System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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Systems Knowledge Framework

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Increasing product, supply chain and manufacturing complexity have driven industry to begin pursuing "Model Based System Engineering (MBSE)" tools and processes to optimize new product development. To this end, the past decade of development in systems engineering (SE) methods, standards and tools has resulted in many new foundational MBSE capabilities (e.g. ISO 15288, SysML, FMI, OSLC, and countless other invaluable standards).

However, these capabilities have typically been focused on the "classic" engineering domains (software, mechanical, electrical, etc.) in a "bottom-up" approach. The "classic domain" focus has caused the requirements of many types of stakeholders to be managed outside the systems model. The "bottom-up" approach has tended to short-change the abstraction aspect of behavior modeling. In addition, systems modeling tools generally lack the simple, but powerful user interface needed to provide basic answers to basic change impact and requirements trade-space questions posed by "the masses" (non-MBSE experts). Last, but not least, the complexity of the meta-models and user interfaces in use by today's systems engineering tools require an "adoption activation energy" not available in today's mindset of project-centered decisions (vs product or cross-product/platform decisions). Independently, and especially when combined, these factors seriously diminish the prospects of future programs discovering and re-using of the enterprise's fundamental underlying technical knowledge about phenomena central to the subject system's value proposition.

To tackle the above challenges, P&G partnered with leading-edge systems engineering method suppliers (ICTT and Big Lever), leading-edge tool suppliers (e.g. IBM, TomSawyer, The ReUse Company, Modelon, and Big Lever) and systems modeling tool configuration expertise (321gang). After two years of development and multiple pilots, we have taken a big step forward in providing the canonical systems modeling and analysis capabilities to deliver systems engineering capabilities to "the masses". The resulting method and tools are usable by personnel at all levels of the enterprise, in all disciplines, throughout all phases of an initiative's lifecycle. This presentation will review the key strategies and decisions behind the break-through new capability and some aspects of the solution will be demonstrated.

Biography

Mr. Robert Sherman started working at P&G in a Chemical/Controls Engineering design role. His 35-year career included program management and architect roles in the instantiation of object oriented Chemical and Mechanical Product Lifecycle Management (PLM) and Manufacturing Process Lifecycle Management (MPLM) capabilities at P&G. He is currently the Program Manager and Enterprise Architect for Systems Engineering.