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GROUP REF. : D2
PREF. SUBJECT : PS1
QUESTION N° : 1.8

***Question 1.8**: What are the methods of adaptation and scaling of intelligent decision supporting systems in order to keep the system operable for a long period under the changing operation conditions (technological process, market conditions, regulatory requirements, etc.)? How can we describe the lifecycle of sustainable intelligent decision supporting system in the power industry?*

The ANEEL R&D project that led to **paper 10182**, "Application of Artificial Intelligence Tools for Optimized Maintenance Scheduling Based on Asset Management Concepts", was aimed to help maintenance engineering to get better decision making using data from asset condition, failure statistics and costs. This decision making is supported by the asset condition and Markov Chain that are tied by an optimization problem that optimizes Key Performance Indicators. To be adaptable for many scenarios, the methodology developed in this work deals with one or more indicators. For one indicator, it gives the better maintenance date. For the case that more indicators take place, they are optimized together, and a Pareto Frontier is obtained.

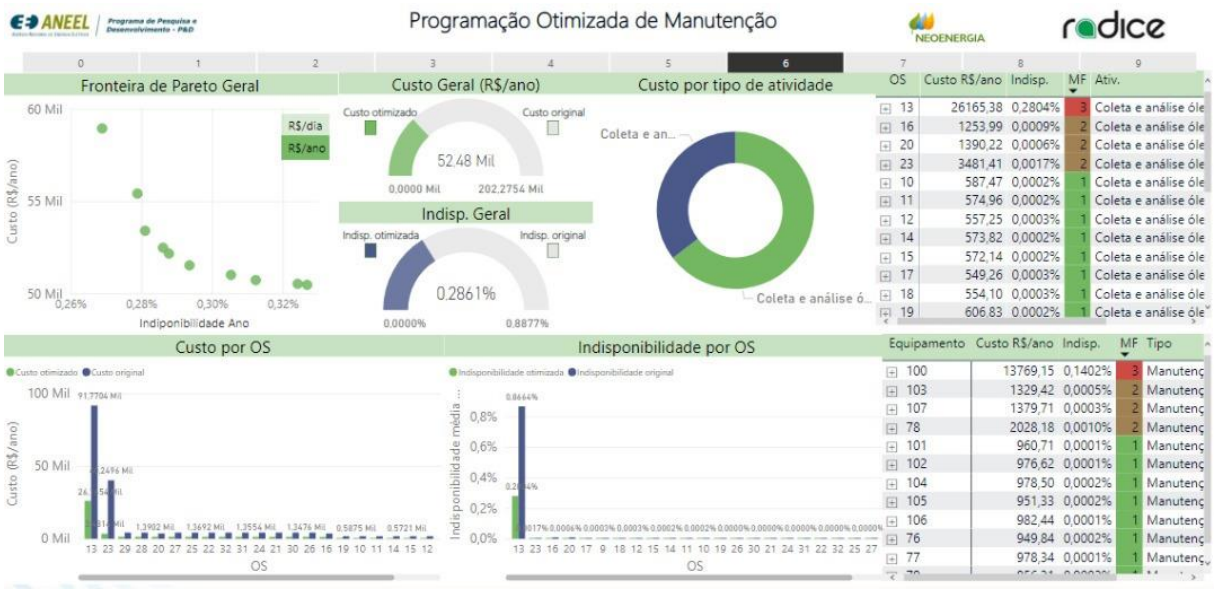
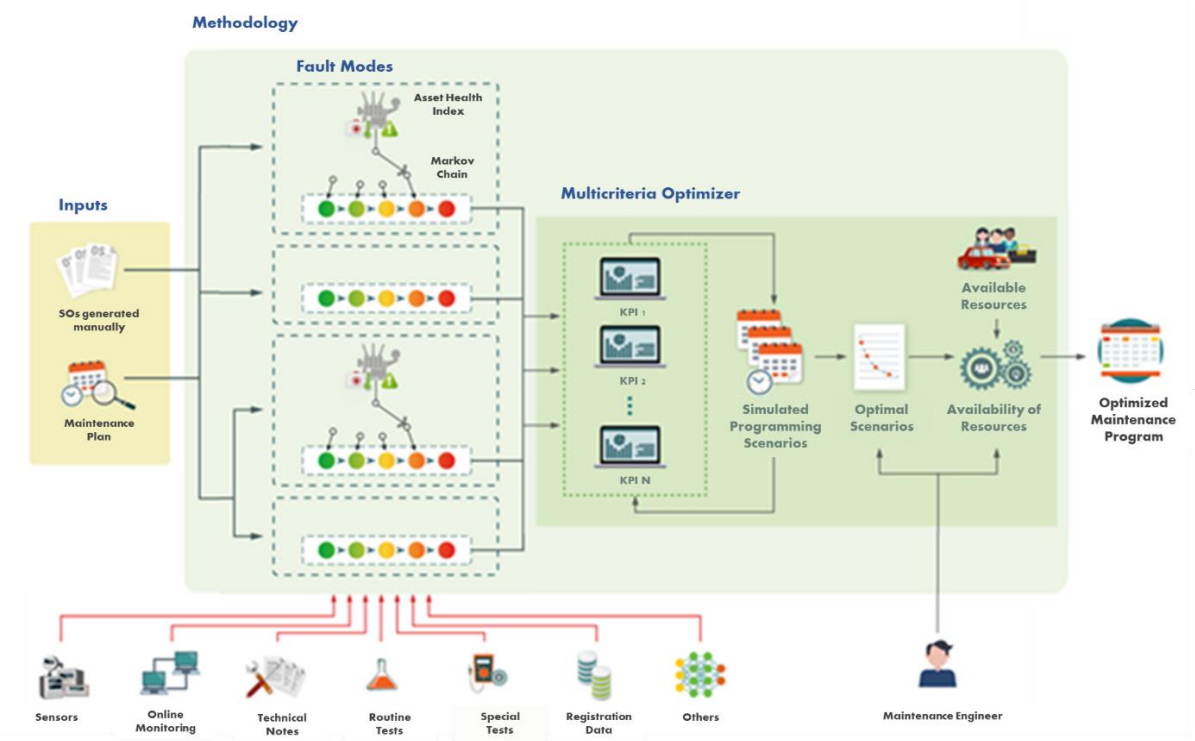


Figure bellow presents the blocks of the methodology.



The methodology created in this work is data based, i.e., that their parameters are obtained from data, so in order to adapt and scale and keep their functions working over a long period it is necessary to create routines that adapt the parameters according to data drift. These routines were created in the development platform Sigma EAM®. Also, the scenario and cost function of the model are flexible to adapt to many scenarios that can happen in practice. Besides that, the asset current condition can be updated in real time. In this way, the dashboard developed presents the real condition of the maintenance plan and maintenance indexes.