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**Work Domain Analysis for Transmission System Operators to Support Situational
Awareness for increasingly complex systems**

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Abstract. In recent years in Transmission Control Centers (TCC) across the world; desk operators and operations managers are coping with an increasingly challenging environment. The range of challenges includes; generation sources diversifying and being replaced with decentralised weather-based resources, radically different system operating points, new codes and regulations and reportable Key Performance Indicators (KPI), increasingly complex control systems and transmission and protection equipment, ever evolving market systems and cross border arrangements.

While the BES is evolving rapidly, the tools and HMI that operators use to operate the system within limits and maintain reliability and security must also evolve to increase the operator's situational awareness and present actionable mitigation measures to these rapidly evolving system conditions and disturbances. Deriving actionable information from a multitude of data sources is essential to this. Actionable information must be linked to the system KPIs, and also to the available resources, tools and displays available to the operator to affect change,

A "Work Domain Analysis" is an effective information flow model for transmission system operators, which links the corporate goals of the company to system KPIs to the functions, roles, tasks, controls and physical objects that are under the control of the operator. A demonstration Work Domain Analysis was developed for a transmission operator in the USA to allow displays to be effectively designed for operators to derive the actionable information they need from the power system data presented to them. The results of the study will be presented in this paper.