



WORKSHOP 1:

Collection And Analysis Of Warranty Data

Presenters:

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Workshop Overview:

Data are important in monitoring and management of warranty. As a result, it is important that the collection of warranty claims and related data be done effectively and efficiently, and especially important that the data be properly and adequately analyzed. The workshop begins with a brief discussion of various levels of warranty management and the data needs associated with these. We then look in detail at the kinds of data that may be available and the analyses that are appropriate for these. In this context, two key objectives of the analysis are estimation and prediction of costs and estimation of field reliability. Parametric and nonparametric approaches to analysis of warranty data are presented. Application of the results of warranty data analysis in monitoring operations, especially detecting and implementing any necessary changes, and the usefulness of the results in new product development are discussed. The workshop concludes with a case study.

Content Details

0. General comments and course outline

- **Warranty concept and role**
- **Offering warranty results in additional costs**
- **How to control and reduce the costs – improvement process**
- **Reactive and proactive approaches**
- **Outline**

1. Reliability and Warranty

- **Warranty classification – FRW, PRW, 1-D and 2-D warranties**
- **Various notions of product reliability**
- **Product reliability and warranty cost**
- **Importance of data – information, feedback, decision making**

2. Warranty Data Collection

- Objectives – estimate costs, estimate field reliability, prediction
- Data needs – depend on stage of management
- Warranty data – claims data, supplementary data
- Data structures – complete, censored, grouped
- Data collection – sources (claims and supplementary data)
- Data problems – unstructured data (text), missing data, large data sets, etc.

DISCUSSION

3. Data Analysis

- Preliminary – cleaning, graphical methods, descriptive statistics
- Objectives – as above
- Basic tools – standard statistical methods (estimation, outlier detection, regression, etc.)
- Analysis of claims data – nonparametric, models, parametric analysis, estimation of reliability, etc.
- Analysis of claims and supplementary data – nonparametric, parametric
- Additional topics – from forthcoming book

BREAK

4. The Improvement Process

- Current products
- Identifying problem through analysis
 - Product related
 - Production process related
 - Servicing related
 - Customer related
- TQM paradigm
- New products
- Product life cycle framework
- Proactive approach – use of data for defining warranty strategy as part of the overall business strategy and reliability targets as part of design and development strategies

DISCUSSION

5. Case Study

- Data
- Analysis
- Interpretation and application of results

DISCUSSION AND FEEDBACK FROM PARTICIPANTS

Who Should Attend

- **Warranty managers**
- **Cost analysts**
- **Engineers**
- **Reliability engineers**
- **Data analysts**
- **Quality managers**

Learning Points

- **Importance of proper collection and analysis of claims data**
- **Techniques for analysis of claims and supplementary data**
- **Use of results for continuous improvement of existing products**
- **Use of results in the development process for new products**