention, service, and education.
Flowcharts	Define **campaign-specific logic** that controls targeting and execution cadence.	⇨	**Strategies**	Define **customer logic** that controls cadence and message priorities.
Segments	Assign **customers into groups** based on similar attributes and behaviors.	⇨	**Individuals**	Optimize each individual **customer analytic record** for 1:1 real-time decisioning.
Targeting	Select the **segments that will be targeted** with messages during the campaign.	⇨	**Arbitration**	Select the **next best action to be presented** to a customer during an interaction.
Predictive	Use propensity models to predict **which customers** will accept a specific offer.	⇨	**Adaptive**	Use propensity models to predict **which actions** *any* individual will accept.
Silos	Optimize individual **campaign performance** based on what **already happened**.	⇨	**Centralization**	Optimize **centralized strategy** performance based on what will likely **happen next**.

Technologies that enable an always-on approach are backed by artificial intelligence (AI) that can ingest customer signals and present an offer, action, or conversation to a customer based on what the customer requires in real time.

At Pega, real time means less than 200 milliseconds – so that if a customer suddenly changes direction, so can a brand. The AI technology sits at the center of all channels and functions as a central "brain" to unify customer data and make decisions quickly, regardless of which channel a customer is engaging on.

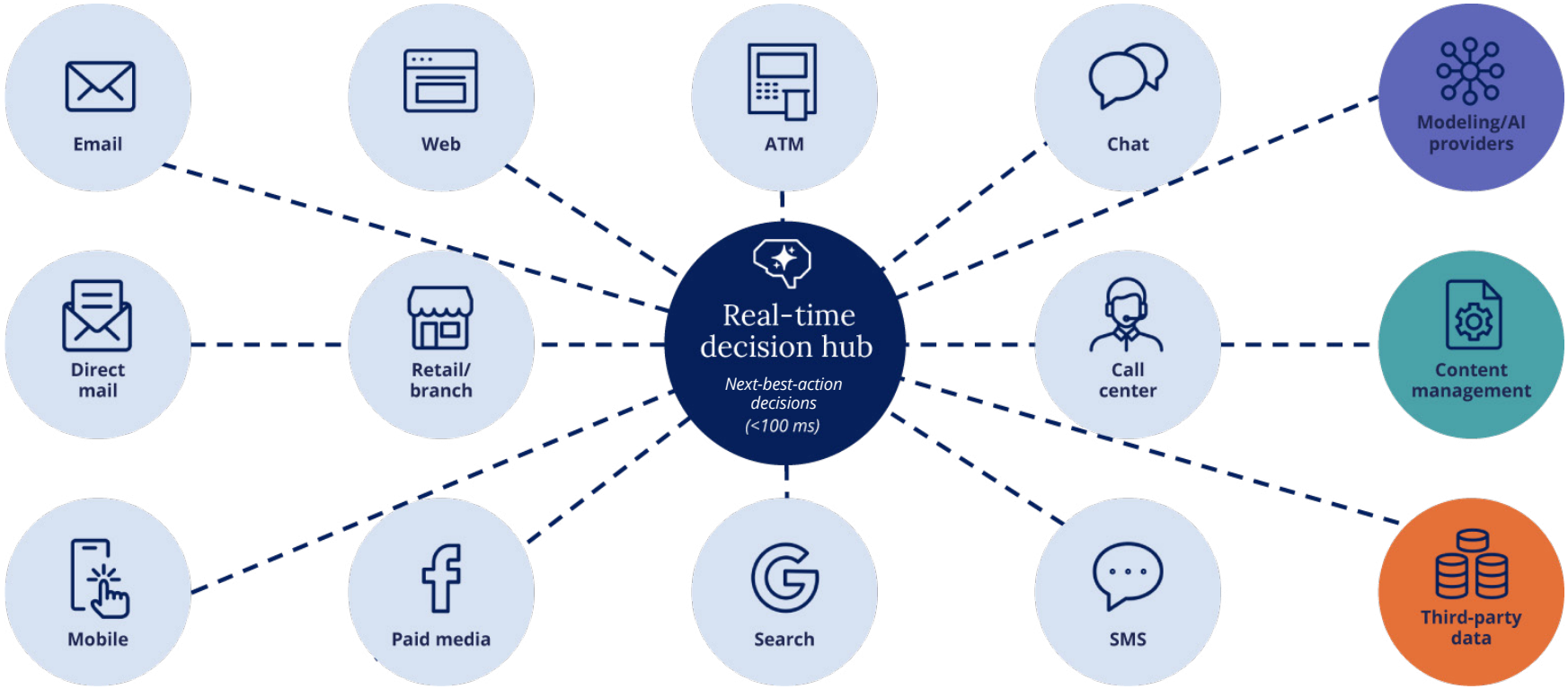
Pega Customer Decision Hub

Pega Customer Decision Hub™ optimizes customer lifetime value by providing an "always-on brain" for your business – unifying your data, analytics, and channels into one connected experience.

Customer Decision Hub collects data from every interaction as it's taking place, combines that with the customer's full interaction history to determine their current context, and then delivers next-best-action recommendations during their moment of need. Pivot between selling, serving, retaining, and nurturing in real time – and quickly deploy new strategies to keep pace with ever-changing market conditions and customer demands.

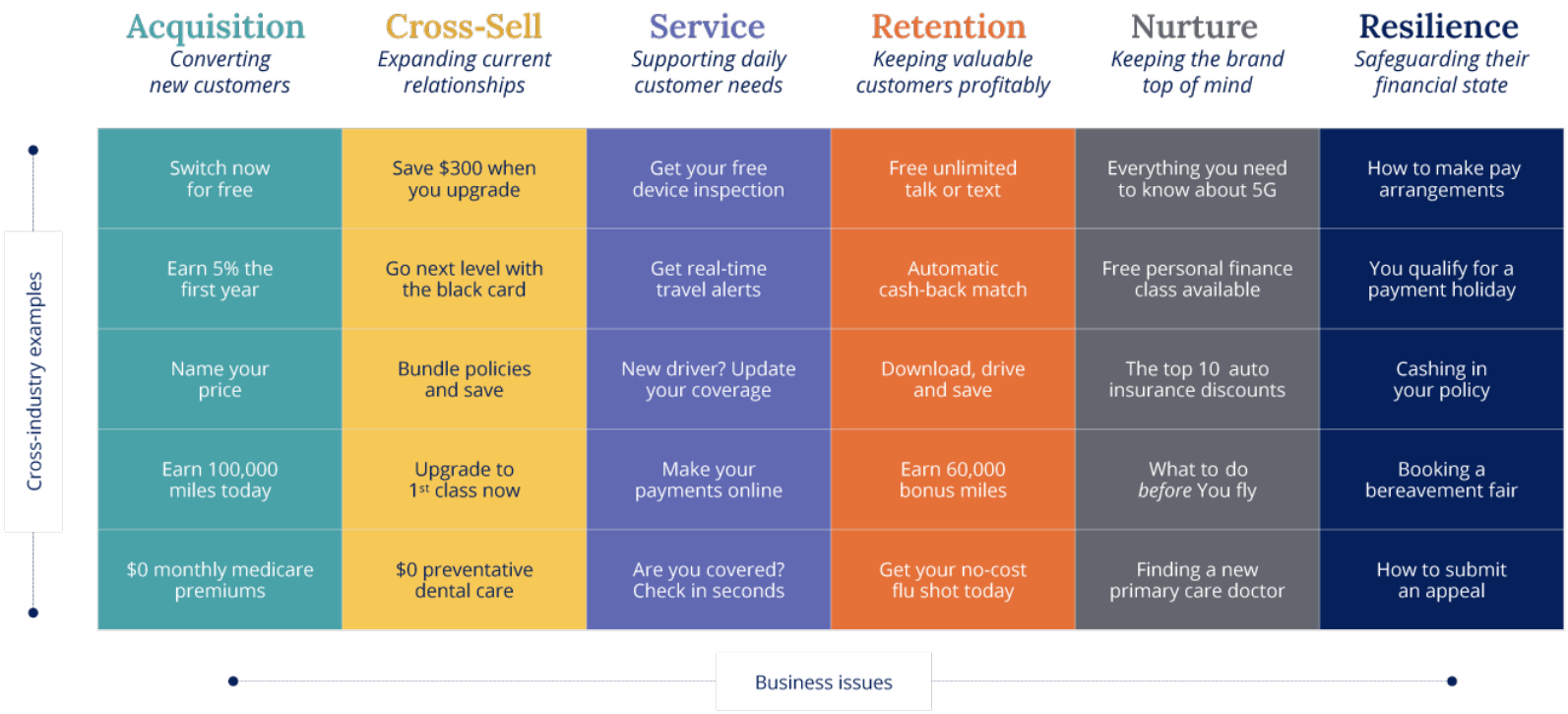
Always-on brain

UNIFYING INBOUND, OUTBOUND, AND PAID CHANNELS



Customer action library

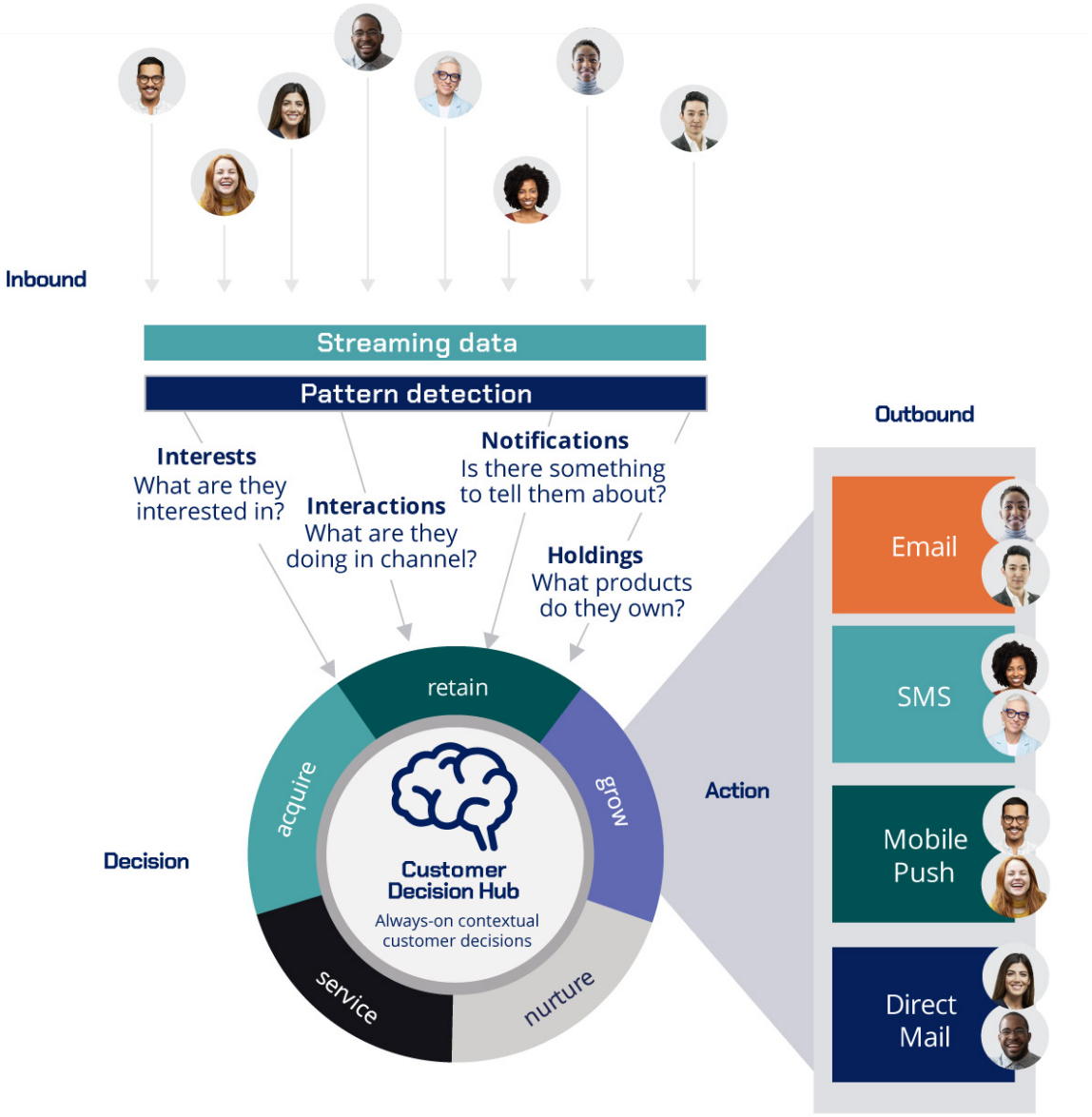
ALL YOUR CONVERSATIONS IN ONE PLACE



While traditional approaches focused heavily on product and sales content, the key to engagement is having a wide array of conversations with many options for the AI to arbitrate for that customer, during each interaction. A deep conversation library is critical to having the right message to deliver at the right time.

Increasing relevance with streaming data

Many brands use Pega to centralize all their marketing decisions by specific criteria – for example, by region. They then take data flowing in from inbound channels and use it to power their outbound channels. AI mines incoming data for customer intent and context to select a next best action, and then deliver that action to the customer through the proper channel. The process is a constant flow of messages out to the customer base, without using campaigns. The more data and channels that an organization adds, the better the technology performs as it learns about each individual customer to meet their immediate needs in real time.

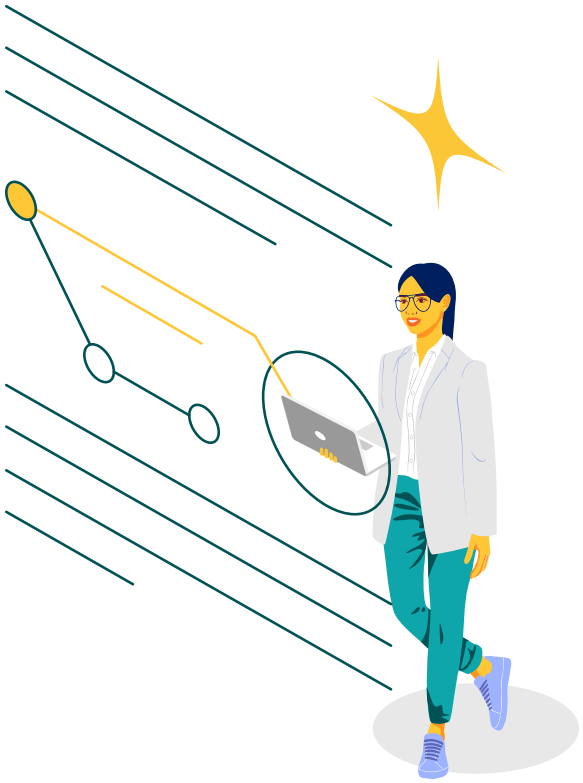


Moving from predictive to adaptive analytics

Delivering the next best action for each customer requires sophisticated analysis of customer data every time. One approach is using predictive analytics and data modeling. Predictive analytics essentially takes customer data and applies propensity models to more accurately predict future outcomes, including customer click-through, offer conversion, service likelihood, or churn rate. Legacy customer engagement tools – and even many current ones – use predictive analytics and data modeling to make marketing more accurate and relevant. This technology has been exceedingly helpful for marketers trying to optimize a customer journey as it unfolds. In the past, this analysis was done through a rules-based decisioning structure – simple, "if this, then that" deterministic logic. This created a pre-set variety of scripted interactions with customers.

And while this method is more accurate than the standard "one-to-many" targeting strategy, if you are truly trying to create an empathetic and hyper-personalized customer experience, you can't force or produce it yourself. It must be driven by your customer's real-time needs, as directed/guided by their behavior.

Simple rules-based decisioning in off-the-shelf or internally built systems doesn't account for the customer's unique needs, emotions, or motivations in that specific moment. Contextual factors like these reflect the next stage of the customer experience evolution, where a higher level of decision sophistication must be considered. Real-time detection and real-time data assembly move us away from past predictive behavior and more toward adaptive capabilities that best serve your customer.



The evolution of AI has enabled current technologies, like Pega Customer Decision Hub, to utilize both predictive and adaptive analytics and modeling. Adaptive models auto-create and self-optimize so that once the conditions are defined in the software, the AI will ingest the data it receives from external inputs, process it, and learn in real time. It refactors constantly to achieve the best possible outcomes, then makes the decision to take that recommended action. Any new piece of data triggers the software to automatically rebuild the model to make it work better, based on what it just learned.

For example, if a financial institution is using data from its digital mortgage calculator to identify when a customer is in market for a mortgage, they'll likely consider market conditions like interest rate; customer data like income bracket or region; or other factors that would qualify a customer for a particular product. If an input unexpectedly changes, like a sudden increase in the interest rate, that affects the eligibility of a particular client to receive a particular offer. While adaptive models can do just that – adapt – predictive models can only base the offer on the previous data inputs. That's why, when both are combined, businesses are able to deliver more accurate, relevant, and empathetic experiences.

Modeling & propensity scoring

Two main mechanisms

Predictive

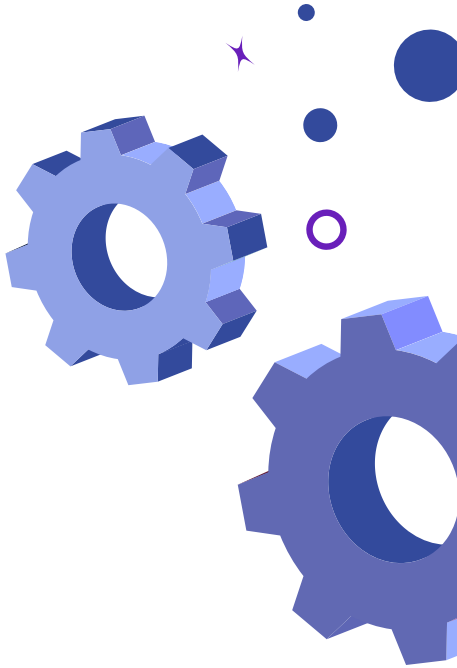
Traditional predictive models built by data scientists in Pega, or imported from other modeling software:

- Regression models
- Decision trees
- Genetic algorithms
- Bivariate models

Adaptive

Machine-learned models that auto-create and self-optimize, so your program can scale to include all your:

- Cross-sell offers
- Retention programs
- Service nudges
- Nurture streams



Organizations can use their own predictive models or Pega's. Our adaptive analytics are a quick and easy way to scale and apply analytics across the enterprise.

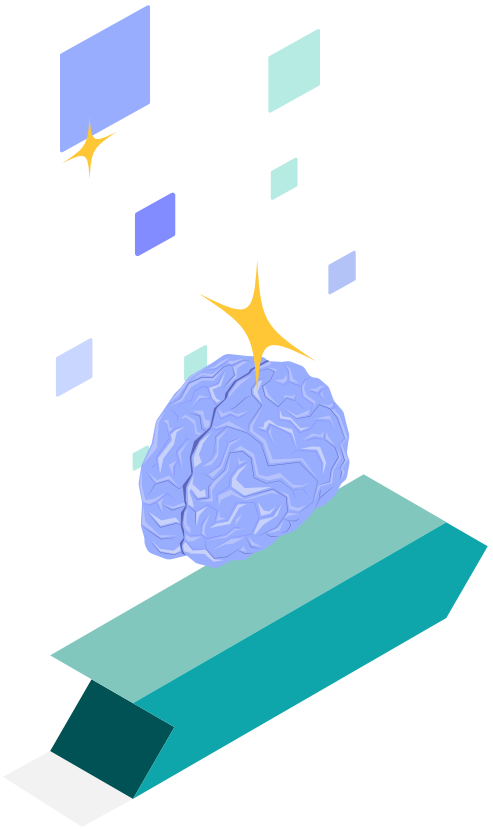
- **Every action requires propensity models:** Every action in Pega uses at least one propensity model, if not more. These models provide a way to compare options and pick the most relevant one for that individual, in the moment. Propensity is the baseline of all the decisions we make, and we believe that the further you stray away from what propensity is telling you, the worse your outcomes are going to be – especially if you are trying to build out customer relationships over the long term.
- **Models are scored in real time:** To stay relevant, models must be rescored as close to the moment of customer interaction as possible. In a digital environment, predictions stagnate in seconds.

Next-best-action decisions

Potential actions for Amanda	P PROPENSITY	V VALUE	L LEVER	Action ($)
Offer: Rewards card offer	0.3%	$561	0%	1.68
Offer: Home equity loan	--	What is that worth?	--	--
Offer: Mortgage loan offer	0.1%		Does it need a bump?	0.83
Service: Missing email address	4.0%	$55		Next best action
Service: Travel notification	3.0%	$29	20%	
Hardship: Hurricane relief package	**64.0%**	**$23**	**100%**	**29.44**
Retention: Manage your rewards alert	Will they accept?	$83	50%	17.43
Retention: Waive annual fee for one year		$48	0%	2.40
Nurture: Personal finance eLearning class	3.0%	$135	20%	4.86
Nurture: New mobile app available	21.0%	$20	20%	5.04

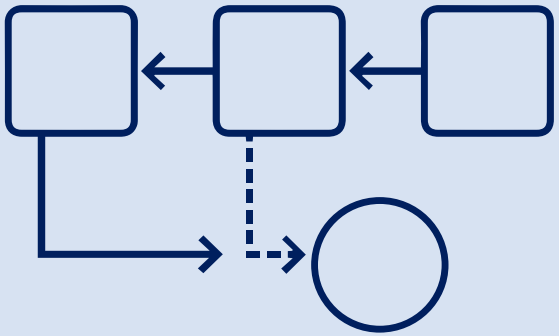
Going from flowcharts to decision strategies

Brands today need a system that unifies customer data, tactics, and decision strategies across marketing, sales, service, and risk management functions. This centralized hub is the only way to consistently earn customer time, attention, and loyalty. Nothing less will suffice in this always-on world.



Flowcharts

Control individual campaigns



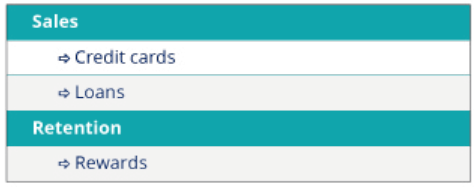
VS.

Strategies

Orchestrate all outreach

This thinking and action-oriented hub becomes your central cognitive brain, answering questions like:

- What business issues should be considered when interacting with a customer?
- What are the business rules governing the actions that the AI can recommend?
- What constraints must the AI respect when making decisions?
- Which customer journeys need to be monitored, prioritized, and optimized when a customer starts them?
- Which channels are available to engage the customer with that action?



Taxonomy

Business challenges and hierarchy

Channel	Limit	Duration
Email	1	Daily
SMS	1	Weekly
Direct mail	2	Monthly

Constraints

Contact limits governing customers, channels, and actions

Engagement policy	
Eligibility	Age > 18; State == 'WI'
Applicability	Does not own 'product A'
Suitability	In Arrears == 'No'

Policies

Rules defining eligibility, applicability, and suitability

Customer journey definitions	
Retention	⇨ Welcome & onboarding
Retention	⇨ Rewards sign-up
Sales	⇨ Discover & apply
Resilience	⇨ Payment holiday

Journeys

Definition and prioritization of contextual content

Available actions	P	V	L	Score
Retention: Rewards offer	0.3%	$561	0%	1.68
Service: Travel notification	3.0%	$29	20%	1.04
Sales: Upgrade now	0.1%	$834	0%	0.83

Arbitration

Balance between propensity and rules

Customer channels	
Email channel	Active ☑
Real-time container	Web hero banner
Event trigger	Abandoned cart

Channels

Activation of touchpoints and event triggers

Arbitration

Customer relevance

Propensity *Foundation of arbitration*	Context lever *Levering by situation*
Propensity scores are **re-calculated in real time** during every decision, for actions not filtered by rules	Context can be used to **lever a propensity score** up or down, depending on the customer situation
Example: *Of the 200 potential actions for Sara, 150 were filtered by rules. the remaining 50 are then re-scored to determine propensity*	**Example:** *When the customer is on a credit card web page, actions in the credit card group could be levered up 10%, to ensure they're seen*

X

Business priority

Action value *Explicit or calculated*	Business lever *Levering by challenge*
Each action has a unique value that represents the **business's financial interests** if & when it is accepted	Actions in specific issues/ groups may be levered up, to **ensure they compete** effectively with other types
Example: *The Samsung Galaxy offer may have a default action value of $599, while the iPhone has an action value of $878.*	**Example:** *Service actions add value through NPS lift but not revenue; they are often levered up to compete with sales and retention offers*

This type of centralized decisioning increases agility. Using a combination of constraints, engagement policies, and contact policies, you can easily control what actions are available for customers, across every situation and channel.

Arbitration uses propensity and customer context to ensure relevance and balances against action value and weightings you assign to business issues – like sales, retention, service, and nurture. This ensures that organizations can add levers of control if needed to achieve specific business outcomes.

Shifting from segments to individual customers

We've already stated that while segments have long been the tool that marketers and customer engagement practitioners use to target audiences with somewhat relevant messaging, it's not true one-to-one engagement. Therefore, it is not a very effective way to achieve a personalized customer experience. Segments, and even newer microsegments, are groups of users categorized by shared attributes and behaviors. For example, a customer may purchase an extended warranty for their cell phone, but that doesn't make them a technology "enthusiast," nor does it mean that they are "in market" for cell phone accessories for the next 30 days. Segment-based marketing uses small signals to determine which of a certain product to position to a potential buyer. Brands could be pursuing the same conversation over and over with a customer regarding a product they might not even want, based on a generic categorization. Segments are static. One-to-one customer engagement is always on.

A real person has real needs and preferences – so instead of picking a product and pushing it at a customer, organizations need to understand that customers will tell you what they need. An AI-driven, always-on approach helps businesses decode these customer signals by analyzing a constant stream of data to understand what the engagement options are – instantly – and pick the option that is most relevant right then, for that customer. This practice is called next best action and is the foundation for actual one-to-one engagement in an always-on program. It doesn't require a massive data upgrade or overhaul – organizations can primarily use existing data from all their systems and activate it via models.

Segments

one-to-many

Offers	Product A	Product B	Product C	Product D
Segment 1			✓	
Segment 2				
Segment 3			✓	
Segment 4				
Segment 5			✓	

Individuals

one-to-one

Actions	Sell	Serve	Retain	Nurture
Bob				
Jennifer				
Mary				
Angus			✓	
Emily				

Migrating from journey building to orchestration

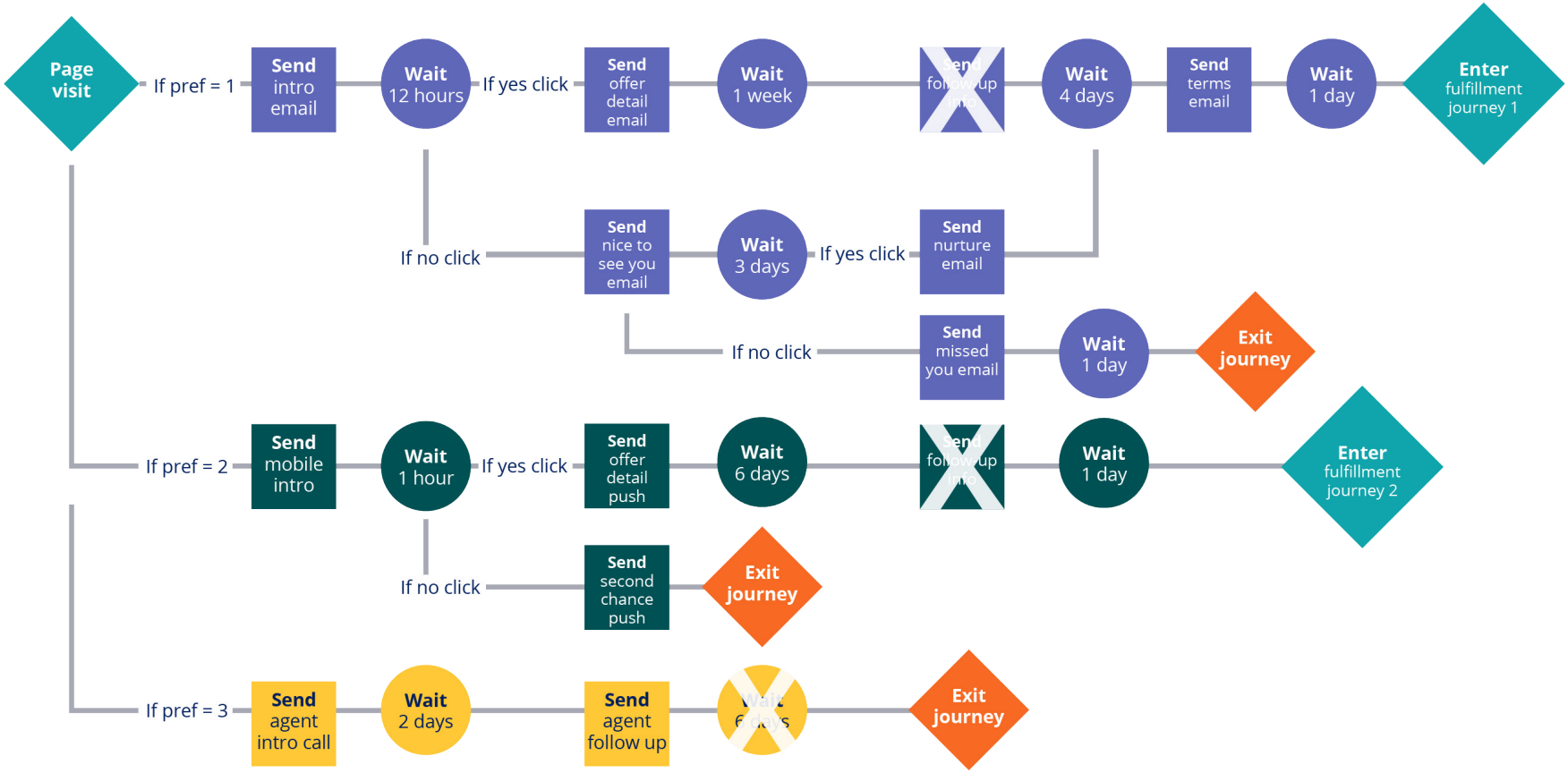
A customer journey is the sum of customer experiences related to completing an objective. Journeys can involve complex steps and stages or be very simple – from point A to point B. But it's safe to assume customer goals, preferences, and context will change often. Regardless, each journey must be seamless. Journeys must flow across channels and technologies elegantly, with each experience adding insight and value to the next; even if it happens only seconds later, in another part of the enterprise.

But most importantly, businesses must understand that the journey is owned by the customer and not the brand. It's the brand's job to help the customer complete their journey as quickly and painlessly as possible, even if the outcome doesn't maximize short-term revenue. The goal is to build relationships and maximize CLV – long-term gains vs. short-term wins.

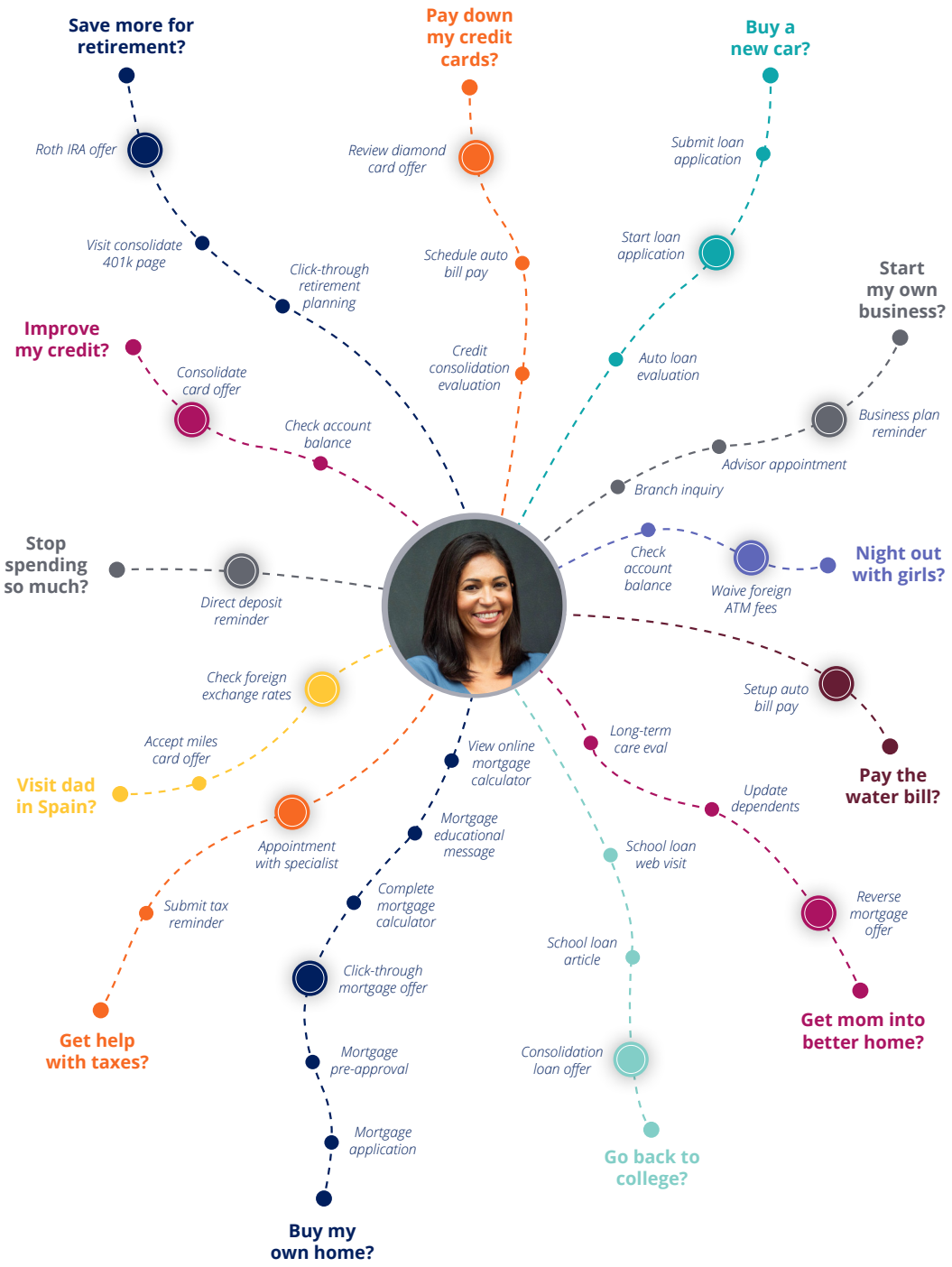
It is impossible to achieve this with rules-based journey orchestration tools since they offer a pre-determined path with few chosen actions or content. This is where having a large library of action choices means that your customer's journey can be rich and robust, and pivot according to how they change courses.

Journey building

THE JOURNEY TO NOWHERE



Brands can't stay relevant if the customer experience is scripted in advance. You have to re-decision the customer profile during every interaction, in real time – using the context from their last experience to drive the next one. By doing this, organizations avoid what we call "the journey to nowhere."



What is re-decisioning?

The most sophisticated next-best-action solutions will "re-decision" the entire real-time process multiple times during a single, live customer interaction.

This can mean making anywhere from 10 to 50 distinct decisions within just a few minutes, all within a single customer experience. Each time, the propensity scores are re-calculated for each potential action, taking into account the new data and context.

Orchestrating a great experience

THE THREE REQUIREMENTS

Elegance: We need to make a complex process simple and elegant for the customer, without compromising the quality and depth of their experience.

Relevance: During that CX, every interaction must be meaningful – even when they pause, change directions, or switch conversations.

Empathy: We must constantly adapt that experience, account for all their different needs, and re-prioritize moment by moment.

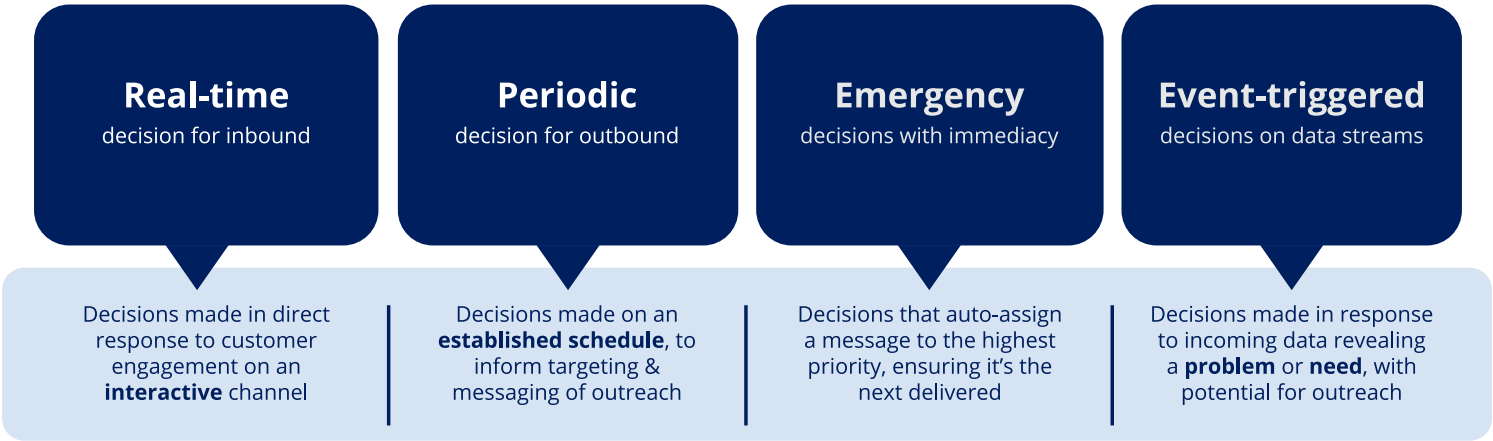
If brands want to show empathy and give the customer what they need, they should *prioritize action* across all the journeys the customer is on and pick the *next best action* that best fits the moment.

Converting from batch-driven to real-time architecture

Pega helps you move from a batch-driven architecture – where you're running lots of scheduled campaigns – to a real-time architecture, where you're constantly activating data and re-decisioning customers. A centralized decision engine must be able to support four distinct modes of decisioning. While the data flows overlap, they service very different and unique use cases – each one critical to a real-time program.

The four modes of decisioning

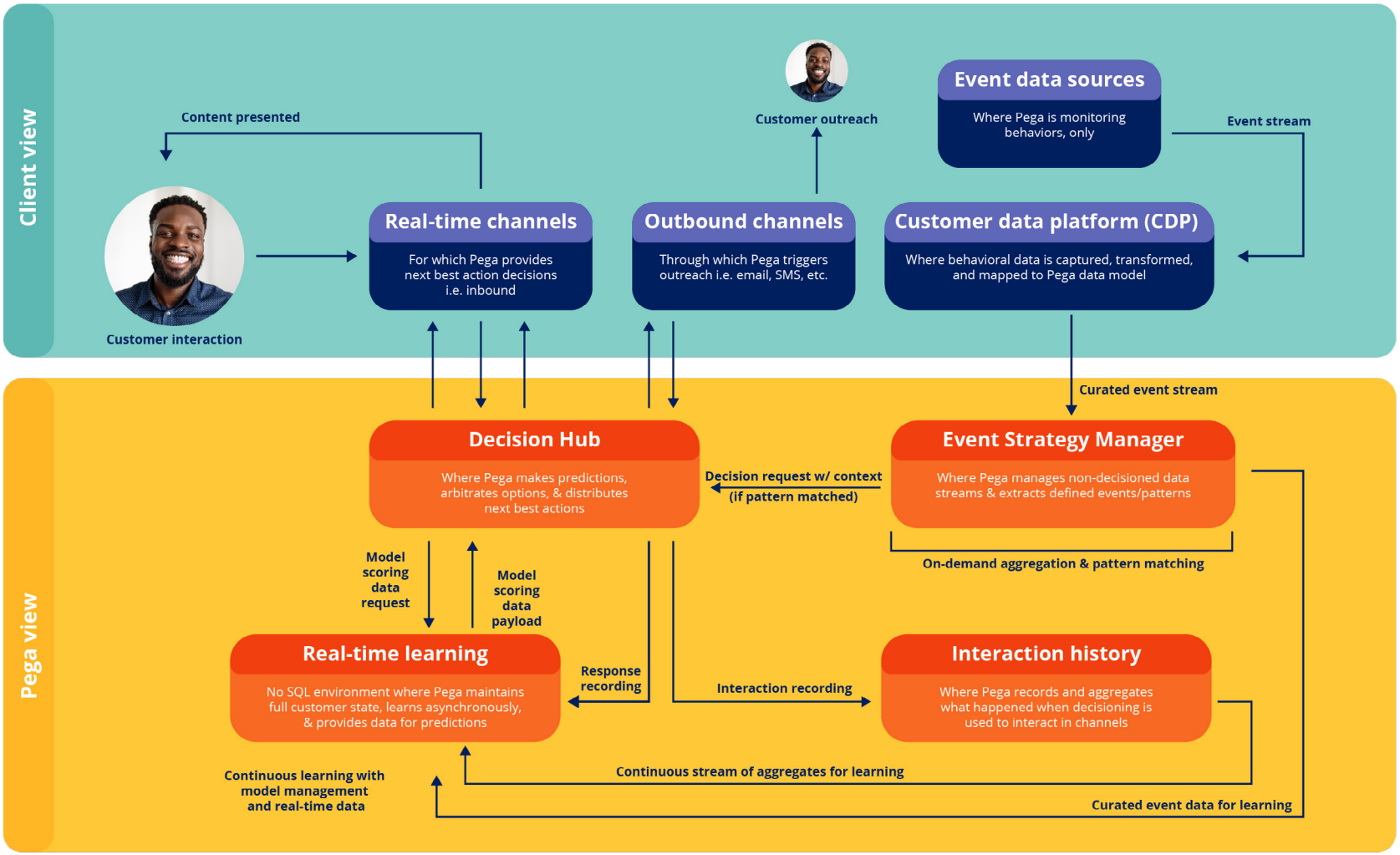
ALWAYS-ON CUSTOMER ENGAGEMENT



Those four modes require a unique architecture with eight components: real-time and outbound channels, event sources, and customer data platforms (CDPs) on the customer side, and a decision engine, real-time learning, event processing, and interaction history within Pega. While inbound and outbound interactions and historical data provide a strong baseline of customer information, streaming data offers significant predictive lift by adding context outside the decisioning process.

Real-time architecture

THE EIGHT CORE COMPONENTS



Getting value from one-to-one engagement

There's a limit on the value that traditional marketing stacks can provide – and once you've hit that wall, any performance gains are marginal. It's time to take a completely different, customer-centric approach to get to the next level. Today's customer has moved on from irrelevant and intrusive interactions. They expect better from brands. Those that have an always-on brain at the center of all their channels and programs are uniquely positioned to overcome the challenges traditional marketing and customer engagement simply can't. AI can now help organizations make very powerful and accurate decisions quickly, across all customer touchpoints – driving a better, more engaging, more empathetic customer experience. It's what customers deserve – and now it's what they also demand. Delivering that kind of customer experience has enabled success for Pega clients in various organizations across the enterprise.

NatWest Group

6X
Response increase

CommonwealthBank

+12 NPS
Over nearest competitor

HSBC

265%
Increase in revenue per contact

Sprint

40%
Net Promoter Score lift

vodafone

3X
Increase in offer accepts

achmea

85%
Customer save rate

Pega is The Enterprise Transformation Company™ that helps organizations Build for Change® with enterprise AI decisioning and workflow automation. Many of the world's most influential businesses rely on our platform to solve their most pressing challenges, from personalizing engagement to automating service to streamlining operations. Since 1983, we've built our scalable and flexible architecture to help enterprises meet today's customer demands while continuously transforming for tomorrow.