

# Now on Now: Using AI to help predict and prevent Customer Support cases and improve time to relief

How ServiceNow Predictive Intelligence helped  
drive a 11.6% decrease in time to relief, resulting  
in \$11.5M in cost savings

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## AI drives operational efficiencies and an improved user experience

Global AI adoption across all industries is driving new customer service expectations. Customers expect great service. They want the company to find and fix issues as rapidly as possible without any formal contact. If customers have to report an issue, they expect the company to acknowledge and fix their pain fast.

Changing expectations and the demand for better operational efficiency are driving AI adoption in our Global Cloud Services operation, which supports all ServiceNow customer instances.

Our AI adoption revolves around three themes:

- **Predictive alerting:** Helping to prevent issues from turning into incidents
- **Case management:** Giving our technical support engineers (TSEs) tools to diagnose and resolve cases more quickly
- **Self-service:** Enabling customers and TSEs to resolve issues without additional intervention

In this case study, we discuss how the power of AI is dramatically changing the quality and speed of our customer experiences. By enabling us to help predict and prevent incidents, we can resolve issues before customers are aware of them and speed up the time to relief by our TSEs.

## Predictive alerting: Using AI to help prevent incidents

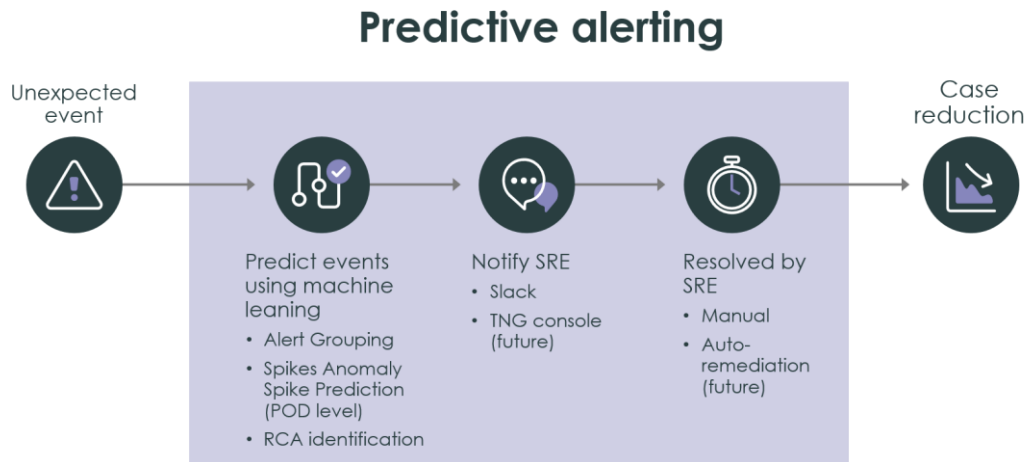
ServiceNow is committed to aggressive and sophisticated proactive system monitoring. Our goal is to keep our customers' instances from encountering any issues or failures. When they do occur, we want to act quickly.

One way we do this is in our Site Reliability Engineering (SRE) environment. We use ServiceNow® IT Operations Management (ITOM) and other industry standard tools to monitor our cloud environment and watch for issues across our stack, including database and app servers as well as the platform and applications.

To extend our monitoring capabilities, we built AI models based on the frameworks provided by [ServiceNow Predictive Intelligence](#). With these models, we can make predictions by comparing the alert data against baseline customer usage metrics built on historical data sets. When an anomaly is triggered, the model classifies the anomaly based on those training sets, predicts the future impact, and identifies root causes. The system transitions them into events as needed.

When these anomalies are classified as an event, the SRE team is notified via Slack so they can proactively address them before widespread impact. The SRE team can then resolve the issue and avoid unnecessary incidents. In some cases, the incident is resolved before the customer is even aware of it. In the future, we will seek to auto-remediate many of these incidents; no human intervention will be required. In addition, alerts will move from Slack to the Next Generation (TNG) console instead of Slack.

This workflow is still in its infancy. Incident resolution time savings and a reduction in cases are two key outcomes that we expect to improve with time.



## Building models for case management based on AI classification and similarity frameworks

The AI frameworks of ServiceNow Predictive Intelligence are also playing a key role in streamlining the customer service process. We use Predictive Intelligence for customer cases as well as instance incidents and alerts. Similarity and classification models deliver a more streamlined workflow that reduces time to relief for our customers. To provide continued accuracy, the system regularly trains the data so it is always working off the most updated data.

We used the out-of-the-box Predictive Intelligence frameworks to build these models:

- **Classification model:** Machine learning is used to accurately categorize and assign cases to our TSEs based on past case-handling experience. This reduces task resolution time, the number of interactions, and manual errors in categorizing and assigning the cases.
- **Similarity model:** The system looks for similarities between diagnostic data from a new incident and a training data set to quickly surface relevant information based on previously

solved cases. A TSE can select one of three options—case, problem (PRB), or knowledge base—to bring back similar objects based on the case title, then quickly provide the best resolution for an incoming case.

In the future, we hope to develop clustering and other models and automate the entire workflow so the case can be closed without being assigned to an agent. Clustering models will help us identify patterns by continuously segmenting and grouping similar items—such as error codes—to identify major cases quickly. The system will automatically assign similar items to existing clusters as new records come in. Thanks to re-clustering at periodic intervals, the system works off the latest data to enhance accuracy.

For example, a customer reports that data is not available. Predictive Intelligence will identify it as a data encryption issue. Integrated workflows will be launched to find the right encryption key, re-encrypt the data, and resolve the incident without any human intervention. This increases operational efficiency.

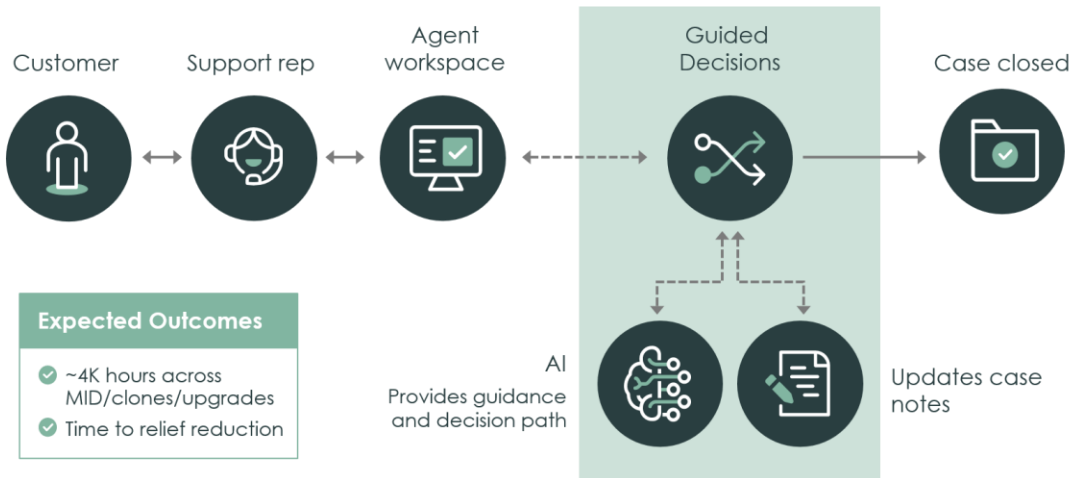
## Guided Decisions: Fast case resolution

The Guided Decisions feature of [ServiceNow Customer Service Management](#) (CSM) can be used to automate the similarity, clustering, and natural language understanding (NLU) models of the [Now Platform](#)® into a workflow to intelligently diagnose cases. It uses a decision tree to guide TSEs through a structured troubleshooting process to find the next optimal action. By avoiding dead ends, the TSE can help resolve the case more quickly and is more productive.

We have further developed this workflow using the AI functionality of Predictive Intelligence to recommend the best action or ask a follow up question. When a customer has an issue, the TSE can launch Guided Decisions and a script is invoked. Guided Decisions uses AI to provide guidance and a decision path. Based on the customers' answers, follow up questions are sent to the TSE via their workspace. The process continues until a final resolution is provided or the logical ending of the decision tree is reached. Guided Decisions also updates the case notes.

Guided Decisions helps us resolve complex cases faster and more efficiently by using AI to guide our TSEs down the correct decision path. We piloted Guided Decisions on MID-server, upgrade, and clone cases.

## Guided Decisions



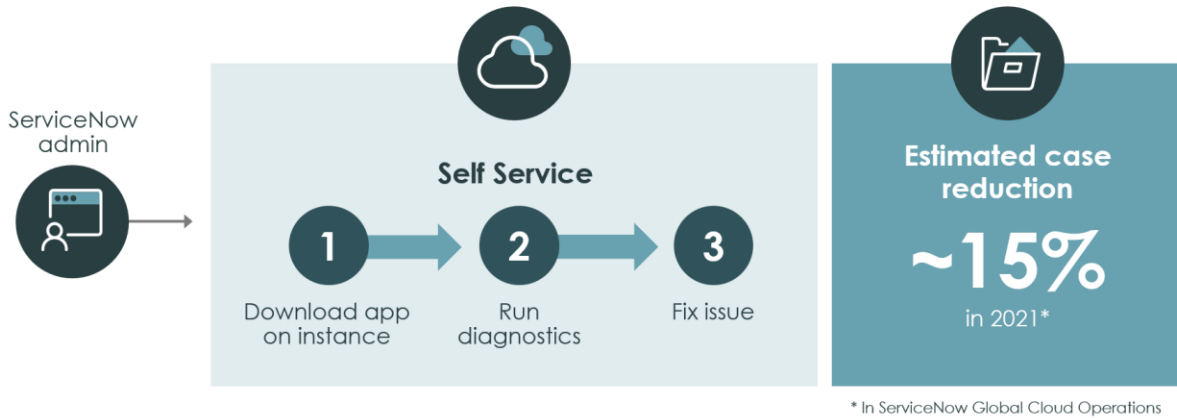
## Instance Troubleshooter: The future of self-service

Approximately two out of every three of our cases are customers reporting broken functionality. Many of these issues, such as configuration changes, can be easily fixed by a sys admin without involving Customer Support.

Instance Troubleshooter is a free app in the [ServiceNow Store](#) that puts self-service into the sys admin's hands. The sys admin downloads the app to detect issues in an instance. The app provides crisp and clear recommendations for each issue detected across ServiceNow apps. By avoiding the customer service wait time, a sys admin can save time, be more productive, and focus on other tasks. The first version of the app features solutions for eight product categories and usage stats in a Performance Analytics dashboard.

In the future, we will integrate Predictive Intelligence's AI capabilities to analyze the collected data against historical training sets and help sys admins better predict, prevent, and fix issues. Future versions will also support more ServiceNow apps, scheduling options, a feedback mechanism, case integration, mobile support, and one-click remediation.

## Instance Troubleshooter



We plan to have 40 use cases available by the end of 2021, and estimate the number of cases requiring simple solutions to drop by ~ 15% by the end of 2021, thanks to Instance Troubleshooter and other ServiceNow initiatives.

## AI Insights: Self-service UI for agents

In addition to using AI to improve our customer experience, we are also using it internally to improve TSE productivity. One example is a capability we call AI Insights, which enables TSEs to select out-of-the-box, predefined solutions or create custom solutions on the fly. These solutions run automatically upon case creation if a certain criterion is met. The resulting diagnostics and recommendations help the TSEs resolve the case more quickly than without this feature.

One example is a Java script that runs on an instance and automatically fetches system property values. The system uses machine language to train the output so future results are more precise. This makes relevant data available to the TSE when they need it.

As of early 2021, ~30 solutions have been activated and used to resolve ~8K cases per month. The Technical Support Architects (TSA) team piloted AI Insights ahead of our Technical Support teams to support its veracity. Solutions go through AI and Legal team approvals prior to activation.

## AI Insight activation workflow



## Power of AI: Business outcomes

AI is emerging as one of our primary technologies in streamlining case resolution for both customers and TSEs. ServiceNow Predictive Intelligence provides the AI framework to help avoid time-consuming, manual tasks such as data collection and analysis. These capabilities result in a significantly lower mean time to relief (MTTR), reduced number of major incidents, and increased operational efficiency.

In 2020, we saw a 11.6% overall reduction in time to relief (TTrf) and productivity savings of 28,500 hours for our Technical Support engineers in 12 product categories. As a result, we estimate we have saved \$11.5M in costs.

The more prepared we are to predict and proactively respond to unplanned events and changes, the fewer cases will be opened. Customers can focus their energy on other areas; TSEs are freed up to work on more complex issues.

*This case study may contain "forward-looking" statements that are based on our beliefs and assumptions and on information currently available to us only as of the date of this case study. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those expected or implied by the forward-looking statements. Further information on these and other factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled "Risk Factors," set forth in our most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q and in our other Securities and Exchange Commission filings. We cannot guarantee that we will achieve the plans, intentions, or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. The information on new products, features, or functionality is intended to outline our general product direction and should not be relied upon in making a purchasing decision, is for informational purposes only and shall not be incorporated into any contract, and is not a commitment, promise, or legal obligation to deliver any material, code or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion. We undertake no obligation, and do not intend, to update the forward-looking statements.*

## About ServiceNow

ServiceNow is making the world of work, work better for people. Our cloud-based platform and solutions deliver digital workflows that create great experiences and unlock productivity for employees and the enterprise. For more information about ServiceNow Predictive Intelligence, click [here](#).

Now on Now is about how we use our own ServiceNow solutions to work faster, smarter, and better. With Now on Now, we're achieving true end-to-end digital transformation. To learn more, go to the Now on Now [website](#).