DataSheet

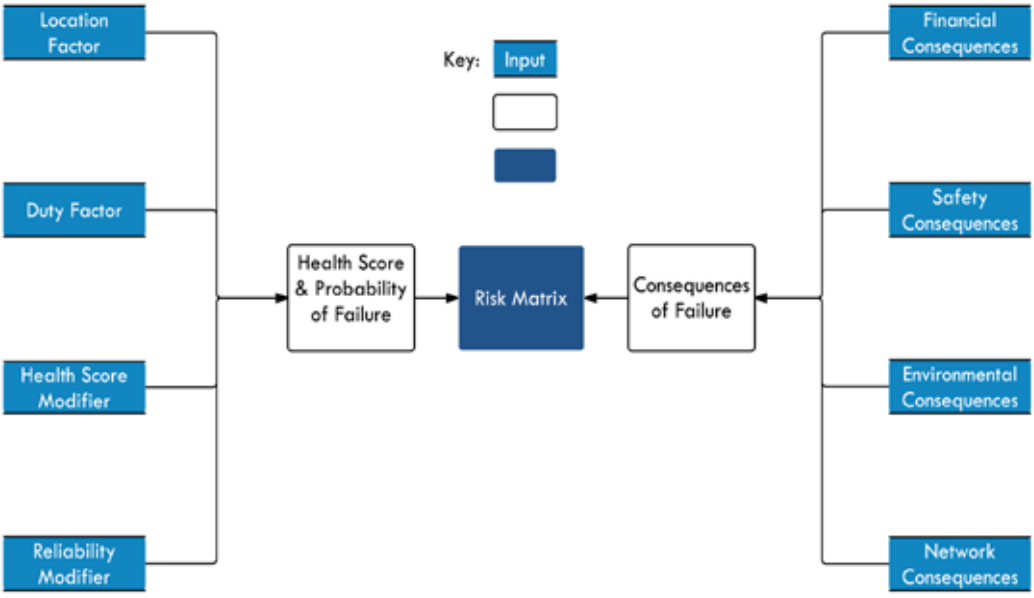
CNAIM

Beyond compliance: how Common Network Asset Indices drive excellence in asset management

- Common Network Asset Indices are a new requirement for GB electricity network operators
- Delivery of asset health and risk are now reported using a consistent, agreed methodology (CNAIM)
- RIIO regulation provides strong financial incentives to exceed delivery targets.
- Risk-based asset management techniques such as CBRM enable highly efficient delivery, resulting in outperformance under RIIO

The energy regulator Ofgem requires GB Distribution Network Operators (DNOs) to have a Common Methodology for asset health, criticality and monetised risk. This requirement is defined under RIIO-ED1 Standard Licence Condition 51.

Supported by EA Technology, the DNOs developed a suitable methodology and submitted it to Ofgem for approval in 2015. This methodology is known as the Common Network Asset Indices Methodology (CNAIM) and is illustrated in Figure 1. It enables DNOs to report on the management of asset health, criticality and risk for 25 separate electrical asset classes, including switchgear, transformers, overhead lines and cables.



Such reporting provides the energy regulator with an extremely valuable dataset: progress towards regulatory objectives can be closely monitored and the consistency of reporting enables benchmarking and ranking of DNOs. Through these mechanisms, outperformance can be rewarded (and underperformance penalised), shaping DNO behaviour and delivering better value to customers.

One key aspect of CNAIM is that is primarily an asset-level reporting tool: while the methodology is prescriptive in terms of the range of activities that DNOs can use to manage reported asset health, the DNO has freedom to decide which techniques to adopt, which interventions to carry out and over what timescale. In other words, the required outputs are fixed (in terms of asset health and criticality), but the inputs (in terms of maintenance, refurbishment and replacement) are relatively free. This philosophy lies at the heart of RIIO regulation.

Under RIIO, DNOs are financially incentivised to not only achieve agreed outputs, but also to outperform them. This is specified in the RIIO income model, as shown in Figure 2. The Totex Incentive Mechanism rewards achievement of outputs at reduced cost, with the difference being shared between the DNO and its customers. The Assessment of Network Asset Secondary Deliverables mechanism provides additional incentives to outperform in terms of risk, i.e. justifiably improving asset health and/or reducing asset criticality beyond what was initially agreed. Conversely, these mechanisms act as penalties in the event of overspend and/or under-delivery. The combined effect of these incentives over ED1 and ED2 is shown in Figure 3.

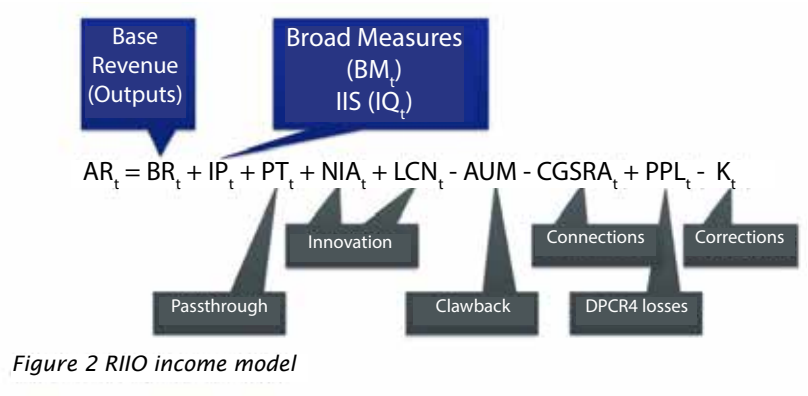


Figure 2 RIIO income model

	Underspend	Overspend
Justified	+50-70% in ED1 No Penalty in ED2 -RAV ✓	-50-70% in ED1 +102.5% in ED2 +RAV ✓✓
Unjustified	+50-70% in ED1 -102.5% in ED2 -RAV ✗	-50-70% in ED1 No penalty in ED2 +RAV ✗

Figure 3 RIIO-ED1 & ED2 output delivery incentives for asset risk

The challenge for DNOs is how to use these incentives and freedoms to maximise income; simply treating the output of the CNAIM models as a prescriptive plan is unlikely to generate the best outcome: CNAIM treats each asset class separately, with no concept of roll-up into overall network performance or optimisation across the asset classes. This is where the discipline of asset management comes in.

Asset management is defined as the "co-ordinated activity of an organization to realize value from assets". Crucially, the decision-making processes of effective asset management are risk-based . The Assessment of Network Asset Secondary Deliverables mechanism confirms this view, by only rewarding outperformance that is "justified" in terms of documented changes in risk across the network. Where the change in risk is not known or understood, any apparent outperformance is excluded from the reward. This means that the calculation of asset risk, and the effect of different intervention strategies on that risk must form the basis of any plan. It is important to note that CNAIM does not provide this capability. It merely reports on the outcome of any proposed plan; it does not specify what that plan should be.

The result is that in order to outperform under RIIO, investment plans must be risk-based, taking a network-level view and using a documented methodology that preserves the reasoning and rationale for each decision. For a DNO with responsibility for managing hundreds of thousands of assets and supplying millions of customers, this could represent a formidable challenge.

One solution is to use a risk-based asset investment decision support tool, such as, EA Technology's Condition-Based Risk Management (CBRM). This offers an integrated platform that systematically analyses assets health, criticality and risk, while using risk to prioritise and optimise investment plans, within and across asset classes. It is used extensively by utilities around the world to manage and track asset risk and has a proven track record of generating savings of 20% in asset replacement expenditure. Risk-based management tools provide a natural complement to the requirements of CNAIM: use of a risk-based methodology to develop a documented, prioritised and well-justified investment plan and CNAIM to report on the outcomes.

In conclusion, the comprehensive adoption of risk-based asset investment management is the very definition of excellence in asset management. This will both maximise revenue for DNOs while reducing costs to customers. We believe this is a goal worth striving for.

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