



**COLORADO**

**Governor's Office of  
Information Technology**

# Colorado PEAK® Chatbot

**CATEGORY:**  
Business Process Innovations

**STATE:**  
Colorado

**PROJECT INITIATION DATE:**  
May 2019

**PROJECT END DATE:**  
December 2019



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# Executive Summary

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Coloradans who depend on food, cash, or medical assistance to maintain a safe and healthy livelihood for themselves and their families rightfully expect the state to timely deliver benefits, communications, and documentation to avoid adding stress to an already trying situation.

When they have questions regarding their assistance, Coloradans similarly expect the state to do everything possible to respond quickly. Before August 2019, they could contact call center agents about Colorado PEAK®—the online portal where customers apply for, change, and renew benefits—during business hours through phone calls, emails, and live online chats. However, for many in the workforce, attempting to contact support services between 7:30 a.m. and 5:15 p.m. simply is not an option. For others, pressing issues do not allow time for lengthy waiting periods.

The Governor's Office of Information Technology (OIT), in partnership with our vendor partner, explored cost-effective, agile, and innovative solutions that would greatly improve the customer experience within PEAK and get Coloradans the answers they need, when they need them. The result was a chatbot, implemented in August 2019, with a conversational user interface that can process natural language to answer customer inquiries, direct them to other resources, or connect them to a live agent if they need a higher level of support.

Over time, the PEAK Chatbot learns from each conversation so that it can continue to improve its fluency and how well it understands intent. In the first few months, 77% of customers said the Chatbot understood their question and that number is expected to grow. Additionally, its adaptability allows the State to quickly implement new functionality in the face of ever-changing global or national economic and health care headwinds.

Comparing customer interactions today from a year ago, the Chatbot has helped a new population of Coloradans receive help on critical questions regarding their benefits. As the other PEAK support options remained flat, the Chatbot increased the number of customers served monthly by 335%.

The PEAK team at the Governor's Office of Information Technology (OIT) continues to track metrics and analytics that drive production changes to better serve our customers and enhance the lives of ALL Coloradans.

# Project Narrative

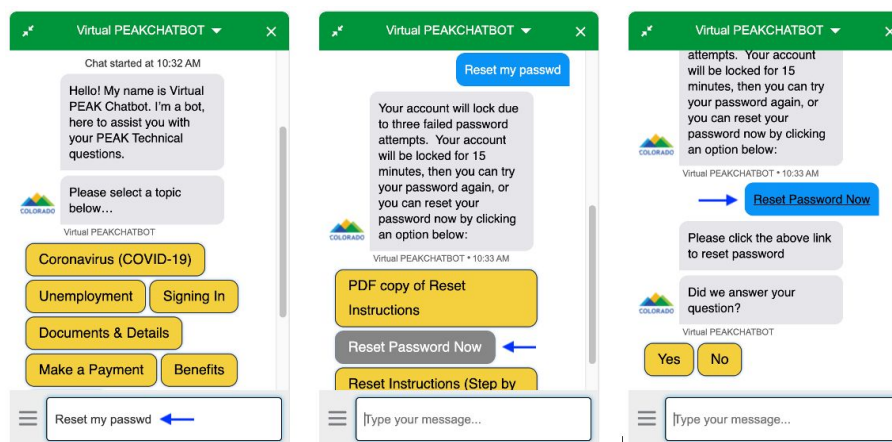
## Concept

The State of Colorado operates a call center that helps recipients of food, cash, and medical benefits navigate their applications and make changes to and verify their information for renewals within the [Colorado Program Eligibility and Application Kit \(PEAK\)](https://Colorado.gov/PEAK) self-service portal—located at [Colorado.gov/PEAK](https://Colorado.gov/PEAK). Customers can reach call center agents through phone calls, emails, or live online chats during business hours, 7:30 a.m. - 5:15 p.m., Monday through Friday. During those hours, each agent can handle up to five chats at a time. If there are more than five customers trying to reach an agent, they wait in a queue until an agent becomes available. Agents handle about 125 live chats per day, with volumes increasing to approximately 160 live chats per day during open enrollment. Customers who need help outside of business hours, including holidays, have to wait until the next business day to receive assistance. To better support customers, OIT needed a cost-effective, scalable, and agile solution to reduce wait times. Working through various solutions with our vendor partner, a chatbot was determined to be the best solution for helping customers during off hours and to reduce wait times.

## What is a chatbot?

A chatbot is a bot that uses human language for interactions, i.e., it has a conversational user interface (CUI). Recent advances in natural language processing have improved chatbot abilities to understand human language. Additionally, machine learning allows bots of all types to automate more sophisticated types of tasks. These two developments have opened up new use cases for chatbots.

In August 2019, the OIT and vendor partner team implemented a Salesforce Einstein-based Bot named PEAK Chatbot. Through the Chatbot, customers find scripted answers to frequently asked PEAK technical support questions (*example customer flow below*) on-demand 24 hours per day, 7 days per week, 365 days per year, without waiting in a queue for support.



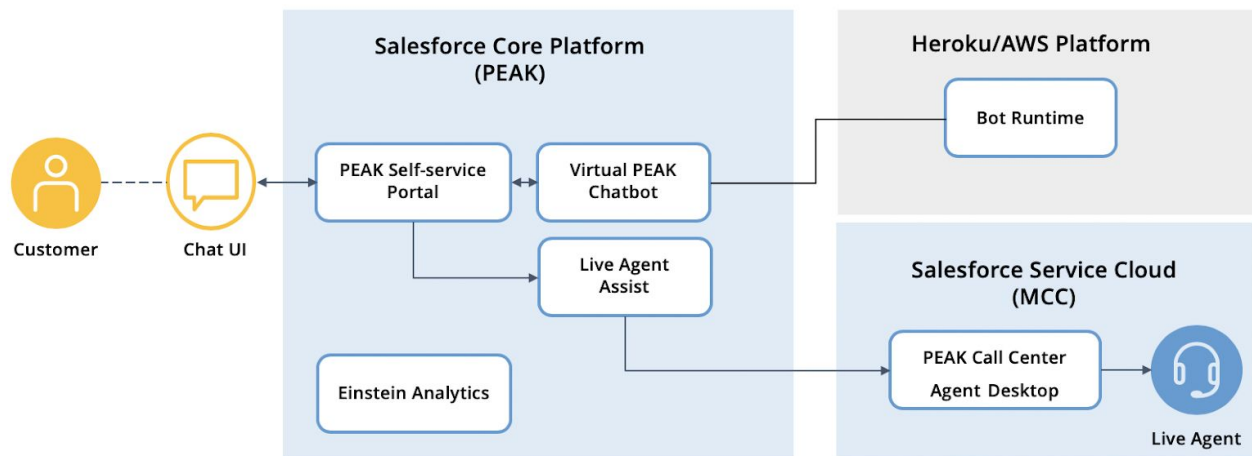


The Chatbot provides support, including links to documentation for common use cases like signing into PEAK, accessing account details and documents, and making payments. Customers can select from categories and subcategories of support or type their own question. The Chatbot recognizes common spelling errors and “learns” customer intent from previous conversations. If a customer requires a higher level of support, it directs the customer to a live agent or opens a request to be contacted when an agent is available.

Customers also have the ability to save their chat transcript when a discussion is complete to keep track of the answers they received. Additionally, the Einstein Analytics dashboard tracks various metrics about customer interactions with Chatbot and provides useful insights about customer behavior and needs. The PEAK Chatbot allows changes to be implemented into production in a shorter time frame. With the current pandemic, the team added support for COVID-19 and unemployment questions within a few hours of the request and rolled out production changes almost immediately.

### ***Solution architecture***

PEAK Chatbot is built on the Salesforce Einstein Bot. The solution seamlessly integrates with various components within the Salesforce ecosystem to provide an exceptional user experience to customers and live agents. The components currently include, but are not limited to, the PEAK self-service portal (Core), Einstein Bot, Einstein Analytics, and Service Cloud (call center).



Salesforce’s out-of-the-box conversational user interface (CUI) is customized to integrate with PEAK self-service portal and the Einstein bot (PEAK Chatbot). It is designed to fit within the existing PEAK portal live chat flow to provide a consistent experience to customers. The Chatbot is configured to have various intents and entities, and is trained periodically with multiple utterances. This process allows the bot to understand customer intent and respond appropriately. Also, the Chatbot integrates with the customer call center to provide seamless transfer between the Chatbot and live chat agents. In all interactions, chat transcripts and help desk tickets created through Chatbot are automatically transferred to the customer call center.

Einstein Analytics is configured to provide multiple key performance indicators (KPIs) through executive dashboards. It primarily focuses on functional KPIs including, but not limited to, customers served, usage hours, customer feedback, outcomes, and the Chatbot's ability to respond to customer questions. These data points are collected by analyzing the chat transcripts through automated batch jobs and then used to quickly and easily incorporate enhancements that are directly beneficial to customers.

### ***How it came together***

The PEAK Chabot is an independent initiative implemented through the waterfall methodology as an enhancement to the existing self-service portal (PEAK). OIT and our vendor partner spent approximately 685 hours and \$89,050 to implement phases 0 and 1, which included requirements-gathering, technical design, system testing, user acceptance testing, and production deployment. Phase 1 also included a proof of concept for personalizing the chatbot.

The state team provided full oversight from the project's start through deployment and support, working to procure necessary licenses, provide business requirements, review technical design, and perform user acceptance testing. The state team was also responsible for identifying frequently asked questions to support the creation of the Chatbot language and utterances, which aligns with Colorado's established accessibility standards. Hosted within the secured PEAK environment on the Salesforce platform, the Chatbot maintains high levels of security by neither asking for or storing personally identifiable information (PII).

Once implemented, the state performed outreach through county partners and other forums where customers can be reached, including the PEAK website. Call center agents also proactively share the Chatbot with customers. Going forward, the State of Colorado will continue to assess the Chatbot's value and avenues for improvement by reviewing metrics and analytics, including customers served, help desk tickets created, customer feedback, conversation outcomes, and bot fluency over time.

## **Significance**

The State of Colorado currently serves more than 1.3 million customers who receive food, cash, and medical assistance. Approximately 192,000 access their PEAK account within a given month. To meet OIT's goals, it was clear that customers needed another support option outside of business hours. In fiscal year 2020, OIT identified three Wildly Important Goals (WIGs), and the Chatbot project delivers on each.

- **WIG 1: Increase OIT's organizational efficiency, transparency, and customer satisfaction.** The Chatbot provides a consistent, high-quality experience to customers, with a focus on expanding support and continually evolving to meet customer needs.
- **WIG 2: Ensure a secure Colorado by evaluating and improving cybersecurity practices.** Salesforce Einstein Bots and the Chatbot include sensitive data rules that are used to filter PII and other sensitive information. It also supports client-side masking of sensitive data. Sensitive data does not enter the Salesforce data center and is never stored as PII, so users

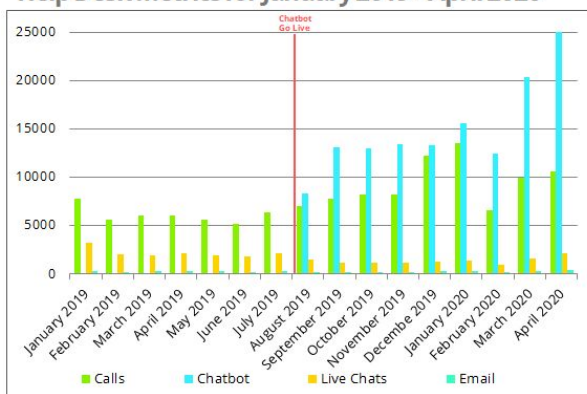
- can have confidence that their personal information will not be exposed by data breaches.
- **WIG 3: Expand virtual access to government services anytime and anywhere.** The Chatbot can be accessed by Coloradans on their mobile or desktop device, thus allowing users to conveniently access support anytime, anywhere. In addition, PEAK has extended its reach through its addition to the myColorado app’s expanding suite of services.

Looking ahead, the Chatbot’s success provides the State of Colorado a template for creating cost-efficient solutions that offer best-in-class services to residents.

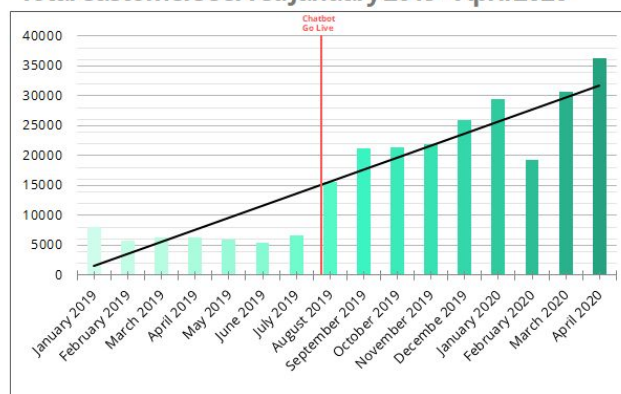
## Impact

Following implementation, the number of customers served monthly increased 335% within a year, from an average of 6,600 between January and April 2019 to an average of 29,000 between January and April 2020. PEAK Chatbot accounted for 64% of customer service interactions between January and April 2020. The numbers of calls, live chats, and emails remained largely the same as previous years; as such, the increase in customers served accounted for a whole new population of customers not previously captured.

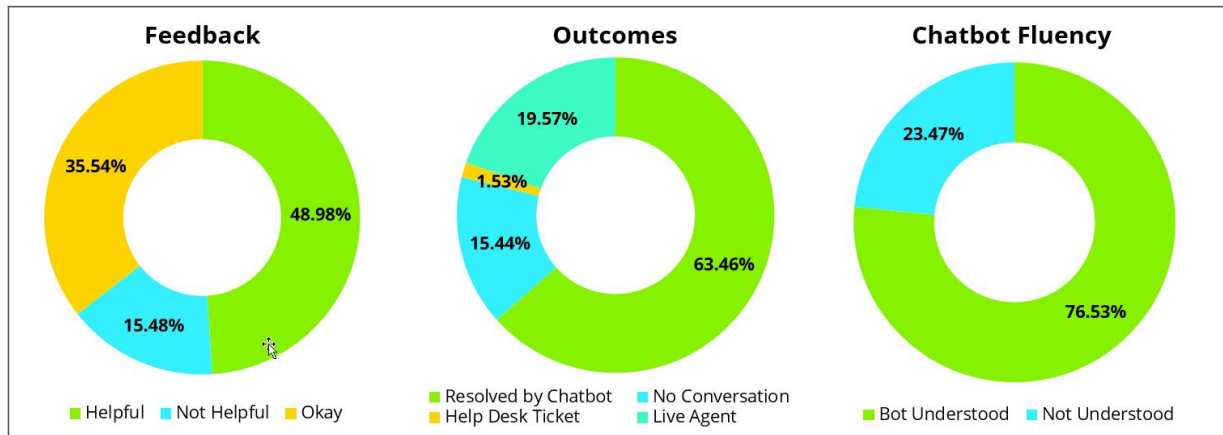
Help Desk Metrics for January 2019 – April 2020



Total Customers Served January 2019 – April 2020



The Colorado PEAK Chatbot also allows customers to provide feedback on their experience. Before closing the chat window, users are asked whether their question was answered, and to what degree the response was helpful. This ability to capture feedback allows OIT to continually improve customer service. Approximately 84% of customers found the responses received to be “Helpful” or “Okay;” 63% stated that their issue was resolved, while an additional 21% were redirected for in-depth assistance with an agent or through a help desk ticket. The ability of the Chatbot to redirect customers with more complex problems to an individual who can assist them is a significant value add. Finally, users have indicated that the fluency of the Chatbot is high, with 77% stating that the Chatbot understood their question. Given that the Chatbot’s fluency increases as it learns, this is a positive trend that is expected to continually improve.



From a financial perspective, as mentioned above, phases 0 and 1 cost \$89,050. All other costs of the Chatbot project are rolled into the costs of OIT’s contract with Salesforce, meaning there are no net additional costs at this time. Currently, the cost to run the call center is approximately \$45,000 per month to cover business hours only. When compared to the cost of hiring, training, and staffing individuals to cover live chats, phone calls, and emails 24 hours per day, 365 days per year, the Chatbot provides significant cost savings to OIT and the State of Colorado.

Overall, PEAK Chatbot has been highly successful and future enhancements are already in motion. Customers are very happy with the support they receive, highlighted by the following feedback:

- “This really helped me on the weekend to be able to do the things I needed to do on PEAK and have answers that I would normally have to call in for or wait for (the live) chat to open.”
- “I was locked out of my account at 2 a.m. and I was able to use the Chatbot to find out what to do to get into my account. The instructions were easy to follow. All of the answers I needed were right there in a colorful display.”
- “What I like most about the Bot is its reliability.”
- “The visual guides made it easy to understand.”

In the long-term, the Chatbot will continue to provide customers with high-quality, around-the-clock assistance. As the Chatbot continues to learn and enhancements are implemented, customers will receive more and more personalized experiences. In the ever-changing economic and health care landscape, the ability of the PEAK Chatbot to quickly respond to disruptions and then adapt will allow Coloradans to feel a sense of stability and assurance that their benefits are secure and their concerns addressed, even in challenging times.