Defining Concurrent Technology Roadmapping: Challenges and Opportunities

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Abstract

This paper defines concurrent technology roadmapping as a model-based approach to landscaping, evaluating, and prioritizing projects in a technology roadmap. A technology roadmap is a strategy for technology development that puts together market, product, and technology views into an integrated timeline.

Traditional technology roadmapping foresees workshops where stakeholders of all relevant corporate functions, such as product, engineering, sales, strategy, marketing, and so on, get together in the same room and define technology strategy through a series of structured workshops. From this foundation, we make a step forward and define a quantitative, model-based approach to technology roadmapping, making use of concurrent engineering principles and methodology, that can be approached in a similar way to a preliminary design activity for an engineering system.

We describe a framework for building models of technology roadmaps that can be developed in a concurrent engineering environment. The paper describes how the concurrent design framework made of people's mindset, process, tools, and infrastructure, can be tailored to approach roadmapping as a system design activity. We report lessons learnt in implementing the approach in a large industrial organization in the aerospace sector, and discuss challenges and opportunities enabled by the approach.

The paper will be of use to portfolio managers and technology strategists interested in developing solid model-based foundations to technology strategy practice. It will be likewise valuable for systems engineers and practitioners concerned with the exploration of novel application domains of concurrent engineering methodologies.