

## **A380 Snafu: A Failure of PLM or a Failure to Follow PLM Concepts**

“It's one of the costliest blunders in the history of commercial aviation, and it has plunged Airbus into crisis. Chief Executive Christian Streiff quit on Oct. 9 after only three months on the job, following clashes with Airbus' parent, European Aeronautic Defence & Space Co., over how to sort out the mess. The delays in the A380 mean EADS will take a \$6 billion profit hit over the next four years...”

So reads a part of a recent Business Week article, “Wayward Airbus.” The culprit is incompatible software that caused the wiring harnesses made by one part of Airbus to be incompatible with the design of the physical spaces ways made by another part of Airbus. When they brought the wiring to Toulouse for final assembly, the installers could not fit the wiring harnesses into the space allotted.

Clearly this is a calamity of major proportions. However, was this a failure of PLM? The uninitiated executive might conclude that when he or she sees “software” in the same sentence as “failure.”

As they say in Toulouse, “Au contraire!” The failure was a failure to follow PLM concepts. Specifically the failure was violating one of the main PLM characteristics, cohesion. In addition, from a technology perspective they failed to follow one of the main dictums, requiring compatible or at least harmonious applications. Finally, one of the main strategic drivers of company CEO's, One Company, is only belatedly getting attention at Airbus.

Cohesion is one of the main characteristics of PLM. I define cohesion as consistency across the different product views, mechanical, electrical, Bill of Materials, etc. While I have always been more concerned about cohesion across different views, intra-cohesion within, say the mechanical view, is an elementary requirement. Generally, the 3D software of today enforces cohesion in the mechanical view. But in the Airbus case, it appears that the wiring harnesses were designed with circa 1980's software that, if not 2D as suspected, was incompatible with today's modern software.

Cohesion allows for virtualizing the whole design. Without cohesion, there is no hope of Airbus creating a full digital mock-up such as Boeing has done with the 787. The pieces can never be fitted together to show a cohesive design.

From a technology perspective, I have always proposed that one of the main requirements be compatible or at least harmonious applications. To build a complete digital mock-up, when different applications are in play, these different applications need to be able to share data. I propose that companies do an inventory of these applications, looking for incompatibility. I would have thought that doing an inventory of these applications for the A380 project would have immediately uncovered a modern major project using twenty-year old applications.

Finally, every CEO (and CXO's in general) I talk to has as one of their guiding strategies the theme of One Company. This means that they want everyone to be using like processes, practices, and technologies. The cost of everyone doing what may be optimal for that individual leads to inefficiencies when aggregated across today's corporate giants. Given its ownership structure and past actions, Airbus will have a devilish difficult time of this, although the new CEO claims One Company as a new goal.

It should be clear that the A380 snafu is not a failure of PLM, but a failure to adhere to the concepts of PLM. The cost of this is \$6B plus in profits, plus whatever expense is needed to apply the right people, processes/practices, and technology to bring Airbus into conformance with PLM concepts. The unfortunate aspect for PLM is that I expect to hear from executives, "PLM? Wasn't that the thing that caused all the problems for the A380?"

Dr. Michael Grieves

Sources:

Matlack, C. (2006). Wayward Airbus. Business Week: 46-48, October 23.

Grieves, M. (2006). Product Lifecycle Management: Driving the Next Generation of Lean Thinking. New York, McGraw-Hill.

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