MIRCE Science Archive of Safety, Reliability and Maintenance for Analytics-Driven Decisions

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The philosophy of MIRCE Science is based on the premise that the purpose of existence of any working system is to do a 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 a probability of work being interrupted by occurrences of negative functionability events, resulting from failures of consisting components, natural causes, human actions or their interactions, is greater than zero. For the work to be continued appropriate positive functionability actions, like: maintenance tasks, change of the mode of operation and similar must be performed. Thus, the complex interactions between positive and negative functionability actions govern the work done and resources consumed, both of which expressed through monetary values.

Regrettably the working statistics becomes known only at the end of the life of working systems, when nothing could be done to influence it. Hence, the ability to accurately and quantitatively predict future working statistics of the future working systems at the design stages, when all possible changes could be done, would be invaluable for all project: engineers, planners, managers and strategist.

MIRCE Science is based on the scientific understanding of the 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). During last decade MIRCE Akademy has created an Archive of Safety, Reliability and Maintenance related functionability events that took place in the world. Hence, the main objective of this presentation is to expose the participants of the Conference to its content, which is essential for any analytics applied on them. As the quality and the benefits of the analytics outputs are essential for all decisions made regarding the future including governance for sustainable development. Several examples from the MIRCE Science Archive, have been presented to illustrate the potential benefits of using it in the future safety, reliability and maintenance analytics driven decision making processes.