

Manufacturability and Producibility

From SEBoK

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 Rechtin 2002). 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.

Please note that not all of the generic below sections have mature content at this time. Anyone wishing to offer content suggestions should contact the SEBoK Editors in the usual ways.

Contents

- 1 Overview
- 2 System Description
- 3 Discipline Management
- 4 Discipline Relationships
 - 4.1 Interactions
 - 4.2 Dependencies
- 5 Discipline Standards
- 6 Personnel Considerations
- 7 Metrics
- 8 Models
- 9 Tools
- 10 Practical Considerations
 - 10.1 Pitfalls
 - 10.2 Proven Practices
 - 10.3 Other Considerations
- 11 References
 - 11.1 Works Cited
 - 11.2 Primary References
 - 11.3 Additional References

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 2005).

System Description

Information to be supplied at a later date.

Discipline Management

Information to be supplied at a later date.

Discipline Relationships

Interactions

Information to be supplied at a later date.

Dependencies

Information to be supplied at a later date.

Discipline Standards

Information to be supplied at a later date.

Personnel Considerations

Information to be supplied at a later date.

Metrics

Information to be supplied at a later date.

Models

Information to be supplied at a later date.

Tools

Information to be supplied at a later date.

Practical Considerations

Pitfalls

Information to be supplied at a later date.

Proven Practices

Information to be supplied at a later date.

Other Considerations

Information to be supplied at a later date.

References

Works Cited

Maier, M., and E. Rechtin. 2002. *The Art of Systems Architecting*, 2nd ed. Boca Raton, FL, USA: CRC Press.

Blanchard, B.S., and W.J. Fabrycky. 2005. *Systems Engineering and Analysis*, 4th ed. Prentice-Hall International Series in Industrial and Systems Engineering. Englewood Cliffs, NJ, USA: Prentice-Hall.

Primary References

None.

Additional References

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< Previous Article | Parent Article | Next Article >

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