



Process Improvement for Repair Department

Lean Six Sigma

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Define

Problem Statement:

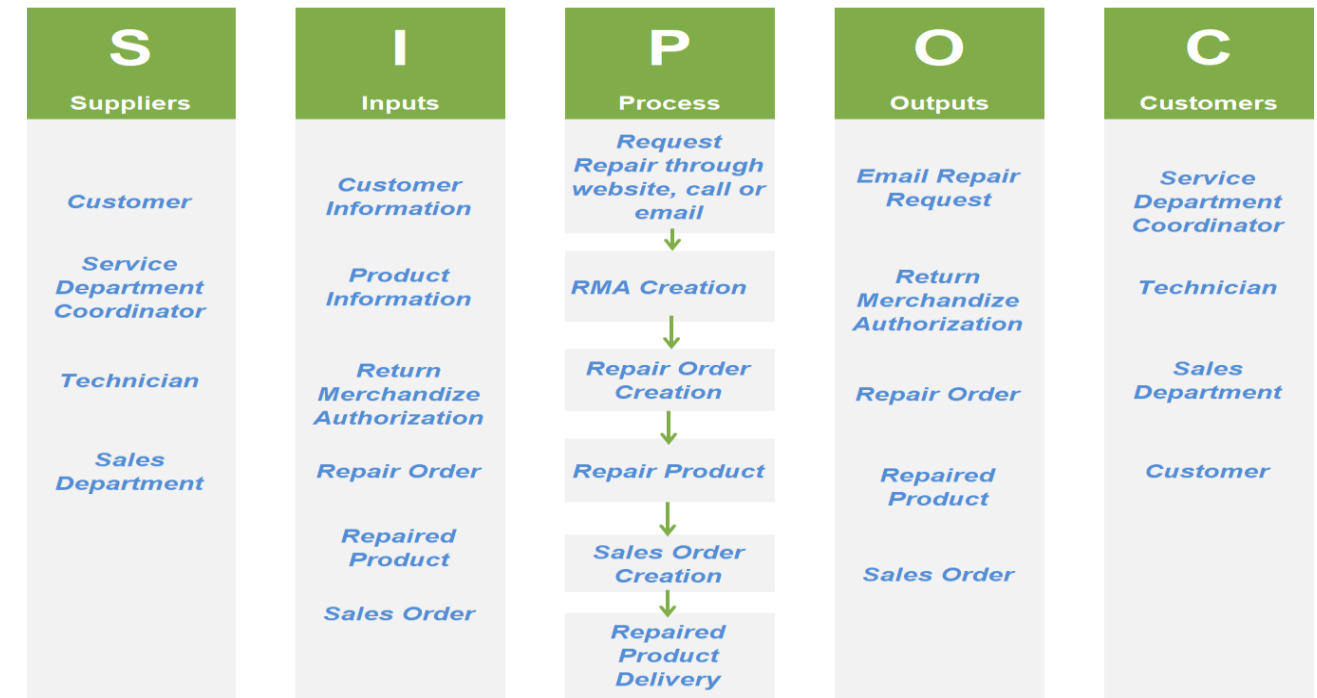
1. The warranty expense of INFICON's products have increased by 25.81% from 2016 to 2017
2. Discrepancy in the way warranty data is reported by accounting and by the service department
3. Excessive workload on a customer while requesting a repair

Goal:

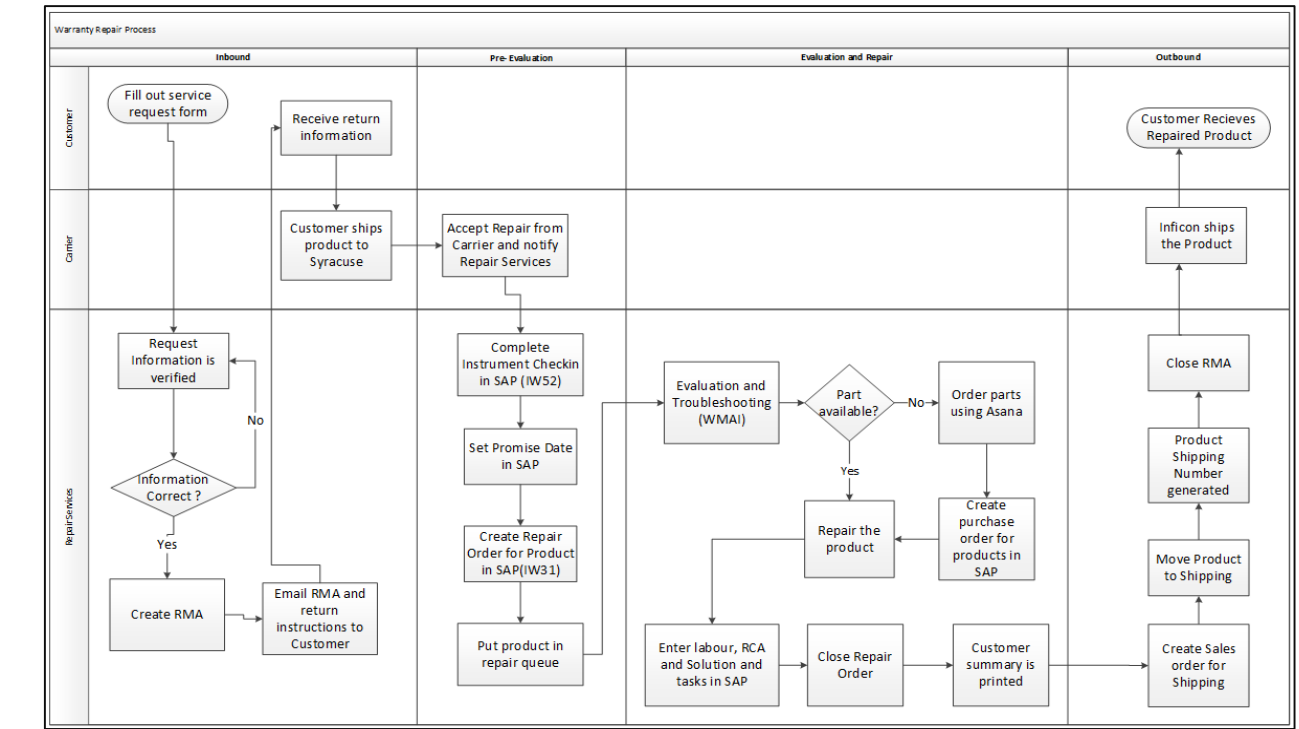
- Reduce warranty expense
- Remove data discrepancies
- Improve customer experience

Metric:

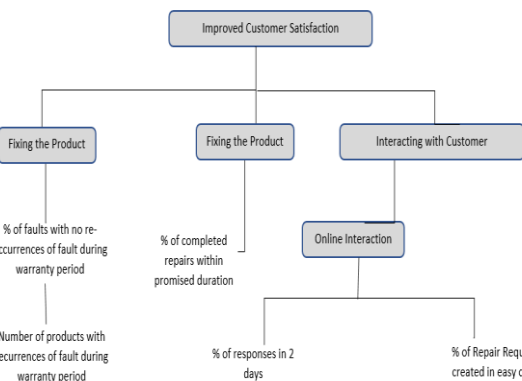
- Warranty Rate, Total Repair Turnaround time,
- Part Delay Time, Returns per Product, Total Repair time



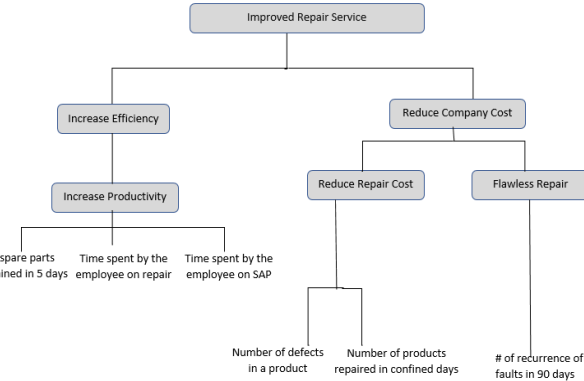
Measure



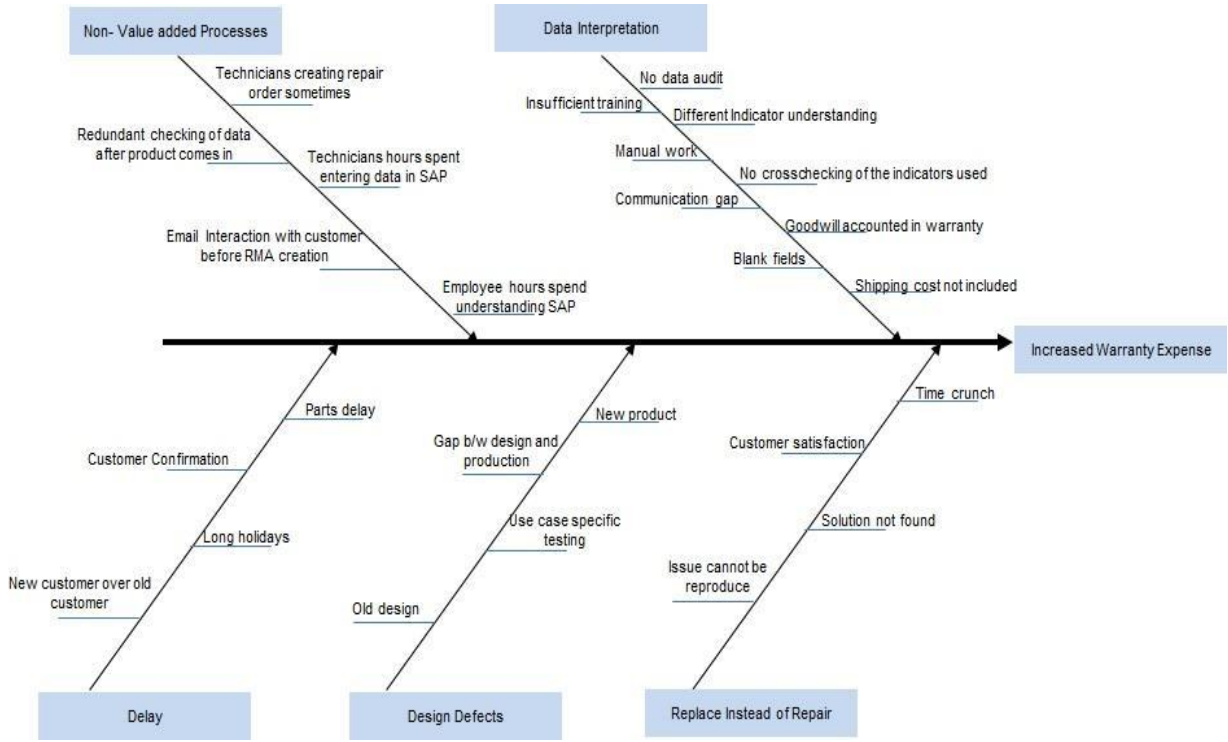
KPI Tree for Customer as Customer



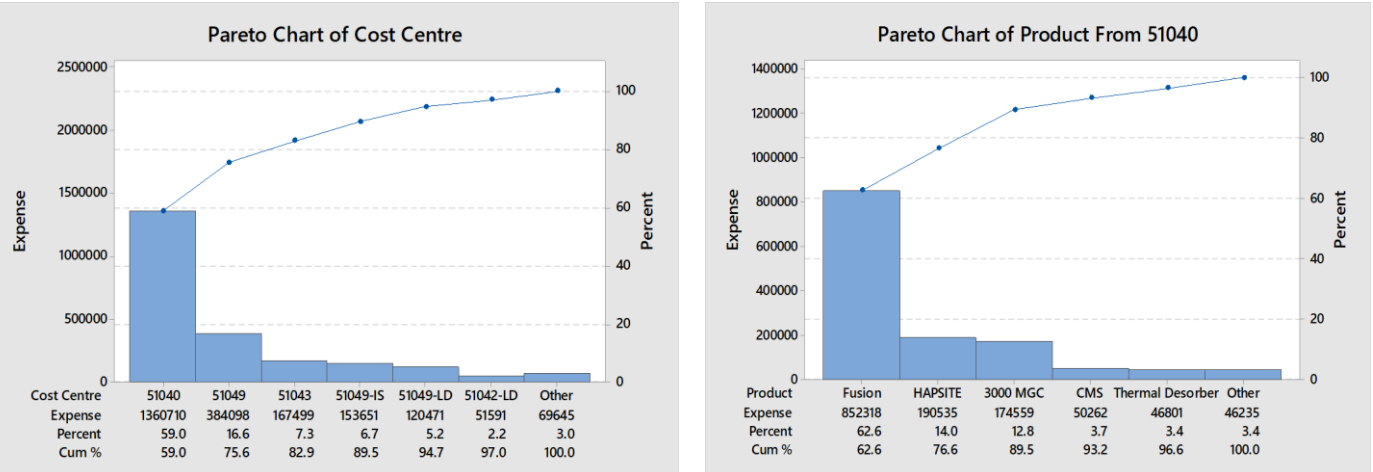
KPI Tree for Inficon as Customer



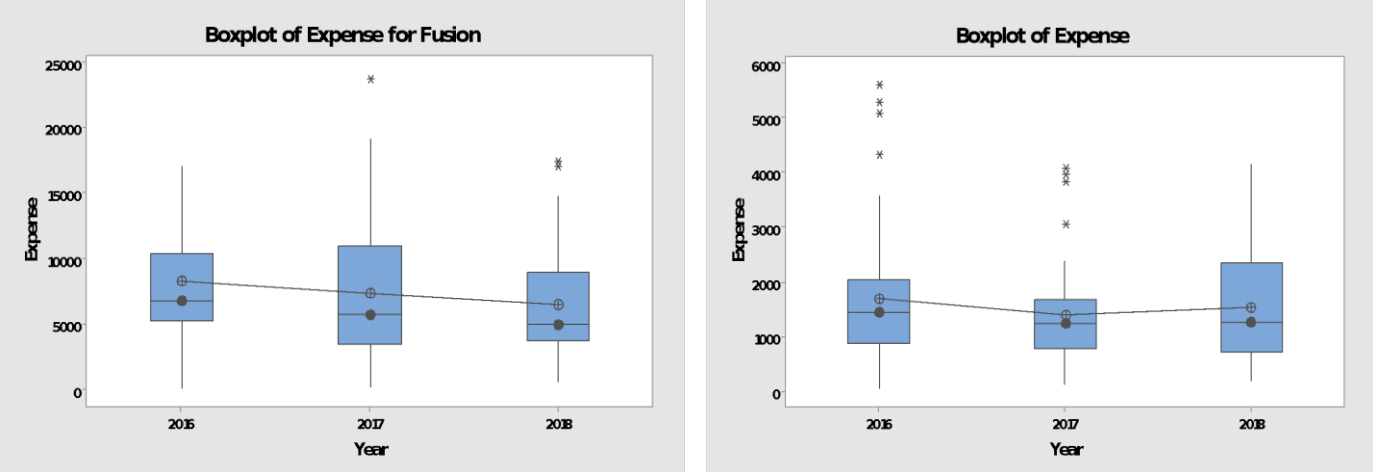
Analyze



We found that the cost centre 51040 contributes to almost 59% of the total expense on warranty products, while the second highest (51049) is around 16%. The top two products in terms of warranty expense are Fusion(59%), Hapsite (14%).



Expense comparison for last two years



Confusion Matrix for Warranty Calculation

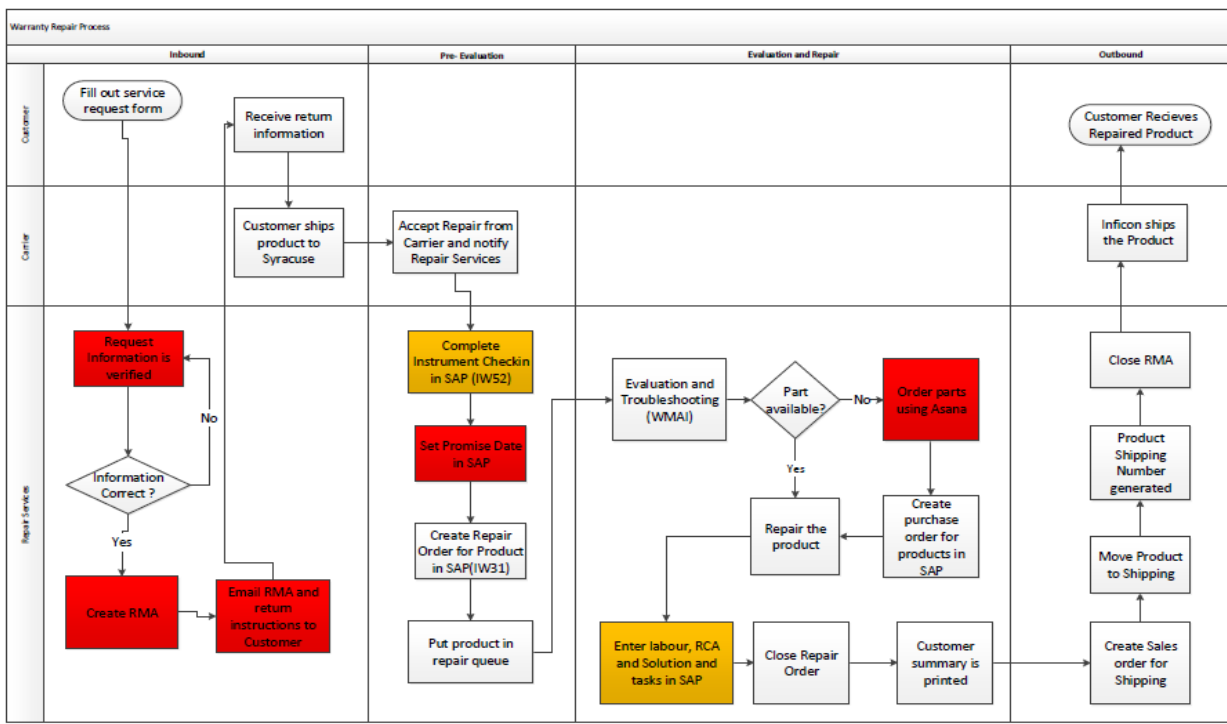
We looked at the data and found that there are two different indicators used by service department and finance department. We have created a confusion matrix below for the count and the expense and calculated the accuracy respectively. The actual accuracy should be 100% to account for all the repair expense.

Current Accuracy for # of Repairs: 54.34%
Current Accuracy for \$ of Repairs: 58.77%

Confusion Matrix		Finance Indicator 2	Finance Indicator Not 2
# of Repairs	KGW and RGW	1219	916
	Not KGW and RGW	108	0
Expense in \$	KGW and RGW	1679784	1073573
	Not KGW and RGW	104764	0

Improve

Value-Added Flow Chart



Recommendations

Short Term

- To reduce data discrepancy in SAP:
1. Technician training on SAP
 2. Updated SAP Training Manual for reference
 3. Make relevant fields required
 4. Update SAP attributes list
 5. Data Audit

To reduce SAP license cost:

1. Verify the actual need of SAP access
2. Reduce SAP cost per Technician

Long Term

To increase Customer satisfaction and decrease total Lead time:

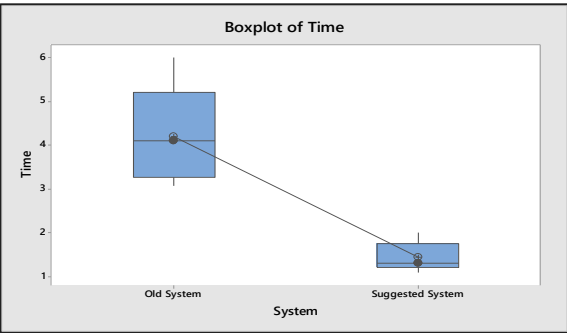
1. Customer portal design Change for easy returns

To reduce non-value added processes:

1. Barcode Scanner for repair process
2. Auto-populate Promise date based on product type
3. Remove duplicate usage - ASANA and SAP
4. Move to SAP-Cloud

Pilot Test

A prototype of customer portal used for requesting repair was implemented. The time required to request a repair on both the old and proposed website was measured to compare the design and efficiency of 'request repair under warranty' process. It was observed that the time taken for customer to fill the Service Request Form was reduced by 67% with new design. Also, the repair can be requested with lesser number of clicks.



Control

Communication Plan to keep everyone on the same page

Type of Communication	Audience	Purpose of Communication/Tasks (Pain Points)	Frequency	Facilitator	Time	Record
Repair Team Meeting	Technician, Coordinators, Service Engineers, Supervisor	Communicate any changes in the process and report on Work in Progress (WIP)	Once in a week	Technical Services Manager	TBD	Confluence
Department Team	Department Heads	Communicate any changes in the department. Interrelated Field/Indicators discussion. Comparison of numbers from different departments.	Once in 2 weeks	Division Head	TBD	Confluence
Quality Control Meeting	Quality Assurance Team and Product Managers	Product Managers observation in terms of Issues in the product and Number of defects coming in each product.	Once in a month	Quality Assurance Head	TBD	Confluence
Question and Answer Meeting for SAP	Whoever uses SAP and have questions on it	Understand the working of SAP	Once in a month	SAP Expert	TBD	Confluence