

0397: DEVELOPMENT OF AN ASSESSMENT FRAMEWORK FOR SUPPLY/DEMAND COORDINATION MECHANISMS BASED ON SYSTEMS ENGINEERING APPROACH

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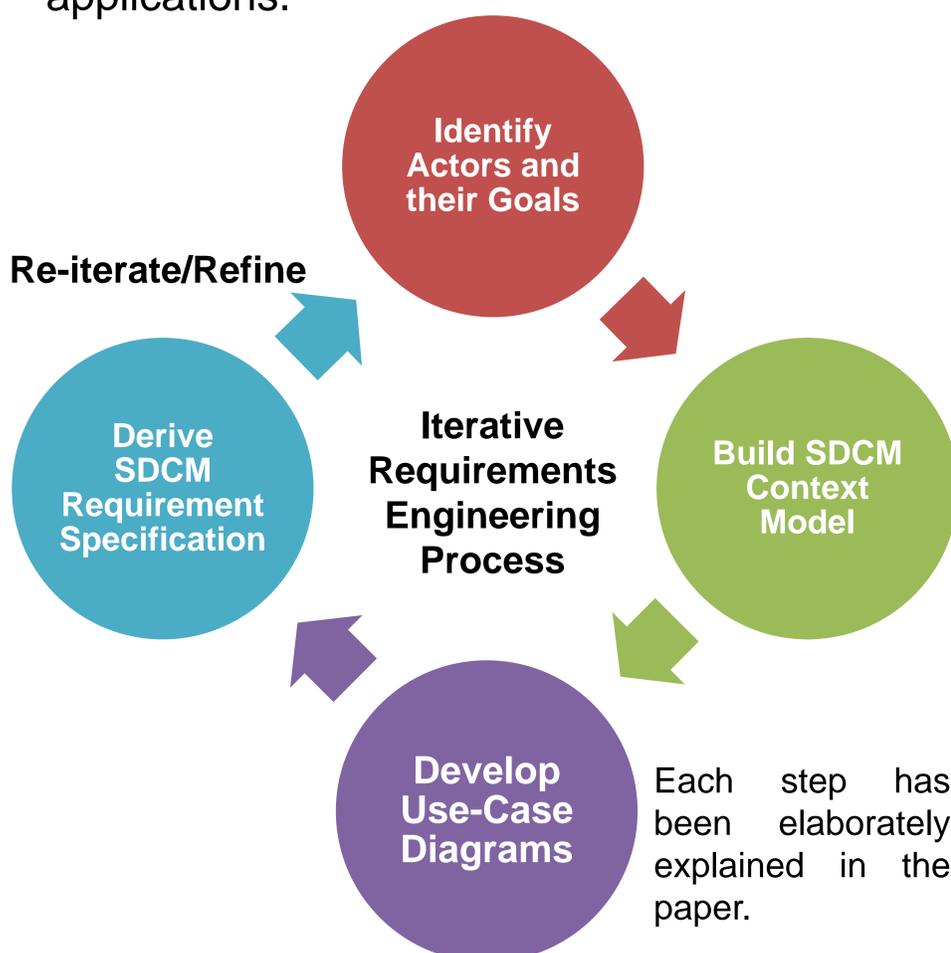
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SDCM: An Emerging Market Player

Supply/Demand Coordination Mechanism (SDCM) refers to any program that encompasses the principle of demand response whilst utilizing the flexibility offered by generators in the system. The main objective of current SDCMs is to ensure secure power supply by maintaining a balance between demand and supply in the network. However, SDCMs have a much greater potential. This paper aims to identify the potential areas of further development from a systems engineering approach.

Systematizing the Market Needs

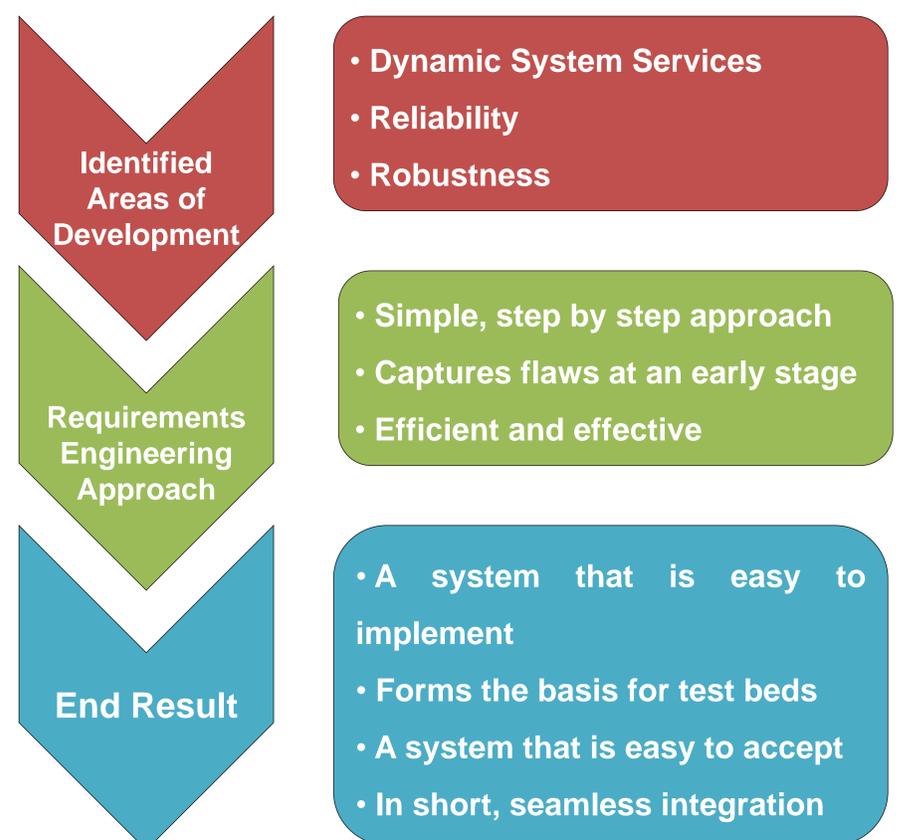
For the first time, a formal requirements engineering approach has been applied to SDCMs. The requirements engineering process (shown in the figure below) promises new insights through development of an interactive context model that will aid in realization of new and exciting smart grid applications.



PowerMatcher in Action

The requirements engineering approach has allowed, at a conceptual level, the rigorous appraisal of the adequacy of PowerMatcher, a well discussed SDCM in literature, in supporting alternative advanced smart grid problems. Further, three potential areas of further development have been identified, namely incorporating Dynamic System Services, Reliability, and Robustness.

SDCM: The Future of Smart Grid?



The development of the three identified potential areas will bolster the credibility of PowerMatcher and aid in seamless integration within the modern power system infrastructure. The present era is moving inch by inch towards spreading the cognizance of the dream of a reliable smart grid. The incorporation of requirements engineering at the development stage (shown in figure above) accelerates the realization of a reliable smart grid in an organized manner, guaranteeing efficiency and effectiveness.