HW 9 Introduction to Case Studies Discussion



Knowledge Point 1: Resources and Requirements match

KP 1 shows that each requirement can actually be applied to the end product by demonstrating they work in a relevant environment. By completing a series of systems engineering reviews culminating in a preliminary design of the product that shows the product design is feasible, members in the program can attest they gave their best efforts to think of what could go wrong when realizing the end-product. The preliminary design review is essentially the last stepping stone for verifying the model and after PDR it is significantly more difficult to make changes to the end product up until CDR. By constraining the development phase of a program to 5 or 6 years, a deadline is officially set. Based on the results of setting the deadlines, programs seem to be adhering to these although it seems like there could still be a lot of speculation on the quality and functionality of the work being pushed out during development to meet the 5 or 6 year deadline. By setting the deadline, a definitive time frame is given to work out the trade studies and make official design decisions. Otherwise, there can always be more research that can take place to try to draw conclusions about which design should be implemented.

Knowledge Point 2: Product design is stable

The goal of KP 2 is the determination that a product’s design will meet customer requirements, as well as cost, schedule, and reliability targets, usually achieved at the system-level CDR midway through development. KP 2 aims to solidify the design as more than conceptual and traces it back to requirements, cost, schedule, and reliability targets to show how it can practically be achieved and fit into the program’s mold. By completing 90 % of the engineering drawings, the program shows a commitment with something tangible and with many of the initial challenges worked through and incorporated into the design. By asking for 90% of the engineering drawings, KP 2 pushes for a physical system to be manufactured that can be looked at and evaluated on a level where the design team can escape invasive questions by just stating they will find a workaround in the design. A prototype demonstration verifies the basic functionality of how the product will work. Reliability growth testing, completing failure modes, and effects analyses all help further improve the stability by working out the basic kinks that will come with any new design. These are not to account for the rare bugs and failures that may occur but should account for the obvious unanticipated failures.

Knowledge Point 3: Manufacturing processes are mature

This point is achieved when it has been demonstrated that the developer can manufacture the product within cost, schedule, and quality targets. The end goal is a stable design to create an easily integrated product moving forward. Mature manufacturing processes should lead to a consistent, efficient product where the pitfalls can be pinned down easier for any flaws in the design or end-product manufactured.

1. I would like to do my case study on TBMCS.
2. Yes I am OK with you sharing my Case Study selected with other students.

Written case Study HW is attached in other Word document.