

Manufacturability and Producibility

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Manufacturability and producibility is an engineering specialty. The machines and processes used to build a system must be architected and designed. A systems engineering approach to manufacturing and production is necessary because manufacturing equipment and processes can sometimes cost more than the system being built (Maier and Rechten 2009). Manufacturability and producibility can be a discriminator between competing system solution concepts and therefore must be considered early in the study period, as well as during the maturing of the final design solution.



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Overview

The system being built might be intended to be one-of-a-kind or to be reproduced multiple times. The manufacturing system differs for each of these situations

and is tied to the type of system being built. For example, the manufacture of a single-board computer would be vastly different from the manufacture of an automobile. Production involves the repeated building of the designed system. Multiple production cycles require the consideration of production machine maintenance and downtime.

Manufacturing and production engineering involve similar systems engineering processes specifically tailored to the building of the system. Manufacturability and producibility are the key attributes of a system that determine the ease of manufacturing and production. While manufacturability is simply the ease of manufacture, producibility also encompasses other dimensions of the production task, including packaging and shipping. Both these attributes can be improved by incorporating proper design decisions that take into account the entire system life cycle (Blanchard and Fabrycky 2010).

References

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