Predictive Quality Analytics
Key factor on the way to quality leadership
Operations are changing – in favor of stronger digital and global value creation chains

Automobile manufacturers operate in an area of constant conflict between customer satisfaction and controlling costs. At the same time they find themselves faced with continually increasing competitive pressure and ever-increasing customer demands. Innovation, model variety, and highly complex products are supposed to help satisfy the needs and wishes of sophisticated customers, but they also harbor the danger of putting defective products on the market. Modular systems and identical parts across product lines provide the basis for staying competitive. In consequence of these developments, the number of recalls continues to reach new levels, leading to billions in costs for the automobile manufacturers. Add to this the massive image losses which, in an age of constant experience exchange via social networks, go well beyond the effects of ratings and tests in the trade press. Against this backdrop, quality leadership is the declared aim of many automobile manufacturers – and the early recognition of potential quality issues plays a key role here.

Predictive Quality Analytics makes possible the early recognition of quality and safety risks and thus offers the opportunity to take timely and targeted countermeasures. As a first step, all available external and internal data sources or prioritized, consolidated, and correlated. At the Analytics level, comprehensive data analyses are performed and predictive models are developed in an iterative process, making use of a variety of evaluation techniques. Depending on the parameters which flow into the model, it is possible with these methods to forecast not only defects that appear shortly after purchase but also ones which could lead to a warranty claim in the long term.

The models are thus capable of integrating data sources, making efficient data mining possible and leading to user-friendly evaluations which in turn can be converted into easily readable reports for the end-user or managers at the reporting level. Wisely used, Predictive Quality Analytics can thus lead to massive savings in the warranty costs area and make a significant contribution on the road to quality leadership.

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Six main trends will drive future quality work

1. Ambitious quality goals
   Quality has been defined as a main goal by all CEOs and is broken down in the organizations

2. Derivates
   Complexity of quality work is rising due to many derivates within the different product classes

3. Competition
   Tough competition on external rankings (J.D. Power, TÜV, Pannen, ADAC)

4. Risks due to “Baukasten”
   Financial risks in the case of recalls are rising dramatically more units (same parts in different product classes)

5. Risks due to electronics
   Increasing sources of error due to a sharp rise in the share of electrics/electronics and networking features

6. Expectation mgmt
   Understanding of quality differences in different markets

1. Quality goals
2. Derivates
3. Quality competition
4. Baukasten
5. Electronics
6. Regional client expectation

Quality Trends
Predictive Quality Analytics
A three step approach

1. Correlate data sources

2. Perform advanced analytics

3. Derive & implement measures

Quality Management Dashboard
Cross-source data correlation, advanced analytics and initiation of action

1. Correlate data sources

- Voice of the customer
- Dealer and technician feedback
- Connected vehicle information

The intelligent connection of various pre-existing data sources is the basis for gaining new insights
A broad range of analytics tools and analyses leads to well-defined quality measures
At a Glance

Predictive Quality Analytics will reshape automotive quality, warranty, and recall management and help you getting ahead of the curve

1. Cross-source data correlation
   - Voice of the customer from social media, consumer reviews, surveys, NHTSA, …
   - Dealer/technician data from repair orders, warranty claims, dealer communications, …
   - Vehicle information from telematics, common supplier parts, …

2. Next-level visualization
   - Dynamic, interactive, and customizable views for rapid comprehension of issues
   - Intuitive dashboard with simple visualizations and explorable outputs

3. Implementation of measures
   - Integrate capability into the business process
   - Derive and implement concrete quality measures
   - Ensure cross-departmental collaboration
Self-learning, predictive analytics
- Voice of the customer from social media, consumer reviews, surveys, NHTSA, ...
- Dealer/technician data from repair orders, warranty claims, dealer communications, ...
- Vehicle information from telematics, common supplier parts, ...

Risk-based alerting
- Detailed, relevant and prioritized alerts in (near) real time
- Tailored for roles and departments
- Proactive informed decision-making
- Effective deployment of resources

Big Data structures
- Big Data competencies, platform and methods
- Building of capabilities with respect to data ingestion, processing and analysis
Benefits
What you can expect

Proactively identify, prioritize, and investigate potential product quality and safety issues

Leverage advanced analytics to conduct root cause analyses

Reduce manual effort and investigate problems in a more targeted way

Provide risk-ranked safety alerts to better prioritize case management workload

Respond to regulatory/compliance needs in a more effective, more timely manner

Reduce the cost of warranty claims, recalls, and fraud

Improve brand reputation and customer satisfaction
Your contacts

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