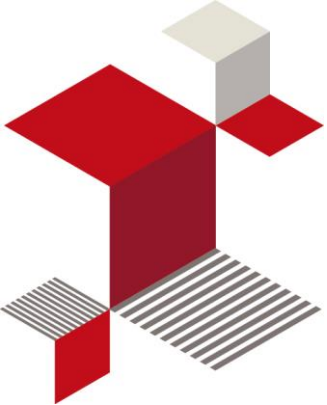# Warranty Analytics

John Widdowson

May 2015

Contents

What is the objectives of warranty analytics?

Data is still King...

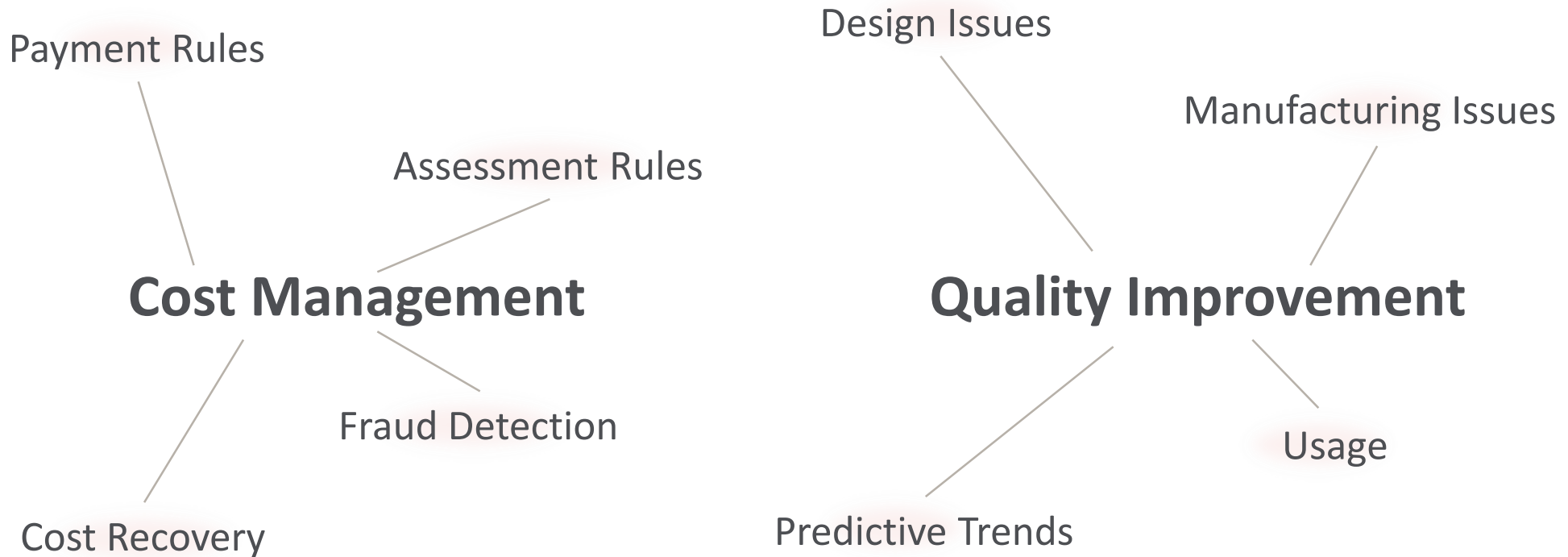**The three analytic approaches...**

BearingPoint®

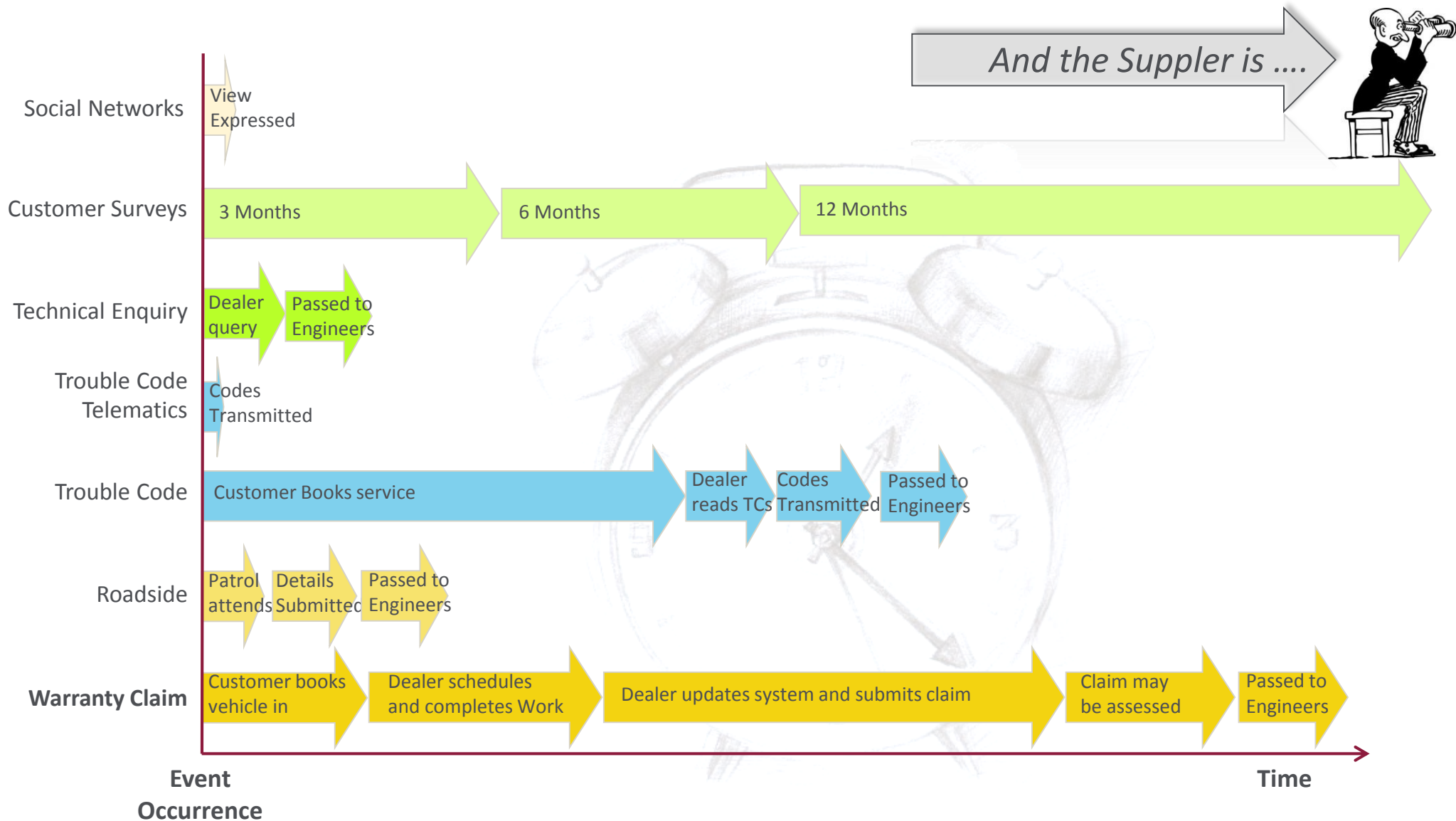# What is the objective of warranty analytics?

Two primary objectives…

Payment Rules

Assessment Rules

Design Issues

Manufacturing Issues

Cost Management

Quality Improvement

Fraud Detection

Usage

Cost Recovery

Predictive Trends

Improving quality will reduce cost… but it takes longer to realise the benefits…

BearingPoint®

Data is still King…

And the Suppler is ....

Social Networks — View Expressed

Customer Surveys — 3 Months | 6 Months | 12 Months

Technical Enquiry — Dealer query | Passed to Engineers

Trouble Code Telematics — Codes Transmitted

Trouble Code — Customer Books service | Dealer reads TCs | Codes Transmitted | Passed to Engineers

Roadside — Patrol attends | Details Submitted | Passed to Engineers

Warranty Claim — Customer books vehicle in | Dealer schedules and completes Work | Dealer updates system and submits claim | Claim may be assessed | Passed to Engineers

Event Occurrence ———————————————————————— **Time**

Bringing this and other data together builds…
'The Big Data Picture'

Manufacturing information - Production Date, Shift, Faults, Electrical Test Results…..

Social Media – Comments, Trends, Responses…

Complex Data

Vehicle Information: Vehicle build data – Model, Model Year, Engine, Transmission, Upholstery, RHD, Sat Nav model, Sunroof, Auto Seats…..

Trouble Codes:
P0005
DC4,5GT6,785HN,564A!df……
T05605
DC7,^&T6,78590iN,56JH,Kdf……

Customer Surveys – Like, Dislike, Comments, Concerns , Issues.

Enterprise Data Warehouse

Roadside Assistance Location, Go Not Tow, Customer Fault description, date….

Warranty Claim Date or repair, Parts, labour Technician, Fault code…..

Warranty Claim

Weather Data – date and time, GPS location, Weather Conditions

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Three Analytic Approaches

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Cost Management — Quality Improvement

A shifting analytics viewpoint using common data... and enhancing it.
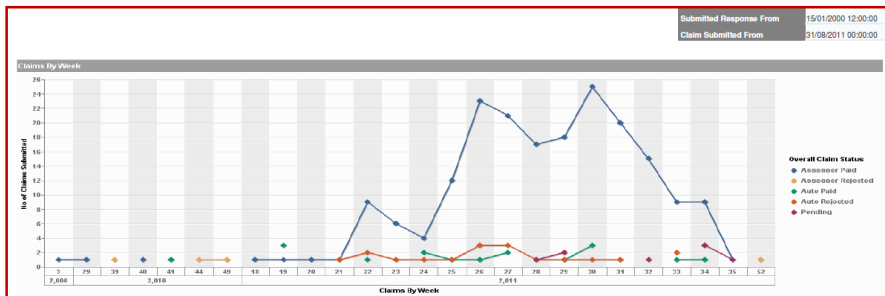

Target Complete

Counts

Actual Complete

Percentages
Complete

Operational Reporting

Cost Management – Quality Improvement

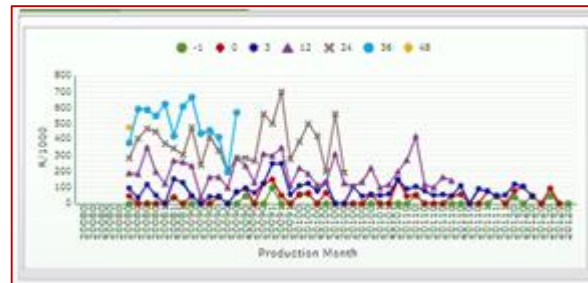**A shifting analytics viewpoint using common data... and enhancing it.**

Repairs per Thousand
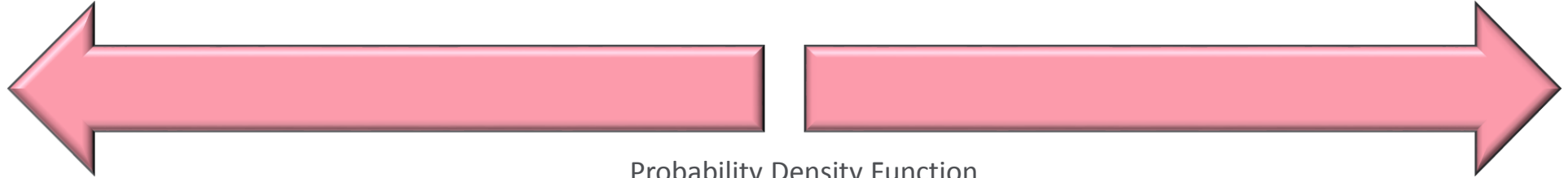by production month

Incidences per Thousand Vehicles

Breakdowns per 100 vehicles

Incidences per Thousand
Vehicles by market

Operational Reporting

Cost Management   –   Quality Improvement

A shifting analytics viewpoint using common data... and enhancing it.

Probability Density Function

Cumulative Probability/
Reliability Curves
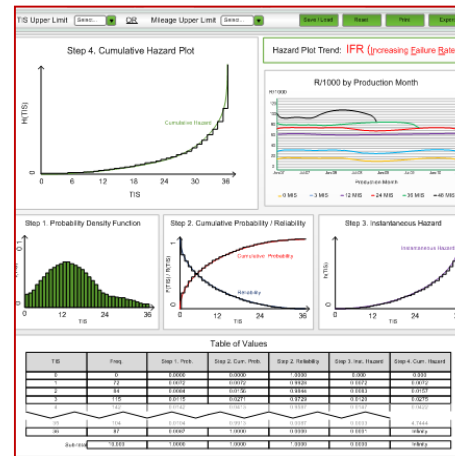
Instantaneous
Hazard Plot

Wiebell

Cumulative Hazard Plot

Operational Reporting   Predictive Reporting
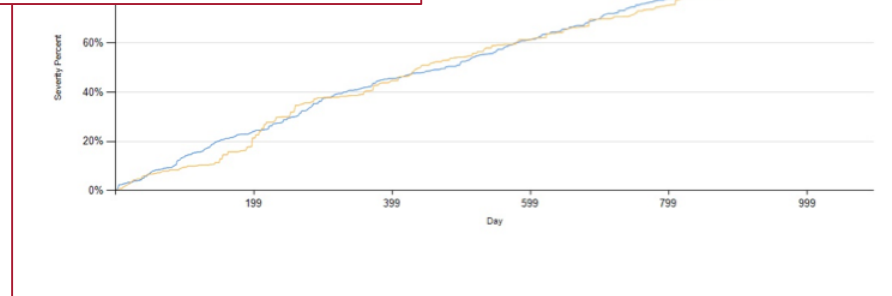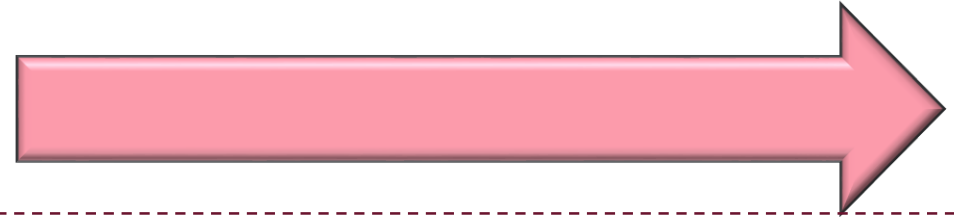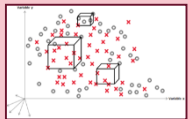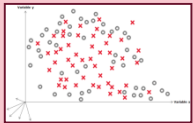
Cost Management – Quality Improvement

A shifting analytics viewpoint using common data... and enhancing it.
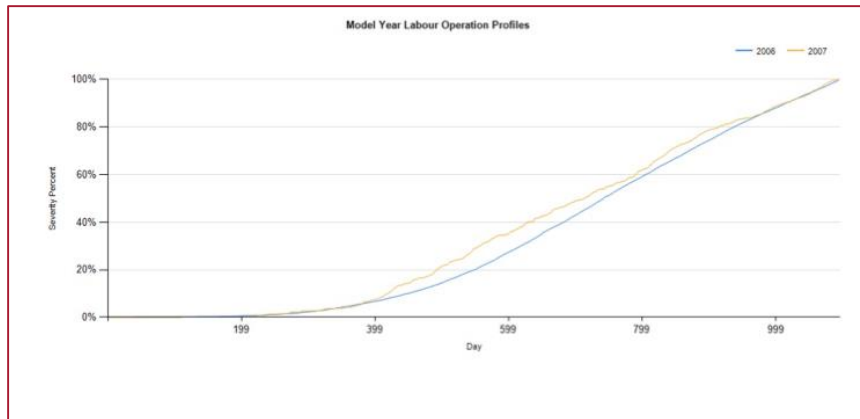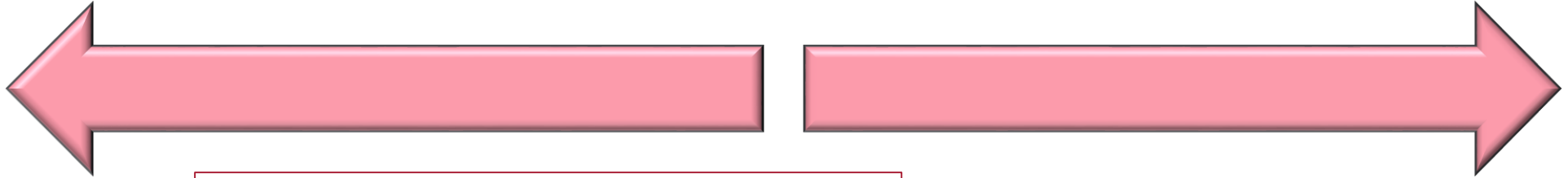
Distribution Curves

Deviation from the Norm

Dealer Behaviour

Fraud Detection

Failure Modes

Operational Reporting

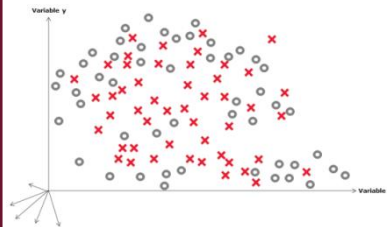Predictive Reporting

Cost Management – Quality Improvement

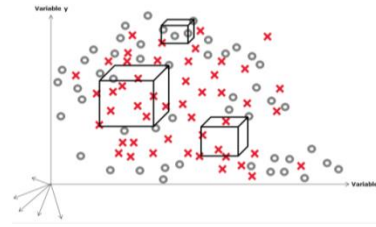**A shifting analytics viewpoint using common data… and enhancing it.**

HyperCube solution

Creation of the n-dimensional space corresponding to the matrix
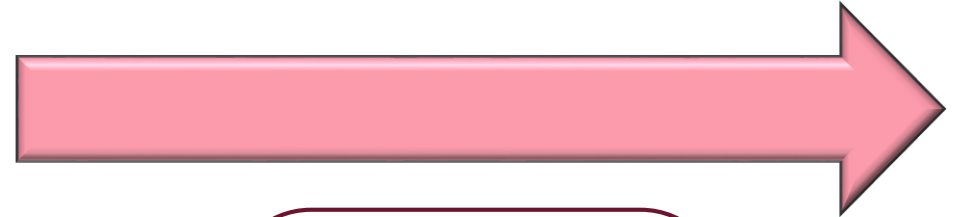
Hypercube definition and group selection

Solves five key questions to generate business rules

1. **Why**
2. **To what extent**
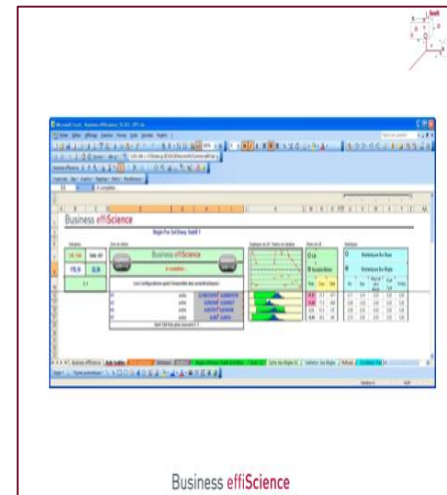3. **Stability check**
4. **Scientific rules**
5. **Business rules**

Predictive Reporting

Cost Management – Quality Improvement

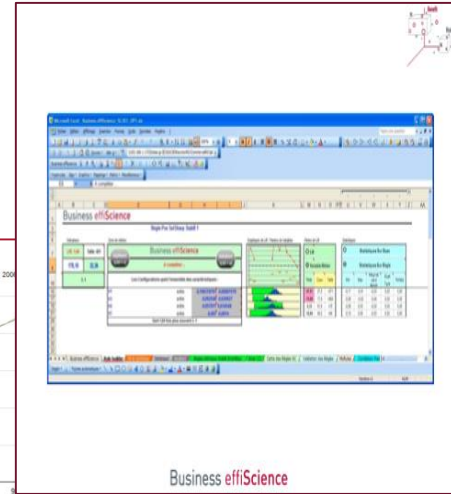**A shifting analytics viewpoint using common data… and enhancing it.**
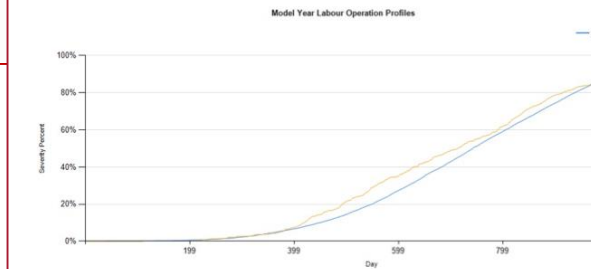

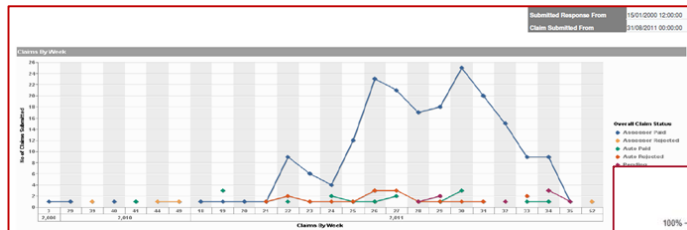**Analysis and Rule Generation**

Predictive Reporting

BearingPoint®

The Analytics Journey

From operational analysis to predictive and comparative analysis to Root Cause analysis

AIR BAG RECALL EXPECTED TO BE LARGEST IN US HISTORY

Takata Corporation is declaring that up to 33.8 million vehicles are defective. 11 major manufactures will recall vehicles which have air bag inflators that have been linked to deadly explosions…

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