

Category	Sub-Category	Requirement Wording (Draft)
Adv. Tech &Innovation	Innovation	The DE ecosystem SHALL support prototyping activities for ecosystem improvements.
Adv. Tech &Innovation	Innovation	The DE ecosystem SHALL accommodate Intelligent applications that enable rigorous prototyping to facilitate digital to physical prototypes and proof of concept activities.
Adv. Tech &Innovation	Innovation	The DE ecosystem SHALL accommodate Intelligent applications that enable rigorous development of early and often automated testing of system performance requirements.
Adv. Tech &Innovation	Innovation	The DE ecosystem SHALL accommodate Intelligent applications that enable cross domain traceability of design thread, analytical thread and proof of concept analysis.
Adv. Tech &Innovation	Technologies	The DE ecosystem SHALL provide the software tools , software libraries, software builds and automated testing capabilities needed for DEVOPs process implementations.
Adv. Tech &Innovation	Technologies	The DE ecosystem SHALL provide advanced technologies to support leading edge research and development capabilities such as , but not limited to ; big data analytics, machine learning , artificial intelligence, ontology, virtual reality, augmented reality, and 5G technologies
Collaboration	Resources	The DE ecosystem SHALL enable sharing of models, data, and simulations from authorized users and engineering disciplines
Collaboration	Resources	The DE ecosystem SHALL provide automated notifications capability to all applicable change events
Collaboration	Resources	The DE ecosystem SHALL be sized for growth in the number of connections and types of accesses (VM, web portal, others) to support (TBD ) users
Collaboration	Users	The DE ecosystem SHALL provide network access to authenticated users, organizations and stakeholders.
Collaboration	Users	The DE ecosystem SHALL support remote teleconferencing with messaging, audio and video.
Collaboration	Users	The DE ecosystem SHALL provide the access for authenticated users and stakeholders to execute simulations and perform data analytics.
Collaboration	Users	The DE ecosystem SHALL be sized and maintained for the number of users to be 100% of identified program personnel.
Collaboration	Users	The DE ecosystem SHALL be sized and maintained for TBD number of users for concurrent use of program identified capabilities and functions appropriate for the program. (e.g. data managers, data users, data creators)
Data	Curation	The DE ecosystem SHALL accommodate discovery of models and associated data, from outside the local ecosystem instantiation.
Data	Curation	The DE ecosystem SHALL provide a library function of executable applications available for access and reuse.

**CLEARED**  
**For Open Publication**  
 Aug 03, 2021  
 OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Data	Curation	The DE ecosystem SHALL enable customization of library function executable applications.
Data	Curation	The DE ecosystem SHALL include the ability to curate models for reuse.
Data	Curation	The DE ecosystem SHALL contain formal configuration management for all models, simulations, analysis and technical data, as the authoritative-source-of-truth for the ecosystem.
Data	Curation	The DE ecosystem SHALL provide capabilities to maintain measures and metrics for both program specific and ecosystem performance measuring.
Data	Curation	The DE ecosystem SHALL provide auditable technical data curation over a full life-cycle of platforms/systems for TBD years.
Data	Curation	The DE ecosystem SHALL contain an organized data storing structure for ease of discovery and navigation.
Data	Exchange	The DE ecosystem SHALL provide a capability to automate data exchange within workflows of users.
Data	Exchange	The DE ecosystem SHALL provide a capability to translate data formats between disparate engineering tools.
Data	Exchange	The DE ecosystem SHALL provide monitoring of error detection and quality assessment of all data translation across engineering tools.
Data	Exchange	The DE ecosystem SHALL accommodate Model Exchange Standards, Published standards and procedures for interoperability between supported modeling and analysis tools.
Data	Exchange	The DE ecosystem SHALL provide access to metadata and supporting data for all data and information in the ecosystem.
Data	Exchange	The DE ecosystem SHALL provide the compatibility to receive, store and utilize data in specified formats, from both legacy and, new tools and sources.
Data	Exchange	The Digital Engineering Ecosystem shall provide a capability to associate data that has been generated by different engineering domains.
Data	Storage	The DE ecosystem SHALL provide 50% (TBR) storage expansion capacity for all data, that is above and beyond the theoretical storage calculations needed for the ecosystem being architected.
Data	Storage	The DE ecosystem SHALL provide for sufficient storage size allocations to all engineering technical data, for all major life cycle phases, with TBD % margin expansion.
Data	Storage	The DE ecosystem SHALL accommodate critical data be available to all authorized users and ensure unmodified utilization on a recurring basis.
Data	Storage	The DE ecosystem SHALL require the need to enter and store critical data one time.
Environment	Licensing	The DE ecosystem SHALL employ flexible license management strategies for all shared software that supports user availability of .999 (TBR).
Environment	Licensing	The DE ecosystem SHALL facilitate new software tool license allocations within (TBD) days of a request.
Environment	Licensing	The DE ecosystem SHALL provide license and tool usage metrics..

Environment	Licensing	The DE ecosystem SHALL have warning report capabilities for approaching license capacity limits.
Environment	Licensing	The DE ecosystem SHALL have warning report capabilities for approaching license renewal dates.
Environment	Licensing	The DE ecosystem SHALL have warning report capabilities for low usage of tool licenses
Environment	Portability	The DE ecosystem SHALL provide portability of applications through VMs and other applicable virtual means.
Environment	Portability	The DE ecosystem SHALL provide capability to export prototyped ecosystem improvements for reuse.
Environment	Portability	The DE ecosystem SHALL support offline retrieval of TBD applicable data types and TBD applicable information formats .
Environment	Portability	The DE ecosystem SHALL enable the export of data directly to applicable productivity software.
Environment	Support	The DE ecosystem SHALL provide documentation and reference guidance describing the physical and virtual bounds of the ecosystem for ease and efficient user understanding of the ecosystem.
Environment	Support	The DE ecosystem SHALL incorporate mechanisms to support integrated workflows for managing non-technical programmatic work in progress, separate from released work product.
Environment	Support	The DE ecosystem SHALL incorporate mechanisms to support integrated workflows for managing technical work in progress separate from released work product.
Environment	Support	The DE ecosystem SHALL incorporate model centric workflows throughout the development life-cycle, from requirements definition, through requirements selloff and support of production, deployment, operation and sustainment life-cycle phases.
Environment	Support	The DE ecosystem SHALL provide and support growth of automation and autonomous artifact generation.
Environment	Support	The DE ecosystem SHALL provide a query capability to search, locate and access programmatic and engineering products by all authenticated users and stakeholders.
Environment	Support	The DE ecosystem SHALL provide for a formal, automated checkout of all applications and data.
Environment	Visualization	The DE ecosystem SHALL have a fully integrated applicable visualization and reporting capability.
Infrastructure	Hardware/Computing	The DE ecosystem SHALL be implemented and maintained with approved IT hardware and software
Infrastructure	Hardware/Computing	The DE ecosystem SHALL provide local basic engineering productivity computing and analysis capabilities, applicable for localized engineering scoped activities.
Infrastructure	Hardware/Computing	The DE ecosystem SHALL accommodate expansion of compute capabilities to support of High-performance data analysis and computing power.
Infrastructure	Networks	The DE ecosystem SHALL support connectivity to remote, off-line and geographical dispersed locations, throughout the development life-cycle and support going into production, operations and sustainment phases.
Infrastructure	Networks	The DE ecosystem SHALL provide extensibility for secure connections to FFRDCs
Infrastructure	Networks	The DE ecosystem SHALL provide extensibility with interoperability to both unclassified and classified Tri-Service and other Defense networks.

Infrastructure	Networks	The DE ecosystem SHALL provide extensibility with interoperability to applicable non-secure and secure connections to industry , academia and OCONUS networks.
Infrastructure	Software	The DE ecosystem SHALL accommodate implementation of COTS, Custom, Open source & free-ware tools.
Infrastructure	Software	The DE ecosystem SHALL establish a mechanism to enable ATO reciprocity for widely adopted and approved software tools use.
Infrastructure	Software	The DE ecosystem SHALL enable access to legacy modeling software and tools required to support engineering life-cycle activities.
Security	Access Control	The DE ecosystem SHALL provide accessible areas designated for knowledge transfer.
Security	Access Control	The DE ecosystem SHALL provide access for stakeholders and end users to all authoritative data and information at the appropriate classification level of the end user.
Security	Access Control	The DE ecosystem SHALL comply with all applicable NIST Access Control guidance for identification and authentication of users and all network accesses.
Security	Access Control	The DE ecosystem SHALL provide automated capability for managing access controls consistent with NIST Access Control guidance
Security	Access Control	The DE ecosystem SHALL provide a two factor authentication sign-on to the system.
Security	Access Control	The DE ecosystem SHALL provide applicable CAC enabled sign on or single sign-on capability for all authenticated users.
Security	Access Control	The DE ecosystem SHALL accommodate new user account approvals in less than TBD (days, hrs, minutes)
Security	Access Control	The DE ecosystem SHALL provide authorized users access to models and associated data.
Security	Access Control	The DE ecosystem SHALL provide authorized users privileges to modify models.
Security	Classification	The DE ecosystem SHALL support operations in an Unclassified environment.
Security	Classification	The DE ecosystem SHALL support operations in a Secret environment.
Security	Classification	The DE ecosystem SHALL support operations in a Top Secret environment.
Security	Classification	The DE ecosystem SHALL support operations in a closed community controlled applicable environment.
Security	Classification	The DE ecosystem SHALL provide extensibility to accommodate bi-directional classification translation (Promote/Demote) in a multiple-level-security environment.
Security	Classification	The DE ecosystem SHALL have the capability to promote/demote classifications with a minimum two cleared person adjudication review.
Security	Classification	The DE ecosystem SHALL provide extensibility for approved automation to promote/demote classifications.
Security	Cybersecurity	The DE ecosystem SHALL provide for FOUO and proprietary information segregation
Security	Cybersecurity	The DE ecosystem SHALL comply with applicable Information Assurance (IA) Risk Management Framework (RMF) requirements.
Security	Cybersecurity	The DE ecosystem design SHALL support and enable authority to operate (ATO) requests within (TBD) working days.