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# WARRANTY ANALYTICS 2.0

## Addressing the Gaps in Current Software Solutions

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# ABSTRACT

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Given the sheer volume of claims and warranty data, manufacturers have turned to software providers to help them manage their limited and extended warranty businesses. Warranty Management Systems (WMS) automate/streamline the claims process, facilitate communication among manufacturers, suppliers, dealers, and service providers, and provide tools to measure performance. In recent years, warranty programs have also evolved into tools for driving customer satisfaction post-sale, retention and competitive advantage. Product quality, reliability and the need for predictive analytics have also become key strategic priorities. Accurately predicting part failure could save a manufacturer from a major recall, costing millions of dollars and destroying its brand and reputation. Warranty Analytics Software packages were developed to help warranty organizations explore their data without the need for IT resources, dig deeper into trends and outliers, and build simplistic scoring models. However, there is only so much that software can do on its own. This white paper introduces the next phase in Warranty Analytics – Warranty Analytics 2.0 – which addresses the gaps in current software solutions, and the need to combine warranty-specific platforms with outsourced analytical resources to ensure that strategic insights are accurate, relevant and impactful.



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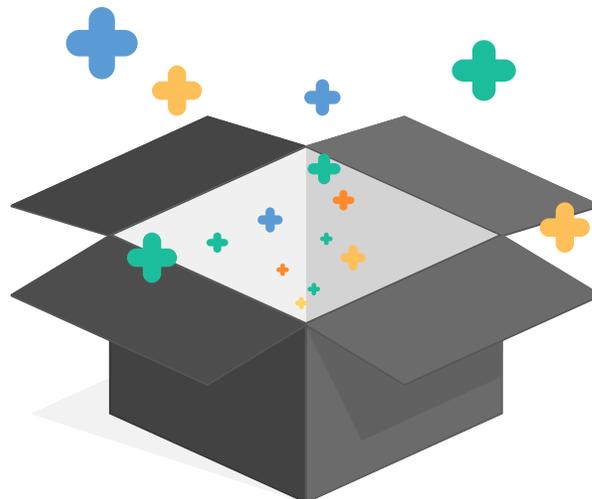
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# INTRODUCTION

## WARRANTY ANALYTICS IS NOT A BLACK BOX.

However, it is more than dashboards and self-service software. Manufacturers with limited and extended warranty programs need the right combination of tools, methodologies and warranty data experts to help them identify insights that move the needle. The next phase in Warranty Analytics – Warranty Analytics 2.0 - goes beyond current software solutions to deliver strategic insights that are accurate, relevant and impactful.

## WARRANTY + ANALYTICS



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# THE WARRANTY MARKET TODAY

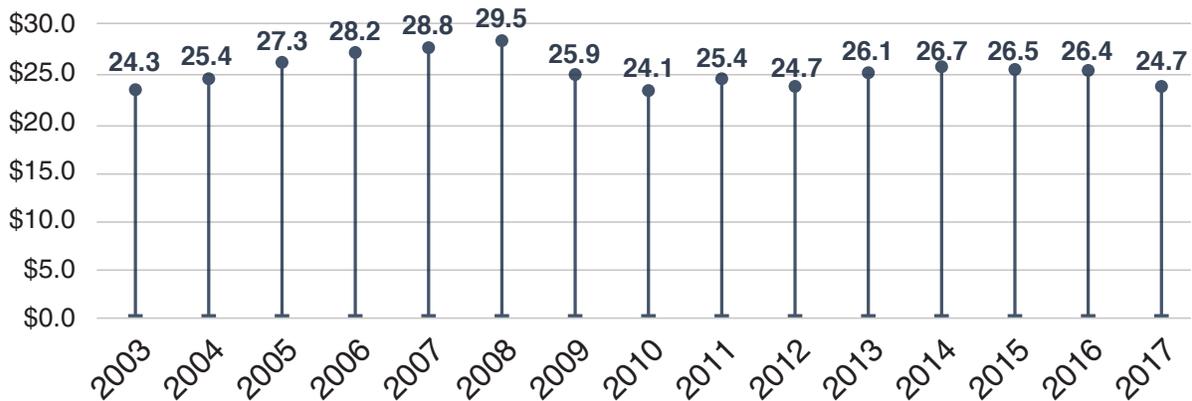
Three industry statistics are used today to estimate warranty market size and growth - (1) claims paid, (2) extended warranty premiums paid, and (3) warranty reserves.

## Warranty Claims Paid

Warranty claims paid by US manufacturers are a measure of the cost of maintaining competitive warranty programs. As shown below, this number has remained constant between \$25-30 billion for the past 15 years, with 2017 at the low end of that range at \$24.7 billion.

Figure 1

### Worldwide Warranty Claims Paid by US-based Companies (\$B) 2003 - 2017



Source: Warranty Week, "Fifteen Annual Product Warranty Report", March 22, 2018.

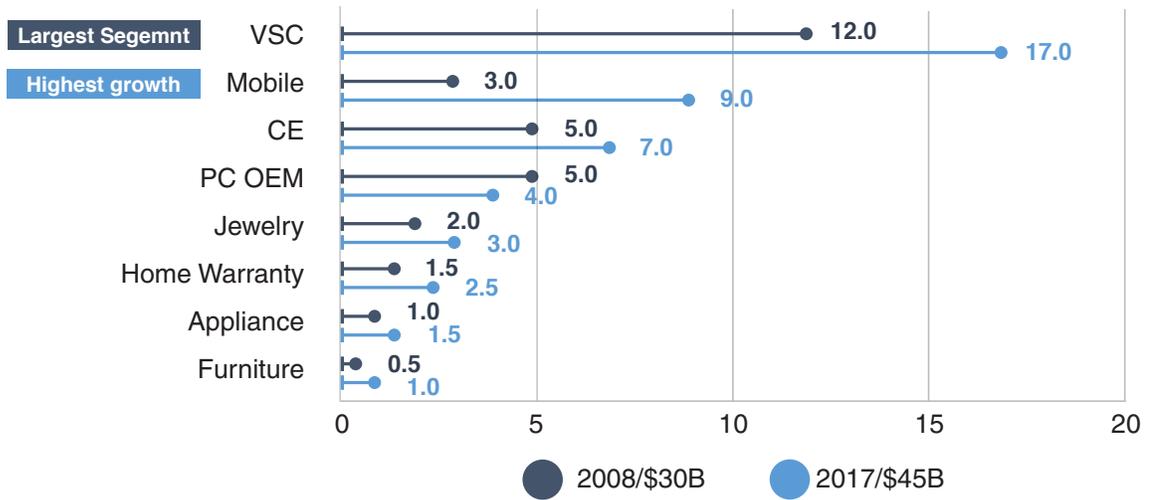
Warranty claims rate -the percentage of claims paid divided by product sales - has fallen from 1.8% to 1.3% over the same 15-year period. The downward trend reflects manufacturers' focus on warranty program cost containment and profitability.

## Extended Warranty Premiums Paid

Many large warranty manufacturers also provide extended warranties on their products, which translate into a significant source of additional revenues. Premiums paid on extended warranties have grown from an estimated \$30 billion to an estimated \$45 billion annually over the last nine years. While vehicle sales contracts remain the largest chunk of the market, mobile phone contracts have tripled in size and now represent the second largest segment. As Figure 2 illustrates, auto manufacturers and high-tech OEMs - mobile phone, consumer electronics and PC - hold over 80% of total market share.

Figure 2

## U.S. Warranty Premiums Paid by Consumers (\$B) , 2008 vs. 2017



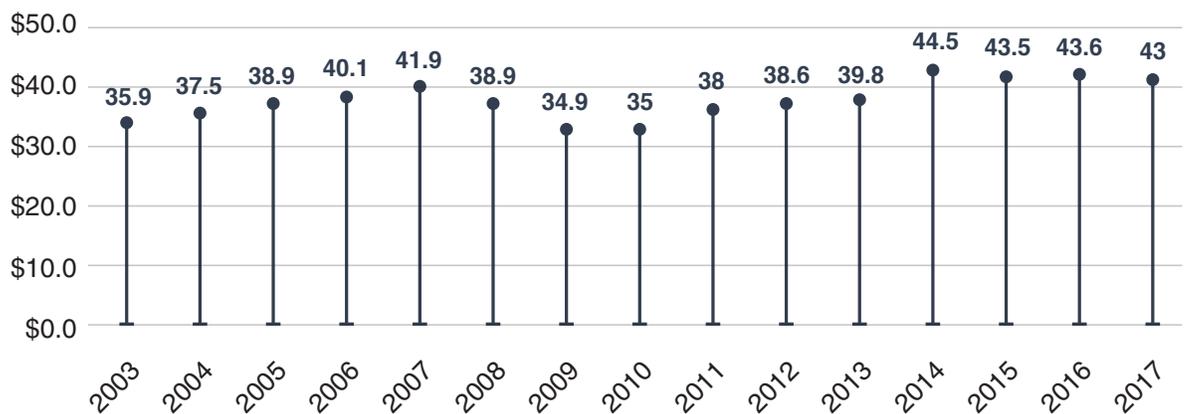
Source: Warranty Week, "Service Contract Market Size", February 1, 2018

### Warranty Reserves

Worldwide reserves have fluctuated the past 15 years between \$35-45B (see Figure 3). The objective in warranty reserve management is to cover contingent liabilities that arise from warranty obligations. Maintaining excess reserves can cause opportunity cost, whereas depleting the reserve can necessitate finding emergency funds. Manufacturers therefore, are consistently trying to find better ways to forecast their warranty reserve liability - a strategic question that expert Warranty Analytics providers can help to solve.

Figure 3

## Worldwide Warranty Reserves of US-based Companies (\$B) 2003 - 2017

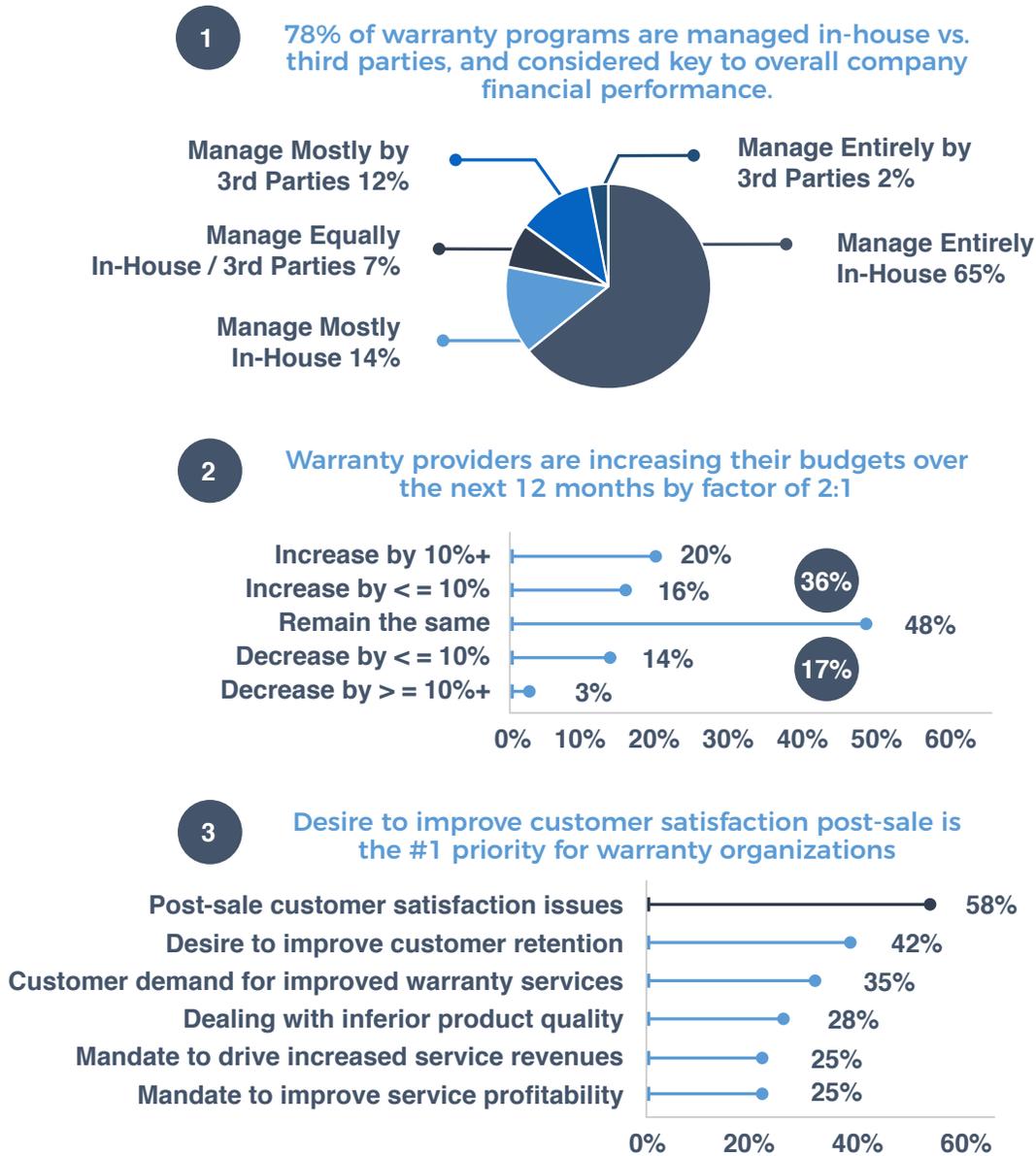


Source: Warranty Week, "Fifteen Annual Product Warranty Report", March 22, 2018.

As consumer interest in warranties continues to grow, manufacturers are responding by increasing their spending on warranty management activities.

In their fourth annual “Warranty Chain Management Benchmark Survey” released May 2018, Strategies for Growth, an independent research and consulting firm, shared three interesting insights regarding current warranty management practices – see Figure 4.

Figure 4



Source: Warranty Week, “The Global Warranty Services Community is Reflecting a Return to Growth—and Profitability”, May 3, 2018

Given the desire to drive higher customer satisfaction post-purchase and improve retention – not to mention the need to manage an overwhelming amount of data from multiple sources – companies are investing in warranty management systems and capabilities. In the next section, we look at Warranty Management Software and the benefits current systems offer in the way of streamlined processes, reduced warranty costs and improved dealer, supplier and customer communication.

# WARRANTY MANAGEMENT SOFTWARE SOLUTIONS – THEIR BENEFITS AND GAPS

Warranty Management Software solutions were developed to meet the specific needs of manufacturers offering their own in-house warranty programs.

The global Warranty Management Software market is estimated to reach \$3.4B by 2020 – 14% CAGR since 2015, putting it at about **\$2.6B in 2018**. The major players in this space include consulting firms, software providers and BPOs, including: International Business Machines (IBM) Corporation, Oracle Corporation, Pegasystems, Inc., PTC Incorporated, Infosys Limited, Tavant Technologies, Inc., and Mize. The majority of these companies offer software solutions across industries, while a few – Tavant, PCMI, and Mize – focus exclusively on warranty management.

An end-to-end warranty management solution typically includes the following modules:

Figure 5



1. Administration / Extended Warranty – policies and terms, EW pricing, service campaigns, business rules
2. Registration – product registrations, service plans, pre-delivery inspection
3. Claims Processing – claims submission, claims adjudication, credits and payments
4. Returns – parts return, shipment tracking, parts inspection
5. Supplier Recovery – supplier agreements, supplier claims
6. “Analytics” – dashboards, performance metrics, quality improvement (in quotes given the gaps in its capabilities)

Warranty Management Software solutions provide key benefits for their clients, and customers are generally satisfied with their warranty management systems.

1. Increased sales and renewals of value-added consumables and services beyond warranties
2. Streamlined and automated claims with business rules
3. Controlled claim costs through checks and validations
4. Reduced claim cycle time
5. Increased supplier recovery and performance / quality
6. An array of standardized automated dashboard reports, which are available as the database is updated reducing resource needs for manual report generation.
7. Management of extended warranties across channels with support for dynamic pricing
8. Management of service campaigns from initiation to closure
9. Improved product reliability

However, in Strategic Source's 2018 Warranty Benchmark Study, customers identify four areas where WMS vendors could improve:

1. Systems that were implemented years ago have not evolved with the growing needs of their client base.
2. After implementation, a lot of the warranty processes are still manual which can make the overall systems inefficient or unproductive.
3. The features and functionality of the solutions may not work as advertised due to poor implementation.
4. Vendors are unwilling to help with consulting and technical support post-implementation, or without charging significant additional fees.

A big challenge for warranty system effectiveness is that it is sold into and implemented by IT departments, yet run by business managers. To get a warranty software issue fixed or updated, requests must go into the same IT queue as everything else – translating into hundreds of IT hours and millions of dollars in projected costs. So, to avoid involving IT, warranty organizations work around software issues and/or leave that portion of the system unused.

As an example, "Analytics" modules may not get utilized to their full extent. While vendors advertise that their software can detect "early warning signals for parts failure", or "reduce detection-to-correction cycle time," these capabilities require 1) technical (IT) skills to adjust code, 2) data analysts to ensure data is combined and parsed correctly, and 3) statistical modelling expertise to validate the models – skills that warranty managers and other operational teams do not possess. Therefore, "Analytics" modules in these end-to-end systems are underutilized – if used at all.

# WARRANTY ANALYTICS SOFTWARE – ITS BENEFITS AND GAPS

Given the analytical gap in Warranty Management Systems (WMS), another set of vendors have stepped in who provide Warranty Analytics Software. Four players in this space include SAS, Tableau, Qlik, and Hortonworks/EY.

Analytics Software providers focus specifically on the data analysis function. Their software houses all the warranty data sets together in a data warehouse or in the “cloud,” and gives warranty managers and quality managers the tools to do their own “self-service” visual analytics. Analytics Software vendors are experts in data prep, warehousing, querying, visualization, dashboards and reporting.

Figure 6

Capabilities	Data Visualization	Visual Analytics
Answers and shows “what.”	■	■
Shows data points, problems, issues, or key indicators.	■	■
Presents a specific view of a data set. Gives you and users a snapshot of data to answer a specific set of questions.	■	■
A visual presentation of data, such as a dashboard or a report. Great devices for communicating insights and telling stories about data.	■	■
Supports interactivity (filter dimensions, highlight values of interest, change view based on categories)	■	■
Supports deeper analysis and exploration for asking “why” questions.		■
Offers advanced analytics.		■
A journey through your data that doesn’t require you to know what chart type or template you need, or where you are going.		■
Unifies the steps of querying, exploring and visualization data into a single process.		■
Fast, intuitive, freeform exploration of data that lets you quickly create many different views of your data.		■
Helps you think visually to explore problems, issues and questions. Leads to unexpected insights and findings outliers in your data.		■
Helps you share key insights and collaborate with colleagues on the data.		■

Source: Tableau Software, “Why Visual Analytics”, 2018.



In Figure 6 on the previous page, BI/Analytics Software vendor, Tableau, explains the benefits that its Warranty Analytics solution provides. Its software – similar to that of other Warranty Analytics providers - performs “Visual Analytics.” The core difference between Warranty Management Software (WMS)’s “data visualization” capability and Warranty Analytics Software’s “visual analytics” is that visual analytics allows you to dynamically examine warranty data through an easy “drag and drop” / “point and click” interface, and to discover the “why” and “how” behind warranty data trends and performance.

A simple example below illustrates the benefit of visual Analytics Software. The user can explore his data question in a free form way, dig deeper, and determine why a certain trend is occurring.

### Visual Analytics – Simple Example

**SITUATION:** A warranty manager sees a massive jump in cost per claim last month.

**TASK:** He decides to investigate using his Warranty Analytics Solution.

**ACTION:** He pulls up the cost per claims data, double clicks on the previous month, and finds a certain dealer has a very high claim cost in comparison to other dealers for the same automobile make and model. He double clicks on the claim cost of that dealer and finds that a replacement part was entered into the system at \$10,000 instead of \$1,000 – a data entry mistake. After calling the dealer, the part cost is re-entered, and the claim cost recalculated.

**RESULTS:** When the data error is fixed, the dealer’s monthly cost per claim goes back in line with the other dealers – and cause for concern is eliminated. The analysis, instead of taking hours or possibly days if done manually with spreadsheets, took minutes.

While the simple example above shows an important benefit of self-service Warranty Analytics Software, significant gaps may exist when dealing with more complicated scenarios. Let’s say a quality engineer is responsible for determining whether a new piece of technology in the engine of an expensive motorcycle is causing a recent spike in warranty claims. The engineer tries to query the data from the various data sources - manufacturer, suppliers, dealers and service providers. The manufacturer and suppliers both have the part number for the piece of technology included in their data sets, but the dealers and service providers do not. Without the part number on all records, the analytics tool is unable to merge the data for comparison.

In another example, a quality engineer for a large appliance manufacturer wants to use Warranty Analytics Software to build a model – a model to predict time to failure for a certain appliance part. Three of the data sets have “start date” as a data element. Unfortunately, “start date” corresponds to different things in each of the data sets. The manufacturer’s “start date” corresponds to when the machine was shipped, for the dealer, it means when the appliance was purchased and warranty started, and for the service provider, it means when the claim began. How can the engineer build a model using a standard drag and drop technology when the data categories must be recategorized or the model will be inaccurate? It would take the company’s IT organization months to perform this step. If only the warranty manager had an experienced data analyst to take the data sets, recode the categories, and remerge the data – a manual task that a software product can’t do on its own.

# WARRANTY ANALYTICS 2.0 – ADDRESSING THE GAPS IN CURRENT SOFTWARE SOLUTIONS

Warranty Analytics 2.0 is more than software. It is a solution that combines highly knowledgeable warranty data experts with tools and methodologies built specifically for the warranty industry in order to ensure the insights it provides are accurate, impactful and relevant.

Given a massively competitive global market, manufacturers are turning to their warranty organizations more than ever before to deliver customer value and improve loyalty. But customers are demanding more. They want longer warranty periods, more coverage, and in the case of extended warranties, lower premiums/deductibles - all of which can negatively impact margins.

As described in Sections 2 and 3, warranty management solutions and Warranty Analytics Software can help manufacturers deliver value and better understand performance. However, when it comes to impactful analytics, these solutions have gaps (see Figure 7).

Figure 7

	Warranty Management Systems	Warranty Analytics Software	Warranty Analytics 2.0
ANALYTICAL STRENGTHS	<ul style="list-style-type: none"> <li>Warranty industry experts</li> <li>Standard warranty reports</li> <li>Monthly dashboards</li> </ul>	<ul style="list-style-type: none"> <li>Data analytics and modeling experts</li> <li>Self-service data discovery</li> <li>Ability to determine the “why” behind trends and performance</li> <li>Standard models</li> </ul>	<ul style="list-style-type: none"> <li>Warranty industry expertise</li> <li>Ongoing data and technical support to ensure accuracy and relevance</li> <li>Ability to customize warranty and client-specific data</li> <li>Ability to support high impact strategic decision making</li> </ul>
ANALYTICAL GAPS	<ul style="list-style-type: none"> <li>Lack of data analytics or modeling expertise</li> <li>Operations-focused – data visualization vs data analytics</li> </ul>	<ul style="list-style-type: none"> <li>Lack of warranty industry expertise</li> <li>Potential for inaccurate results</li> <li>No support for data prep, custom analysis or predictive modeling post-implementation</li> </ul>	

Source: After Inc., Market Research, September 2018.

## Gap #1: Warranty Industry Expertise

A primary issue with current analytic solutions is that they were architected for other markets like financial services, telecommunications, and healthcare. These solutions may incorporate the most advanced data analysis capabilities like machine learning and Artificial Intelligence (AI), but these capabilities can't be utilized if the systems don't deliver the right data in the right format to be accurately analyzed. Even basic warranty reports – unit sales, paid claims, claim cost rankings by product/part/dealer – can have skewed results.

In addition, there are warranty-specific data sets like service technician comments which require warranty industry knowledge to code properly. If a provider doesn't have knowledge of the jargon, acronyms, or shorthand used in technician comments, the data can either be excluded from analysis or processed incorrectly. Warranty data expertise is also necessary to build warranty-specific reports not found in typical Warranty Analytics Software - reports that show trends, heat maps and diagnostics that can be especially valuable to quality teams looking to improve product reliability.

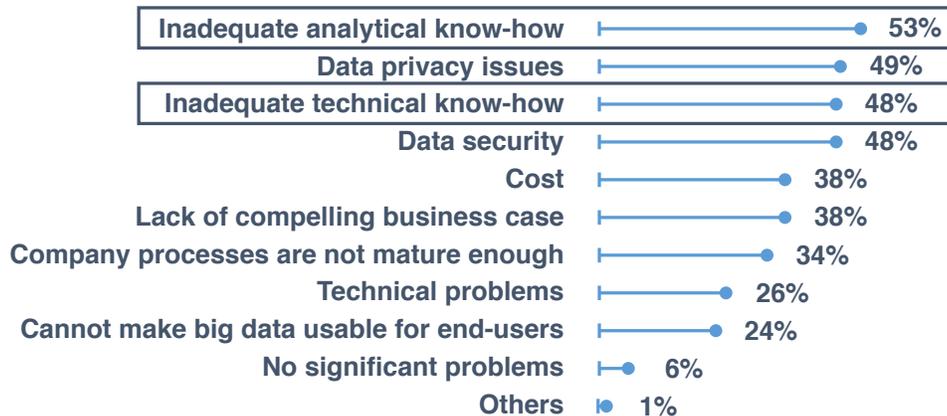
## Gap #2 – Ongoing Data / Modeling Support

Another benefit of Warranty Analytics 2.0 is that warranty managers and quality engineers aren't left high and dry with no data analyst support after the software is installed. When new claims and warranty data sets are ready to be uploaded or changes need to be made to data structure or format, dedicated analyst resources manage those processes. This step is crucial to the continued value of a Warranty Analytics platform. Without data experts to detect and fix errors in real-time, the analytics will lose its accuracy and relevance.

For example, if a team of quality engineers is using the software platform to predict timing of part failure (“Early Warning Systems”) and the data sets that they receive each month have inconsistencies, then the models will be flawed and inaccurate. And if predictions are wrong month over month, the engineers will lose trust in the validity of the software and stop using it going forward.

Interestingly, a survey conducted by BARC (Business Application Research Center) several years ago identified the #1 reason why data analytics tools have not seen widespread implementation - the lack of internal analytical know-how within organizations (see Figure 8 below). Third was the lack of technical support. These findings still hold true today, and both are addressed with a Warranty Analytics 2.0 solution.

Figure 8



*What problems companies see when using big data technologies/analysis? (n=545)*

*Source: BARC Research, "Big Data Use Cases", July 2015, [www.barc-research.com](http://www.barc-research.com)*

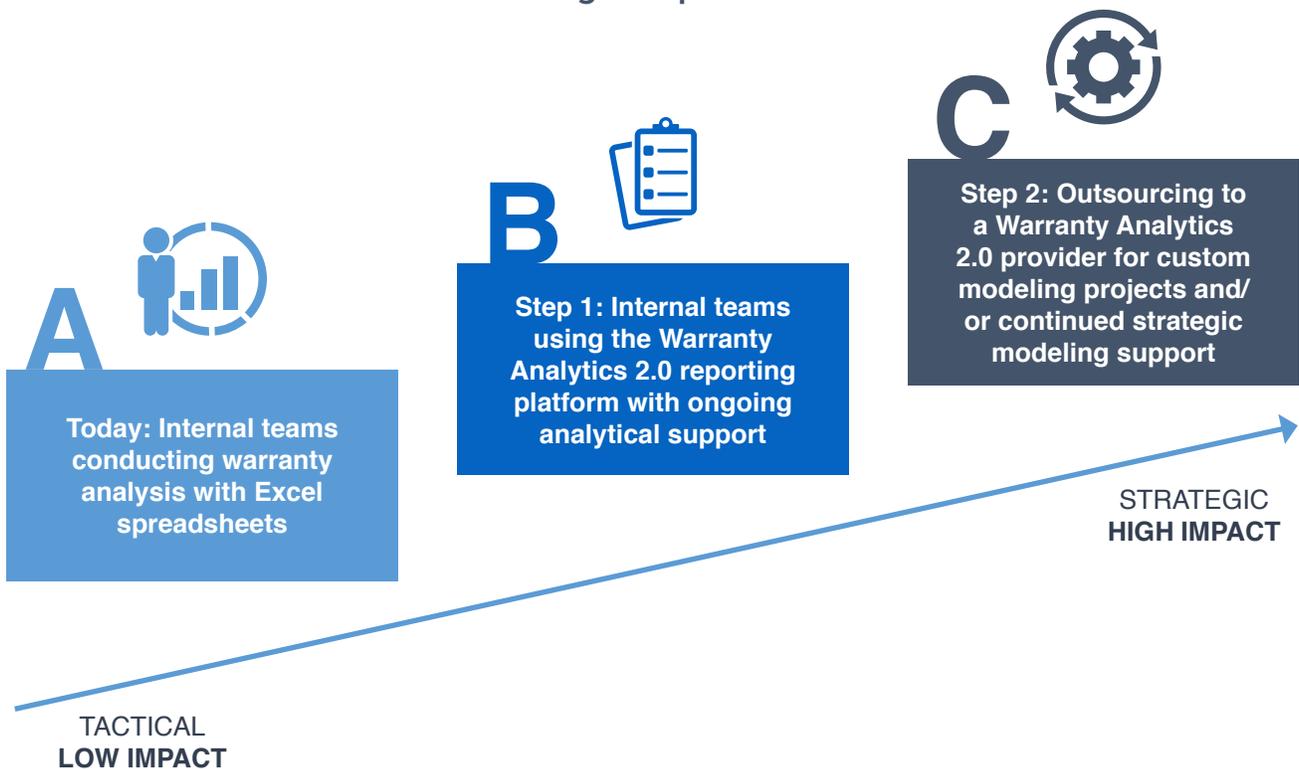
### Gap #3 – High-Impact Strategic Insights

As outlined in this white paper, warranty organizations have become valuable assets for manufacturing companies, driving higher customer satisfaction post-purchase, product reliability and brand equity. With recent high-profile recalls, manufacturers are more focused than ever on product reliability, turning to their warranty organizations and engineering teams for insights. If these teams do not have the required data expertise in-house, they may purchase analytical software solutions for help. As illustrated in Figure 7 above, these solutions – while built by talented data analysts and statistical modelers – were not architected for the warranty industry. Without the required warranty data expertise, the statistical models may not work properly or worst case, give inaccurate results.

Warranty Analytics 2.0 solutions offer a range of options. They can start with visual Analytics Software combined with an analytics-as-a-service business model that allows warranty organizations to “rent” highly experienced warranty data analysts on a low cost, monthly basis (see “B” in Figure 9 on page 15). If custom models are required to answer more high-impact strategic questions, organizations can move up the value continuum and hire a team of data analysts and statistical modelers - highly trained in warranty data - to build them. Warranty Analytics 2.0 custom solutions can be delivered on a one-time project basis, or ongoing, as a dedicated Warranty Analytics arm (see “C” in Figure 9).

Figure 9

## Warranty Analytics 2.0 The A-B-C Strategic Impact Continuum



# THANK YOU.

FOR MORE INFORMATION ON WARRANTY 2.0 SERVICES, PLEASE CONTACT:

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*After, Inc. (www.afterinc.com) is the global leader in Warranty Analytics 2.0 solutions. Its Warranty Analytics Reporting Platform (WARP), warranty predictive analytics, and warranty marketing and program administration capabilities support warranty organizations across a wide range of industries. After, Inc. partners with some of the world's top brands to help transform their warranty businesses, driving customer satisfaction post-purchase, higher product reliability, deeper brand equity and additional revenue/profit opportunities. Headquartered in Norwalk, Connecticut, and with offices in New York City, After, Inc. is part of the EPIC Insurance Group, a unique and innovative retail property and casualty and employee benefits insurance brokerage and consulting firm with 1,300 employees across the U.S.*

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