

# SYSTEMS ENGINEERING CAPABILITY MODEL

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## Foreword

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This Interim Standard is intended to enable an organization to improve its capability to engineer and produce quality products, and deliver them on time at an affordable price or cost.

This Interim Standard, EIA 731, is intended to be the Standard for Systems Engineering Capability. As such, it complements the usage of the EIA 632, *Processes for Engineering a System*, and IEEE Standard 1220-1994, *IEEE Trial-Use Standard for Application and Management of the Systems Engineering Process*. Those standards define the “what-to-do’s” of the processes for engineering systems, and this model provides a basis for determining “how well” those processes are defined and implemented. This Interim Standard is intended to provide complete coverage of the EIA 632 and be consistent with both it and IEEE 1220-1994.

Part 1 of this Interim Standard, EIA 731-1, is the Systems Engineering Capability Model (SECM). It is intended to be applied for measurement and improvement of systems engineering capability using Interim Standard, EIA 731-2, *SECM Appraisal Method*.

The application of this Interim Standard is independent of contractual arrangements.

This Interim Standard is consistent with ISO 9001: 1994. The practices and attributes of the model cover all 20 process elements.

Development of this Interim Standard was accomplished as a joint project of the Electronic Industries Alliance (EIA), International Council on Systems Engineering (INCOSE), and Enterprise Process Improvement Collaboration (EPIC). This effort was chartered by the G-47 Systems Engineering Committee of EIA and has been identified as American National Standards Institute (ANSI) Project Number PN-3879. This Interim Standard has been approved by the EIA Engineering Department Executive Committee.

Intended users of this Interim Standard include: (a) developers of systems or portions thereof including: subsystems, equipment, assemblies, subassemblies, items, units, components, parts and materials; (b) acquirers of systems; (c) university professors, organizational trainers, and consultants; and (d) developers of other maturity or capability models. Use is not limited to specific disciplines, industry sectors, or technology domains.

This Interim Standard may be tailored for a specific domain, organization, or program.

This Interim Standard is intended to neither specify nor encourage the use of any particular implementation method or tool. The using organization is responsible for selecting those methods or tools necessary to support the objectives of the organization and program, and to define and implement engineering policies and procedures.

Annexes A and B are normative. Normative annexes are integral parts of the standard that, for reasons of convenience, are placed after all other normative elements. The fact that an annex is normative is made clear by the way in which it is referred to in the text, by a statement to the effect in the foreword, and by an indication at the head of the annex itself.

Annexes C, D, and E are informative. Informative annexes, formerly called appendices, give additional information and are placed after the normative elements of a standard. They do not contain requirements. The fact that an annex is informative is made clear by the way in which it is referred to in the text, by a statement in the foreword, and by an indication at the beginning of the annex itself.

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Electronic Industries Alliance (EIA)  
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The Systems Engineering Capability Model (SECM) working group was formed by the G47 Systems Engineering Committee in accordance with EIA guidelines. The number of representatives from each organization was controlled by the working group charter.

Though all working group members, past and present, have contributed in some degree to this effort, Version 1.0 of this Interim Standard is primarily the result of the efforts of the following individuals:

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This document was generated primarily from information contained within the INCOSE Systems Engineering Capability Assessment Model (SECAM), Version 1.50, and the EPIC Capability Maturity Model for Systems Engineering (SE-CMM), Version 1.1. These two source documents, in turn, were built upon previous version(s) of these documents. The contributors to those previous versions are listed in Annex E.