Integrated Solution
to Accelerate
Warranty Management

In many companies, warranty management functions are handled in isolation without the necessary focus on analyzing the impact of each function on discrete value chain functions such as manufacturing, quality, and services. In many such companies, the warranty management function is fragmented across financials, product design, manufacturing, quality and reliability, service chain, sales, and marketing. Such fragmentation potentially leads to inefficient customer response systems, loss in market share, lack of overall visibility, poor collaboration, and an inefficient value chain.

This paper describes how each function or entity involved in the warranty management value chain, such as warehouses, claims processing systems, partners, suppliers, distributors and customers can be integrated towards realizing a 360 degree view of information, better warranty analytics, faster claims processing, reduced manual intervention, and accurate information synchronization and achieving accelerated warranty management.
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Table of Contents

1. What is the Warranty Management Business Process? 4
2. Integrated Approach for Warranty Management 6
3. Case Study: Warranty Management Outsourced to Third-Party Vendor 10
4. Technology Solution 12
5. Benefits 13
6. Conclusion: Efficient and Integrated Value Chain Achieves High-Performance Warranty Management 14
7. References 14
What is the Warranty Management Business Process?

A warranty is an assurance of the quality of the product given by a manufacturer to the customer. A Warranty Management process manages all the activities performed for fulfilling the warranty function. Warranty Management process comprises the following five sub-processes (also illustrated in the figure below).

- **Product Sale and Warranty Contract Creation**
- **Service Request and Claim Management**
- **Service Management**
  - Service Parts Management
- **Warranty Claim Processing**
  - Supplier Charge Back

**Product Sale and Warranty Contract Creation**

This sub-process creates warranties in the system and assigns installed base components or individual objects to associated warranties. It then replicates warranty information to the manufacturing, sales and marketing departments. Following this replication, product registration details are transferred to these departments. All warranty contracts are held in a central repository, so as to lend the service provider visibility to all contracts and entitlement information.
Service Request and Claim Management

This sub-process registers the warranty service request and links it to the warranty contract. It also functions as a knowledge base that enables an Initial Search for similar service requests, thereby resulting in quicker resolution of customer service requests.

After preliminary examination, the sub-process creates a service order. The service order is created in the form of an order in the Order Management system with warranty/extended warranty information. Once the service order is created, product(s) will be obtained/received from the customer.

After preliminary inspection of received product(s), the concerned technician(s) schedules a job/service order. A task is linked with the service order and assigned to the Field Service Representative. The service order is then tracked and feedback obtained from the customer following its completion.

Service Management

This sub-process investigates failed parts. Upon receipt of a failed part, an inspection task is carried out by the investigation team. The investigation team checks for the number of repair/service requests carried out on product. If the number of repairs exceeds the permitted maximum number, the product is black listed.

Following the initial investigation, the service technician identifies the service type required for repair and the owner for the service order. The service technician also identifies the supplier(s) of the failed part(s) and validates whether the supplier is bound by a service level agreement (SLA). For replacing the failed parts, a spare parts request is raised through Spares Management.

After receiving the spare part(s), the parts register in Spares Management is updated.

Service Parts Management

This process checks the spare parts request raised by the service team in Spares Management. If the part is unavailable and will need to be ordered from the concerned original equipment manufacturer (OEM), a request for the same is sent by Spares Management. The receipt of such parts is updated in Spares Management and the parts are transferred to the service location. The Spares Consumption database is updated with the transferred parts and can be tracked by Spares Management.

Warranty Claim Processing

This sub-process identifies whether the product/parts are under warranty. The warranty information is obtained from the installed base. The installed base offers detailed information pertaining to all the items and their respective customer.

In the event that the warranty had expired, it is confirmed with the customer whether they would choose to renew the warranty. In case of warranty expiration and non-renewal of warranty contract service order, the sub-process generates a notification for payment request. Upon validation of the payment request, it generates the warranty claim and initiates a dispatch request for the failed parts.
Supplier Charge Back
This sub-process assesses the claim for supplier charge back. If the failed part/product(s) is under supplier warranty, it generates a supplier charge back request. After validating the charge back request, it raises a debit note to the supplier.

Warranty Settlement
This sub-process carries out payment settlement. Payments in service contracts define billing schedules and the recurring billing amounts. Payments are determined from service contracts and obtained through receivables.
This sub-process performs warranty accounting for a service contract after integrating it with receivables. Settlement Reports can be obtained for warranty settlement.

Integrated Approach for Warranty Management
Companies may face numerous obstacles in integrating the warranty management value chain such as those listed below.

- Warranty management is a labor-intensive process. It may not always be possible to deploy IT to implement some of the functions in the warranty management value chain.
- Companies may lack an effective process for implementing numerous business functions in a value chain.
- Complicated claims processing procedures and rules.
- Delays caused by labor-intensive warranty business processes that involve manual entry and review of claims.
- Warranty information is not effectively synchronized with other stakeholders and may not always be used with minimum latency for analysis and for improving quality of product and services.
- Challenges pertaining to people, processes, and technology collaboration.
- Lack of visibility in addition to issues pertaining to inventory management that may result from disparate and independent systems.

To overcome the above mentioned obstacles and to accelerate warranty management, companies will need to employ sophisticated business rules and strong enterprise integration points such as those below:

- Automate and integrate end-to-end warranty management processing including supplier recovery, parts management, extended warranty and service quality management through integrated processes, extensible rules and roles-based automated process workflow, so as to minimize processing cost.
- Align stakeholders and strategy for warranty management.
- Implement the requisite business and technology architecture, governance and compliance methodology.
- Integrate master information to obtain a single, shared 360 degree view across the business.
- Build a portal-based front-end for submitting claims for customers and vendors.
- Employ fully automated claims processing system, embedded with a rules management engine for automated processing and improved adjudication turnaround times.
- Employ data verification and validation across modules and systems in the value chain.
- Identify and act on vendor recovery

**Integrated Process/Technology Framework**

Once the above obstacles have been addressed and all the integration points have been identified, an integration landscape/platform will need to be established for enterprise. This integration platform must be a central entity and serve as a single communication platform for every entity in the value chain. Further, all the information channels in the value chain will need to flow through this integration layer.

Integration platform need to be built highly available, scalable and reliable as it is the backbone of information flow for entire warranty management value chain.

To establish an efficient integration platform

- Employ an effective, centralized integration process framework, standardization, process streamlining and visibility.
- Employ industry standard integration technology that is scalable, easy to manage, reliable, and intuitive. Enable collaboration among partners, customers, business units and enterprise.
- Employ an appropriate solution for process/transactions monitoring, tracking and auditing.
- Adapt universal translators, standards for electronic communications.

**Warranty Management Implementation**

Warranty management is carried out within enterprise either through

- Hosted B2B solution from external warranty providers.
- In-house warranty management

**Hosted B2B Solution from External Warranty Providers**

In this approach, the warranty management solution is implemented by a third-party vendor (warranty provider). This approach eliminates the high costs of internal software development and associated support. Also, it provides a tangible and quick return on investment (ROI) within a period of 6-12 months and has been found to be especially suitable for small and medium-scale enterprises.
Implementation Details

- Establish a communication channel between the enterprise and warranty provider through a secure integration layer, for synchronization of bidirectional data pertaining to products, parts, contracts, customers, install base, warranty, and so on.

- Establish a business-to-business gateway that provides a comprehensive, scalable solution for customers, suppliers, distributors, trading partners and outsourced warranty management vendor.

- Choose industry-specific business to business eStandards such as EDI, Rosettanet or XML for information flow across the enterprise and to all the stakeholders in the warranty management process.

In-House Warranty Management

In this approach, warranty management is carried out through commercial software packages within the enterprise and the solution is integrated through SOA/EAI/B2B architecture. As part of the implementation, a communication channel is established through a secure integration layer that spans the customers, suppliers, distributors, trading partners, applications, and business units.

This approach involves an initial cost towards solution development and associated support. Since enterprise data is securely maintained within the enterprise, and a high level of customization is possible, in-house warranty management is a suitable option for large-scale enterprises.

Integrated Architecture, warranty management

Both the warranty management implementations described above demand that an end-to-end warranty management business flow be incorporated into a process that caters to all the stakeholders. This requirement translates into the need to establish organizational relationships between various entities such as quality and finance, supplier and production, OEM and dealer or distributor, and so on.

This can be achieved through a holistic approach with sufficient emphasis on Integration, Automation and Validation of all the warranty processes, including product registration, claim processing, claim review and payment, warranty & contracts, parts returns and supplier warranty, quality and warranty intelligence.

Streamlining all these processes and collecting and communicating the right data to every stakeholder will lead to improved returns tracking, supplier recovery, warranty analysis, warranty reserve prediction, root-cause analysis, fraudulent claim detection, claim processing, warranty helpdesk, warranty liability management, and product quality.
The following figure illustrates the end-to-end integration across all the processes, stakeholders and communication channels.

**Approach and benefits**

- Implement a workflow and rules engines to automate the claims processing, claim review and payments. This will reduce errors and the time spent on re-keying and achieving consistent claim resolution.

- Establish an integrated supplier recovery function. This will lead to improved communication and connectivity with suppliers, efficient supplier recovery, returns, and recalls. Further, it will expedite supplier cost recovery and ensure accurate reimbursements.

- An effective and efficient warranty management value chain opens better revenue opportunities through warranty intelligence.

- Complex and incomplete warranty claims can take months for processing. With an integrated process, however, claims can be validated against policies, thereby leading to a dramatic reduction in reimbursement times.
The workflow engine automates the manual intervention required. With the help of a web-interface, channel partners can enter, update, or check the status of a claim. Prompt claims resolution strengthens relationships and increases loyalty with customers and partners.

A defect in the product may be a one-time failure or may lead to a product recall. Monitoring business data and activity and detecting patterns can lead to greater visibility across quality-related issues and lead to early identification of problems and subsequent resolution. Companies can proactively address the problem and improve future products.

**Case Study: Warranty Management Outsourced to Third-Party Vendor**

**Business Challenges**

A leading diversified industrial organization, specializes in providing products, services and integrated solutions to industries ranging across various sectors. The organization delivers services such as providing comfort in homes and buildings, transporting and protecting food and perishables, securing homes and commercial properties, and enhancing industrial productivity and efficiency.

The organization comprised multiple business units, each of which had diverse requirements and implemented multiple legacy systems. These independent business units were equipped with ad-hoc information retrieval methods that resulted in an inefficient realization of ROI.

Further, the organization assumed additional responsibilities for enabling a wider geographical spread in the United States, Europe, Asia, Latin America and in Canada. The organization was besotted with a lack of an inventory management system and inadequate visibility on account of the disparate, independent systems.

The organization needed a powerful, central solution to standardize the warranty process.

**Solution Approach**

The warranty solution was outsourced to a third-party vendor. Enterprise information was supplied to the vendor through an integration layer and the vendor implemented a web-based solution to address the warranty management requirements of the organization and its customers.

The architecture includes both workflow and rules engines that are highly configurable. For decision making perspective business users have full control on the policy terms, claim processing rules, supplier contracts and terms and conditions for claims.

**Information Flow**

Information pertaining to the organization's customers, shipping, suppliers, dealers, and items was supplied to the vendor. The vendor then provides the claim, install base, service management, and warranty settlement information to the enterprise.

Following are the steps and processes involved in the entire warranty management value chain.
**Claim Processing**

The claim processing module is a portal-based application. Service providers can submit claims through this portal. Claims are processed automatically based on the rules configured. Claims payment generation and reconciliation is automated through this module. The automation eliminates the possibility of incorrect data feeds and ensures policy compliance in addition to reduced need for manual reviews.

**Supplier recovery**

The supplier recovery component is integrated with the sourcing department for warranty cost recovery from supplier. A claim is sent to the supplier from whom the part was sourced for approval. This component eliminates enterprise warranty spend for which the supplier is responsible for.

**Policy Management**

Policy management component is implemented on workflows and rules engine. Enterprises can add, change, update policies and add contracts in real-time. Every claim will be subjected to a policy compliance check and fraudulent or incorrect claims are addressed in real-time.

**Field Inventory**

The Field Inventory component is used for tracking the enterprise's on-field inventory. The entire unit service history such as warranty coverage and claims history can be tracked through the field inventory component.

**Warranty Analytics**

The Warranty Analytics component provides information analysis for operational feedback and prediction. The information captured in the warranty value chain is analyzed for turnaround time efficiency, parts performance, service performance, product performance, and determining warranty costs per product.
**Technology Solution:**

**Integration Landscape**

WebMethods was used as an integration platform, and a trading network was used for B2B communication. Further, webservices was implemented for communication between the enterprise and the vendor.

**Architecture**

A Reverse Invoke integration server (IS) was placed in the DMZ zone. The suppliers, dealers, warranty provider, and customers communicate through the Reverse Invoke IS; access levels were set for each entity.

Two integration servers were setup: An Outward IS for communicating with the reverse invoke IS and an Inward IS for communicating with all packages/application within the enterprise. A Message Broker was employed for loosely coupled messaging so as to achieve agility and scalability.
Benefits

- Quicker settlement of warranty claims - Increased customer satisfaction
- Better warranty management and planning
- Reduced warranty costs
- Reduced cost of poor quality
- Tight collaboration with suppliers to minimize warranty-related costs
- Lower claim-to-close operational costs
- Lower warranty spend by reducing the defect detection to correction cycle through the enhancement of claim content
- Cost savings through reduction in claim processing errors
- Enhanced customer relationship value through improved customer service levels
- Faster supplier chargeback claim processing
Conclusion: Efficient and Integrated Value Chain Achieves High-Performance Warranty Management

With the plethora of warranty management solutions and integrations platform available today, warranty-related costs can be lowered and better customer satisfaction can be achieved by integrating all warranty related processes and functions for effective and efficient claim processing, transparent information flow, and low-latency warranty analytics.

References
- Warranty Management – TCS After Sales Service Management CoE of HiTech
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