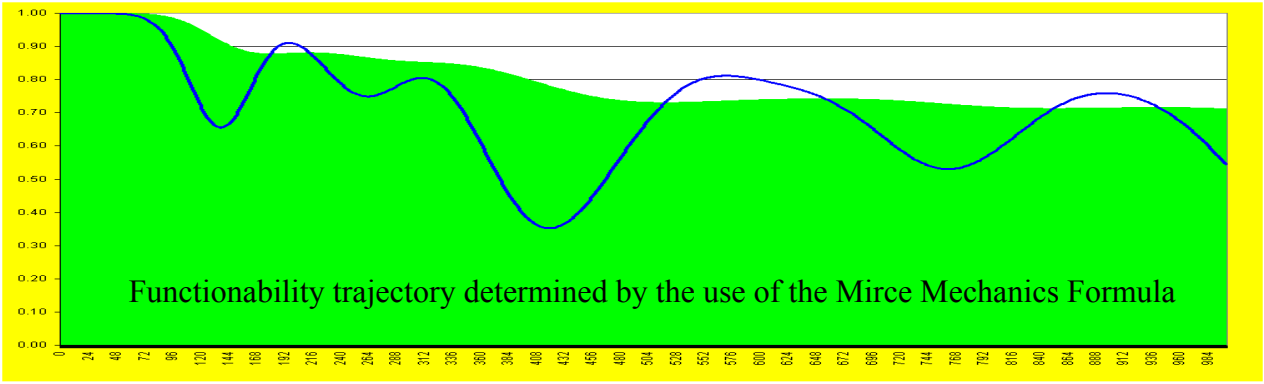
**Mirce Mechanics** - scientific study of the motion of functionability through system operational process to:

**Experimentally** determine the trajectory of the motion of functionability resulting from the occurrence of functionability phenomena. Existing experimental and experiential data clearly demonstrate that the motion of functionability through each individual system operational process exhibits discrete and time dependent trajectory. However, a large number of "identical" individuals systems deliver a large number of different discrete and time dependent trajectories, while engaged in the "identical" operational process. Consequently, the trajectory of the motion of functionability through the system operational process and it associated measures like: number of functionability events, time in the individual functionability states, cumulative times in different functionability states and similar could be determined by the application of statistical methods only.

**Scientifically** understand the mechanisms of the motion of functionability through system operational process, as statistical methods do not study the causes of statistical variability. Therefore, the systematic studies are applied to understand phenomena that cause occurrence of: **Positive Functionability Events (**birth, servicing, lubrication, inspection, repair, replacement, examination, etc) and N**egative Functionability Events (**thermal ageing, actinic degradation, fatigue, pitting, acid reaction, bird strike, abrasive wear, suncups formation on the blue ice runway, thermal buckling, photo-oxidation, production errors, strong wind, maintenance error, hail damage, lightening strike, hard landing, quality problems, sand storm and so forth). Scientific understating of mechanisms of the motion of functionability through the system operational process requires analysis within physical scale between $10^{-10}$ metre (atomic/molecular phenomena) and $10^{+10}$ metre (space and environmental phenomena).

**Mathematically** define the laws of the motion of the functionability through system operational process manifested as a sequence of transitions between positive and negative functionability states. Necessary expressions for the description of the motion of functionability through the system operational process have been developed and named the Mirce Mechanics formulas. They probabilistically define the laws of the motion of functionability and enable calculation of the expected functionability trajectory and prediction of the number of functionability events, cumulative time in functionability states and similar measures as a time dependent characteristics.



Functionability trajectory determined by the use of the Mirce Mechanics Formula

Ability to compute the functionability trajectory and calculate functionability measures for a given system (new or existing) and given operational process could be beneficial to system engineers and programme managers. Thus, for each of feasible options of a system (structure, manufacturing options, etc) and operational process (operational scenarios, maintenance policies and support strategies) a functionability trajectory can be predicted by making use of Mirce Mechanics formulas, at the time when technical, technological and management changes are possible at least time and cost. Human created and managed systems like power stations, oil platforms, aircraft, trains, cars, satellites, transportation, communication and distribution networks, military equipment and similar systems are the subject of study of Mirce Mechanics.