



INCOSE Healthcare WG JAN 19, 2017 Webinar



Topic: From the Wright Brothers to Simulation-Based Conceptual Design

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Abstract

Despite over 25 years of continuous improvement of their phase-gate product development processes, organizations continue to be plagued with unplanned design loopbacks on over fifty percent of their development projects. In addition to the resulting schedule delays and cost over-runs, many organizations are reporting this late fire-fighting on projects is consuming from 50 to 75% of their development resources and disrupting other projects.

To understand why this highly unproductive condition exists, we first examine the innovation process used by the Wright Brothers used to invent, build and demonstrate the world's first successful airplane. We will then compare their approach to the typical practices within phase gate processes. There we will reveal why most phase gate and similar processes are not only failing to prevent major unplanned design loopbacks, but may actually be causing them.

One remedy for this unfortunate situation is Simulation-Based Conceptual Design. This approach advocates increasing the use of simulation in the early phases of product development to prove the feasibility of the system architecture prior to committing to specific requirements and detailed design.

We will propose that for Simulation-Based Conceptual Design to be practically achievable, it must be founded on three tenets:

- That the objective should not be to validate a specific design, but to define a feasible region where many alternative solutions that meet the customer expectations exist.
- That geometries, components and materials are the output of the model, not the input.
- And that a standard visual model such as Trade-off Maps must be utilized to enable collaboration among the experts, and integration of the subsystems.

We will illustrate these principles with an example and support it with citations of recent use cases. We will conclude with a listing of the critical capabilities and enablers.

About Our Speaker

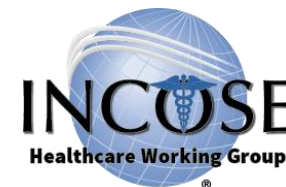
A former engineer, engineering manager, product development manager and Director of R&D Effectiveness with Texas Instruments Semiconductor Group, Kent Harmon has over 25 years of experience leading and mentoring product development improvement initiatives. For the past decade, he has been at the forefront of developing and implementing the methodologies to restructure the front end of product development to reduce time to market by over 50% while enabling the design of more optimal products.

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