Digital Support in the Digital Engineering Space

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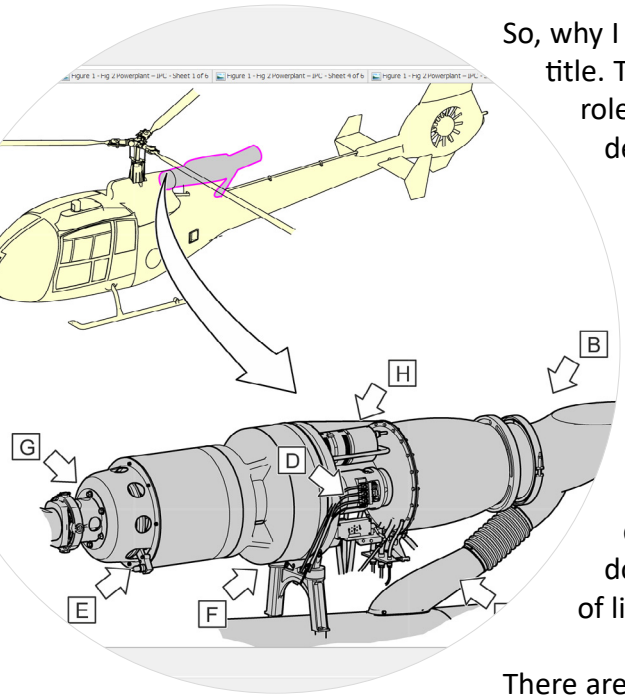
Much is talked about today regarding Digital Engineering. It offers the opportunity to construct digital models that represent every characteristic of a complex product or system. Development of a modelling process that can be used to integrate product design, development, delivery and total life cycle support better than traditional Systems Engineering are just some of the lauded advantages. It is claimed that Digital Engineering took Systems Engineering and perfected, hastened and substantiated the process into a flexible and consistent, modern methodology.



So, why I hear you ask is there a reference to Digital Support in this article's title. The simple truth is that support is, yet again, playing the Cinderella role in this emerging Engineering activity. Having read several articles describing Digital Engineering, there is much written about the 'bright shiny pointy thing' that the design team is developing. The term support may appear in the article, but it will feature less that a handful of times, if that many.

To the root of the challenge - support accounts for approximately 80% of through life cost. Ergo, the capital cost of the bright shiny pointy thing was about 20%. We are all concerned about how much use we get out of our equipment and how much it costs us to use it. When the system breaks down…and it does…how much does it cost to get it back in service quickly. In the final analysis, how do I keep the system in the hands of the User at an optimal cost – it is of little use having a bright shiny pointy thing if you cannot use it!

There are some basic things which take the system out of the User's hands: system breakdown and repair; scheduled maintenance and the 'goodness' of the supply chain. The biggest drag on system usage is scheduled (preventive) maintenance, which is the maintenance carried out to prevent breakdowns. Although, I have kept the concept quite simple, underpinning the impetus to keep the system in the hands of the User is a great deal of supporting data. Further, to provide the support solution to keep the system in the User's hands requires complex data modelling which drive support decisions.

The best time to develop a support solution for a system is when the system is being designed. Experience has shown that it costs ten times more to modify a system to resolve a support problem after it has entered service than it would to have corrected the problem at the design stage. So, developing a digital representation of the support solution is as important as developing a digital representation of the system.

The forerunner of Digital Engineering was Model Based Systems Engineering. I would opine that we are now in the era of Digital Support whose forerunner was Model Based Product Support.

Digital Support is the construction of computer models which represent and models the entire life cycle system support solution. The models can be manipulated to mimic assorted operational and support scenarios and their financial implications. Digital Support is a subset of Digital Engineering but, given the through life cost implications of getting the support solution wrong, is the primary consideration when seeking value for money capability.

So, as we develop this discipline called Digital Engineering let's not forget that we need to address Digital Support – support is where there is most scope for through life cost reductions.

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