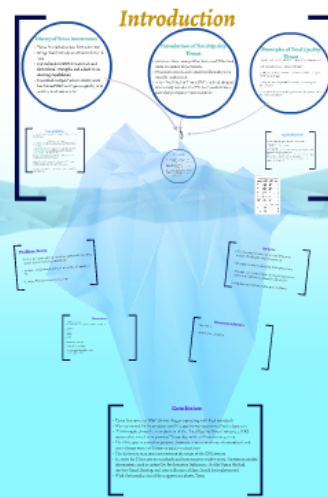


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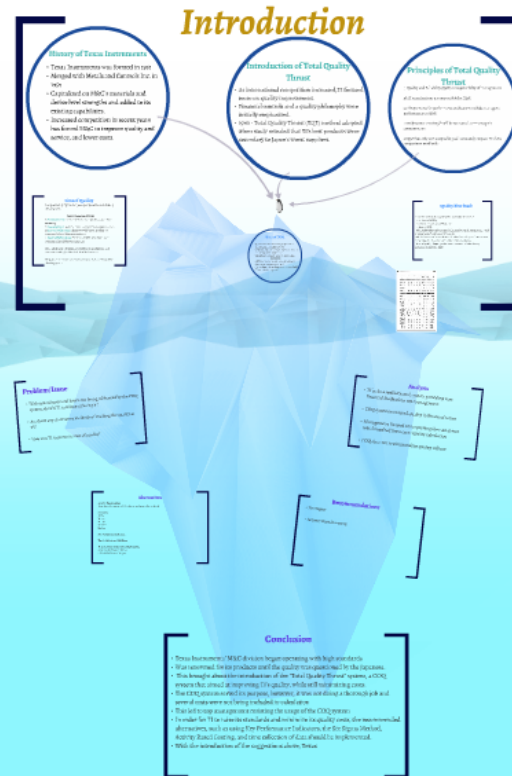


Texas Instruments: Cost of Quality



Group Presentation by Lida, Shivangi and Zainab

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Texas Instruments: Cost of Quality



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Introduction

History of Texas Instruments

- Texas Instruments was formed in 1951
- Merged with Metals and Controls Inc. in 1959
- Capitalized on M&C's materials and device level strengths and added to its existing capabilities.
- Increased competition in recent years has forced M&C to improve quality and service, and lower costs.

Introduction of Total Quality Thrust

- As international competition increased, TI focused more on quality improvement.
- Financial controls and a quality philosophy were initially emphasized.
- 1980 - Total Quality Thrust (TQT) method adopted when study revealed that TI's best products were secondary to Japan's worst suppliers.

Principles of Total Quality Thrust

- 1) Quality and Reliability (Q&R) is responsibility of management
- 2) All organizations are responsible for Q&R
- 3) A key criteria for performance evaluations include manager's performance on Q&R
- 4) Only outcomes of Q&R will be measured, not manager's commitments
- 5) Q&R has only one acceptable goal: constantly surpass TI's best competitors worldwide

Cost of Quality

Designed to highlight cost of poor quality and the cost of doing things wrong.

Main Categories of COQ

- 1) Preventive Costs: costs incurred to keep quality defects from occurring
- 2) Appraisal Costs: costs to ensure uniformity of output to specs.
- 3) Internal Failure Costs: detection of defective products or processes before delivery to customer
- 4) External Failure Costs: detection of defective products or processes after delivery to customer

COQ aided in the detection of problems in production, and problems causing low Trade & Cost Performance.

However, not all issues and concerns were being addressed by the COQ system.

Uses of COQ

- Quality financial forecasting requirements by quality control
 - Quality measures are used for financial long-term results of quality improvement
 - Highlight points of success of quality issues
- PROBLEMS**
- COQ failed to measure and compare and losses
 - Some components were repaired
 - Unrelated parts of manufacturing process were included in the performance analysis

Quality Blue Book

- TI established a "Quality Blue Book" which recorded:
 - product reliability
 - customer feedback on TI quality
 - Easy on Q&R

The Quality Blue Book required the actual vs. goals comparison with previous period, and 3 month forecasts.

The book was used to emphasize the idea that quality performance was being judged on the same level as financial performance.

Cost of Quality (COQ) performance measure included in every division's Quality Blue Book.

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023											
Revenue	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000				
Operating Profit	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600				
Operating Profit Margin	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

Problem/Issue


- With several costs and losses not being addressed by the COQ system, should TI continue utilizing it?
- Are there any alternative methods of tracking the quality at TI?

Analysis

- TI lacks a sophisticated system providing non-financial feedback to top management
- COQ system measured quality in financial terms
- Management focused on improving the cost driver which resulted from poor quality



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