

Knowledge Capture, Cross Boundary Communication and Early Validation with Dynamic A3 Architectures

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Abstract. Understanding and extracting systems information is a time consuming, demanding and expensive process. Complicating factors are cross-boundary communication methods and tools. We combine an informal and formal systems engineering method; Lean manufacturing principles and Model Based systems Engineering (MBSE) resulting in Dynamic A3 architecture. Dynamic A3 Architecture is a hierarchy of overviews from super-system to sub-system that the reader can navigate through active links. We applied the method to a lube oil system of a gas turbine package. We found that Dynamic A3 Architecture can ease internal and cross boundary communication, train new employees, facilitate knowledge capture, and share common understanding of the _system of interest_. A functional sequence diagram, which is a hybrid of a state and functional diagram, can assist in early validation of process applications.