

A Machine-First Approach to Product Support Operations

A four-step guide for enhancing efficiencies and user experience



Abstract

The pandemic has compelled organizations across the globe to embrace automation and machine-first delivery models¹. This is evinced in the number of industrial robots that have doubled between 2014 and 2020².

When it comes to large product support operations, with a growing user base, it is essential to ensure end-to-end automated systems with a machine-first approach. This goes a long way in assisting users, resolving their issues, and providing intelligent organization-level insights for continuous improvements.

This paper discusses the approach firms can take towards designing a multi-component product support operations system. It also explores how components in the system interact with one another to provide a seamless experience to end users and the operations team.

Key challenges and opportunities in product support engagement

Product support must be designed to ensure that customers derive maximum value from the product. However, typical product support engagement poses some specific challenges in catering to the needs of end users. At the same time, those very challenges show tremendous opportunities for designing and deploying machine-first delivery models. Some key challenges and opportunities are discussed below:

- **Self-resolvable issues:** Users often face issues that they can resolve themselves. This bypasses the need for creating a support ticket with the customer support team.
- **Self-healing:** Some issues can self-heal without user or support team intervention. There are simple, known, and repetitive issues with defined steps.
- **Ticket hygiene:** Engineers spend a considerable amount of time improving ticket hygiene and provide useful information that later helps in its analysis and resolution.
- **Ticket triage:** Valuable time and effort go into ticket triage and redirecting users to the right support group.
- **High manual effort in ticket resolution:** Ticket resolution involves a specific set of actions to be executed, which require considerable manual effort.

[1] *Wired; The Pandemic Is Propelling a New Wave of Automation; December 12, 2020; <https://www.wired.com/story/pandemic-propelling-new-wave-automation/>; Accessed June 6, 2021*

[2] *Harvard Business Review; How to Harness the Digital Transformation of the Covid Era; September 24, 2020; <https://hbr.org/2020/09/how-to-harness-the-digital-transformation-of-the-covid-era>; Accessed June 6, 2021*

The challenges posed above evince the need for an end-to-end automated system that ensures better management and support. Furthermore, there are opportunities in product support engagement worth exploring. Leveraging these enhanced automated systems can considerably accelerate an organization's move towards digitalization. Research by Gartner has shown that by 2024, analytics and automation will shift 30% of IT operations to continuous engineering³.

Machine-first approach to product operations

To resolve key challenges and capitalize on associated opportunities in a typical product support engagement, the information technology (IT) industry pursues zero-touch automation. A machine-first approach to designing an automated system consists of four phases that accelerate ticket resolution with high quality and efficiency by enabling the following:

- **Proactive assistance:** Self-heal and self-serve are the industry trends in this phase. Proactive assistance involves engaging with customers well before they decide to log an incident and help them with self-resolution steps. It also resolves known issues through self-healing before the customer realizes the impact. This phase primarily focuses on the telemetry details logged while the user is using the product. Here, issues are identified and the recommended steps for resolution are provided.

Error handling, managing information flow, identifying data issues, and controlled 'retry' are common methods implemented in this phase, while pattern matching and text analytics are some of the technologies used.

Based on the product and issue scenarios, users can be notified with resolution steps through multiple channels, including alerts in the product, email, and mobile notifications. Proactive assistance has become more sophisticated in product support operations with the rise of artificial intelligence and machine learning.



Figure 1: Proactive Assistance

To illustrate, owing to the pandemic, the insurance industry has seen spikes in claims. To ease the claims process, many insurance providers have adopted proactive assistance to guide customers and users through common issues.

- **Auto case enrichment and triage (ACET):** There are many auto triage tools in use in the industry that direct and assign tickets to the relevant support team. Along with ticket triage, it is imperative to enhance the ticket with additional useful information. This add-on information improves the automation ecosystem, besides aiding the support team with relevant details for manual intervention, if any.

In this phase, tickets and incidents are automatically enriched with telemetry details after they are logged. Additional details about the issue are gathered from various related systems. Finally, automatic assignment of tickets to the appropriate support team reduces delays in the triage process and kickstarts the triaging.

[3] Gartner Research; Predicts 2021: Infrastructure Operations and Cloud Management; <https://www.gartner.com/en/doc/infrastructure-operations-and-cloud-management> ; Accessed June 6, 2021

The ticket title, description, and other relevant fields are considered in this phase for auto triaging. Also, finding and analyzing similar tickets improve triage accuracy. Machine learning and text analytics are some of the prominent techniques that help in developing required modules in this phase.



Figure 2: Auto Case Enrichment & Triage (ACET)

- Auto resolution:** In this phase, tickets and incidents are resolved with automated standard operating procedures (SOPs) and technical specification guides (TSGs) for quick and quality support. Auto resolution is implemented in scenarios where there are a specific set of actions to be performed as part of ticket resolution that otherwise consume significant manual effort. The details of the resolution steps taken are logged in the ticket diary and communicated to all stakeholders for auditing and future reference purposes.



Figure 3: Auto Resolution

Process automation tools play a big role in this phase. The key is to identify all automatable SOPs and TSGs and orchestrate the steps in a defined sequence, including dynamic decision-making. This phase has the highest potential to reduce manual efforts and provide quick resolution on product usage.

Automated processing of refund requests in the airline industry, automated loans processing in finance, and claims processing in the insurance industry are common scenarios where auto resolution is implemented for enhanced efficiencies.

- Intelligent insights:** The final phase involves monitoring all the modules integral to the earlier phases, observing trends, and spotting opportunities to further enhance the complete ecosystem. Intelligent insights are offered via a live dashboard that provides engineering and customer teams with real-time data for quicker and informed decision-making. It provides a live status of tickets and also provides information on how they are being handled by each of the modules as part of the Machine First Delivery Model (MFDM™). The intelligent insights dashboard identifies trends and opportunities for further automation scenarios. Reporting and dashboard platforms such as Power BI and Tableau are generally used in the industry for this phase.



Figure 4: Intelligent insights

The four phases described above can be aptly captured in a comprehensive end-to-end solution framework for product support engagement, as depicted in Figure 5 below. It shows how each of the modules in the machine-first approach work in tandem to deliver a seamless experience to end users and product support teams.

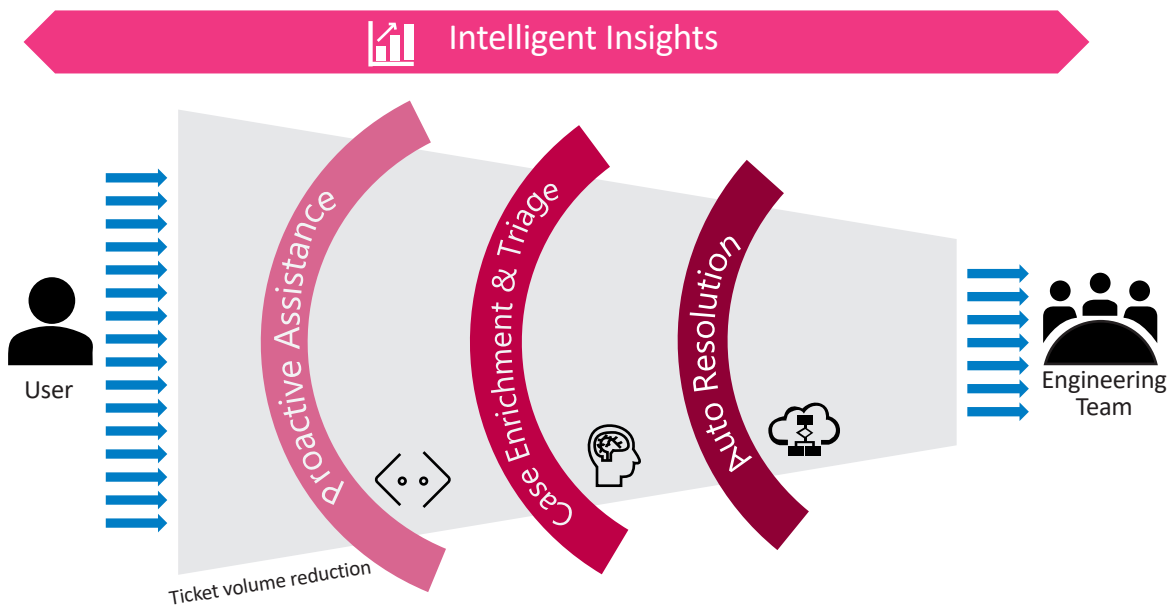


Figure 5: Machine-First Approach to Product Support Operations

Machine-first delivery models reduce the number of tickets. Only specific tickets that need manual intervention are escalated to engineering/support teams. This machine-first solution for product support engagements can greatly improve key performance indicators such as mean time to resolution (MTTR), triage accuracy, throughput (number of tickets resolved per day), percentage of bad fixes, and customer satisfaction index (CSI).

Unlocking the best of the machine-first approach

Most industries are grappling with burgeoning data volumes. In doing so, they have recognized the vast potential of machine learning. By garnering significant insights from such data, often in real-time, organizations benefit from increased efficiencies at work across processes, besides gaining competitive advantage over other contenders.

By implementing the approach and solution components discussed in this paper, a sustainable machine-first approach to product operations can be created. The key takeaways are clear – customized services which are polymorphic, secure solutions, superior customer experience, exponential value with a focus on enhancing end-to-end experience, and improved product brand value.

About the author

Satish Kumar Barnala

Satish Kumar Barnala is an enterprise architect for HiTech at TCS. He leads transformation and innovation initiatives for a global technology leader. A technology enthusiast, he has vast experience in portfolio analysis, finding opportunities for transformation, and delivering appropriate solutions. He holds a bachelor's degree in engineering from Acharya Nagarjuna University, Andhra Pradesh, India and a post-graduation degree in engineering from the Indian Institute of Technology, Madras, India. He is a certified enterprise architect from The Open Group Architecture Framework (TOGAF) and a certified data scientist. He has rich experience in agile adoption and agile delivery and is a certified scrum master (CSM) and product owner (PO).

Contact

Visit the [HiTech](https://www.tcs.com) page on <https://www.tcs.com>

Email: HiTech.Marketing@tcs.com

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