52 Mawson Road
Cambridge CB1 2HY
United Kingdom
Tel: +44 (0) 1223 460 439
Fax: +44 (0) 1223 461 055
www.cambashi.com

Improving Warranty Agility for Business Success

Business User-Driven Analytics for Accruals, Claims, and Prevention

for

QlikTech

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Contents

1 Executive Summary

Instant gratification has taken on new dimensions with the age of connected consumers and consumer durables – so brand owners need new ways to manage warranties. While consumers become more impatient, warranty processes are becoming more complex and dynamic. This is because most manufacturers' strategies call for expanding product lines and geographic markets as well as leveraging industry networks of dealers, service centres and several tiers of suppliers. This combination puts pressure on the employees working each portion of the warranty management process: accruals, claims management, and problem prevention.

The warranty process has always been one where analysing and answering one question may raise 10 more questions. Traditional approaches with enterprise software, a data warehouse, and static business intelligence cannot keep up with the pace of the process, nor do they meet the ad-hoc nature of many queries. So rather than just expecting information technology and business analytics groups to create a cube to cover as many questions as possible, the approach must allow business users to generate their own views of specific data to discover what they need to answer the next questions. Sometimes, these views will be for each product in each geographic area, or even to a dealer/product level.

Warranty management is inherently multi-disciplinary, spanning finance, legal, customer service, sales, marketing, product development, logistics, production, quality, and procurement. The key to achieving flexible support for the warranty management process is to use a platform that not only analyses data from a wide variety of sources, but allows end users to configure specific analytical views to match their current task and share information in a collaborative environment. This analytics environment must be easy to use, quick to configure, and visual to ensure minimal opportunity for misinterpretation.

2 Why Warranty Improvement is Critical

Most products sold around the world come with a warranty specifying some period of time during which the brand owner manufacturer provides repair or replacement of the product according to the conditions of the warranty. Warranties have an array of implications. Figure 1 shows a simplified view of the warranty process. It touches on nearly every discipline in a company, from customer service, finance and legal to procurement, manufacturing, quality and distribution, to sales, marketing and development. Any process that has implications for so many departments is crucial, but this one is also customer-facing.

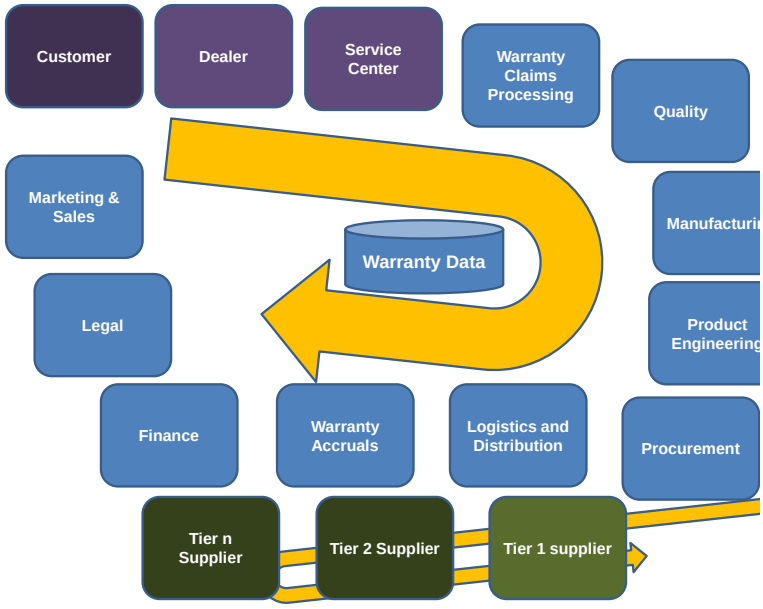

Figure 1: Warranty processes touch most internal disciplines (shown in blue) as well as customers, dealers, service centres (shown in purple) and suppliers (shown in green).

Some of the reasons that companies invest in warranty management include:

- **Revenues:** The length of a warranty and the services it covers may help a buyer decide which of several similar products to purchase.
- **Brand reputation management:** Customer satisfaction for "big ticket" goods such as autos and refrigerators relies heavily on how the company manages warranties and claims against them.

- **Service partner quality:** An excessive number of claims against a service centre may highlight the need for corrective action on the distributor's or centre's repair procedures.
- **Operational and cost improvement:** Excessive warranty claims may also indicate poor quality in final or supplier manufacturing processes, or point to a need to improve shipping practices to reduce damage in transit. Preventing problems from happening can significantly lower costs.
- **Profitability:** With the possibility for both increased revenues and decreased costs, improved warranty management can directly impact profitability and lowering the accruals line in the financial statement can further boost a company's attractiveness to investors.

Most companies look to make continuous improvements to the warranty process to reduce their financial liability and to keep customers satisfied. They may look at ways to improve the processes to handle warranties and claims at distributors and in their internal organization. Even slight improvements, such as speeding up claims processing or pinpointing patterns of problems more effectively, can have a meaningful impact on the cost of managing warranties.

3 Challenges in Managing Warranties

Companies have always faced two main challenges in managing warranties: understanding risks and mitigating risks. These are more complex than ever. Further, they are now joined by a third challenge because of expanded product lines and options plus geographic sales expansion and partner networks.

Every manufacturer faces these three challenges of managing risk:

1. **Understand the risk.** The only way to insure against warranty risk is to understand the risk factors that make up a particular product, how it might fail, and frequency of failure of individual components. This is the foundation of both warranty policy and terms development and accurate accruals.
2. **Mitigate the risk.** Once they understand risk, the company can mitigate it through better product design, quality of individual components, consistency of the assembly or manufacturing process, and quality of all subassemblies used in the manufacturing process up to and including the finished product.
3. **Leverage the data.** The diversity of data sources involved has always made warranty management difficult, but the number of product lines, options, partners and electronics on-board products create exponentially more data than ever before.

Each time a problem arises in the field, a set of questions similar to that in Figure 2 will arise. Each of the five top

Figure 2: One incident report may trigger many cascades of questions. This example shows truncated question sets for only two of the five main questions.

level questions will create its own cascade of more detailed questions that someone will need to answer. The answers to these help employees to understand both the current and future risk. To mitigate risk, they can leverage these answers to set appropriate expectations for accruals and claims processing. This can also trigger dealer and service centre notification, and product changes that may impact engineering, production and supply chain partners.

Each warranty represents a potential claim against the company. Most companies have a high volume of many different products under warranty and potentially long warranty periods for each product. In the aggregate, a company may have millions of warranties in place at any given time. Warranties can have different requirements based on country, region, or customer behaviour.

Even though the likelihood of a large number of claims being placed at one time is small, consider Toyota's problems with their automobiles from 2009 – 2010. During that period, Toyota had to recall approximately 9 million cars for repair, an astoundingly large, expensive process (estimates were as high as $2.47 billion), which doesn't include the damage to Toyota's reputation. Dealer losses in the U.S. were estimated to run from $1.75 to $2 million per month for the 1,234 dealers in the U.S.[1]

Servicing a warranty requires a balancing act between honouring the commitments made in the warranty, the cost of repairing or replacing parts under the warranty, and customer satisfaction, especially as a particular warranty is about to expire. Claims naturally rise as customers realize that they are running out of time to get warranty service, but it is good practice to look at the historical data on the customers, too. Companies can engender sizeable goodwill by repairing a problem that is technically "out of warranty" for loyal, long-time or repeat customers.

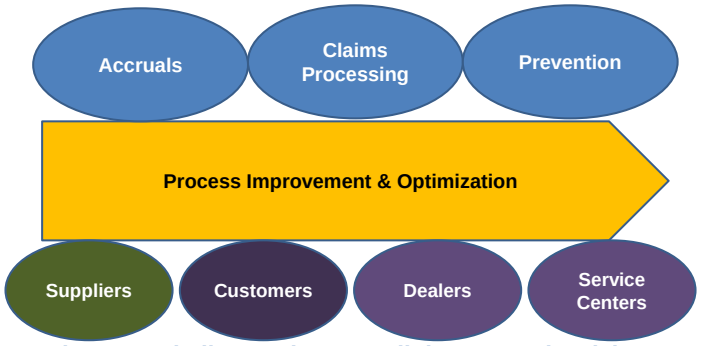

Figure 3: Challenges in streamlining accruals, claims processing, and prevention must be internal and include two-way communication with partners and customers also.

This complex and rapidly changing environment makes it more challenging for companies to optimize the warranty process both internally and externally. The warranty process within the company involves being astute about managing historical warranty data as well as interpreting that data in the light of current corporate strategy, customer expectations, and market conditions. Outside the company, the challenge is to communicate to dealers, service centres, suppliers and customers. Figure 3 is a high-level overview of these challenges.

4 New Technology: Business user-driven analytics

Warranty management requires collecting and organizing a massive amount of data about products, claims, service centres, and customers. Even if the warranty process is being designed (or redesigned) from scratch, warranty data is likely to reside in a number of different and possibly incompatible systems, which presents several challenges. The first challenge is to retrieve the data and transfer it to a central repository where it can be stored, put in context and analysed. The second is to standardize or normalize the data itself, so that data on one system will "flow" smoothly into the proper fields on the destination system.

These data need to be converted into useful information for decision-making. Data warehousing and business intelligence (BI) coupled with enterprise resource planning (ERP) systems offer sophisticated tools for the data management part of warranty process, but they tend to fall short in providing users with

1 "Toyota recall update: dealers face full lots, anxious customers", Christian Science Monitor, January 29, 2010.

the capability to perform the daily ad hoc queries and visualisations of information that they require to discover the truth of the current warranty situation and make sound decisions rapidly.

This is where companies are discovering they can leverage a system specifically designed to provide business users with the capability to analyse and visualise the data they need to perform their jobs effectively. We call this a business user-driven analytics (BUDA) system. Figure 4 shows a highly stylised view of how BUDA can draw from source systems or the data warehouse to serve the varied stakeholders of the warranty process directly.

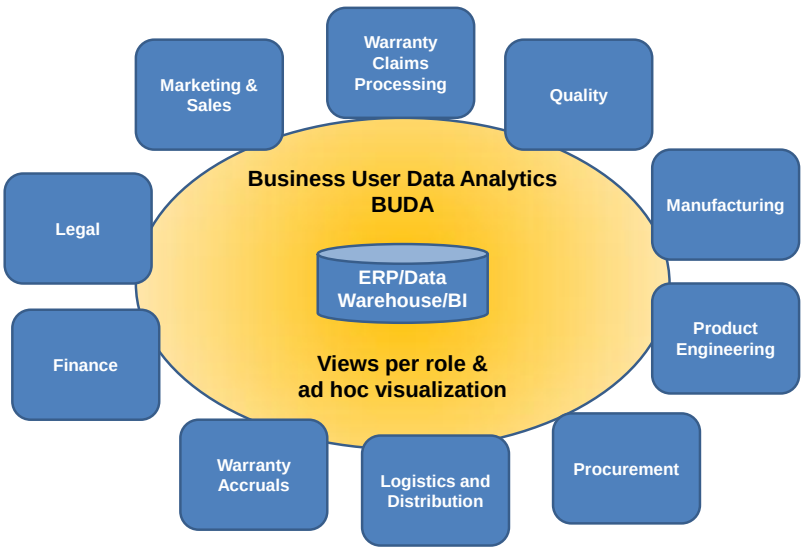

Figure 4: Challenges in streamlining accruals, claims processing, and prevention must be internal and include two-way communication with partners and customers also.

This BUDA system must present data in forms that are suitable to different roles in the organization and their portion of the process:

- Data entry or record-keeping. Daily warranty management requires the most granular view of data, from individual to groups of warranty records.
- Data or statistical analysts. These roles require the ability to examine groups or categories of warranties for common attributes, patterns, or trends.
- Group or line managers. Managing exceptions requires that the system provide notifications or alerts about warranties that meet certain criteria, or exceed a threshold in the number of claims.
- Senior or executive managers. Managerial level views allow warranty data to be “rolled up” into summary views for aggregate analysis and trending. A BUDA must also support collaboration between managers and data analysts so the managers can refine their questions to be precise enough to generate useful results.

The use of a BUDA system can greatly simplify the process of managing warranties, but the system needs to be easy to use, with an intuitive interface that requires very little training. Once implemented, the BUDA system should require minimal IT work to maintain it.

5 Accurate, Yet Minimal Accruals

Companies set aside money, known as accruals, to cover expenditures on warranty claims. This is far more than an accounting exercise because the company is legally liable to satisfy warranty claims, whether there are ten claims or ten thousand. Once the warranty period on a particular product has ended and all legitimate claims are satisfied, any money left over returns to the corporate coffers. This is a classic trade-off between setting aside enough to cover the expected number of claims and allocating too much or too little. If the accrual amount in the budget is not close to actual claims, financials will not match forecasts and investors may get a surprise, which is usually bad news for the stock price.

It is also a rather simplistic view of the accrual process, since new warranties go into effect with every sale of every product that the company manufactures, while warranties are expiring in a similar way. Warranty claims rise as the warranty period expires, but in the case of automobiles, claims would also be

expected to rise at regular intervals that match scheduled service intervals. A comprehensive view of a company's warranty exposure is only a snapshot of the current moment.

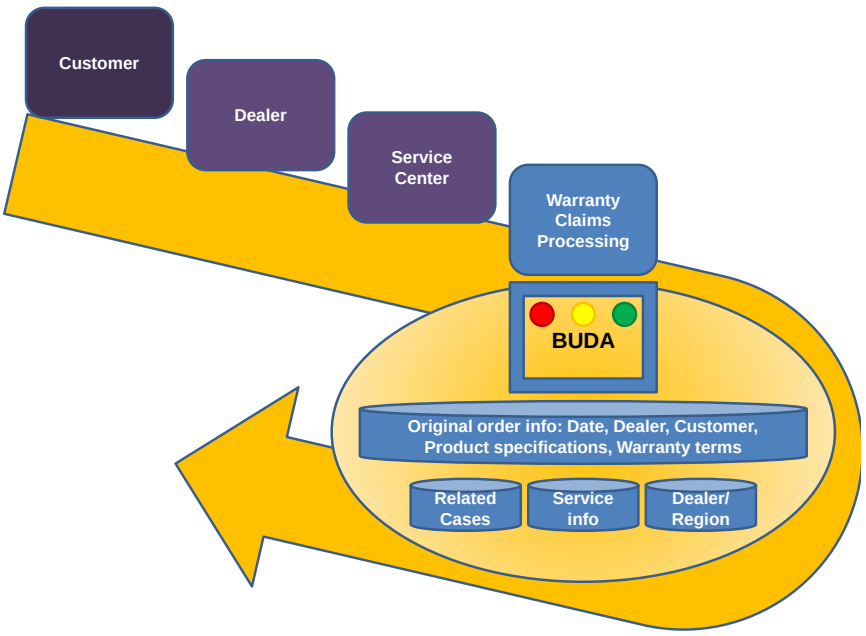

Figure 5: To streamline accruals, claims processing, and prevention, companies must develop strong data sets and communicate about them not only internally, but also with partners and customers.

Accruals are one of the reasons that historical analysis is a critical part of the warranty process. Predicting the right amount for accruals is part statistical analysis and part experience. The use of a BUDA system makes it possible for a business user to perform these kinds of statistical tasks on a daily basis if necessary. Analyses are more accurate because the system integrates both current and historical data in real-time views and reports.

Increased accuracy of analysis leads to better predictions about what to expect in the future which also increases the company's confidence in allocating money for accruals. A BUDA system enables users to find the answers to "what if" questions quickly, which supports ad-hoc decision-making. Figure 5 is a simplified overview of how that might work in a streamlined process.

6 Timely and Effective Claims Processing

Another goal of warranty management is to process claims quickly and accurately. A slow claims process may have a negative effect on customer retention and, ultimately, on the consumer's perception of the company's brand. On the other extreme, servicing claims that are not legitimate can hurt profits and also slow the response on legitimate claims.

Efficient claims processing depends on both external and internal factors. Distributors and service centres need to capture necessary information quickly and accurately. The claims data needs to be moved from the distributor, dealer, or service centre to the company, preferably in an electronic data transfer, to remove opportunity for error and the variable of transit times. Within the company, the claims process needs to assemble pertinent information from both historical records and the current claim data so that decisions about the claim can be made quickly. Since laws and warranty contracts vary in each area, this analysis must be done by region taking those specific regulations into account.

At the same time, the claim needs to be analysed in the context of the distributor or service centre and the claimant, to make sure that the claim is both valid and not part of a pattern of abuse by any of the parties involved in the transaction. The pattern analysis may also highlight quality control or design problems that the company needs to correct to prevent recurrence. Sound decisions about warranty claims depend on accurate and timely information pulled from an array of sources. While this has been a historic challenge, a BUDA system can provide these views in a matter of minutes.

7 Prevention in Complex Manufacturing

Manufacturers simply can't afford to be surprised by problems that result in increased warranty claims. Accruals provide some protection from the risks of excessive claims, but preventing problems from

occurring is the goal. To do that, or at least ensure they are detected before they affect customers, depends on the amount and quality of data the company assembles and analyses on a continuous basis.

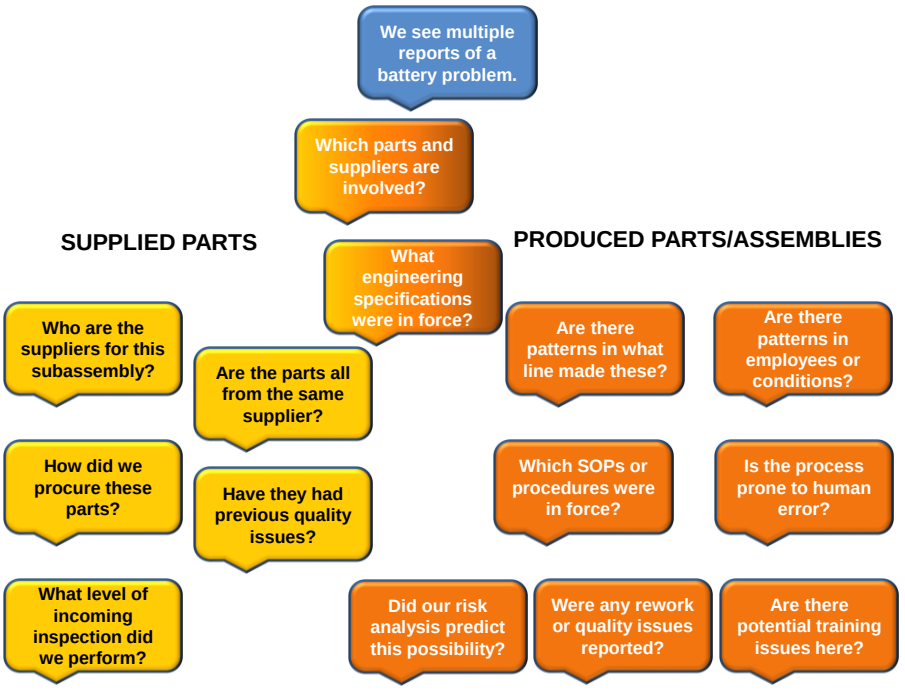

Figure 6: Getting to the root cause of a warranty issue may require data from engineering, production, quality, HR, and procurement to answer questions.

The company itself has the largest share in making sure that products meet the standards set by the warranty, but in a complex product such as an automobile, many of the components and sub-assemblies are manufactured by suppliers or their suppliers. Finding the root cause of a defect requires examining external suppliers as well as internal design and manufacturing processes. Accurate data about performance and quality are essential for employees to resolve problems quickly. For example, trying to answer a question about a particular problem can lead a user through product and process engineering plus the supply chain to find the root cause. This can be a substantial cascade of questions that touch many disciplines. Figure 6 shows just a few examples of the top-level questions a company might ask to understand a parts-related warranty issue.

A BUDA system can integrate data from many disparate sources, both internal and external. The resulting analysis can simplify the process of pinpointing defects, even in a complex manufacturing process involving multiple suppliers. An objective analysis enables timely decisions about corrective actions and eliminates “finger pointing”.

More importantly, the BUDA system provides this data in a form that can be used by many users throughout the organization. The financial, customer, and brand implications inherent in warranty decisions require quick resolution to avoid additional cost and lost revenue opportunities. BUDA systems supply the information that enables companies to spend time preventing problems, rather than trying to make good on warranty claims when customers encounter problems.

8 Conclusion: Optimizing Warranty Processes for Profits

The Internet has opened up a multitude of opportunities for consumers to research what they buy. In this world, customers are hard to attract and harder to retain – so warranty terms often matter. However, once a warranty claim comes in, consumer expectations are such that traditional ways of managing warranties cannot keep up. There are too many opportunities for errors and too much unnecessary processing and waiting time at every stage of the warranty cycle. The risk may be larger than companies realize, as the sidebar "Potential Value of BUDA for Warranty" illustrates.

Optimizing warranty processes means not only having all of the relevant data in a format ready to analyse, but being able perform that analysis in a rapid and ad hoc fashion. Central systems can provide

the repository, but typically not the specific slices and visualisations for each of the stakeholders in the warranty process to conduct the discovery process they need for good decisions.

BUDA technology makes it easier to respond to this environment by providing an intuitive visualisation of data that every user can customise. Historically, deep analysis of warranties has required individuals with experience in statistics or analytical software, but BUDA technology provides the tools for nearly any employee to find the information needed to make sound decisions. To meet consumer expectations, employees in accruals, claims processing, and problem prevention areas of the warranty process all need to make quick decisions with confidence.

Potential Value of BUDA for Warranty

Most companies face an array of warranty issues, and each element can add up to significant risk. The main elements for warranty issues are:

- Assurance of product quality to minimize claims and liability
- Allocation of liability to suppliers as appropriate
- Ability to provide premium service at better margins
- Warranty accruals to cover likely claims
- Efficiency of internal processes to manage warranties, claims and the issues that result in claims
- Customer satisfaction issues that impact loyalty and repeat business as well as brand reputation

Each of these elements is interdependent, and all of the warranty processes must work well, or the risk is large.

For example, one major automobile manufacturer has warranty risk of about 300 Million € per annum. If the BUDA can reduce this total risk by even 5%, the potential annual savings would be 15 Million €.

An end-user driven analysis of warranties has a myriad of benefits, including:

- faster views available to everyone involved, without undue bottlenecks in IT and analysis
- better match of analysis and views to the specific needs at each stage of the warranty process
- views tailored to the role and current tasks each stakeholder is performing
- flexibility to respond to new situations rapidly and effectively

In the sidebar example, we claim only 5% improvement in overall risk, which can typically be accomplished by applying software to support a complex business process. The business discovery analyses are likely to provide further benefits in accuracy of accruals, timeliness of claims, and ability to identify root causes and prevent future problems.

Fortunately, companies can layer BUDA on top of their existing business intelligence and enterprise software to create these powerful benefits. As a result, companies experience minimal disruptions of business and information systems. Optimization of the warranty process begins immediately.

Companies who adopt this technology will experience lower warranty management costs, higher dealer and customer satisfaction, and their brand image will be better protected. Since the system supports agile shifts and ad hoc exploration of warranty issues as they arise, it will not quickly become obsolete. BUDA technology can help companies better manage the warranty process. The opportunities for improved revenue, customer satisfaction, and profitability could lead early adopters into a favourable competitive position.

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