MIRCE Science

The purpose of existence of any functional system is to perform expected function with a measurable performance[1]. This type of information is provided by their producers/constructors, at the beginning of life of all systems. However, experience teaches us that the amount of work done by functionable systems and resources consumed become known through the end of the life statistics generated by the users[2]. Realising that the statistics cannot be improved by doing better statistics, Dr Jezdimir Knezevic endeavour to subject natural and human actions that govern the time evolution of operationally defined functionable systems to the laws of mathematics.

The resulting body of knowledge, named MIRCE Science[3], consists of: axioms, formulas, algorithms and computational methods that enable predictions of functionability performance to be done, well before they became statistics. It is based on the scientific understanding of the physical mechanisms that generate occurrences of functionability events (corrosion, fatigue, wear, vulcano eruption, lightening, tsunami, solar radiation and many more), considered within a physical range between 10^{-10} m (atomic scale) and 10^{10} m (solar system scale). These mechanisms, together with the associated human reactions to them (repairs, replacement, inspections, change of operational profile, modifications and so forth), determine the work done by functionable systems and resources consumed.

In summary, by making use of MIRCE Functionability Equations that mathematically define the motion of functionable systems through MIRCE Space accurate predictions of the measurable performance can be computed for a given functionable system, well before their operational performance becomes a statistics.

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[1] Boeing 747 is able to transport 452 passengers in two-class configuration, over 6100 statute miles, with a cruising speed of 555 mph at the altitude of 35,000 feet, according to the Boeing Corporation.

[2] Boeing 747, registration number N747PA, during the 22 years of in-service life, has delivered 80,000 flying hours, transported 4,000,000 passengers, burned 271,000,000 gallons of fuel while receiving 806,000 man-hours of maintenance work (consuming: 2,100 tyres, 350 brake systems, 125 engines, among other parts, according to the data record of the Pan American Airways corporation.

[3] Knezevic, J., The Origin of MIRCE Science, pp. 232, MIRCE Science, Exeter, UK, 2017, ISBN 978-1-904848-06-6