MIRCE Science

The philosophy of MIRCE Science is based on the premise that the purpose of existence of any functionable system[1] is to do functionability work, which is considered to be done when the expected measurable function is performed through time, like miles travelled, units produced, energy supplied and similar. However, experience teaches us that at any instant of in-service life there is a probability of work being interrupted by occurrences of negative functionability events, resulting from failures of consisting components, natural causes, human errors or combination of them. For the work to be continued, human managed positive functionability actions, like maintenance tasks, change of the mode of operation and similar must be performed. Thus, the functionable life of functionable systems is a sequence of transitions through functionability states. Typically, functionability performance (the amount of work done and resources consumed) becomes known through the end of the life statistics[2], which does not provide any descriptive or explanatory knowledge regarding functionability actions and events occurred.

After five decades of practical and theoretical studies of lives of functionable systems Knezevic [1] has generated a body of knowledge, named MIRCE Science, which describes the functionability life of functionable systems. Its axioms, formulas, algorithms and computational methods enable predictions of functionability performance to be done. It is based on the scientific understanding of the physical mechanisms that generates the occurrences of functionability events, considered within a physical scale between 10^{-10} m (atomic scale) and 10^{10} m (solar system scale). These mechanisms, together with the human rules applied, uniquely shape the trajectory of the motion of a functionable system through MIRCE Space[3], which quantitatively defines the expected functionability performance.

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

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[1] Functionable system type is a set of mutually related physical entities and human made rules uniquely put together to do functionability work." [1]

[2] Pan Am's Boeing 747, registration number N747PA, during the 22 years of in-service life, has delivered 80,000 hours of positive work (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.

[3] MIRCE Space: a conceptual 3-dimentional space containing MIRCE Functionability Field, which is an infinite but countable set of all possible functionability states that a functionable system could be found in at each instance of calendar time and the probability of being in that state. [1]