Analytics and actionable insights are at the heart of decision making. The ability to link warranty service data and insights to improve product quality, service outcomes, and customer experiences will drive the future of innovation and excellence.

Insights from Service Enhance Product Quality and Innovations

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Introduction

Enterprises are embarking on a journey to both digitally transform and alter business models and the ways in which their organizations can deliver value to customers. It is no longer good enough for enterprises to react to issues or deliver to a minimum service-level agreement (SLA). The warranty process is an aspect of the service life cycle that has historically been disjointed from transformation efforts and the rest of the enterprise's ongoing innovations. As organizations strive to not only improve efficiencies but also deliver rapid insights to lead innovation, enhanced digital capabilities will accelerate this shift by improving product quality, customer experiences, and service outcomes.

Situation Overview

Companies across industries have begun to recognize the opportunity they are missing by not utilizing the data that permeates a variety of functions. But all too often, organizations struggle to know where to start to unlock this data or which priorities will deliver more than a siloed, incremental improvement. Individual data points, or what can be considered as one-off anomalies, often go unnoticed and then later become a major issue or defect that requires a global response. In the digital age, manufacturers and service organizations need to have access to quality insights and automated recommendations to make better decisions prior to a major event.

Service Impact on Product Quality

Service operations historically have focused on aftermarket or aftersales value where product failures or defects are addressed to appease a customer but not viewed as an opportunity to improve experiences, product quality, or future service outcomes. In particular, the warranty process has languished in an environment of manual, paper-based, and siloed data flows that

AT A GLANCE

WHAT'S IMPORTANT

Warranty is an untapped process with significant opportunity for improvement within the service and maintenance operation; warranty must be better scrutinized to unearth challenges and capitalize on these opportunities. Many organizations struggle with turning warranty product data into actionable insights that can be used to improve the service experience, warranty process, and product quality.

KEY TAKEAWAYS

» Artificial intelligence (AI) and machine learning (ML) enable automated early warnings.

» Faster issue identification has a positive impact on brand, costs, and service experience.

» Addressing seasonality, product maturity, process lags, and poor-quality text provides a single version of the truth.

» Product quality decisions must be informed by warranty service insights.

» Silos of data maintain a status quo where quality decisions are made in a vacuum.

» Closed-loop insights allow service to aid in back-office decisions and vice versa.

struggle to meet today's business needs. The service operation and warranty process should enable the organization to unearth gaps in the customer experience, opportunities for improved products, and a path to improve quality. Each data point, defect, failure, or claim is an underutilized and neglected opportunity for the enterprise.

Definitions

» **Digital transformation (DX).** Defined as the process of transforming decision making with technology, DX remains a board-level initiative and is at the heart of business strategies for companies of all sizes. DX uses 3rd Platform technologies such as cloud, mobile, social, and big data/analytics as well as innovation accelerators including the Internet of Things (IoT), robotics, 3D printing, and augmented reality and virtual reality (AR/VR).

» **Service life-cycle management.** This is the process of servicing a product through its lifetime. Service life-cycle management includes customer support, service request, service planning, service execution and field service, spare parts management, warranty management, and recalls.

» **Warranty analytics.** This refers to tools that filter out the noise associated with warranty data issues, providing analysis and visualization capabilities to inform decision making and resource planning. Common issues such as seasonality, product maturity, process lags, and poor-quality text are addressed to provide a single version of the truth and optimize decisions.

» **Early failure detection.** This is the ability to automatically detect field quality issues before they become widespread, enabling faster resolution and reduced risk.

» **Predictive maintenance.** This software uses advanced analytics to predict when equipment failure might occur and to alert asset managers and service management to take steps to prevent the failure from occurring. Some advanced systems add an element of automation via artificial intelligence (AI) or machine learning (ML) to initiate maintenance activities without prompting.

Benefits

According to IDC research, 59.8% of manufacturers stated that warranty/recall management was business critical and that the business would stop without it. Unfortunately, organizations too often regard the warranty process as part of an aftermarket activity that has limited impact or no impact on the rest of the organization. This mindset fails to recognize the valuable data that is and has been captured or should be captured in warranty service. Global or regional organizations that can rapidly mine warranty defect data and ensure an appropriate response can be executed efficiently will be able to improve their operations and the customer experience. In IDC's 2021 *Industry IT and Communications Survey*, the top short-term goals (over the next 12 months) for an organization's digital transformation were to introduce new business models, introduce new revenue streams, replace outdated infrastructure and systems, and improve product quality. Organizations need to understand that there is already rich data that can support transformation and operational efficiency improvements, but too often these available insights are missed as the focus and investments go elsewhere. Without a path to ensure data can be more relevant and actionable, organizations will fail to meet these goals.

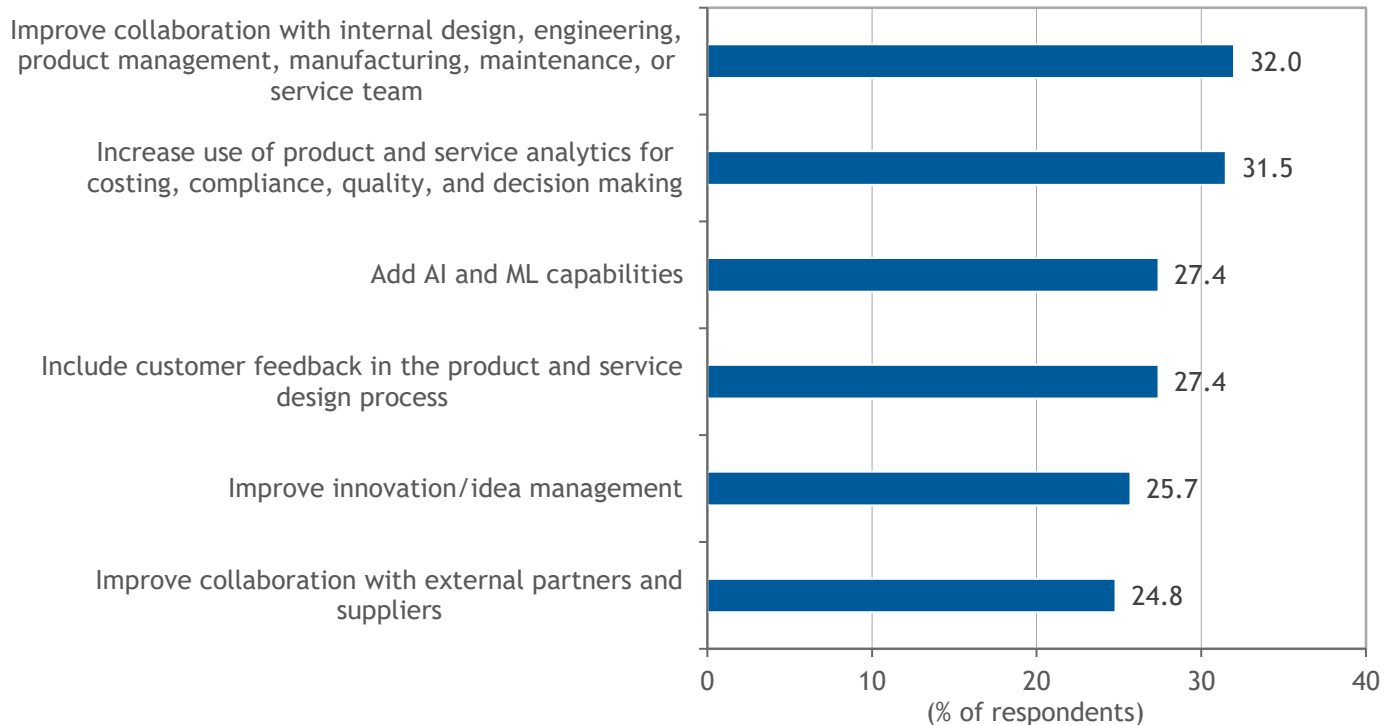The benefits of applying field quality analytics to the warranty service operation include:

» **Minimizing risk by predicting quality issues in advance of wide-scale issues.** Manufacturing organizations can leverage a field quality analytics platform to mine warranty data to avoid delayed recognition of an issue, reducing issue resolution time by months. This faster detection of a pending problem can save a manufacturer millions of dollars in costly warranty claims or recalls.

» **Enhancing the customer experience with insights into customer behavior, usage, and gaps.** Organizations that better understand their customers can improve future and current products to improve alignment with customer needs, driving revenues and increasing customer satisfaction.

» **Accelerating the root cause analysis process by identifying specific combinations that drive failures.** Manufacturers deal with complex partner networks that often struggle to find a problem and solve it quickly. A field quality analytics platform can enable manufacturers to quickly find the root cause for an issue, establish automated notifications of potential incidents, and ensure data is shared in real time so partners can make informed decisions prior to a failure.

» **Reducing technicians' field data entry errors as a result of automated and standardized processes and user experiences.** Technicians and service teams do great work, by and large. But as technicians and service teams rush to close work orders or process claims, the manual entry of data can lead to errors, delays in processing, or fraud. Automated texts and fields enable organizations to reduce manual effort, increase data accuracy, and focus resources on problem solving instead of rote tasks.

» **Protecting brand equity by acting on insights from service data that improve product quality.** Recalls and product quality issues damage more than the bottom line. They also can damage the brand and customer trust in it. In an environment where customers have more and more options for where to spend their dollars, it is critical that organizations leverage as much insight as possible to improve both the customer experience and product quality.

Trends

Organizations recognize a need to improve quality and customer outcomes. Enhanced digital capabilities enable them to not only capture additional and better data but also provide relevant insights and recommendations for teams to deliver more value efficiently. The emergence of AI and ML along with better real-time data streams has accelerated innovation and rapidly turned defects or failures into new opportunities for innovation, sources of information, and inputs that drive growth (see Figure 1).

FIGURE 1: *Changes in Product and Service Life-Cycle Management*

Q *From a product life-cycle management (PLM) and service life-cycle management (SLM) perspective, does your company plan to make any of the following changes in the next three years?*

Improve collaboration with internal design, engineering, product management, manufacturing, maintenance, or service team — 32.0

Increase use of product and service analytics for costing, compliance, quality, and decision making — 31.5

Add AI and ML capabilities — 27.4

Include customer feedback in the product and service design process — 27.4

Improve innovation/idea management — 25.7

Improve collaboration with external partners and suppliers — 24.8

(% of respondents)

n = 366

Source: IDC's Product and Service Innovation Survey, May 2021

Analytics, AI, and ML can't be viewed in the abstract. These are capabilities that need to drive innovation and improvements for the business. The following trends highlight how warranty analytics will drive innovation and improved product quality:

» **Closed-loop collaboration can help ensure service data can inform decisions made across other internal functions of the enterprise.** Collaboration is not a given within organizations that often operate in silos. Establishing a single version of the truth, including common data and business calculations that can be translated to inform decisions across the organization, is critical to success. Organizations struggle with cobbled-together IT infrastructure and applications that can be difficult to navigate and provide a limited view into the product, customer, and service. Organizations that empower functions in the business with actionable data will be able to move away from a focus on data discrepancies and instead place emphasis on the information/insights contained in the data.

» **AI and ML automate defect detection and recommendations for next best actions.** Warranty service data volumes are growing rapidly, leading to user fatigue and noise. Which data points are relevant? Which data points predict critical impacts to the business, and which just need to be stored? Analytics tools that make sense of the data in an efficient, automated, and timely way are required. Manual processes must consider complexity in the number of parts, suppliers, service history, usage variance, and models, which is untenable at the speed needed to be useful. As more products are connected and the volume of data grows exponentially, AI and ML capabilities will become even more integral to the operations.

» **Valuable insights can be unearthed faster across a wider set of customer data points to improve the service experience and product offerings.** An analytics platform must drive the integration of data across the business for greater clarity, relevant insights, and improved data quality. When relevant stakeholders get better access to quality insights, their ability to improve processes, product quality, and the service experience will be more personalized and precise.

» **Anomalies can be detected prior to wide-scale disruptions or fraud.** Early detection and resolution reduce the number of defects in products, leading to fewer repairs, fewer dissatisfied customers, and smaller, less impactful recalls.

Considering SAS

SAS is a global technology organization for data management, advanced analytics, multivariate analysis, business intelligence, and predictive analytics. The SAS warranty analytics offering focuses on warranty service and ensuring data is cleansed and rationalized, leading to more timely decisions by the quality team and better service. SAS helps clients automatically detect emerging issues, quickly prioritize which issues need to be addressed, and efficiently define those issues. In doing so, it helps users identify the root cause/source, minimize the size of recalls, and manage risk to the brand. SAS designs its products and data platform to help break silos of information across the organization and specifically between service and product quality teams. The ability to ensure service and warranty data can inform product quality decisions, which is imperative as organizations strive to have a closed loop of innovation that drives customer satisfaction, retention, margin, and excellence.

SAS has aided its customers in turning a complex set of processes into a unified source of insights. The ability to leverage advanced analytics, AI, and ML to automate decisions and recommendations drives improved product quality and the service experience. The company also leverages its domain expertise and industry best practices to help customers rapidly innovate.

Challenges

There are several challenges quality leaders and service teams need to consider when looking to adopt a field quality analytics solution. Some of the aspects that could present issues are:

» Assessing the strength, depth, and industry domain expertise of ecosystem partners

» Reconciling the change management necessary to shift to a data-driven set of actions and away from manual processes

» Avoiding the urge to override the AI and ML tools with human interference or lack of trust in the results

Technology organizations such as SAS need to ensure that the technology provides the improved level of automation and return required and that customers have the organizational buy-in to effectively implement the solution. Value will be maximized if the technology can deliver benefits across the enterprise.

Conclusion

Manufacturers and service organizations are on a rapid trajectory of digital transformation and business resilience. The disruptions that occurred over the past couple of years have created an urgency of action for organizations. Every aspect of the business is an opportunity to explore how data can inform decisions. Field data can provide such a window into customers, products, and equipment. Consistent and continuous improvement will be the table stakes of the future, and organizations need to focus on finding the insights in their great volumes of data and being able to access recommendations for next best actions prior to — not after — an incident or a failure.

About the Analyst

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As Program Director, Service Innovation and Connected Products, Aly Pinder Jr. leads IDC research and analysis of the service, maintenance, and customer support market for the manufacturer, which includes topics such as field service, warranty operations, service parts management, and how these service areas impact the overall customer experience.

MESSAGE FROM THE SPONSOR

SAS, a world leader in analytics, turns huge amounts of fast moving, diverse data into real-time insights for manufacturers – from edge to cloud. With SAS, you can apply advanced analytics, business intelligence, data management and AI/ML solutions to the toughest business challenges, including the transformation of warranty processes.

SAS' warranty capabilities enable you to integrate data from warranties, sales, call centers, engineers, technicians and more, while addressing issues such as seasonality, immaturity, lags, and low-quality text. Patented algorithms identify emerging issues earlier and accelerate root-cause analysis to reduce your risk. With SAS' purpose-built industry solutions, manufacturers can extract measurable value from service data to make real-time decisions that reduce costs, maximize product uptime, and enhance customer service and satisfaction.

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