

Are Your Products Reliable ?



BE ANALYTIC

"Your One Stop Shop for Reliability Solutions"

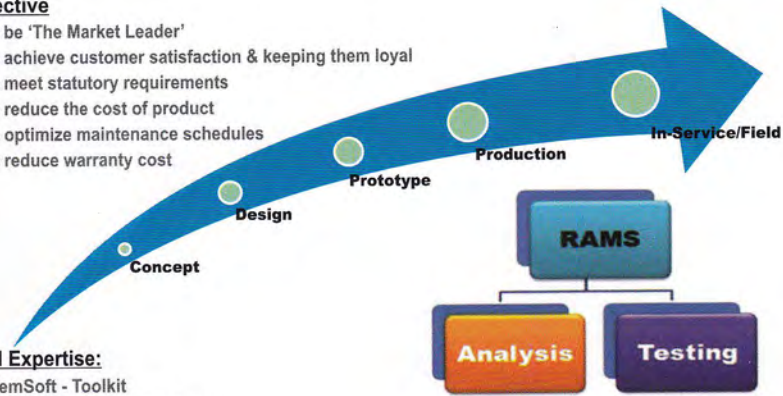


Objective

- To be 'The Market Leader'
- To achieve customer satisfaction & keeping them loyal
- To meet statutory requirements
- To reduce the cost of product
- To optimize maintenance schedules
- To reduce warranty cost

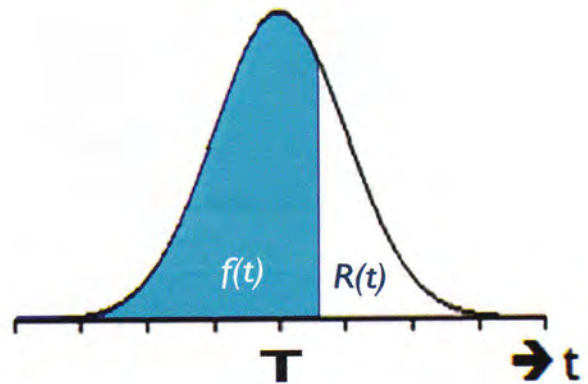
Tool Expertise:

- ItemSoft - Toolkit
- Relx-FMEA, FTA, Prediction
- Reliasoft-Bolcksim, Weibull++7, Alta, RGA, MPC3



Reliability Analysis Solutions

- MTBF requirements/Goal Setting
- Reliability Program Plan
- Reliability Allocation
- FMEA / FMECA
- Reliability Prediction
- Reliability Block Diagrams (RBD)
- Fault Tree Analysis (FTA)
- Maintainability Analysis
- Life Data Analysis
- Warranty Analysis
- FRACAS



Reliability Testing Solutions

- Reliability Test Plan development
- Accelerated Life Testing (ALT)
- Reliability Growth Testing (RGT)
- Reliability Demonstration Test (RDT)
- Highly Accelerated Life Testing (HALT)
- Highly Accelerated Stress Screening (HASS)
- Environmental Testing



Reliability Engineering Training

1. Introductory training for all new joiners
2. Re-Skilling or advanced course for the existing engineers
3. Preparing the required talent in the area of Reliability

Test Facilities

BE Analytic has established world class test facility for quality and reliability assurance of different Mechanical, Electronic and Electro Mechanical Products. The infrastructure includes climatic testing lab, dynamic testing lab, HALT and HASS. Environmental testing facilities are suitable to perform tests as per JSS 55555 & MIL-STD, IEC-60529, EN, DIN and ISO-20653, GS 95024-3-1, SAE J1455, ASTM C 150 specifications and determine whether the systems/subsystems perform consistently in the Service environment or not.

BE Analytic also help developing Test plans for Reliability Growth Analysis, Reliability Demonstration, Burn-in, HALT and HASS screens. Apart from performing compliance related tests, we also do testing of equipment for Failure Mode Analysis and Reliability/MTBF estimation during prototype phases. This help companies identify the failures modes and comparing with warranty goals set, which will in turn reduce cost and time of the product development.

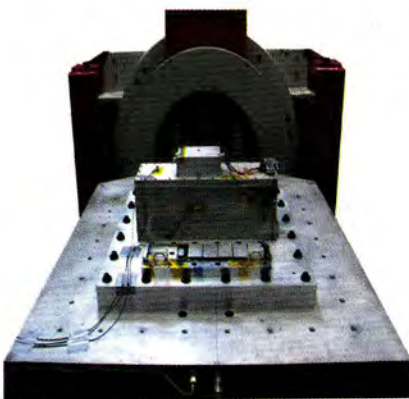


Test Facilities:

1. HALT/HASS (12"×12" Bench top model and a 36"×36" chamber with fully automated data acquisition capability)
2. Thermal Cycling (2 Chambers supports smaller samples and above 1 metre cube size samples also)
3. Altitude combined with Humidity and Temperature of 1 cubic meter size with a ramp rate of 2deg./ min, temp range -70 to +180 deg and goes upto 1 milli Bar (100000 ft)
4. IP Test Chambers ranging from 1X TO 9X (Covers all IP Protection Test tests like Dust, Water, High Velocity Water, Immersion, High pressure cleaning, shower, dust bombardment, Drip)
5. **Vibration Shaker System:** A system to determine the resistance of subsystem/system to vibrational stresses expected in the application environments. Three types of tests viz. sine, random and sine-on-random vibration tests can be carried out. This facility will accommodate a sample size of (25 Kgs - 200 Kgs)

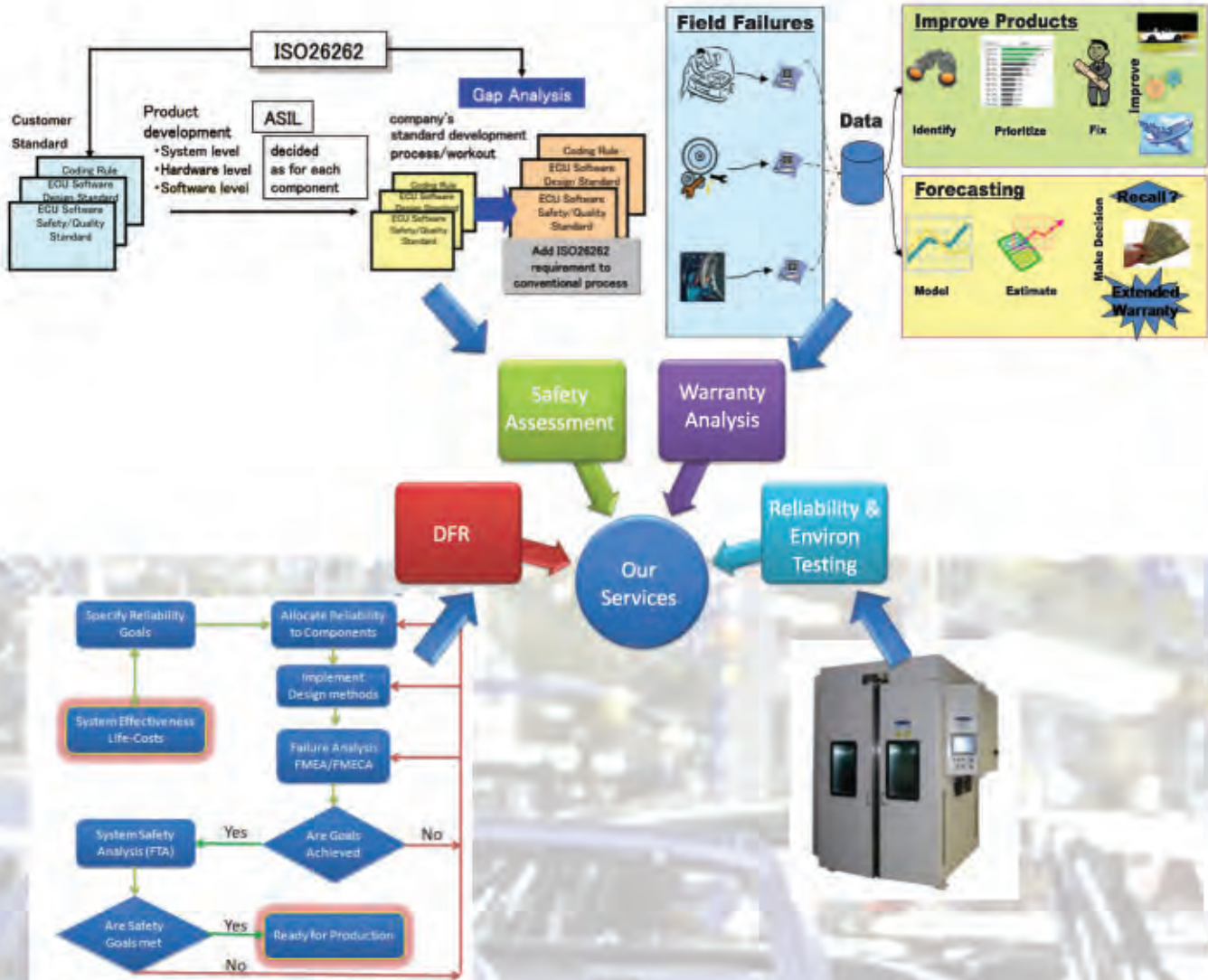


6. **Shock Test Equipment:** The facility to carry out non-repetitive mechanical shocks to determine the structural integrity and performance.
7. **Acceleration Test Facility:** To carry out steady state acceleration test to assure that equipment can structurally withstand the g-force, up to 200g, that are expected to be induced by acceleration in aircraft, helicopter, unmanned aerospace vehicles and missiles.
8. **Thermal Shock Chamber:** To carry out thermal cycling / temperature tests.
9. Hot and cold temperature chambers with temperature range from -70° C to 170° C with gradient of 5° C/min
10. **EMI-EMC Test Facilities:** The EMI/EMC test and measurement facilities are housed in an all welded and shielded chamber



BE Analytic help Automobile companies achieving the required Reliability & Warranty levels by implementing the DFR process during Design & Development, proposes best warranty periods which will make companies optimize the maintenance periods and also make profits and reduce unwanted client feedbacks. BE Analytic work together with Design teams to achieve industry acceptable safety levels and document the process for certifications. *Meet our testing team for all your needs.*

Our Services



Join hands with BE Analytic contact for more info.

BE Analytic's Reliability & Safety Engineering team improves and maintains the safety and reliability of products throughout the development life cycle. Once a product is in service, they assess safety and reliability issues and help identify potential solutions, communicating with Design/System Engineers to find the optimal balance between reliability and performance. BE Analytic successfully handled increasingly stringent legislation, and more demanding customers. ***Our Reliability Engineers are well read in different Aero & Defense Standards.***

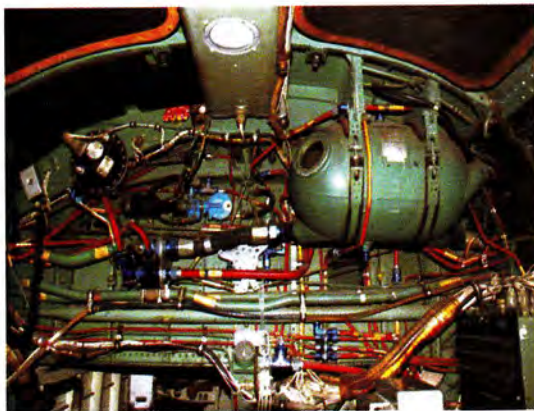
BE Analytic involves with Design & Development team/Systems Engineering Team and ensures that your products will meet all the Reliability & Safety compliance, BE Analytic do execute routine tasks like performing:

- MTBF/Reliability Prediction for Electronic, Mechanical and Electro Mechanical parts
- Prediction using physics of failure
- FMEA/ FMECA
- Maintainability Analysis (MTTR)
- RBD
- FRACAS
- Direct Maintenance Cost Analysis
- MSG-3
- MMEL
- Life Data Analysis

Or execute full turnkey projects like complete System Safety Analysis.

System Safety Assessment (SSA)

The objective of SSA is to identifying hazard and preliminary risk that contributes and interaction of the subsystems to system hazards. Assessing the results of design and implementation and ensuring that all safety requirements are met.



- FHA (Functional Hazard Analysis)
- PSSA (Preliminary System Safety Analysis)
- Fault Tree Analysis (FTA)
- Markov Analysis (MA)
- FMEA/ FMES
- Common Cause Analysis (CCA)
 - Zonal Safety Analysis (ZSA)
 - Particular Risk Analysis (PRA)
 - Common Mode Analysis
- Dependency Diagram (DD)
- Event Tree Analysis (ETA)

We perform SSA as per client's necessity by using different safety standards like MIL-STD-882C, DI-SAFT-80102A, MIL-STD-1472, SAE ARP4761, FAR/CS 25.1309 and SAE 4754 A.

Contact BE Analytic for meeting the compliance and making more Safe and Reliable products.



Reliable and Safe Rail Engineering

The Reliability & Safety requirements in Railway domain is increasing and day by day becoming stringent. All Metro Rail project bodies demanding their vendors for detailed analysis of RAMS (Reliability, Availability, Maintainability and Safety) for the products & services supplied. BE Analytic is having expert Reliability & Safety Engineering team who can perform RAMS analysis based on international standards, and let you be ahead in the competition.

BE Analytic is expert in providing services based on all CENELEC/ EN / IEC standards to fulfill the required safety and quality standards for rail engineering. BE Analytic provide end to end comprehensive services for Railway RAMS, also provides methods to achieve required RAMS goals in a cost effective approach.

BE Analytic work on work packages for a specific subsystem and perform individual analysis like MTBF prediction, RBD, FMECA, FTA, PHA, MTTR, SIL and also help Rail Project owners to develop a comprehensive RAMS program plan to implement and do Reliability Apportionment for different subsystems suppliers like Rolling Stock, Signalling, Tunnel Ventilation, Power Supply, SCADA etc.



BE Analytic also provides full fledged project management support to complete the RAMS analysis as per below standards and participate in presentations to get the required approvals from accreditation bodies/Rail project owners.

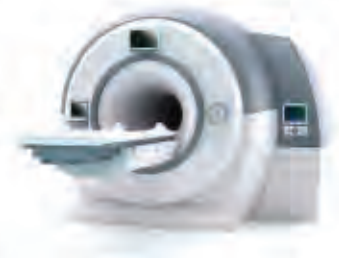
- EN 50126 / IEC 62278 (Railway Applications - The Specification And Demonstration Of Reliability, Availability, Maintainability and Safety (RAMS));
- EN 50128 / IEC 62279 (Railway Applications - Communications, Signalling And Processing Systems - Software For Railway Control And Protection Systems); and
- EN 50129 (Railway Applications - Communication, Signalling And Processing Systems - Safety Related Electronic Systems For Signalling)



In medical industry it is a challenge to develop a Safe, Reliable product at the same time ensuring the effective end application meeting all its requirements.

These three

aspects are not just requirements which are necessary to meet to satisfy the regulatory agencies like FDA (Federal Food and Drug Administration's), CDRH (Center for Devices and Radiological Health), GHTF (Global Harmonization Task Force), IEC and the International Organization for Standardization (ISO), but giving a Risk free product which will meet the intended purpose is a ethical binding for medical device companies.



BE Analytic will help companies develop a world class medical devices while meeting all the requirements.

Risk Identification & Analysis

- FMEA (Failure Mode & Effects Analysis)
- Fault Tree analysis
- Study of past history or similar products

Risk Estimation

- FMEA
- Fault Tree analysis
- Reliability prediction (MTBF) & System modelling (RBD)

Risk Control Measures: Analyze

- FMEA & Fault Tree analysis
- Reliability prediction
- System modeling (RBD)
- Reliability Testing

Production & Field Reliability

- FRACAS (Failure Reporting, Analysis, and Corrective Action System)
- Weibull analysis
- Cost of Failure & Warranty

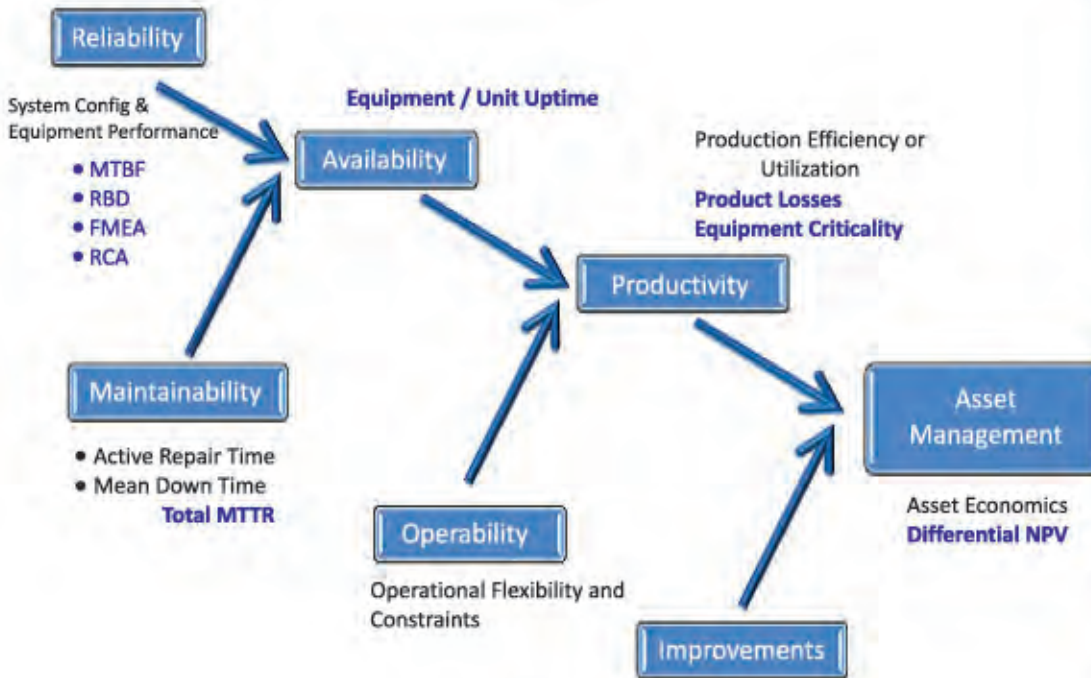
The competition in medical industry increasing day by day, invent new and invent fast is the trend, but it should not compromise on technology (design aspects) and production process for building a better system which includes mechanical, electronics and software must meet the Reliability requirements. Reliability should not be evaluated at the end of production but taken care and ensured that the product will meet Reliability. The best way to do is by implementing DFR (Design for Reliability) i.e set the target at concept stage and keep monitoring and controlling till we achieve in the field when it is deployed.

BE Analytic is capable of implementing DFR and also working knowledge on different industry standards ISO 14971, IEC 60601, ISO/TR 80002, IEC 62304, 21 CFR Part 11, Verification and Validation by providing different testing services, please click our Testing services leaflet for more info.

Engineering product testing to meet the necessary compliances and to validate the Design and Life/ Warranty is done. We involve right from designing a test / test cases to check the robustness by considering use/ misuse/ abuse and different environmental conditions. Designing an Accelerated Life Test (ALT) and Highly Accelerated Life Test (HALT) is an art, where BE Analytic is known for its expertise. Check our test capabilities for more info.



Our RAMS services for Energy & Petro Chemical industry starts from EPC stage to obsolescence. RAMS study is done with the objective of identifying the equipment, operations or systems which cause production losses, quantifying the impact of these losses and selecting the optimum equipment, configurations, spares requirements, operations and maintenance strategy to maximize production at optimum cost. We develop a Reliability Block Diagrams, calculate availability & reliability factors, and prioritize assets based on their impact and carry out sensitivity analysis.



EPC

- RAMS requirements
- RAMS Modelling
- Validation



Asset

- RCM
- RBI
- RCA
- Asset Management



Fleet

- Optimization of Repair /Replacement
- Statistical Degradation models
- Life Extension
- Spare part management

Our expertise in Life Data Analysis/ Weibull analysis will help predicting right intervals for maintenance, replacements, better spare management and Life extension of fleet.

Consumer Electronics /Appliances – High Reliability & Low Warranty Cost

An ISO 9001 : 2008 Certified Company

Today's consumer electronics market becomes highly competitive because of the increased number of companies and ever increasing customer expectations. These competition causes dramatic cost decreasing.

Every measure to reduce cost will leads to very crucial reliability problems if it is not managed well. Also, consumers' expectations about reliability of the products are increased. Reliable, trouble-free and robust products satisfy customer needs for a long time.

So what is the way forward is only by offering a Reliable product to the customer.

IS YOUR PRODUCT MEETING THE WARRANTY GOALS

Our Services



BE Analytic provides end to end services. For more information on our Testing Capabilities check Testing Services leaflet.



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BE Analytic has formed strategic alliances with R&D, Manufacturing, Testing, Professional bodies and Educational Institutions. BE Analytic with its value added engineering excellence is working with these organizations to provide a complete solution. Also we had strategic alliances with Reliability Engineering companies at different locations to have geographical advantage in business development and also we sometimes bid for the projects together and help each other's projects.

Our Important Partners.



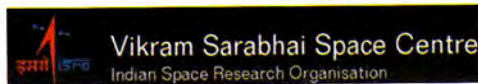
BE Analytic is the authorized reseller of ItemSoft products in India, for all queries related to ItemSoft's Sales and demo Contact: Itemsoft@beanalytic.com
ITEM Software's Range of Reliability Software Include: ITEM QRAS, ITEM Tool Kit, ITEM QT



Reliability Engineering Services
HALT & Classical Techniques
"Reliability Integration"

Ops A La Carte is a Professional Reliability Engineering firm focused on providing services in reliability throughout the product life cycle. They offer a flexible method of engagement in reliability solutions to solving specific problems to providing individual targeted reliability services.

OUR ESTEEMED CLIENTS



Join with us to make your organization's vision true by delivering most reliable and safe products to your customers at competitive price.

Kindly contact us for more information.

BE ANALYTIC SOLUTIONS

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