Pub. L. 116–283, § 1850(k)(6)(B), redesignated subcls. (I) and (II) as cls. (i) and (ii), respectively.

Subsec. (c)(1)(A)(i). Pub. L. 116–283, § 1850(k)(6)(C)(ii), substituted ''paragraph (2)'' for ''subparagraph (B)''.

Subsec. (c)(1)(A)(ii). Pub. L. 116–283, § 1850(k)(6)(C)(iii), substituted ''clause (i)'' for ''subclause (I)''.

Subsec. (c)(1)(C). Pub. L. 116–283, § 1850(k)(6)(D)(i), as amended by Pub. L. 117–81, § 1701(*o*)(6)(E)(vii), substituted ''subsections (d) and (e) of section 4375'' for ''section 2433(g)'' and ''section 4351(f)'' for ''section 2432(f)'' in introductory provisions.

Pub. L. 116–283, § 1850(k)(6)(B), redesignated subcls. (I) and (II) as cls. (i) and (ii), respectively.

Subsec. (c)(1)(C)(i). Pub. L. 116–283, § 1850(k)(6)(D)(ii), substituted ''subparagraph (A)'' for ''clause (i)''.

Subsec. (c)(1)(C)(ii). Pub. L. 116–283, § 1850(k)(6)(D)(iii), substituted ''subparagraph (B)'' for ''clause (ii)''.

Subsec. (c)(2). Pub. L. 116–283, § 1850(k)(7)(A), (B), substituted ''this paragraph'' for ''this subparagraph'' in introductory provisions and redesignated cls. (i) and (ii) as subpars. (A) and (B), respectively.

Subsec. (c)(2)(A), (B). Pub. L. 116–283, § 1850(k)(7)(C), redesignated subcls. (I) and (II) as cls. (i) and (ii), respectively.

Statutory Notes and Related Subsidiaries

EFFECTIVE DATE OF 2021 AMENDMENT

Amendment by Pub. L. 117–81 applicable as if included in the enactment of title XVIII of Pub. L. 116–283 as enacted, see section 1701(a)(2) of Pub. L. 117–81, set out in a note preceding section 3001 of this title and Effective Date note below.

EFFECTIVE DATE

Section and amendment by Pub. L. 116–283 effective Jan. 1, 2022, with additional provisions for delayed implementation and applicability of existing law, see section 1801(d) of Pub. L. 116–283, set out as an Effective Date of 2021 Amendment note preceding section 3001 of this title.

REVIEWS OF PROGRAMS RESTRUCTURED AFTER EXPERIENCING CRITICAL COST GROWTH

Pub. L. 111–23, title II, § 205(c), May 22, 2009, 123 Stat. 1725, as amended by Pub. L. 111–383, div. A, title VIII, § 813(e), title X, § 1075(k)(2), Jan. 7, 2011, 124 Stat. 4266, 4378, provided that: ''The official designated to perform oversight of performance assessment pursuant to section 103 of this Act [formerly set out as a note under section 2430 of this title, see 10 U.S.C. 4273], shall assess the performance of each major defense acquisition program that has exceeded critical cost growth thresholds established pursuant to [former] section 2433(e) of title 10, United States Code [see 10 U.S.C. 4375(a) to (c)], but has not been terminated in accordance with [former] section 2433a of such title [see 10 U.S.C. 4376, 4377] (as added by section 206(a) of this Act) not less often than semi-annually until one year after the date on which such program receives a new milestone approval, in accordance with [former] section 2433a(c)(1)(C) of such title [see 10 U.S.C. 4377(a)(3)] (as so added). The results of reviews performed under this subsection shall be reported to the Under Secretary of Defense for Acquisition, Technology, and Logistics and summarized in the next annual report of such designated official.''

[Pub. L. 111–383, div. A, title VIII, § 813(e), Jan. 7, 2011, 124 Stat. 4266, provided that the amendment made by section 813(e) to section 205(c) of Pub. L. 111–23, set out above, is effective as of May 22, 2009, and as if included in Pub. L. 111–23, as enacted.]

[For definition of ''major defense acquisition program'' as used in section 205(c) of Pub. L. 111–23, set out above, see section 2(2) of Pub. L. 111–23, set out as a note preceding section 4321 of this title.]

CHAPTER 327—WEAPON SYSTEMS DEVELOPMENT AND RELATED MATTERS

Editorial Notes

PRIOR PROVISIONS

A prior chapter 327 ''RESEARCH AND DEVELOPMENT CENTERS AND FACILITIES'', consisting of reserved section 4401, was repealed by Pub. L. 116–283, div. A, title XVIII, § 1841(a)(1)(A), Jan. 1, 2021, 134 Stat. 4242.

A prior chapter 329 ''OPERATIONAL TEST AND EVALUATION; DEVELOPMENTAL TEST AND EVALUATION'', consisting of reserved section 4451, was repealed by Pub. L. 116–283, div. A, title XVIII, § 1841(a)(1)(A), Jan. 1, 2021, 134 Stat. 4242.

SUBCHAPTER I—MODULAR OPEN SYSTEM APPROACH IN DEVELOPMENT OF WEAPON SYSTEMS

§ 4401. Requirement for modular open system approach in major defense acquisition programs; definitions

(a) MODULAR OPEN SYSTEM APPROACH REQUIREMENT.—A major defense acquisition program that receives Milestone A or Milestone B approval after January 1, 2019, shall be designed and developed, to the maximum extent practicable, with a modular open system approach to enable incremental development and enhance competition, innovation, and interoperability. Other defense acquisition programs shall also be designed and developed, to the maximum extent practicable, with a modular open system approach to enable incremental development and enhance competition, innovation, and interoperability.

(b) DISCLOSURE REQUIRED.—Not later than one year after the date of the enactment of this subsection, the Secretary of Defense shall make publicly available any standards for implementation of the modular open system approaches for contracts, unless the service acquisition executive with respect to a specific contract submits to the Secretary a request to not disclose such standards and the Secretary approves such request.

(c) DEFINITIONS.—In this chapter:

(1) The term ''modular open system approach'' means, with respect to a major defense acquisition program, an integrated business and technical strategy that—

(A) employs a modular design that uses modular system interfaces between major systems, major system components and modular systems;

(B) is subjected to verification to ensure that relevant modular system interfaces—

(i) comply with, if available and suitable, widely supported and consensus-based standards; or

(ii) are delivered pursuant to the requirements established in subsection (a)(2)(B) of section 804 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, including the delivery of—

(I) software-defined interface syntax and properties, specifically governing how values are validly passed and received between major subsystems and components, in machine-readable format;

(II) a machine-readable definition of the relationship between the delivered interface and existing common standards or interfaces available in Department interface repositories; and

(III) documentation with functional descriptions of software-defined interfaces, conveying semantic meaning of interface elements, such as the function of a given interface field;

(C) uses a system architecture that allows severable major system components and modular systems at the appropriate level to be incrementally added, removed, or replaced throughout the life cycle of a major system platform to afford opportunities for enhanced competition and innovation while yielding—

(i) significant cost savings or avoidance;

(ii) schedule reduction;

(iii) opportunities for technical upgrades;

(iv) increased interoperability, including system of systems interoperability and mission integration; or

(v) other benefits during the sustainment phase of a major weapon system; and

(D) complies with the technical data rights set forth in sections 3771 through 3775 of this title.

(2) The term ''major system platform'' means the highest level structure of a major weapon system that is not physically mounted or installed onto a higher level structure and on which a major system component can be physically mounted or installed.

(3) The term ''major system component''—

(A) means a high level subsystem or assembly, including hardware, software, or an integrated assembly of both, that can be mounted or installed on a major system platform through modular system interfaces; and

(B) includes a subsystem or assembly that is likely to have additional capability requirements, is likely to change because of evolving technology or threat, is needed for interoperability, facilitates incremental deployment of capabilities, or is expected to be replaced by another major system component.

(4) The term ''modular system interface'' means a shared boundary between major systems, major system components, or modular systems, defined by various physical, logical, and functional characteristics, such as electrical, mechanical, fluidic, optical, radio frequency, data, networking, or software elements.

(5) The term ''modular system'' refers to a weapon system or weapon system component that—

(A) is able to execute without requiring coincident execution of other specific weapon systems or components;

(B) can communicate across component boundaries and through interfaces; and

(C) functions as a module that can be separated, recombined, and connected with other weapon systems or weapon system components in order to achieve various effects, missions, or capabilities.

(6) The term ''program capability document'' means, with respect to a major defense acquisition program, a document that specifies capability requirements for the program, such as a capability development document or a capability production document.

(7) The terms ''program cost targets'' and ''fielding target'' have the meanings provided in section 4271(a) of this title.

(8) The term ''major defense acquisition program'' has the meaning provided in section 4201 of this title.

(9) The term ''major weapon system'' has the meaning provided in section 3455(f) of this title.

(Added Pub. L. 114–328, div. A, title VIII, §805(a)(1), Dec. 23, 2016, 130 Stat. 2252, §2446a; renumbered §4401 and amended Pub. L. 116–283, div. A, title VIII, §804(b)(1), title XVIII, §1851(b)(1), (2), Jan. 1, 2021, 134 Stat. 3737, 4272; Pub. L. 118–159, div. A, title VIII, §819, Dec. 23, 2024, 138 Stat. 1982.)

Editorial Notes

REFERENCES IN TEXT

The date of the enactment of this subsection, referred to in subsec. (b), is the date of enactment of Pub. L. 118–159, which was approved Dec. 23, 2024.

Section 804 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, referred to in subsec. (c)(1)(B)(ii), is section 804 of Pub. L. 116–283, which is set out as a note below.

AMENDMENTS

2024—Subsecs. (b), (c). Pub. L. 118–159 added subsec. (b) and redesignated former subsec. (b) as (c).

2021—Pub. L. 116–283, §1851(b)(1), renumbered section 2446a of this title as this section.

Subsec. (a). Pub. L. 116–283, §804(b)(1)(A), inserted at end ''Other defense acquisition programs shall also be designed and developed, to the maximum extent practicable, with a modular open system approach to enable incremental development and enhance competition, innovation, and interoperability.''

Subsec. (b)(1)(A). Pub. L. 116–283, §804(b)(1)(B)(i)(I), substituted ''modular system interfaces between major systems, major system components and modular systems;'' for ''major system interfaces between a major system platform and a major system component, between major system components, or between major system platforms;''.

Subsec. (b)(1)(B). Pub. L. 116–283, §804(b)(1)(B)(i)(II), substituted ''that relevant modular system interfaces— '' for ''major system interfaces comply with, if available and suitable, widely supported and consensus-based standards;'' and added cls. (i) and (ii).

Subsec. (b)(1)(C). Pub. L. 116–283, §804(b)(1)(B)(i)(III), inserted ''and modular systems'' after ''severable major system components'' in introductory provisions.

Subsec. (b)(1)(D). Pub. L. 116–283, § 1851(b)(2)(A), substituted ''sections 3771 through 3775'' for ''section 2320''.

Subsec. (b)(3)(A). Pub. L. 116–283, § 804(b)(1)(B)(ii), substituted ''modular system interfaces'' for ''well-defined major system interfaces''.

Subsec. (b)(4). Pub. L. 116–283, § 804(b)(1)(B)(iii), amended par. (4) generally. Prior to amendment, par. (4) defined major system interface.

Subsec. (b)(5), (6). Pub. L. 116–283, § 804(b)(1)(B)(iv), (v), added par. (5) and redesignated former pars. (5) and (6) as (6) and (7), respectively.

Subsec. (b)(7). Pub. L. 116–283, § 1851(b)(2)(B), which directed amendment of par. (6) of subsec. (b) by substituting ''section 4271(a)'' for ''section 2448a(a)'', was executed by making the substitution in par. (7) to reflect the probable intent of Congress and the intervening amendment by section 804(b)(1)(B)(iv) of Pub. L. 116–283 which redesignated par. (6) as (7). See below.

Pub. L. 116–283, § 804(b)(1)(B)(iv), redesignated par. (6) as (7). Former par. (7) redesignated (8).

Subsec. (b)(8). Pub. L. 116–283, § 1851(b)(2)(C), which directed amendment of par. (7) of subsec. (b) by substituting ''section 4201'' for ''section 2430'', was executed by making the substitution in par. (8) to reflect the probable intent of Congress and the intervening amendment by section 804(b)(1)(B)(iv) of Pub. L. 116–283 which redesignated par. (7) as (8). See below.

Pub. L. 116–283, § 804(b)(1)(B)(iv), redesignated par. (7) as (8). Former par. (8) redesignated (9).

Subsec. (b)(9). Pub. L. 116–283, § 1851(b)(2)(D), which directed amendment of par. (8) of subsec. (b) by substituting ''section 3455(f)'' for ''section 2379(f)'', was executed by making the substitution in par. (9) to reflect the probable intent of Congress and the intervening amendment by section 804(b)(1)(B)(iv) of Pub. L. 116–283 which redesignated par. (8) as (9). See below.

Pub. L. 116–283, § 804(b)(1)(B)(iv), redesignated par. (8) as (9).

Statutory Notes and Related Subsidiaries

EFFECTIVE DATE OF 2021 AMENDMENT

Amendment by section 1851(b)(1), (2) of Pub. L. 116–283 effective Jan. 1, 2022, with additional provisions for delayed implementation and applicability of existing law, see section 1801(d) of Pub. L. 116–283, set out as a note preceding section 3001 of this title.

EFFECTIVE DATE

Pub. L. 114–328, div. A, title VIII, § 805(a)(4), Dec. 23, 2016, 130 Stat. 2255, provided that: ''Subchapter I of chapter 144B of title 10, United States Code [see, now, this subchapter], as added by paragraph (1), shall take effect on January 1, 2017.''

IMPLEMENTATION OF MODULAR OPEN SYSTEMS APPROACHES

Pub. L. 116–283, div. A, title VIII, § 804, Jan. 1, 2021, 134 Stat. 3735, provided that:

''(a) REQUIREMENTS FOR INTERFACE DELIVERY.—

''(1) IN GENERAL.—Not later than one year after the date of the enactment of this Act [Jan. 1, 2021], the Under Secretary of Defense for Acquisition and Sustainment, in coordination with the Joint All-Domain Command and Control cross-functional team and the Director for Command, Control, Communications, and Computers/Cyber, shall issue regulations and guidance applicable to the military departments, Defense Agencies, Department of Defense Field Activities (as such terms are defined, respectively, in section 101 of title 10, United States Code), and combatant commands, as appropriate, to—

''(A) facilitate the Department of Defense's access to and utilization of modular system interfaces;

''(B) fully realize the intent of [former] chapter 144B of title 10, United States Code [see this chapter and sections 4271 and 4272 of this title], by facilitating the implementation of modular open system approaches across major defense acquisition programs (as defined in section 2430 of title 10, United States Code [now 10 U.S.C. 4201]) and other relevant acquisition programs, including in the acquisition and sustainment of weapon systems, platforms, and components for which no common interface standard has been established, to enable communication between such weapon systems, platforms, and components; and

''(C) advance the efforts of the Department to generate diverse and recomposable kill chains.

''(2) ELEMENTS.—The regulations and guidance required under paragraph (1) shall include requirements that—

''(A) the program officer for each weapon system characterizes, in the acquisition strategy required under section 2431a of title 10, United States Code [now 10 U.S.C. 4211] or in other documentation, the desired modularity of the weapon system for which the program officer is responsible, including—

''(i) identification of—

''(I) the modular systems that comprise the weapon system;

''(II) the information that should be communicated between individual modular systems (such as tracking and targeting data or command and control instructions); and

''(III) the desired function of the communication between modular systems (such as fire control functions); and

''(ii) a default configuration specifying which modular systems should communicate with other modular systems, including modular systems of other weapon systems;

''(B) each relevant Department of Defense contract entered into after the date on which the regulations and guidance required under paragraph (1) are implemented includes requirements for the delivery of modular system interfaces for modular systems deemed relevant in the acquisition strategy or documentation referred to in subparagraph (A), including—

''(i) software-defined interface syntax and properties, specifically governing how values are validly passed and received between major subsystems and components, in machine-readable format;

''(ii) a machine-readable definition of the relationship between the delivered interface and existing common standards or interfaces available in the interface repositories established pursuant to subsection (c); and

''(iii) documentation with functional descriptions of software-defined interfaces, conveying semantic meaning of interface elements, such as the function of a given interface field;

''(C) the relevant program offices, including those responsible for maintaining and upgrading legacy systems—

''(i) that have not characterized the desired modularity of the systems nevertheless meet the requirements of paragraph (2)(A), if the program officers make an effort, to the extent practicable, to update the acquisition strategies required under section 2431a of title 10, United States Code [now 10 U.S.C. 4211], or to develop or update other relevant documentation; and

''(ii) that have awarded contracts that do not include the requirements specified in subparagraph (B) of paragraph (2) nevertheless acquire, to the extent practicable, the items specified in clauses (i) through (iii) of such subparagraph, either through contractual updates, separate negotiations or contracts, or program management mechanisms; and

''(D) the relevant program officers deliver modular system interfaces and the associated documentation to at least one of the repositories established pursuant to subsection (c).

''(3) APPLICABILITY OF REGULATIONS AND GUIDANCE.—

''(A) APPLICABILITY.—The regulations and guidance required under paragraph (1) shall apply to

any program office responsible for the prototyping, acquisition, or sustainment of a new or existing weapon system.

''(B) EXTENSION OF SCOPE.—Not earlier than 1 year before, and not later than 2 years after the regulations and guidance required under paragraph (1) are issued for weapon systems, the Under Secretary of Defense for Acquisition and Sustainment may extend such regulations and guidance to apply to software-based non-weapon systems, including business systems and cybersecurity systems.

''(4) INCLUSION OF COMPONENTS.—For the purposes of paragraph (2)(A), each component that meets the following requirements shall be treated as a modular system:

''(A) A component that is able to execute without requiring coincident execution of other weapon systems or components and can communicate across component boundaries and through interfaces.

''(B) A component that can be separated from and recombined with other weapon systems or components to achieve various effects, missions, or capabilities.

''(C) A component that is covered by a unique contract line item.

''(5) MACHINE-READABLE DEFINITION.—Where appropriate and available, the requirement in paragraph (2)(B)(ii) for a machine-readable definition may be satisfied by using a covered technology.

''(b) EXTENSION OF MODULAR OPEN SYSTEMS APPROACH AND RIGHTS IN INTERFACE SOFTWARE.—

''(1) REQUIREMENT FOR MODULAR OPEN SYSTEM APPROACH.—[Amended section 4401 of this title.]

''(2) RIGHTS IN TECHNICAL DATA.—

''(A) IN GENERAL.—[Amended former section 2320 of this title.]

''(B) REGULATIONS.—Not later than 180 days after the date of the enactment of this Act [Jan. 1, 2021], the Secretary of Defense shall update the regulations required by section 2320(a)(1) of title 10, United States Code [see 10 U.S.C. 3771(a)], to reflect the amendments made by this paragraph.

''(c) INTERFACE REPOSITORIES.—

''(1) ESTABLISHMENT.—Not later than 90 days after the date of the enactment of this Act [Jan. 1, 2021], the Under Secretary of Defense for Acquisition and Sustainment shall—

''(A) direct the Secretaries concerned and the heads of other appropriate Department of Defense components to establish and maintain repositories for interfaces, syntax and properties, documentation, and communication implementations delivered pursuant to the requirements established under subsection (a)(2)(B);

''(B) establish and maintain a comprehensive index of interfaces, syntax and properties, documentation, and communication implementations delivered pursuant to the requirements established under subsection (a)(2)(B) and maintained in the repositories required under subparagraph (A); and

''(C) if practicable, establish and maintain an alternate reference repository of interfaces, syntax and properties, documentation, and communication implementations delivered pursuant to the requirements established under subsection (a)(2)(B).

''(2) DISTRIBUTION OF INTERFACES.—

''(A) IN GENERAL.—Consistent with the requirements of section 2320 of title 10, United States Code [see 10 U.S.C. 3771 et seq.], the Under Secretary of Defense for Acquisition and Sustainment shall, in coordination with the Director of the Defense Standardization Program Office, use the index and repositories established pursuant to paragraph (1) to provide access to interfaces and relevant documentation to authorized Federal Government and non-Governmental entities.

''(B) NON-GOVERNMENT RECIPIENT USE LIMITS.—A non-Governmental entity that receives access under subparagraph (A) may not further release, disclose, or use such data except as authorized.

''(d) SYSTEM OF SYSTEMS INTEGRATION TECHNOLOGY AND EXPERIMENTATION.—

''(1) DEMONSTRATION AND ASSESSMENT.—

''(A) IN GENERAL.—Not later than one year after the date of the enactment of this Act [Jan. 1, 2021], the Director for Command, Control, Communications, and Computers/Cyber and the Chief Information Officer of the Department of Defense, acting through the Joint All-Domain Command and Control cross-functional team, shall conduct demonstrations and complete an assessment of the technologies developed under the System of Systems Integration Technology and Experimentation program of the Defense Advanced Research Projects Agency, including a covered technology, and the applicability of any such technologies to the Joint All-Domain Command and Control architecture.

''(B) COVERAGE.—The demonstrations and assessment required under subparagraph (A) shall include—

''(i) at least three demonstrations of the use of a covered technology to create, under constrained schedules and budgets, novel kill chains involving previously incompatible weapon systems, sensors, and command, control, and communication systems from multiple military services in cooperation with United States Indo-Pacific Command or United States European Command;

''(ii) an evaluation as to whether the communications enabled via a covered technology are sufficient for military missions and whether such technology results in any substantial performance loss in communication between systems, major subsystems, and major components;

''(iii) an evaluation as to whether a covered technology obviates the need to develop, impose, and maintain strict adherence to common communication and interface standards for weapon systems;

''(iv) the appropriate roles and responsibilities of the Chief Information Officer of the Department of Defense, the Under Secretary of Defense for Acquisition and Sustainment, the heads of the combatant commands, the Secretaries concerned, the Defense Advanced Research Projects Agency, and the defense industrial base in using and maintaining a covered technology to generate diverse and recomposable kill chains as part of the Joint All-Domain Command and Control architecture;

''(v) for at least one of the demonstrations conducted under clause (i), demonstration of the use of technology developed under the High-Assurance Cyber Military Systems program of the Defense Advanced Research Projects Agency to secure legacy weapon systems and command and control capabilities while facilitating interoperability;

''(vi) an evaluation of how the technology referred to in clause (v) and covered technology should be used to improve cybersecurity and interoperability across critical weapon systems and command and control capabilities across the joint forces; and

''(vii) coordination with the program manager for the Time Sensitive Targeting Defeat program under the Under Secretary of Defense for Research and Engineering and the Under Secretary of Defense for Intelligence and Security.

''(2) CHIEF INFORMATION OFFICER ASSESSMENT.—

''(A) IN GENERAL.—The Chief Information Officer for the Department of Defense, in coordination with the Principal Cyber Advisor to the Secretary of Defense and the Director of the Cybersecurity Directorate of the National Security Agency, shall assess the technologies developed under the System of Systems Integration Technology and Experimentation program of the Defense Advanced Research Projects Agency, including the covered technology, and applicability of such technology to the business systems and cybersecurity tools of the Department.

''(B) COVERAGE.—The assessment required under subparagraph (A) shall include—

''(i) an evaluation as to how the technologies referred to in such subparagraph could be used in conjunction with or instead of existing cybersecurity standards, frameworks, and technologies designed to enable communication between, and coordination of, cybersecurity tools;

''(ii) as appropriate, demonstrations by the Chief Information Office of the use of such technologies in enabling communication between, and coordination of, previously incompatible cybersecurity tools; and

''(iii) as appropriate, demonstrations of the use of such technologies in enabling communication between previously incompatible business systems.

''(3) SUSTAINMENT OF CERTAIN ENGINEERING RESOURCES AND CAPABILITIES.—During the period the demonstrations and assessments required under this subsection are conducted, and thereafter to the extent required to execute the activities directed by the Joint All-Domain Command and Control cross-functional team, the Joint All-Domain Command and Control cross-functional team shall sustain the System of Systems Technology Integration Tool Chain for Heterogeneous Electronic Systems engineering resources and capabilities developed by the Defense Advanced Research Projects Agency.

''(4) TRANSFER OF RESPONSIBILITY.—Not earlier than 1 year before, and not later than 2 years after the date of the enactment of this Act, the Secretary of Defense may transfer responsibility for maintaining the engineering resources and capabilities described in paragraph (3) to a different organization within the Department.

''(e) OPEN STANDARDS.—Nothing in this section shall be construed as requiring, preventing, or interfering with the use or application of any given communication standard or interface. The communication described in subsection (a)(2)(A) may be accomplished by using existing open standards, by the creation and use of new open standards, or through other approaches, provided that such standards meet the requirements of subsection (a)(2)(B).

''(f) DEFINITIONS.—In this section:

''(1) The term 'covered technology' means the domain-specific programming language for interface field transformations and its associated compilation toolchain (commonly known as the 'System of Systems Technology Integration ToolChain for Heterogeneous Electronic Systems') developed under the Defense Advanced Research Projects Agency System of Systems Integration Technology and Experimentation program, or any other technology that is functionally equivalent.

''(2) The term 'desired modularity' means the desired degree to which weapon systems, components within a weapon system, and components across weapon systems can function as modules that can communicate across component boundaries and through interfaces and can be separated and recombined to achieve various effects, missions, or capabilities, as determined by the program officer for such weapon system.

''(3) The term 'machine-readable format' means a format that can be easily processed by a computer without human intervention.

''(4) The terms 'major system', 'major system component', 'modular open system approach', 'modular system', 'modular system interface', and 'weapon system' have the meanings given such terms, respectively, in section 2446a of title 10, United States Code [now 10 U.S.C. 4401].''

§ 4402. Requirement to address modular open system approach in program capabilities development and acquisition weapon system design

(a) PROGRAM CAPABILITY DOCUMENT.—A program capability document for a major defense acquisition program shall identify and characterize—

(1) the extent to which requirements for system performance are likely to evolve during the life cycle of the system because of evolving technology, threat, or interoperability needs; and

(2) for requirements that are expected to evolve, the minimum acceptable capability that is necessary for initial operating capability of the major defense acquisition program.

(b) ANALYSIS OF ALTERNATIVES.—The Director of Cost Assessment and Performance Evaluation, in formulating study guidance for analyses of alternatives for major defense acquisition programs and performing such analyses under section 139a(d)(4) of this title, shall ensure that any such analysis for a major defense acquisition program includes consideration of evolutionary acquisition, prototyping, and a modular open system approach.

(c) ACQUISITION STRATEGY.—In the case of a major defense acquisition program that uses a modular open system approach, the acquisition strategy required under section 4211 of this title shall—

(1) clearly describe the modular open system approach to be used for the program;

(2) differentiate between the major system platform and major system components being developed under the program, as well as major system components developed outside the program that will be integrated into the major defense acquisition program;

(3) clearly describe the evolution of major system components that are anticipated to be added, removed, or replaced in subsequent increments;

(4) identify additional major system components that may be added later in the life cycle of the major system platform;

(5) clearly describe how intellectual property and related issues, such as technical data deliverables, that are necessary to support a modular open system approach, will be addressed; and

(6) clearly describe the approach to systems integration and systems-level configuration management to ensure mission and information assurance.

(d) REQUEST FOR PROPOSALS.—The milestone decision authority for a major defense acquisition program that uses a modular open system approach shall ensure that a request for proposals for the development or production phases of the program shall describe the modular open system approach and the minimum set of major system components that must be included in the design of the major defense acquisition program.

(e) MILESTONE B.—A major defense acquisition program may not receive Milestone B approval under section 4252 of this title until the milestone decision authority determines in writing—

(1) in the case of a program that uses a modular open system approach, that—

(A) the program incorporates clearly defined major system interfaces between the major system platform and major system components, between major system components, and between major system platforms;