RENOVA
TECHNOLOGY
Quality. Reliability. Service.

# ACTIONABLE REPAIR DATA IMPROVES KPIs

Renova Technology captures, analyzes and reports all information associated with the circuit board repair we perform at our depot. According to the Aberdeen study <u>Key Trends in Returns Management</u>, these are the trademarks of a Best-in-Class Service Operation which lead to high levels of quality, customer satisfaction and profitability.

Identify Trends in Design Failures and Component Quality: Tracking failures at the component level and reporting trends to design and manufacturing groups improves quality. The example below shows resistors as a top defective part.

Benefits of Capturing, Analyzing and Reporting Repair Data:

♦ Identify trends in design failures and component quality

♦ Reduction in redundancy of service calls to resolve the problem

♦ Reduction of safety stock

♦ Improved testing & repair procedures

♦ Improved repair yield

♦ Reduced Out-of-Box Failures

"Renova has proved to be an invaluable asset throughout our repair partnership. They have highly skilled component level engineers and a top notch customer service department. I highly recommend Renova for any all component level repairs."

CEO, Essintial

Repair Actions	Repair Count	%
R178	756	26%
R165	579	20%
U25	147	5%
BT1	97	3%
EC84	84	3%
EC45	83	3%
EC49	82	3%
EC64	71	2%
EC5	71	2%
EC31	71	2%
EC55	60	2%
U15	56	2%

Top 5 Defective Part Locations and Failure Count
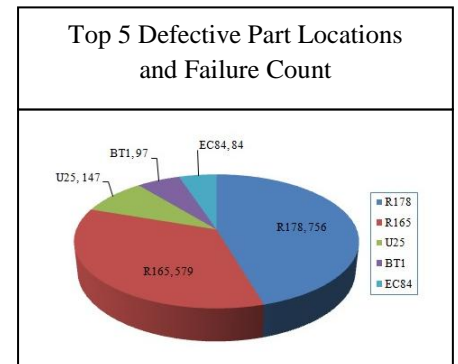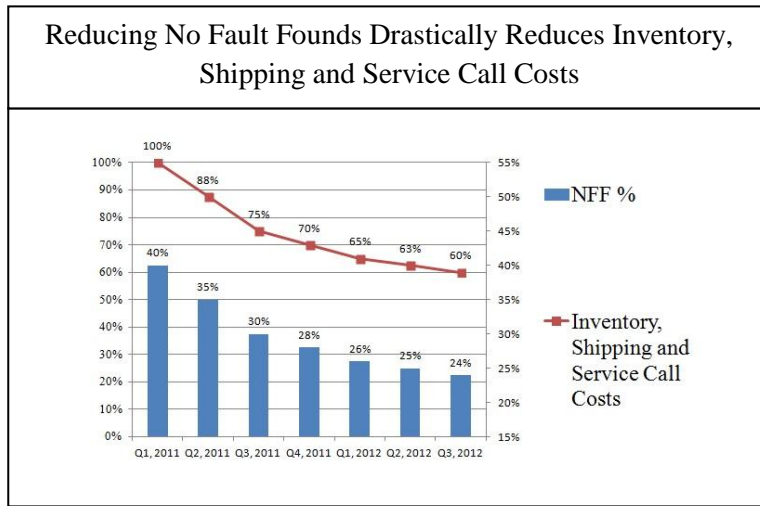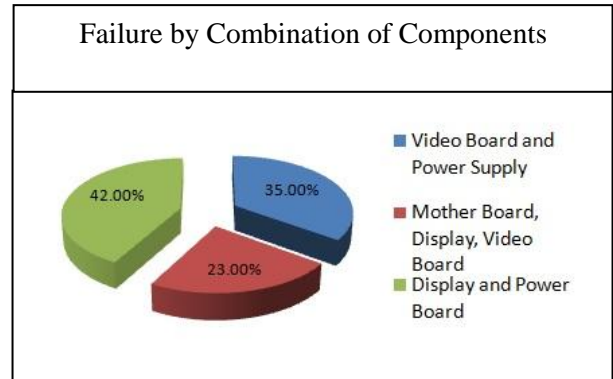
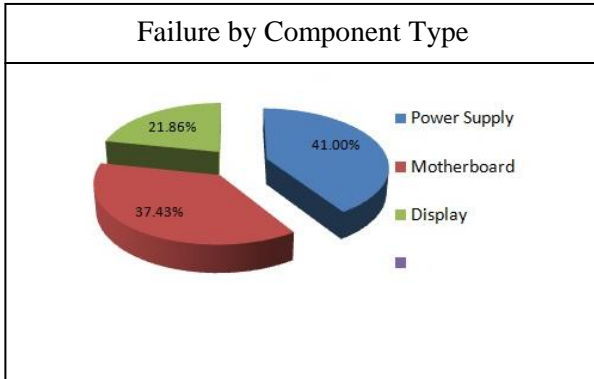However, upon a closer analysis of the data, it is evident that the capacitors are also an issue.

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Repair by Component Type
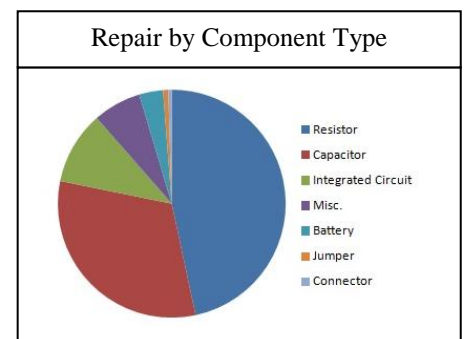
Reduction in Redundancy of Service Calls to Resolve the Issue: Field Service technicians will often make a rudimentary failure diagnosis which leads to a repeat service call to solve the issue, therefore reducing customer satisfaction. This approach also causes returns of No Fault Founds resulting in an unnecessary increase of safety stock inventory.   However, armed with information that has been captured and analyzed, the field service technician can improve first time fix rate up to 70-90 percent.

Failure by Component Type

- Power Supply 41.00%
- Motherboard 37.43%
- Display 21.86%

Failure by Combination of Components

- Video Board and Power Supply 35.00%
- Mother Board, Display, Video Board 23.00%
- Display and Power Board 42.00%

Reducing No Fault Founds Drastically Reduces Inventory, Shipping and Service Call Costs

Improved Testing & Repair Procedures Lead to Improved Repair Yield and Reduced Out-of-Box Failure Rates: Tracking Out-of-Box Failures and making corrective actions to repair processes help increase yield over time.

Diagnosis	Tech Comments	FSE	NFF	OBF
NDF reflashed BIOS	Upgraded BIOS.	191G40	T	F
Bad Component	No video. Replaced bad chips U25 (25VFO16); U29 (W83627)	106A41	F	F
Bad Component	No video. Replaced bad chips U25 (25VFO16); U29 (W83627)	106A41	F	F
Reflashed BIOS	No video. Replaced bad chips U25 (25VFO16); U29 (W83627)	106A41	F	F
Reflashed BIOS	Upgraded BIOS and resistors		F	T
Bad Component	Upgraded BIOS and resistors		F	T
Bad Component	Upgraded BIOS and resistors		F	T
Reflashed BIOS	Upgraded BIOS and resistors		F	T
Bad Component	Upgraded BIOS and resistors		F	T
Bad Component	Upgraded BIOS and resistors		F	T
Bad Component	Upgraded rework on resistors and BIOS revision.		F	F
Bad Component	Upgraded rework on resistors and BIOS revision.		F	F
Reflashed BIOS	Upgraded rework on resistors and BIOS revision.		F	F

Repair Yield Improves Over Time as Out-of-Box Failure Rates Falls