



Distributed Networked Battle Labs DNBL

Operating Model

Edition 2.1

Document History

Document Location

The source of the document will be found on the website created by NCIA for DNBL project (at <https://dnbl.ncia.nato.int>).

Version History

Version date	Previous version date	Summary of Changes	Version
31 March 2010	31 March 2010	Finalisation of v 1.0	1.0
17 February 2011	31 March 2010	Update to Edition 1.1	1.1
18 August 2011	17 February 2011	Update to Edition 2.0	2.0
22 March 2012	18 August 2011	Update to Edition 2.1	2.1

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1 Introduction

Distributed Networked Battle Labs (DNBL) is an initiative led by the NATO Communications and Information Agency (NCIA) with sponsor support from Headquarters Supreme Allied Command Transformation (HQ SACT) which has been created in order to tighten cooperation on preparation and conduct of Experimentation, Test and Evaluation (ET&E) services between the members of the framework. The DNBL Framework enables its members to exchange services in a fast and economic way and through this to provide access to DNBL-specific capabilities and systems in a federated way.

This results in the need to “pool and share”, as expressed by the NATO Secretary General and SACT¹. The federation of existing capabilities and systems allows DNBL members to speed up and simplify the preparation and conduct of a wide range of ET&E events.

The DNBL Framework is guided by three principles:

- Reuse: existing capabilities and facilities through DNBL services
- Reduce: time and cost to prepare and conduct ET&E events
- Recycle: lessons learned and knowledge management from ET&E services.



The Distributed Networked Battle Labs Framework provides the operating model to enable the federated use of capabilities and systems for a wide range of user groups and to exchange services for ET&E in a fast and effective way. This will allow establishing testbeds and battle laboratories and making use of reference systems through the elements provided by the DNBL community.

The services will be required in three different categories:

- Services to link the elements to a federation.
- Services to plan and execute an ET&E event.
- Subject-specific services providing the full range of required elements from reference systems, data base, operator workstations, simulations, software applications for C2 systems, scenario generation, test control, etc.

The operating model as outlined herein defines the basis for managing the services offered to and by DNBL members by means of distributed and networked battle labs. The DNBL Operating Model is supplemented by the DNBL portal User Terms of Use (UToU)², the DNBL portal Member Terms of Use (MToU)³ and the DNBL Terms of Reference (TOR)⁴.

¹ The need for closer cooperation between NATO, NATO nations, industry and academia (“smart defence” concept) has been expressed by the Secretary General (“NATO after Libya – The Atlantic Alliance in Austere Times”, Foreign Affairs July/August 2011).

² Edition 1.0 dated 10 January 2012

³ Edition 1.0 dated 10 January 2012

⁴ Edition 2.0 dated 10 January 2012

2 Definitions

The following set of definitions provides specific descriptions applicable for the DNBL Framework. This document is the sole source of definitions specifically tailored to the DNBL Framework and complements the NATO AAP-15 Glossary and Terms.

Table 1: DNBL definitions

Term	Definition
Battle lab	Combination of test capabilities brought together with operational end-users for the purpose of operator training and/or development/enhancement of operational concepts and procedures.
Composite service	Service which is composed of a minimum of two single services. This can be quite complex configurations which combine multiple single and / or composite services from multiple service providers, multiple battle labs, manages multiple service subscribers and has a complex networking infrastructure.
Data	Information required for the provision of services under the DNBL Service Catalogue.
Disclosing partner	The DNBL member that imparts data to another DNBL member. A disclosing partner can be service provider and /or a service subscriber.
DNBL Advisory Board	The forum for DNBL members to discuss DNBL service strategy, recommend updates/modifications to the framework rules/regulations/processes and methods and provide advice to technical DNBL topics. The mandate and the composition of the Advisory Board are defined in the DNBL terms of reference.
DNBL Board of Directors	The DNBL Board of Directors is the senior management entity within the DNBL Framework which provides oversight and direction for coherent, coordinated and synchronized implementation of the DNBL strategy. The Board of Directors is constituted for decision making at the strategic and political level. The Board of Directors provides its decisions to the DNBL Executive Board for implementation.
DNBL community	Understand as a virtual community composed of the DNBL users and DNBL members.
DNBL environment	The “DNBL environment” is constituted of a number of facilities / battle labs and capabilities, which are operated in a federated way via a network as a part of the DNBL Framework.
DNBL event	“DNBL event” is the actual execution of a single or composite service. A DNBL event is managed by an ET&E manager.
DNBL Executive Board	The DNBL Executive Board is the senior management entity within the DNBL Framework responsible for implementation of policies and strategies accordingly to the strategic view of the DNBL Board of Directors. This entity provides oversight and direction for coherent, coordinated and synchronized implementation of the DNBL strategy. The DNBL Executive Board is constituted for consultation at the strategic and political level, as well as for the management decisions for the DNBL Framework.

Term	Definition
DNBL service model	A service model for the delivery of efficient collaborative services within the DNBL community. The services are delivered by the DNBL service providers to DNBL service subscribers.
DNBL member	An organisation from NATO, NATO and Partnership for Peace (PfP) countries, NATO and PfP industry or academia that has accepted the members terms of use and can offer and/or subscribe to services offered in the DNBL Service Catalogue. DNBL member contributes to the portal as well as to the development of the DNBL Framework.
DNBL Technical Authority (TA)	The DNBL TA, led by the NCIA, is the supporting element for the DNBL Executive and Advisory Boards. The TA manages the DNBL Framework at the technical and operational level as well as all associated activities. It supports the community with current framework documents and collaborative workspace – the DNBL portal, where approved records of proceedings and other DNBL-related documentation is published.
DNBL service	The exchange and processing of data in a distributed manner for the purposes of ET&E. Services are available and registered in the service catalogue and can be combined to composite services depending on the requirement(s) from the service subscriber.
DNBL user	The DNBL user is an individual person who, upon acceptance of the user terms of use, has received an account and access to the DNBL portal to get information about the DNBL Framework, the service catalogue and the opportunities that the framework offers. The DNBL user will have “read” access rights to the portal.
Experimentation, Test and Evaluation (ET&E)	ET&E services. Scope of services offered to and by the DNBL Framework members.
Event support agreement (ESA)	The event support agreement provides the conditions for the delivery of the service by the service provider and will be tailored to the specific event on the basis of the related service description.
Laboratory (lab)	Permanent or semi-permanent set of assets designed to support research and development (R&D) and experimentation to enhance capability and development of concepts/architectures.
Receiving partner	The DNBL member to which data is imparted by another DNBL member. A receiving partner can be service provider and /or a service subscriber.
Reference facility	Replication of agreed instantiation of a standard system or deployed configuration, maintained under strict configuration management control in step with the parent system, for the purpose of ensuring conformity, maintaining system integrity and/or reducing risk.
DNBL Service Catalogue	DNBL portal based platform for the DNBL members to offer their capabilities and systems for ET&E as a service in the form of the service description. The repository for service subscribers and ET&E managers for single and/or composite services.
Service description	The specification of a capability or system offered for ET&E in the DNBL format and structure. Developed and provided by the service provider. Complemented by the event.
Service provider	DNBL member that offers a single or composite service in the DNBL Service Catalogue.

Term	Definition
Service subscriber	DNBL member that selects and subscribes to single or composite services as offered by the service provider(s).
Single service	A “single service” is a service delivered by a single service provider and involves only one capability or system.
ET&E manager	The ET&E manager represents the service provider(s) to the service subscriber (single point of contact). The ET&E manager is one of the basic DNBL services and its services will be financially carried on by the service subscriber. For a single service, it is the organization of the ET&E manager that will deliver the full service. For a composite service, the ET&E manager will also contract (ESA) other service providers and orchestrate the individual services into an integrated service that is delivered to the service subscriber.
Testbed	Environment temporarily formed to support project development, programme integration, and interoperability.

3 DNBL Mission & Benefits

The DNBL mission was given by HQ SACT with the statement of work (SoW) for the development phase of the DNBL Framework:

“The use of Battle Laboratories in a distributed environment (DNBL) enables early and standardized collaborative testing and experimentation, which should lead to the improvement of operational efficiency and coherence for military capabilities being developed.”

Expected benefits of the DNBL concept as an enabling capability range are:

1. Improvement of the level of interoperability awareness and capability assurance by networking of NATO, national, industrial or academic laboratories and experts.
2. Speed up the introduction, experimentation, verification and validation of new Concept of Operations (CONOPs), Techniques, Tactics and Procedures (TTPs), standards, architecture design, implementations, systems, technologies, and thus compress capability engineering and fielding cycles.
3. Increase the NATO network-enabled capability (NNEC) level of adoption and coverage, or operational fidelity, by completing the federation-of-systems testing capability, by making better use of existing facilities and knowledge across NATO, nations, and partners.
4. For NATO: to see early adoption and implementation by nations and industries of NATO standards, and to benefit from best of the stream of industrial technologies and expertise.
5. For industry: to access operational knowledge and context, to increase technology reliability and to extend its applicability, to increase strategic positioning to support decision-making and to anticipate competitive advantage in meeting military requirements.
6. For and between nations: to strengthen coherence of their contributions within NATO and to save cost, time, and risks management, in launching request for quotations (RFQs) for implementation of NATO standards, and compliance to, in their national capabilities.
7. For NATO, nations and industry: to increase the utilization of their facilities and experts.

4 DNBL Framework Principles

The DNBL Framework is designed to speed-up and to simplify the collaboration for ET&E events within the DNBL community. This requires acceptance of general rules to be able to act within the community and a platform, to make DNBL members aware of the existence and the conditions to use capabilities and systems available at different locations.

Service providers offer their capabilities and systems through the DNBL Service Catalogue and where service subscribers can match their requirements for ET&E against the service descriptions.

The DNBL Framework, through the DNBL TA, supports this process through a platform with restricted access for the DNBL users and members. This platform provides access to the service information and the conditions to make use of the offered capability or system and offers a restricted environment to prepare and execute the ET&E event. The contracting of services is solely between the service subscriber and the single or combined service providers.

The DNBL Framework offers four different levels of access to information for services and events.

Table 2: DNBL Framework levels of access

Level	Accessible Information and type of agreement	Access to
Open to public	General information about the DNBL Framework, the framework documents and the application forms.	https://dnbl.ncia.nato.int
User	Access to the DNBL portal and the DNBL Service Catalogue Acceptance of DNBL UToU	DNBL members site
Member	Can offer and subscribe to DNBL services via the DNBL Service Catalogue Acceptance of DNBL portal MToU	DNBL members site
Event participant	ET&E event Participant of a DNBL event as defined in the ESA	DNBL event site created by the DNBL TA

The DNBL Framework provides the DNBL terms of use as the general rules for access to information restricted to the DNBL community and guidance on how to make use of this information.

Upon acceptance of the DNBL UToU, the new member can join the community. The next level is the DNBL membership – confirmed via the acceptance of the DNBL portal MToU. The DNBL portal MToU defines the basic membership rules and a common understanding for the DNBL members – they will allow access to the DNBL members site on the portal. At this level the members can create and subscribe to all available services.

The following principles are covered by the DNBL portal UToU:

- User gets access to the DNBL members site to collaborate within the DNBL community and to exploit the DNBL Service Catalogue.
- User accepts his contact data to be published within the community.
- User accepts rules and standards on handling the information provided in the DNBL portal.
- User accepts rules and standards for the safeguarding of his credentials for the portal.

The following principles are covered by the DNBL portal MToU:

- Acceptance of DNBL portal MToU is necessary before providing or subscribing to services.
- Responsibility of service subscribers and service providers is limited to the processing of received data as specified in the services catalogue or according to the ESA between the DNBL members.
- Service subscribers and service providers accept the definitions of liability and warranties as a minimum standard.
- Service subscribers and service providers accept the paragraphs on exchange and handling of data in the DNBL portal MToU in order to safeguard the data processed during the testing as a minimum standard.
- The DNBL member involved in the testing activity will be granted permission to use (copy, store, assemble, modify, process) received data from another DNBL member, for the sole purpose of processing the data received, and with a clear restriction on further use or dissemination which will be subject to the originator's/owner's prior written approval.
- It shall be up to the DNBL members to ensure that any rights or obligations pertaining to data exchanged shall not hinder the actual exchange.
- Service subscribers and service providers shall be protected against any further claims or contests with the lawful use of processed data.
- Service providers that are subject to national export control regulations shall ensure adherence with agreed terms and conditions and need to clarify with their national authorities prior to offering the service the impact of the export/import control regulations.
- Service providers are responsible for ensuring national security accreditation of their sites.
- Service providers agree to keep to the levels of maturity and quality of the services defined in the DNBL portal MToU for their service offers.

The service description and conditions for the service delivery (ESA) cover the following areas, as a minimum:

- Description of the specific kind of offered experiment, test and evaluation services.
- Costs per use – a range of cost figures in the initial ESA (in the service catalogue) and precise cost in the final ESA tailored to the specific needs of the event.
- Required service subscriber furnished data and information necessary to perform the service.
- Quality of the services.
- Maturity of the services.
- Availability of the services, dependencies with service subscriber input (government-furnished data (GFD)) and related risk.
- Time lines – lead time to delivery, time to conduct/execute the test and time to analyze.
- Roles and responsibilities – communication plan.
- Security classification.
- Reporting, reviewing and auditing of services.
- Handling of issues related to the delivery of the service.

5 DNBL Key Elements

The key elements of the DNBL Framework are listed in Table 3.

Table 3: DNBL key elements

User and member terms of use	An operating framework and general rules and regulations for the whole community to quickly and effectively setup and conduct the events.
Governance model	A governance organization to guide the DNBL community and manage and maintain the DNBL Framework.
DNBL Service Catalogue	<ul style="list-style-type: none"> • Service catalogue and service management processes • Set of services (service types): <ul style="list-style-type: none"> ○ Infrastructure & Security (I&S) services for connecting battle labs ○ Subject-specific services ○ ET&E services handled by ET&E manager.
DNBL portal	A platform for the DNBL community with restricted access to share information and conduct events for ET&E.

The framework offers a platform via the DNBL portal for DNBL members to:

- Receive guidance on the service development.
- Offer services and subscribe to services.
- Raise requests for new and/or combined services.
- Manage DNBL membership.
- Exchange information within the DNBL community.
- Improve the framework.
- Exchange “lessons learnt” information.

6 DNBL Document Hierarchy

The DNBL Framework is defined and specified in the following documents:

Table 4: DNBL document hierarchy

DNBL Operating Model	Defined the framework and related processes
DNBL Terms of Reference (TOR)	Specifies the mandate and the tasking of the DNBL governance elements
DNBL portal User Terms of Use (UToU)	Specifies the rules and regulations for access to the DNBL platform and the use of the DNBL portal
DNBL portal Members Terms of Use (MToU)	Specifies the rules and regulations for offering and consuming services

At the service management level, the DNBL Framework provides an overview of available services in the DNBL Service Catalogue, a template for creating a new service and an optional template for the service delivery conditions (ESA).

At the lowest level, the service descriptions address the organisational, system and technical aspects of the services and all aspects of the services life cycle in relation to the NATO Architecture Format v3 and thereby allow the service subscribers to be confident about the maturity and quality of the services. The delivery conditions for a service are defined in an agreement (ESA) between the service provider and the service subscriber tailored to an event. The ESA also provides the service subscriber responsibilities with respect to required input for the service delivery. The service descriptions and the general service delivery conditions of the service providers will be available in the service catalogue on the DNBL portal.



Figure 1: DNBL document hierarchy

7 DNBL Organisation Structure

7.1 Global DNBL Structure

The global relationships between the DNBL parties are shown in the following figure.

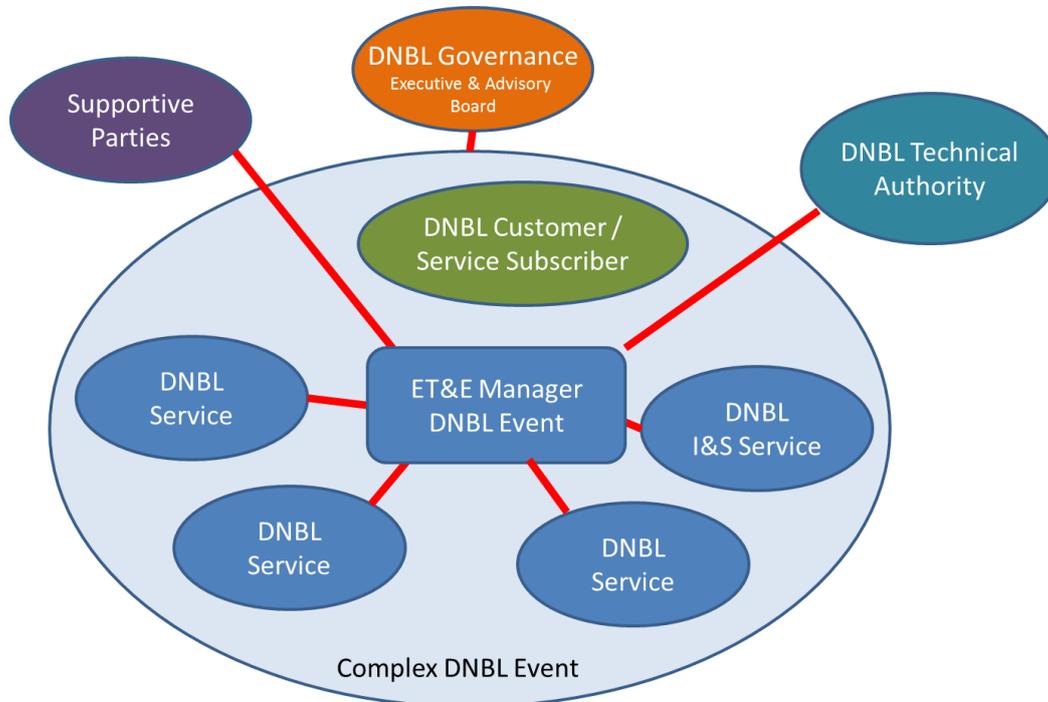


Figure 2: Global DNBL relationships

The DNBL mission is to enable and support ET&E events conducted by members of the framework. Through this, the owners of a certain capability and the potential customers are brought together and are offered a working environment in which they can prepare and execute the event. This is provided by the DNBL platform via the DNBL TA and supportive parties. The DNBL governance⁵ provides relevant guidance for the development of the DNBL Framework and the services and is the authority to resolve issues between the parties if required.

⁵ As defined in the DNBL ToR and in the DNBL portal UToU and MToU

7.2 DNBL Roles and Responsibilities

The roles and responsibilities within the DNBL Framework are explained in the following table.

Table 5: DNBL roles and responsibilities

Organisation	Role		Responsibility
DNBL governance	Strategic governance	Board of Directors	DNBL governance; see DNBL TOR
DNBL governance	Governance	Executive & Advisory Board	DNBL governance; see DNBL TOR
DNBL	Management	TA	DNBL Framework and infrastructure; see DNBL TOR and DNBL Operating Model
DNBL supporting	NATO-MSAB	Security accreditation	Multi-national/NATO security accreditation, required in case of the Combined Federated Battle Labs Network (CFBLNet) connection.
DNBL supporting	NATO-MSAB/NSAB/SAA	Security accreditation	National security accreditation, required for classification higher than NU.
DNBL supporting	NATO-NOS	Security accreditation	Security accreditation of NATO facilities
DNBL supporting	NATO-CFBLNet organisation	Provide network connection	Responsible for managing the CFBLNet services, required in case of a CFBLNet connection.
DNBL supporting	Nation-NAA/SAA	Security accreditation	Security accreditation of service subscriber and national/industry facilities
Service subscriber/provider	Customer	Service subscriber project manager (SPM) and team (STT)	Providing the funding for the event to cover: <ul style="list-style-type: none"> • Subject-specific services • ET&E manager service • I&S service • Service subscriber facilities, equipment and resources necessary to establish and maintain the service subscriber part of the network, communication and security services.
ET&E manager	Service	ET&E manager (TEM)	Manage the DNBL ET&E event that subscribed to the I&S service. Tasking for involved service subscriber bodies

The DNBL Executive Board, under strategic oversight of the DNBL Board of Directors, is the senior management entity within the framework and provides leadership for coherent, coordinated and synchronized implementation of DNBL.

The DNBL Executive and Advisory Boards will:

- Make decisions based on consensus.
- Meet at least once a year.
- Circulate information among the members (information management).
- Keep records of their proceedings.

The DNBL Advisory Board provides guidance on operational, system and technical aspects of the service roadmap. The DNBL TA supports the DNBL community and interfaces with the DNBL event participants on this task.

The structure of the DNBL governance and management of the DNBL Framework can be seen in the chart below.

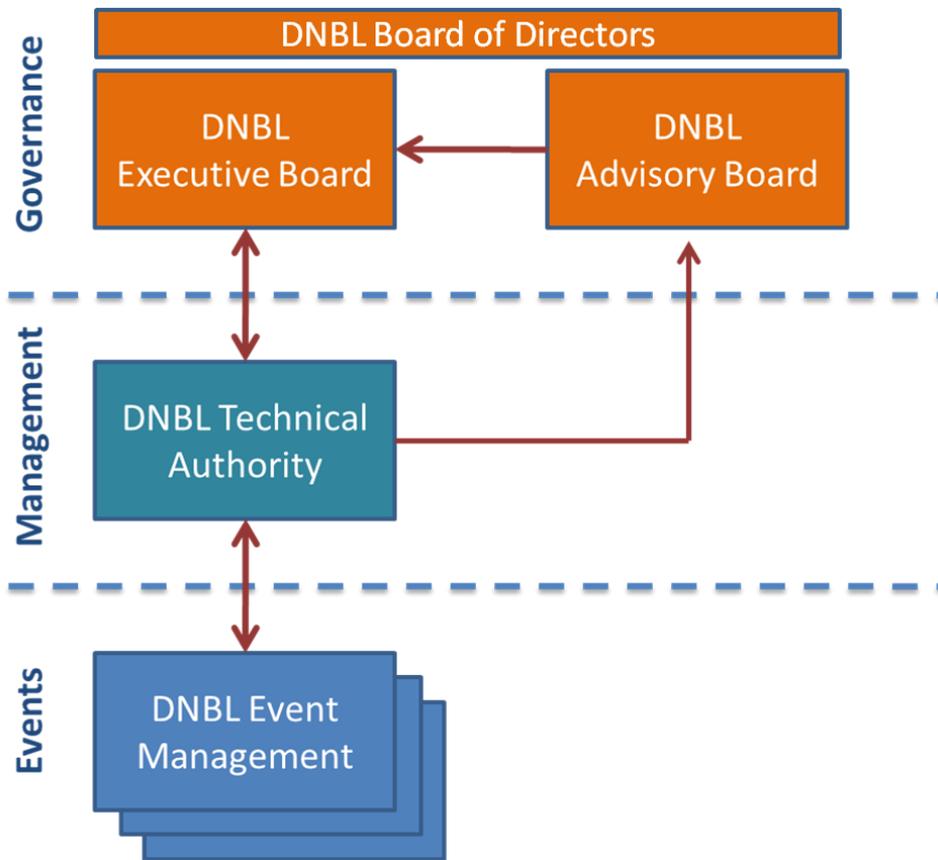


Figure 3: Organizational elements of the DNBL Framework

Table 6: DNBL governance and management bodies, compositions & responsibility areas

DNBL Board of Directors	<p>The DNBL Board of Directors, constituted for decision making at the strategic and political level, oversees development of the overall strategic direction and policy framework for the DNBL. The Board of Directors discharges its responsibilities to the DNBL Executive Board.</p> <p>The DNBL Board of Directors has the responsibility to:</p> <ul style="list-style-type: none"> • Oversee the development and implementation of the strategic plans, broad policies and objectives for the framework. • Ensure the availability of adequate resources for the DNBL Framework. DNBL Board of Directors decides on the adequate business model for DNBL Framework. • Represents the DNBL Framework externally and liaison with other NATO, national and international organizations and bodies.
DNBL Executive Board	<p>The DNBL Executive Board responsible for preparation and implementation of policies and strategies in accordance with the strategic view of the DNBL Board of Directors.</p> <p>The DNBL Executive Board has the responsibility to:</p> <ul style="list-style-type: none"> • Provide oversight and direction for coherent, coordinated and synchronized implementation of the DNBL strategy. • Implement a strategic plan, broad policies and objectives in line with the DNBL Board of Directors decisions. • Ensure availability of adequate resources for the DNBL TA. • Ensure the maintenance and regular review of the DNBL policies. • Develop the DNBL service strategy for the DNBL Framework portfolio. • Liaise with other NATO, national and international organizations and bodies. • Oversee the DNBL TA work.
DNBL Advisory Board	<p>The DNBL Advisory Board is the DNBL community interface which collects feedback on DNBL implementation and activities provides advice on the DNBL strategy to the DNBL Executive Board.</p> <p>The Advisory Board for DNBL advises on:</p> <ul style="list-style-type: none"> • Community feedback on the DNBL Framework. • The development of the DNBL service strategy. • DNBL policies, directives and standards. • Liaison with industry and academia on matters pertaining to DNBL.
DNBL Technical Authority	<p>The TA, led by the NCIA, is the supporting element for the DNBL Executive and Advisory Boards. The TA manages the DNBL Framework at the technical and operational level as well as all associated activities.</p> <p>The responsibility areas for the TA for DNBL are:</p> <ul style="list-style-type: none"> • Advising and supporting the DNBL Executive Board and Advisory Board. • Maintaining and updating the framework processes and procedures as specified in the DNBL Operating Model. • Operating and maintaining the DNBL portal. • Maintaining the DNBL services portfolio. • Managing information process and quality control for the DNBL community. • Configuration management and information security of the framework. • Collating and disseminating lessons learnt and best practices, identified from the employment of the framework and the DNBL events. • Developing and proposing a five-year financial plan to the Executive Board for the DNBL TA tasks. • Executing other assigned tasks.

The DNBL Framework is supported by a collaborative workspace on the DNBL portal where records of proceedings and other DNBL related documentation will be published. The federated architecture of DNBL requires the frequent use of VTC and other forms of virtual meeting.

Further details about the relations between the DNBL entities can be found in the TOR for DNBL for the governance and in the specific DNBL service description. With the registration/subscription of services the providers/subscribers agree to respect the membership rules.

8 DNBL Membership

As explained in the DNBL Framework principles, there are three levels of membership in the framework.

Table 7: DNBL membership

User	Access to the DNBL portal and the service catalogue	Acceptance of the DNBL portal UToU
Member	Can offer and consume DNBL services via the DNBL Service Catalogue	Acceptance of the DNBL portal MToU
Event participant	ET&E event	Participant of a DNBL event as defined in the ESA

DNBL membership is open to NATO organisations, NATO and PfP countries as well as industry and academia. A staff member of an organisation interested in participation in the DNBL community can request user level membership and be granted access to the DNBL portal as a visitor. The aim is to allow him/her to assess the information and benefits of a DNBL membership and motivate his/her organisation to join the community. The DNBL UToU, which the user is requested to accept, applies across the three levels of membership.

DNBL membership will not be granted to individuals; only organisational entities can apply. Interested organisations can apply for membership by filling out the application form that is available on the public part of the DNBL portal. By signing the application form, the organisation confirms that it accepts the membership rules under the DNBL portal MToU.

The DNBL membership:

- Is free of charge until 2015 and comes without any obligations, other than defined in the DNBL portal UToU and MToU.
- Allows users from DNBL members to access the restricted part of the DNBL portal and contribute to the DNBL forum, the DNBL Service Catalogue and DNBL event notifications. (Note that the special portal sites for DNBL events can only be accessed by parties participating in the event.)
- Allows members to subscribe to DNBL services
- Allows members to design new DNBL services and offer them to the DNBL Executive Board for approval. Accepted services will be added to the DNBL catalogue and offered to all members of the framework.

- The duration of the membership is indefinite until revoked by the DNBL Executive Board or terminated by the DNBL member.

The Executive Board verifies if a candidate to DNBL membership fulfils all required criteria before accepting it as a DNBL member. The profile for membership is:

- Entity of a NATO organisation, NATO or PfP nation and NATO/PfP nation industry or academia.
- Facility security accreditation at least for NATO/PfP Unclassified [ref. AC 35-D-1040-Rev1]
- Compliant with national export/import control policies

8.1 Portal Access and User Rights

This section describes existing levels of access to the DNBL portal.

8.1.1 User Access to the DNBL Portal

The requirements for an account on the DNBL portal for staff members of a potential DNBL member organization are defined in the DNBL UToU. The user accepts these rules and regulations with the first access to the portal. The UToU are applicable across the higher levels of DNBL membership where access to the portal is granted. The DNBL user will be granted “read” permissions on the portal.

When an organization joins the DNBL community, its points of contact (PoC) can request an appropriate number of user accounts, and it is their decision which of their staff can receive a user account. If the PoCs decide that the existing user account is not required anymore, the DNBL TA will terminate it on their request.

8.1.2 Members’ Points of Contact

As membership will only be granted to organisations, the members will need to appoint member’s points of contact (member POC). Two member organisation PoCs must be defined on the DNBL application form.

The member PoCs:

- Will represent the member organisation to the DNBL community.
- Will receive access rights (contribute) for the DNBL portal from the TA.
- Can define/modify the general description and the contact information of their organisation on the DNBL portal.
- Can request the TA to add or remove additional points of contact from their organisation (the member users) to/from the DNBL portal access list.

The member PoCs are not limited in the number of member users they can introduce (depending on future experiences this may change).

8.1.3 Member Users

Member users can:

- Self-register on the DNBL portal from the TA after a confirmation of this requirement by the member’s PoC.

- Modify their contact information.
- Use the general (non-event related) portal functionality.
- Note that member PoCs are also member users.

8.1.4 Event Points of Contact

Each event on the DNBL portal will be managed by two event points of contact (event PoC), one PoC for the service provider and one PoC for the service subscriber. The PoCs must be appointed in the ESA when the event is created on the DNBL portal to ensure smooth implementation of the event.

The event PoCs:

- Will represent the event to the DNBL community.
- Will receive access rights for the event on the DNBL portal from the TA.
- Can define/modify the general description and the contact information of the event on the DNBL portal.
- Can request the TA to add or remove member users to/from the DNBL portal access list for the event (the event users).
- Are accountable for any actions taken by event users on the DNBL portal event site.
- Event PoCs are not limited in the number of event users they can introduce (depending on future experiences this may change).

8.1.5 Event Users

Event users:

- Must be DNBL member users.
- Will receive access rights for the DNBL portal event site from the TA after a request from the event PoC.
- Can use the event site related to portal functionality.
- Note that event PoCs are also event users.

8.2 Portal Rights

Table 8: DNBL portal access and user rights (C=Contribute, R=Read, U=Use, D=Design)

Rights / Information	Technical Authority	User	Member user	Event user
PoC portal access rights	D	R	-	-
User portal access rights	D	R	-	-
Member description and contact information	D	R	R	R
Member user contact information	D	R	C	C
General portal functionality (not event)	D	R	C	C
PoC event access rights	D			
User event access rights	D			

Event description and general contact information	D	R	-	C
Event user contact information (= member user contact information)	D	-	-	C
Portal event site functionality	D	-	-	C

8.3 DNBL User Life-cycle

The user level of membership requires a staff member of an organisation which fulfils the criteria for DNBL membership to apply for an account on the DNBL portal or via an email to the DNBL TA. The DNBL portal user has to communicate via an official email address of his/her organisation with the DNBL TA (status: applicant, sub-status: new).

The DNBL TA will apply the process defined below and assess the request (status: candidate, sub-status: new). The DNBL TA can request the applicant to provide additional information (status: applicant, sub-status: review), after which the applicant can update his request and re-submit it (status: candidate, sub-status: new).

The applicant can also choose to withdraw the application at any time during the process and the application will be deleted (status: applicant, sub-status: stopped). When the candidate is applicable for a user level membership DNBL, TA will establish the account on the DNBL portal with read rights. By accessing the portal the first time the user accepts the DNBL UToU. This will be recorded in the portal statistics which are analysed once per month. The DNBL user is requested to provide its contact details on the members site on the DNBL portal.

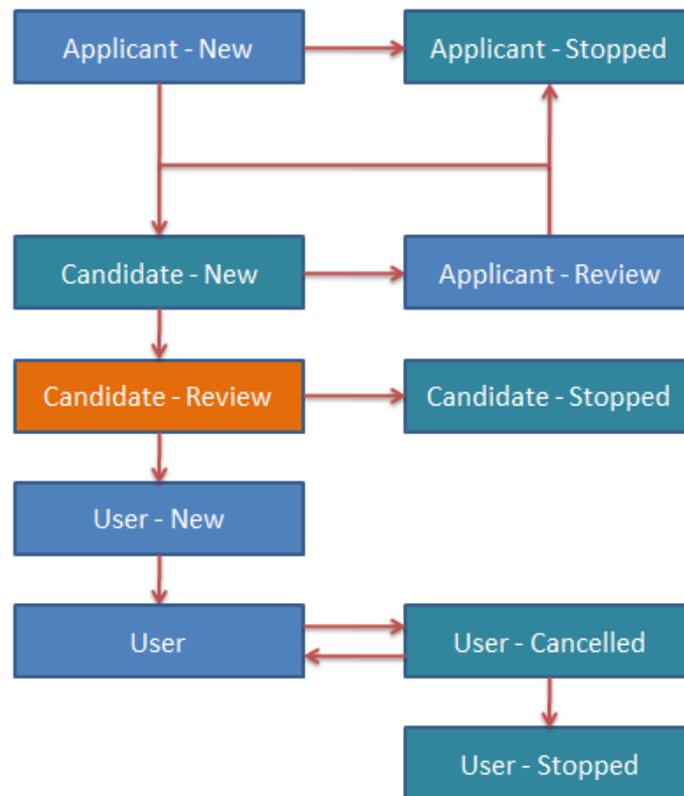


Figure 4: User life-cycle

The user can also request DNBL TA to terminate his membership and delete his account.

8.4 DNBL Membership Life-cycle

The membership life-cycle is depicted in the below picture. The membership life-cycle starts when the applicant fills out the DNBL application form (status: applicant, sub-status: new). After completing the form, the applicant submits the form to the DNBL organisation (status: candidate, sub-status: new). The TA assesses if the candidate submitted its application in the right order. The TA can request from the candidate organisation to provide additional information (status: applicant, sub-status: review), after which the applicant can update the application form and re-submit it (status: candidate, sub-status: new).

The applicant can also choose to withdraw the application at any time during the process and the application will be deleted (status: applicant, sub-status: stopped).

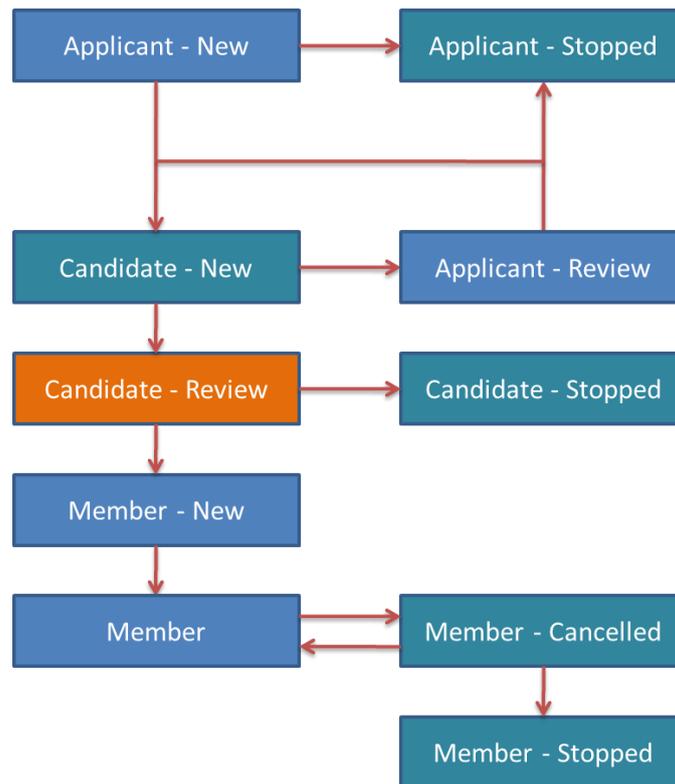


Figure 5: Membership life-cycle

Once the TA has received and accepted required information about the candidate member organisation, the TA presents the application to the DNBL Executive Board for approval (status: candidate, sub-status: review).

In cases where the Executive Board does not grant its approval, membership will not be granted to the candidate organisation. The application will be archived for future reference (status: candidate, sub-status: stopped).

If the Executive Board approves the application (status: member, sub-status: new), the TA will inform the applicant and the DNBL community that the membership has been granted (status: member, sub-status: active).

The member can terminate its membership at any time (status: member, sub-status: cancelled). The TA will assess the request and if the member has no on-going commitments (there are no active ESAs) the membership will be terminated (status: member, sub-status: stopped).

If the member has on-going commitments then membership termination is not possible (status: member, sub-status: active). The member organisation can re-request termination when no commitments remain.

Table 9: Service status and sub-status

Status	Sub-status	Description	Application / membership visible for	Modification allowed for	Change to next status allowed for
Applicant	New	Fill out application form	Applicant	Applicant	Applicant
Applicant	Review	Update of the application form	Applicant, TA	Applicant	Applicant
Applicant	Stopped	Application is withdrawn	TA	None	None
Candidate	New	Application form is submitted to and assessed	Applicant, TA	None	TA
Candidate	Review	Application is offered for approval to the Executive Board	Applicant, TA, Executive Board	None	Executive Board
Candidate	Stopped	Membership is not approved by Executive Board. Reference to the application is stored for future reference.	Applicant, TA, Executive Board	None	None
Member	New	Membership is granted by Executive Board	Applicant, TA, Executive Board	None	TA
Member	Active	Membership is valid	All DNBL members	Member (contact info only)	Member, TA
Member	Cancelled	The member requests termination of membership	All DNBL members	Member (contact info only)	TA
Member	Stopped	The membership is terminated. Reference to the membership is stored for future reference.	Member, TA, Executive Board, DNBL members that have access to events that the terminated member participated in.	None	None

The workflow for the joining of the community is provided in the following figure.

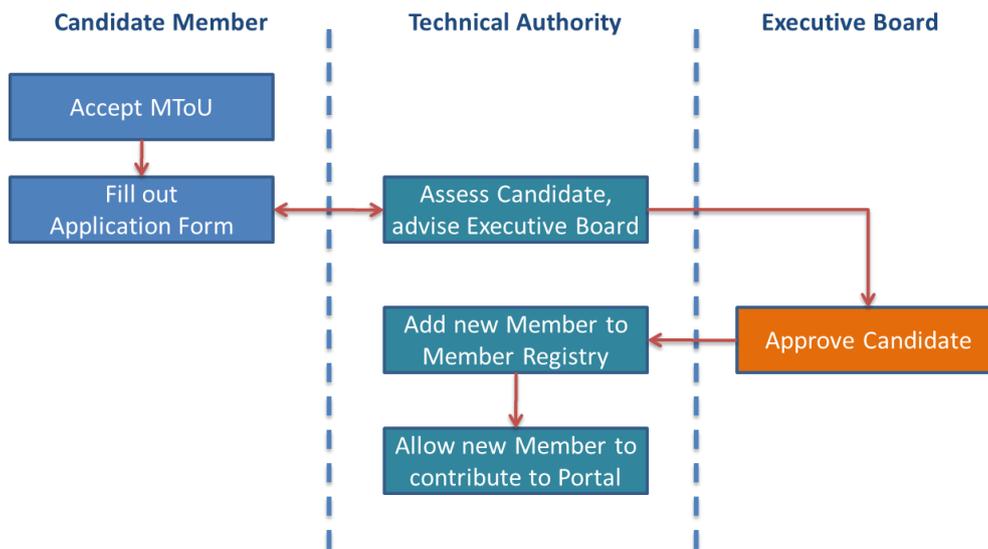


Figure 6: Process model for acceptance of new members

As depicted in the figure below, a member can terminate its membership by addressing the request to the TA. After confirmation that the member has no open/pending commitments, the TA will inform the member and the Executive Board of the termination and remove the member’s organisation account from the restricted portal and the member registry.

In other cases, for example when the member has open obligations in an on-going event, the member has signed an ESA or the TA has been informed of a complaint against the member, termination of membership can be postponed by the TA. The member will be informed about this decision by the TA and requested to complete his current obligations and any pending issues. The workflow of termination of membership is depicted in the following chart.

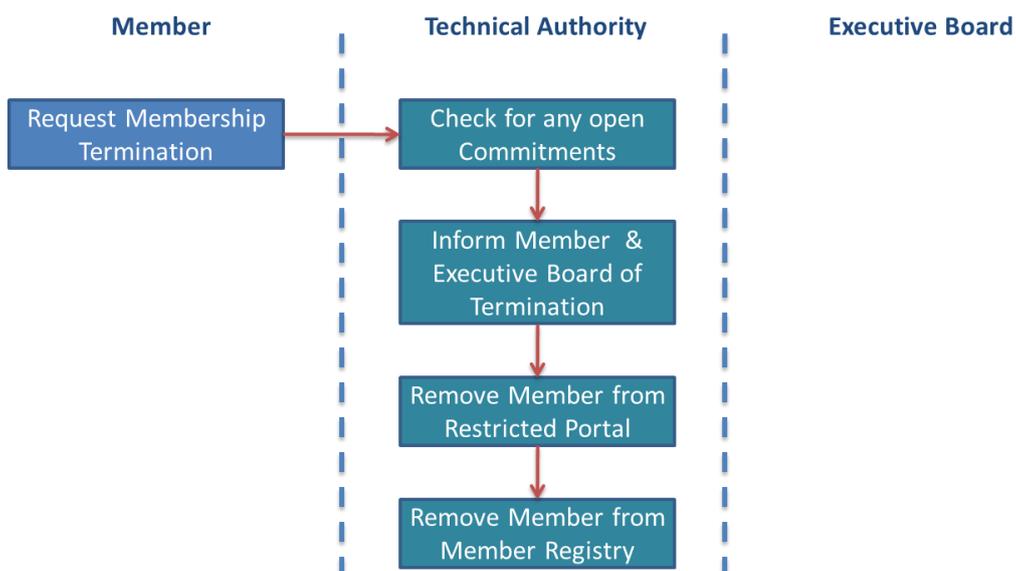


Figure 7: Process model for termination of membership

9 DNBL Operating Model and Concept

The DNBL Framework is a service model for the delivery of efficient collaborative services to the DNBL community. The services are delivered by the DNBL community to the DNBL community.

The aim of the DNBL Framework is to support ET&E activities and enable collaborative ET&E with wider community of contributors ranging from NATO commands and agencies, nations, industries and academia.

The DNBL environment will enable interconnection of distributed battle labs and provide a comprehensive and consistent capability for service subscribers to:

- Employ ET&E to evaluate the insertion of technologies and assets into operations.
- Identify the potential for Standardization Agreements (STANAGs), CONOPS and TTPs to have an impact on their capabilities.
- Verify the connectivity or interoperability of systems in a realistic multinational environment.
- Improve coherence between personnel, tools and systems, through exercises and tests.

The size and complexity of the ET&E events range from very simple (bi-lateral) cases to a very complex (multi-lateral, trans-Atlantic, multi-level of security, technical-operational level of simulation) cases.

General features of the DNBL Framework are:

- Defined processes to request conduct and organize ET&E events based on the DNBL portal UToU and MToU.
- Reference documents for testing, Validation and Verification (V&V) and other relevant NATO reference.
- Cost estimates for services through ESAs.
- Platform for the services strategy, the service catalogue, the service implementation guidelines.
- The lessons learnt of the DNBL community to improve the DNBL Framework.

9.1 Service Transition and Service Operation – Setting up an Event

The process for the establishment of an ET&E event is explained in the following figure. This also complements the definitions for the acquisition of a service. Specific focus here is the support provided by DNBL TA in the establishment of the event and the support of the event via the DNBL portal.

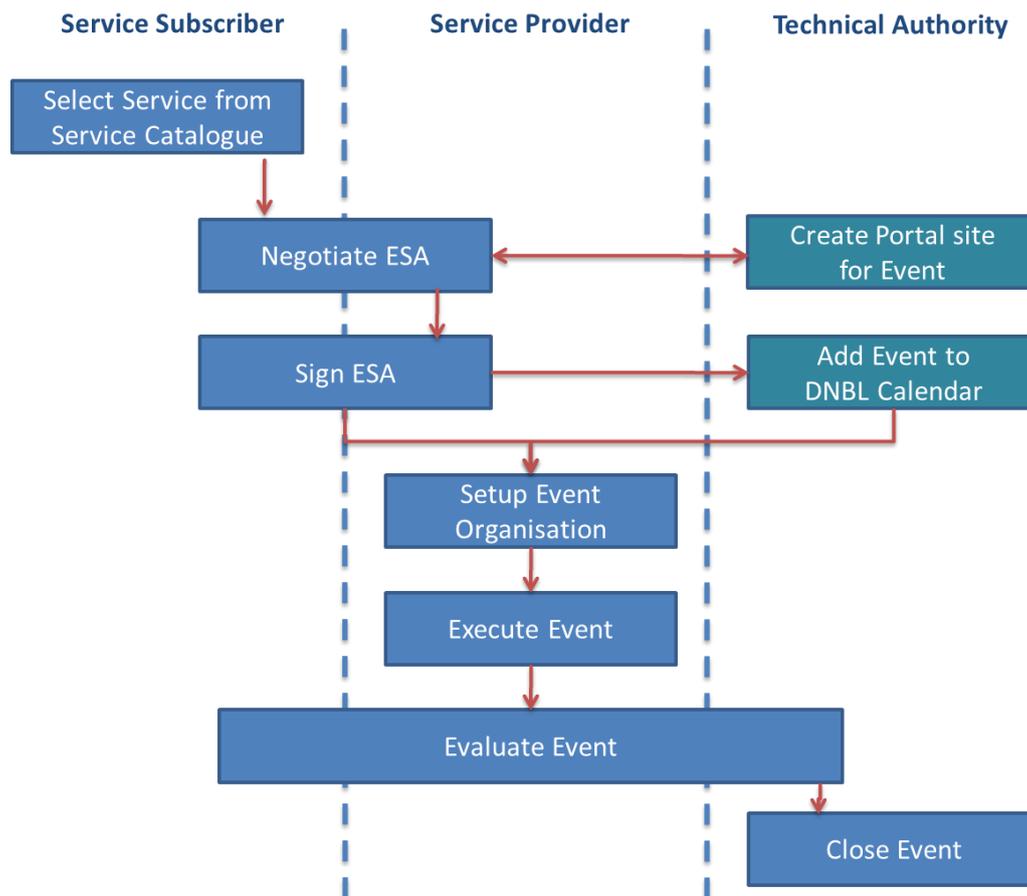


Figure 8: Process model for service procurement from service catalogue

The service subscriber (including, if necessary, member's contracting/acquisition branch) identifies the need for a service, checks the DNBL Service Catalogue and contacts the service provider to contract an existing service. After reaching an agreement with the service subscriber, the selected ET&E manager (the service provider) sets up the event organization, creates a plan, sets up the required infrastructure and all other pre-requisites for the service (as will be detailed in the service description and the ESA).

The TA will assist the event by:

- Setting-up a special event portal-based site that can only be accessed by the event participants.
- Upon request of the service provider or subscriber assess the event and suggest modifications, point out the relation to other DNBL events, etc.
- Inform the DNBL community of the upcoming event, by adding the event to the DNBL calendar.
- Evaluate the DNBL Framework support efficiency for this event and collect lessons learned.
- Close down the event site and archive the data if so determined in the agreement between the service subscriber and the service provider.

The DNBL Event Life-cycle

The event life-cycle is shown in the figure below.

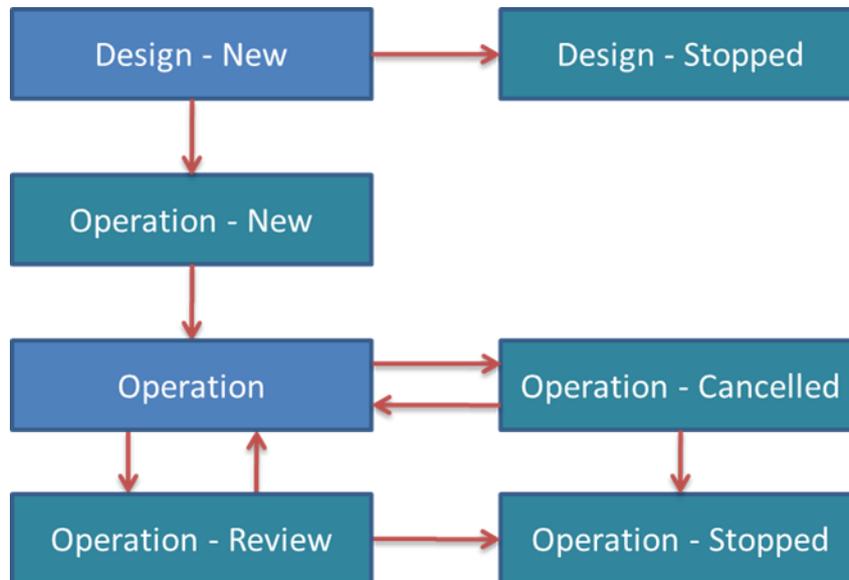


Figure 9: Event life-cycle

The event life-cycle starts when a service subscriber and service provider agree to start negotiations for the delivery of a service. The service provider requests the DNBL TA to start a dedicated portal site for the new event (status: design, sub-status: new). Established event portal is accessible only for the participants in the event and supports the creation / collaboration / negotiation of the event and the ESA.

If no agreement is reached, the event can be deleted (status: design, sub-status: stopped). When agreement is reached; an ESA is signed (status: operation, sub-status: new), the event will be added to the DNBL calendar by the TA (status: operation, sub-status: available) and will be organized and executed by the service provider. Once the event is accomplished, the service subscriber informs the TA that the event is finished (status: operation, sub-status: accomplished). The TA together with the participants will then review the event. After the review, the event portal site will remain accessible for the participants, but no modifications can be made (status: operation, sub-status: stopped) or depending on the agreement between the service subscriber and the service provider the event site will be closed and archived or deleted.

For events with duration over half a year, the TA can decide to have an intermediate review. A review can also be requested by the service subscriber (status: operation, sub-status: review).

Table 10: Event status and sub-status

Status	Sub-status	Description	Event visible for	Modification allowed for	Change to next status allowed for
Design	New	Creation of the event and event portal site	Service provider & subscriber, TA	Service provider, Service subscriber	Service subscriber
Design	Stopped	Event will not become operational and will be deleted.	Service provider & subscriber, TA	None	None
Operation	New	Event is agreed by service provider & subscriber	Service provider & subscriber, TA	None	TA
Operation	Available	Event is added to DNBL calendar and is executed	Service provider & subscriber, TA	None	Service subscriber, TA
Operation	Accomplished	The event is finished	Service provider & subscriber, TA	None	TA
Operation	Review	The event is being reviewed	Service provider & subscriber, TA	None	TA
Operation	Stopped	The event is finished and stored for future reference or deleted	Service provider & subscriber, TA	None	None

9.2 Organisation and Operation of the I&S Service

This chapter describes the organization structure, the tasks and activities, operational elements, and information exchanges required for setting up and maintaining a specific DNBL infrastructure and the related security.

9.2.1 Correlation between DNBL and CFBLNet

The DNBL services integrate very well with the CFBLNet framework. The following chart describes three options for communities of interest to establish a test or experimentation event and the related infrastructure.

In the past the only option was to go for a solitary event requiring the setup of the network and the different systems and capabilities completely inside the group. This resulted normally in a very high effort, especially for event processing classified information.

The DNBL Framework provides the complete set of services including the network layer for event processing unclassified information for a range of communities reducing the effort through the legal and administrative arrangements and the defined services. The operation of DNBL services within the CFBLNet framework allows to benefit from the security arrangements especially for events processing of classified information and the core network services. This combination reduces the effort for the establishment of test and experimentation events again and allows the implementation of complex event in a very cost and time effective way.

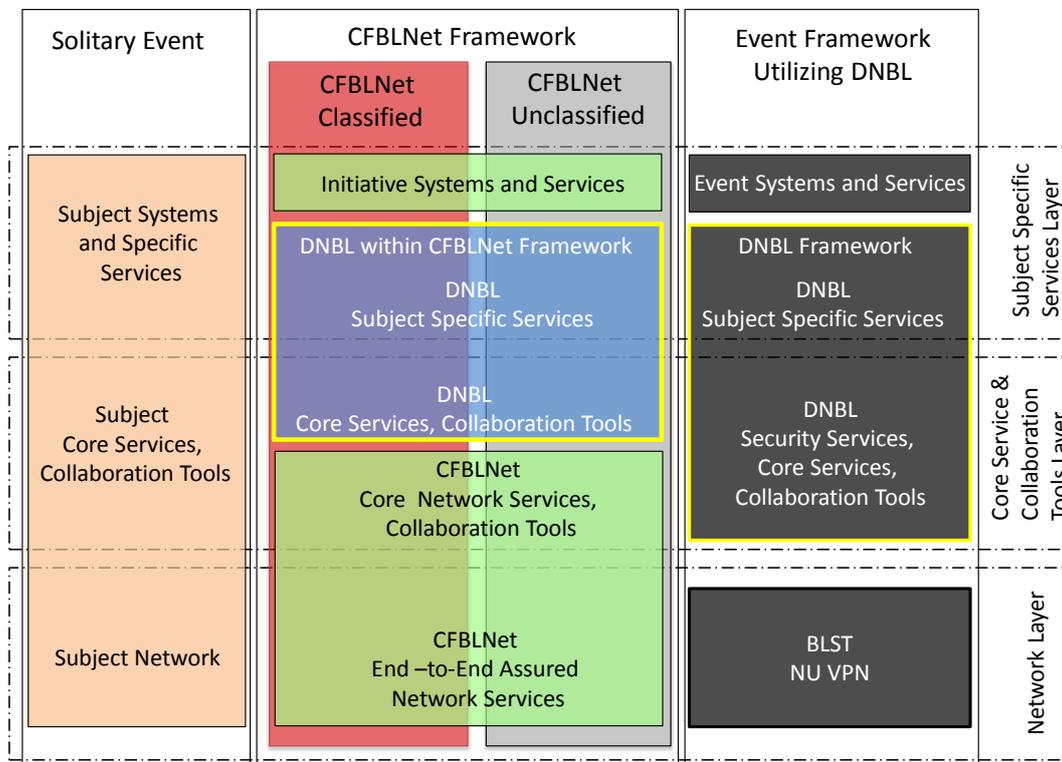


Figure 10: Correlation between DNBL and CFBLNet

9.2.2 High-level Operational Concept of the I&S Service

Relationships and the connectivity between the event participants are based on the individual agreements made for each entity taking part in the DNBL event.

The next paragraphs provide the general information about the different organizations, roles, responsibilities and relations within I&S Service. Deviations for specific DNBL events can be addressed in the ESA which is complementary to this service description.

The infrastructure and security service is delivered under the umbrella of the general DNBL Framework (ref. DNBL general terms and conditions).

The DNBL events are executed within the DNBL Framework and use the DNBL infrastructure and security service, as defined in this document.

The ET&E manager has the overall responsibility for the event including planning, execution and evaluation.

The service subscriber requests the service and is responsible for the budget. The service subscriber will contribute to the test plan, the execution and post-processing of the DNBL event under the conditions referred to in the ESA.

9.3 Description of Relations

The following tables provide the information about the relations between the involved parties. The relations will be detailed for three different areas:

- Organizational relations
- Security relations
- Functional relations

Based on the operational node connectivity the information exchange requirements are defined.

9.3.1 Organisational Relation

Depending on the type of connection, either a virtual private network (VPN) or CFBLNet connection, the organization will differ. The decision of the type of connection is dependent on the required classification.

Table 11: DNBL organizational relations information exchange requirements

Status	Sub-status	Description	Event visible for	Modification allowed for	Change to next status allowed for
Design	New	Creation of the event and event portal site	Service provider & subscriber, TA	Service provider, service subscriber	Service subscriber
Design	Stopped	Event will not become operational and will be deleted.	Service provider & subscriber, TA	None	None
Operation	New	Event is agreed by service provider & subscriber	Service provider & subscriber, TA	None	TA
Operation	Available	Event is added to DNBL calendar and is executed	Service provider & subscriber, TA	None	Service subscriber, TA
Operation	Accomplished	The event is finished	Service provider & subscriber, TA	None	TA
Operation	Review	The event is being reviewed	Service provider & subscriber, TA	None	TA

Operation	Stopped	The event is finished and stored for future reference or deleted	Service provider & subscriber, TA	None	None
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9.3.2 Security Relations

Depending on the type of connection, currently it is either a VPN connection or the CFBLNet, the security relations will differ. These are defined in detail the corresponding infrastructure and security service.

9.3.3 Functional Relations

The functional relations (the actual communication) are defined in the figure below and are specifically tailored to an event as required.

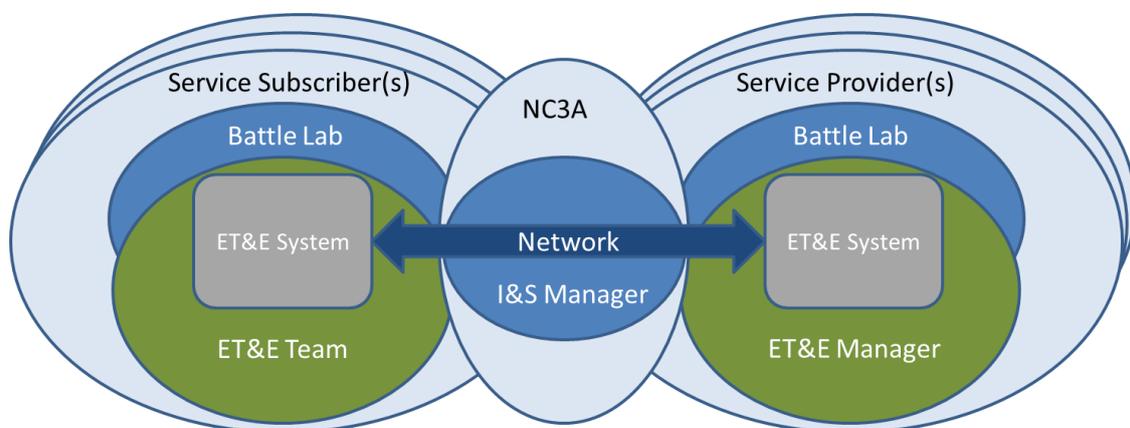


Figure 11: Functional relations

9.4 Operational Activity Model

In order to provide guidance for the ET&E teams, this chapter defines the activities that are required for setting up and maintaining the infrastructure and security service and related subject-specific services. These activities are located at the general level defined here, but can be exclusively tailored to a specific event if required.

The activities will be defined for three different phases, activities for:

- Setting up infrastructure and security.
- Maintaining infrastructure and security.
- Teardown and preserve infrastructure and security.

9.4.1 Setting up Infrastructure and Security

This chapter describes the required activities to setup the infrastructure, security and communication services. All activities are performed under I&S manager leadership.

The following chapters define the sequence for the setup of the network and the different layers of services and applications.

9.4.1.1 Cycle 1 – Network Level

When connecting to other sites, pre-coordination is required on such things as:

- Mesh (hub – star or partial/full mesh interconnectivity)
- Connection type (leased line/dialup/internet VPN)
- Network Addressing Scheme
- Routing Protocol(s)

Site Build-up

The very first step in setting up the DNBL is the implementation of each individual site at the most basic level.

- Installation of routers & switches
- Installation of workstations & servers
- Testing of (inter) device connectivity



Figure 12: Site build-up

Site Interconnection – Testing

When the interconnection itself is created, it is tested during each stage of the connection:

- Physical connection (leased line / modem dial-up / VPN settings)
- Logical connection (end-to-end network connectivity)
- Network connection (routing protocol(s) exchanges)



Figure 13: Site Interconnection – Testing

Once all this has been confirmed, the sites are fully interconnected and operational on the network level.

9.4.1.2 Cycle 2 – Core Infrastructure Services

Some networking services need coordination, others are independent over sites, or are linked to coordination of other services (i.e. Domain Name Server (DNS) & email). DNS requires coordination on the level of the root servers (in case of a stand-alone network) and master/slave relationships. Email address is implemented independently per site, but is closely linked to DNS, so the DNS coordination makes sure that email works.

Site Core Infrastructure Services

Core infrastructure services provide the most basic functionality of a network. Without the functionality a network is in essence hardly usable. These services include:

- DNS
- Email
- Time (Network Time Protocol (NTP))

Per site the functionality of the services would be tested and confirmed prior to interconnection between different sites (federation).

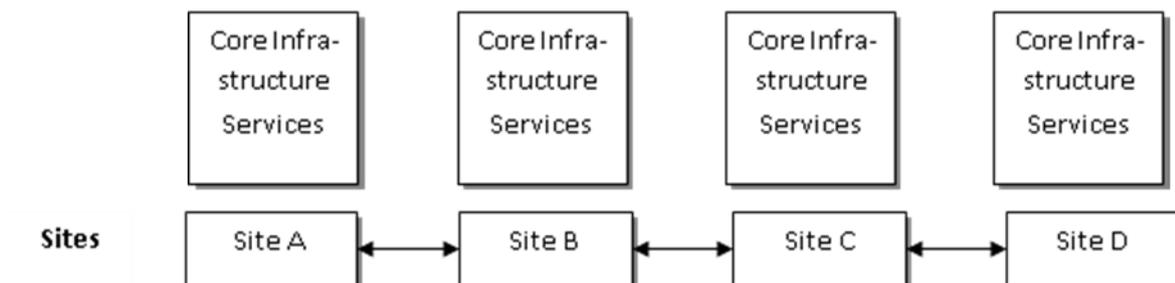


Figure 14: Site core infrastructure services

Core Infrastructure Services – Interconnection

Once each site has confirmed the functionality of the core infrastructure services, they can test the interconnection between them. When all sites have confirmed the functionality, the basic network can be considered as to be ready for use.

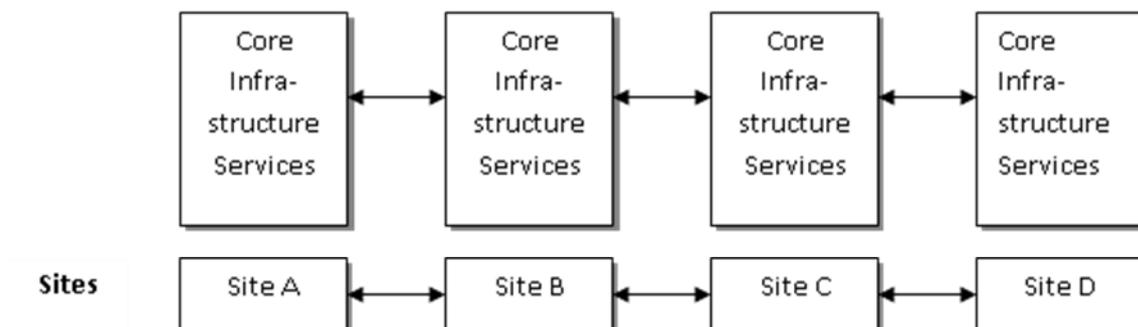


Figure 15: Core infrastructure services – interconnection

9.4.1.3 Cycle three – Middle Level Infrastructure Services

Middle level infrastructure is needed for things like directory trusts, global address list synchronization, Voice over IP (VoIP) trunks and numbering plans, access to web portals across sites, federation of chat servers etc.

Site Middle Level Infrastructure Services

Although the network is now considered ready, it is not yet usable for the end users. They need a richer infrastructure, including directories, web portals, VoIP, etc. These are provided and maintained by system administrators on a working network.

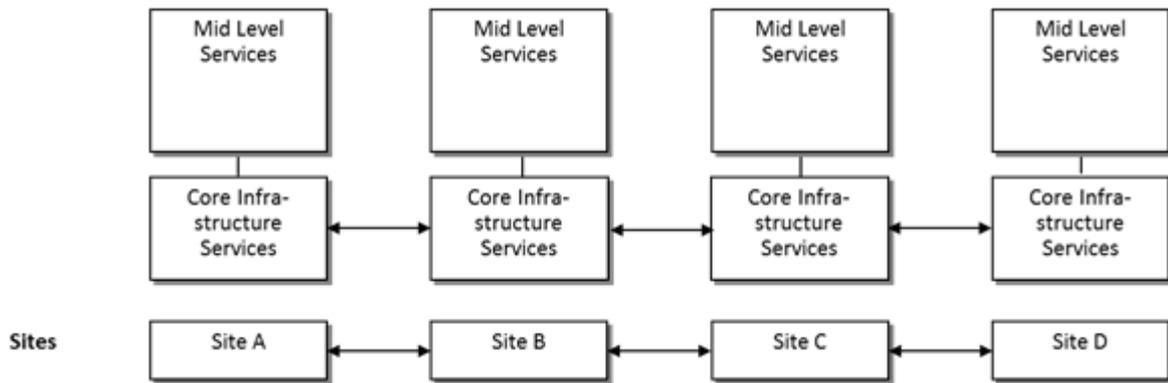


Figure 16: Site mid-level infrastructure services

Middle Level Services – Interconnection

When all sites have confirmed functionality across sites for the mid-level services, the network is ready for use for the end-users.

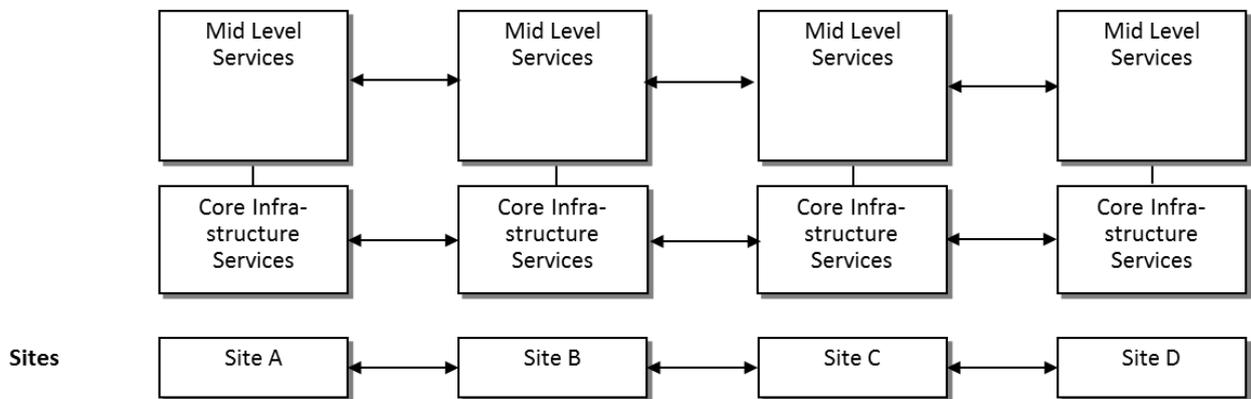


Figure 17: Mid-level services – interconnection

Subject Matter Services

The same approach can be used for setting up and testing subject-matter services. However, the subject-matter services are not detailed here, because these are not part of the infrastructure and security service. The subject-matter services must be addressed in the specific service description.

9.4.1.4 Maintaining Infrastructure and Security

The maintenance of the infrastructure during an event will be achieved with the processes defined for change management and incident management related to the Information Technology Infrastructure Library (ITIL) v3 processes. This activity is closely related to the ESA where the specific conditions for the event are defined.

9.4.1.5 Change Management

Changes to a configuration or the I&S services have to be raised by one of the involved parties. The change request will be assessed on the required changes and effort. If the change does not affect the event it will be communicated to the parties of the event and implemented accordingly. If there is an impact on the ET&E event it will be raised to the ET&E manager for assessment and further action.

9.4.1.6 Incident Management

Incidents occurring during the event will be assessed with respect to their impact on the event and importance. Important issues will be raised to the ET&E manager and a resolution of the issues will be agreed with him/her and other relevant parties involved in the event.

9.4.2 Teardown and Preserve Infrastructure and Security

The following steps are to be executed for tear down and archiving of the service and the event. At the end of the event the configuration will be captured and stored.

The network will be decommissioned and disassembled. The data and information will be stored according to the agreements made and the storage will be cleared.

10 DNBL Services

Each DNBL member may create new services and ask for registration in the service catalogue. To support this process, the DNBL TA has developed a template for a service description which is available to all the member organisations on the DNBL portal.

The DNBL TA will assess the service description and provide recommendation to the Executive Board for registration. After acceptance of an offered service, the service will be included in the DNBL Service Catalogue on the portal.

Services may range from individual or single services that are delivered by a single service provider / battle lab, to large complex composite services that combine multiple services from multiple service providers, multiple battle labs, multiple service subscribers and complex networking infrastructure.

A service subscriber can then select services which are listed in the service catalogue. Note that the service subscriber does not necessarily need to interface with the service providers through their own battle lab facility.

Actual services will be tailored from the service description in a specific document which specifies the delivery conditions for the service (ESA). This also contains such elements as deadline of delivery, format of deliverables, quality and security of delivery and supporting expertise.

A DNBL event is the actual execution of DNBL services. An ET&E manager function will have the overall responsibility for the event. The ET&E manager can be nominated by one of the service providers or can be from the parties involved in the DNBL event. The ET&E manager will be nominated by the parties involved.

The ET&E manager is the focal point for processing the service request by the service subscriber and the interface with the service subscriber. During the event the ET&E manager has the responsibility to meet a specific objective to plan, schedule and monitor the execution of the testing activities, further assemble results and reports and provide the results to the service subscriber.

10.1 DNBL Service Model

The management and delivery of the DNBL services should be in accordance with service management best practices. The services will be operated through incident and change management

processes by the ET&E manager, who will be the sole interface to the service subscriber. The DNBL service model is oriented to the ITIL v3 model for service management.

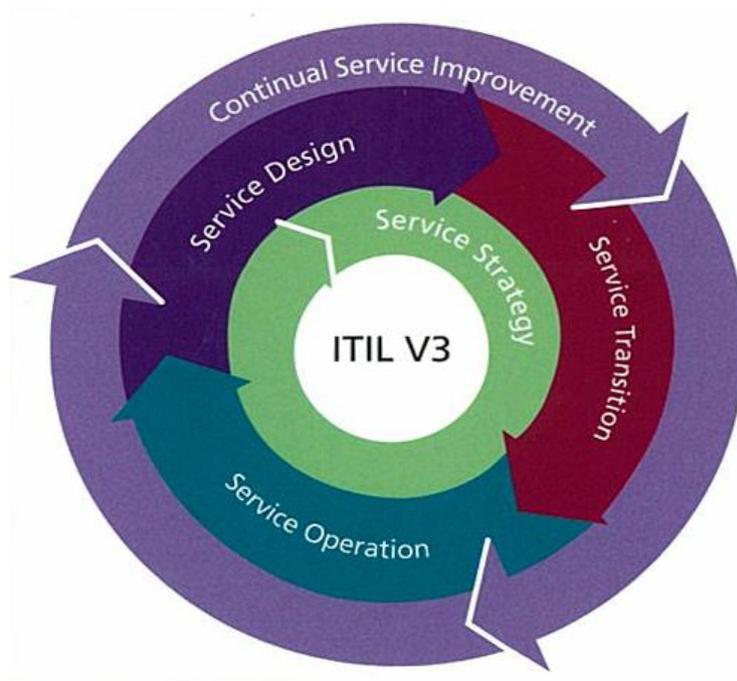


Figure 18: ITIL model for service management

Service management according to ITIL is achieved through three loops – continuous development of the service strategy – specific cycle for each service to address the design, transition and operation of the service and continual service improvement.

The activity of the service strategy addresses the service portfolio and the life cycle of the services – which services are planned, operational or which are going to be terminated. This is a topic for the DNBL Executive Board. The input will be prepared by the DNBL TA. The Executive Board will identify the goals and objectives to implement new services and will assure coherence across the DNBL services.

Key aspects for the DNBL service model are summarized in the following table:

Table 12: Key aspects for the DNBL service model

ITIL Phase	Subject	Actor
Service strategy	Identify new services and retirement of obsolete services; interface on top level with NATO and nations committees	DNBL Executive Board with input from DNBL Advisory Board
Service design	Develop service description Develop cost model for new service and initial ESA	Service provider with guidance from DNBL TA via the DNBL portal and the DNBL documentation
Service transition	Finalize specs with service subscriber(s) Select DNBL members and draft agreements Implement architecture for the service (backups and redundancies – ESA) Acceptance test of service Release service for operation	Service provider
Service operation	Operate service (Change and incident management) Tailor service to various service subscriber needs and related charges/fees	Service provider, ET&E manager
Service improvement	Lessons learned from service operation Continuous improvement for small modifications Feedback for major revisions of service to DNBL Framework	Service provider with DNBL TA

10.2 Acquisition of DNBL Services

The DNBL Framework provides:

- Detailed specification of the offered capability or system through the service description.
- Example of the delivery conditions of the service in the ESA template.

When the customer has a demand for a test, an experiment or a distributed test event he will compare the requirements with the services offered in the service catalogue. If he finds services available that fulfil his needs and expectations, he will get his contracting/acquisition branch involved to acquire the services. Through the platform, DNBL can serve as model ET&E capabilities for a wide range of customers.

10.3 Types of the DNBL services

In principle three types of services (service types) are foreseen:

- Subject-specific services providing specific capabilities and subject matter expertise for ET&E.

- I&S services for connecting battle labs.
- DNBL ET&E services providing DNBL events and handled by an ET&E manager.

These types of DNBL services are detailed in the next paragraphs.

10.3.1 DNBL Subject-Specific Services

Battle labs services provide specific capabilities and subject matter expertise for ET&E. The battle labs are the “end points” that are connected and provide individual services by using the DNBL I&S service.

General requirements for DNBL battle labs are:

- Provide a specific capability or subject matter expertise for ET&E which is defined in a service description.
- Connect to other parties by means of a DNBL I&S service.
- Register and discover services, laboratories and assets.
- On-line presentation of test activities, sharing, publication of, and subscription to information.
- National and/or NATO security accreditation relevant for the level of classification.
- V&V of the test equipment relevant for the level of the test.
- For single services provided to a service subscriber the ET&E function is provided by the battle lab.

The battle labs in the DNBL environment need to be accredited to the required level of security of their service and event.

10.3.2 DNBL I&S Service

DNBL offers the possibility to run ET&E at various levels of security classification such as “open to internet”, NATO Unclassified, NATO Restricted, NATO Secret, Mission Secret, and Nation Secret, and offers cross-domain security capabilities to support organizational, national and coalition classifications where required. The maximum level of classification for DNBL test events is expected not to exceed NATO Secret (NS), Nation Secret, or the equivalent Mission Secret (MS).

General requirements for the DNBL I&S Service:

- Establishment of the communication links between involved parties and management of the network.
- Management of assets and services registration, technical support to services discovery.
- Management of collaboration services including messaging, chat, video teleconference.
- Management of network security and information assurance.

10.3.3 DNBL ET&E Service

Tests range from demonstrations (low fidelity, NU level) up to certification of systems and components for deployment to operational theatres. For a wide range of these tests the requirements for fidelity and representation of the real situation are high to achieve acceptance and confidence of the military users.

General requirements for the DNBL ET&E service (and the ET&E manager) are:

- Interface with the service subscribers through service management processes.
- Selection of service providers for composite services.
- Preparation of the test events, planning and scheduling of events.
- Management of assets and services registration, technical support to services discovery.
- Preparation and management of data sets and scenarios needed.
- Management of the conduct and monitoring of the test events, orchestration of test activities across the various distributed laboratories and assets.
- Monitoring and recording of the test activities, management of data storage and archiving.
- On-line presentation of test activities, sharing, publication of, and subscription to information.
- Analysis of the test, if required and evaluation against Measures of Performance (MoPs)/Measures of Evaluation (MoEs) and reporting.
- Supervision of the budget aspects of the delivered service.

10.4 Service Design and Transition

The Service Life-cycle

The service life-cycle starts when the DNBL service provider starts the creation of a new service (status: design, sub-status: new). After completing the service description and ESA, the service provider offers the new service to the DNBL organisation for assessment and approval (status: transition, sub-status: new). The TA assesses applicability of the new service. The TA can request the service provider to adjust the service (status: design, sub-status: review), after which the service provider can update the service and re-submit it (status: transition, sub-status: new). The service provider can also choose to withdraw the service at any time during the design process and the service description will be removed (status: design, sub-status: stopped).

The service life-cycle is depicted in the figure below.

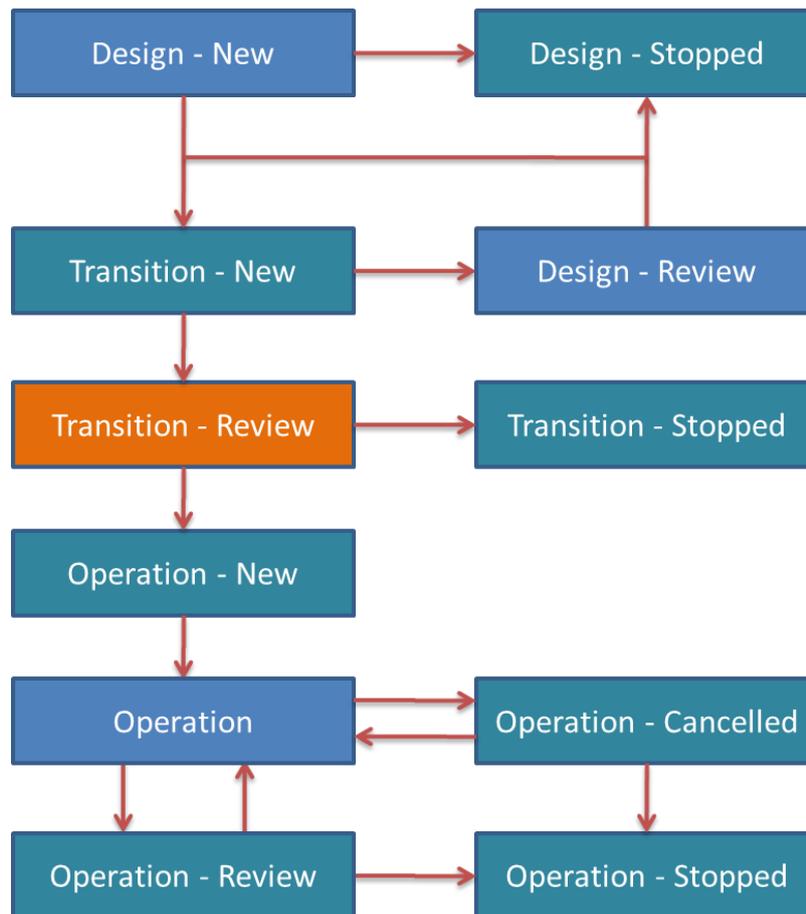


Figure 19: Service life-cycle

Once the TA and the service provider agree that the service description is final, the TA presents the service and its recommendation to the DNBL Executive Board for approval (status: transition, sub-status: review). In case the Executive Board does not give its approval, the service will not become operational; the service definition will be archived for future reference (status: transition, sub-status: stopped). If the Executive Board approves (status: operation, sub-status: new), the TA will inform the service provider and the DNBL community that the service is now operational (status: operation, sub-status: active).

The service provider can request to retire the service (status; operation, sub-status: cancelled). The TA will assess the request and if the service is not in use (there are no active ESAs) the service will be retired and stored for future reference (status: operation, sub-status: stopped). Service that is still in use cannot be retired and remains operational (status: operation, sub-status: active).

The service provider can request or the TA can decide to review a service that is in operation (status: operation, sub-status: review). If required, based on the review results, the TA can recommend retiring a service from operation (status: operation, sub-status: stopped). Note that services that are in operation cannot be modified or deleted and are always stored as-is for future reference. When modifying a service, the service provider must create a new service (but can re-use the information) and re-start the life-cycle (status: design, sub-status: new).

Table 13: Service status and sub-status

Status	Sub-status	Description	Visible on service catalogue for	Modification allowed for	Change to next status allowed for
Design	New	Creation of the service description / ESA	Service provider	Service provider	Service provider
Design	Review	Update of the service description / ESA	Service provider, TA	Service provider	Service provider
Design	Stopped	Service will not become operational and will be deleted.	TA	None	None
Transition	New	Designed service is offered for assessment	Service provider, TA	None	TA
Transition	Review	Designed service is offered for approval	Service provider, TA, Executive Board	None	Executive Board
Transition	Stopped	Service not approved, but stored for future reference	Service provider, TA, Executive Board	None	None
Operation	New	Service is approved	Service provider, TA, Executive Board	None	TA
Operation	Active	Service ready for use / in use	All DNBL members	None	Service provider, TA
Operation	Review	The service is in review	All DNBL members	None	TA
Operation	Cancelled	The service provider requests to retire the service	Service provider, TA, Executive Board, all DNBL members that have subscribed to this service in the past	None	TA
Operation	Stopped	The service is retired and stored for future reference	Service provider, TA, Executive Board, all DNBL members that have subscribed to this service in the past	None	None

10.5 Add a Service to the DNBL Service Catalogue

The process for the development of a new service is explained in the following figure.

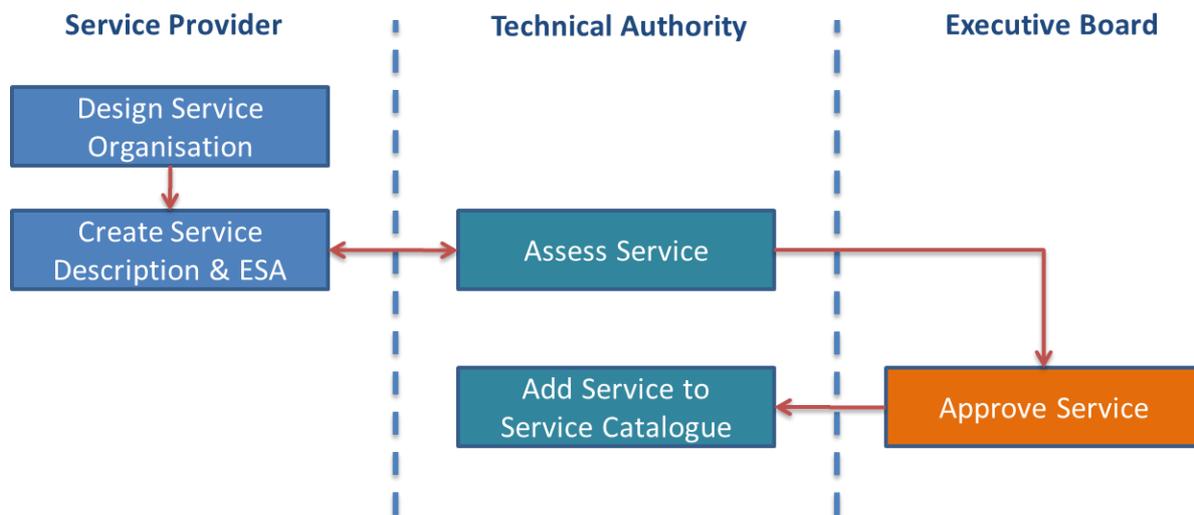


Figure 20: Process model for the approval of a new service/modification of an existing service

The service provider is responsible for the design of a new service. In the case of the single service, the service organization can be very simple / already existing. In the case of composite services the organization might be very complex and require agreement from multiple service providers. The ET&E manager function must be addressed and service agreements between service providers must be established.

The service description of the new service must be structured according to the service description template. The DNBL portal will offer a service description and an optional ESA template. After receiving the service description and ESA the TA will assess the new service.

Criteria which are applied to this are:

- Compliance of the service description and the ESA with the DNBL template
- Completeness of the design
- Consistency and maturity of the service / track record of the service provider(s).
- Suitability for use in the DNBL environment – coherence with the service strategy.

DNBL TA will provide guidance to the service provider for the required modifications of the service description and ESA to achieve compliance with the above mentioned criteria. Upon the final release of the service description the TA will offer the service description, ESA and its recommendation for registration to the DNBL Executive Board. After approval from the Executive Board, the new service will be added to the DNBL Service Catalogue. If an organisation has restrictions or special conditions on the delivery of services to certain customers (e.g. NATO to industry), this needs to be addressed in the ESA of the specific service.

10.6 Modify a Service in the DNBL Service Catalogue

The modification of an existing service will follow the same process as the design of a new service (although the involved effort of all parties might be much less, as much can be reused). Note that a

modified service and the initial service might co-exist in the DNBL Service Catalogue. This is especially important for initial services that still have active ESAs. In due time, when all ESAs on the initial service have been finished, the old service can be retired.

10.7 Retire a Service from the DNBL Service Catalogue

As depicted in the figure below, a service provider can request the TA to retire a service. After confirmation that the service has no active ESAs, the TA will inform the service provider that the service is retired and remove it from the service catalogue. If a service has active ESAs, the retirement of the service is not possible. The service provider will be informed about the cancellation of the retirement and can re-request service retirement after all ESAs are finished.

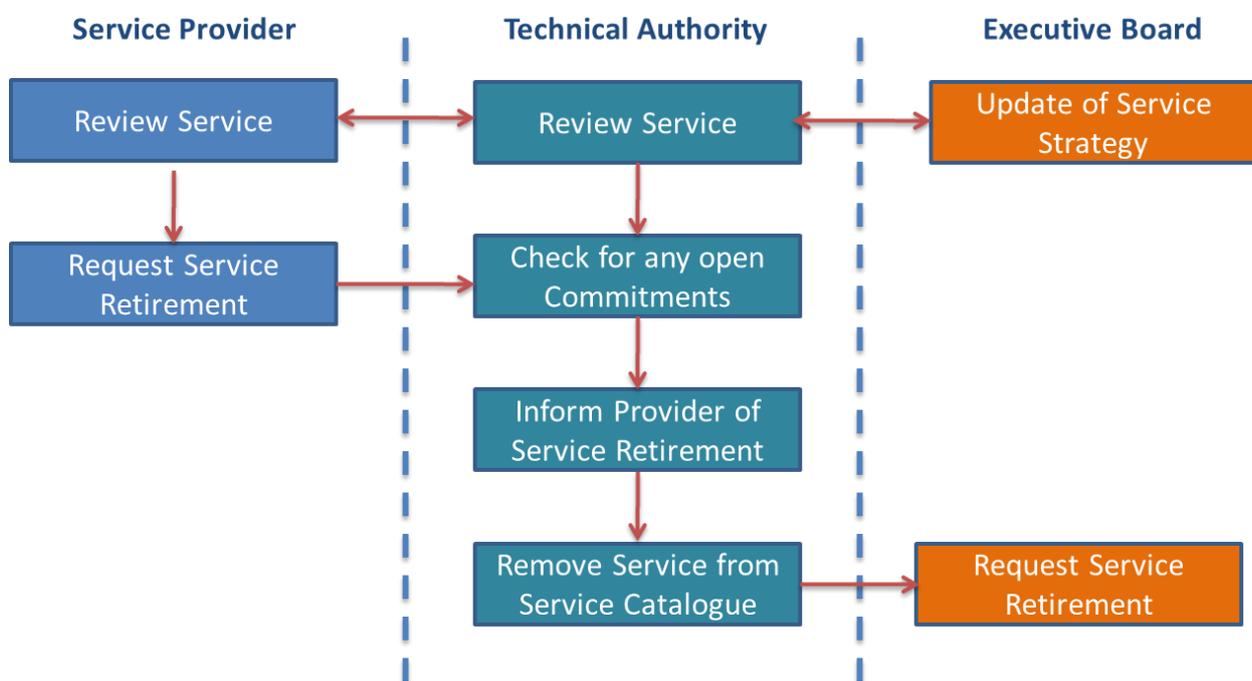


Figure 21: Process model for service retirement

The TA will regularly review the services in the DNBL Service Catalogue. Reasons for a review can be (but are not limited to):

- The service description is old (typically two years) and might require an update.
- The service has not been used for a long time (typically two years).
- The DNBL service strategy has changed and available services need to be checked for compliance / relevance.

The result of a review can be that a service needs to be modified by the service provider or needs to be retired.

10.8 Requesting Service Design

If the service subscriber is looking for a service that is not available in the DNBL Service Catalogue, the service subscriber can post a service request on the DNBL portal (see figure below). The DNBL TA can advise at this stage if the request is matching with the DNBL service strategy or not. Potential

service providers can check if they can provide the service and may contact other service providers to close gaps in the service. The service provider responds to the service subscriber with a request Rough Order of Magnitude (ROM) for cost and time schedule and both specify the service design. The service subscriber gives go-ahead to build the service. The creation of the service is managed according to the process for creating a new service.

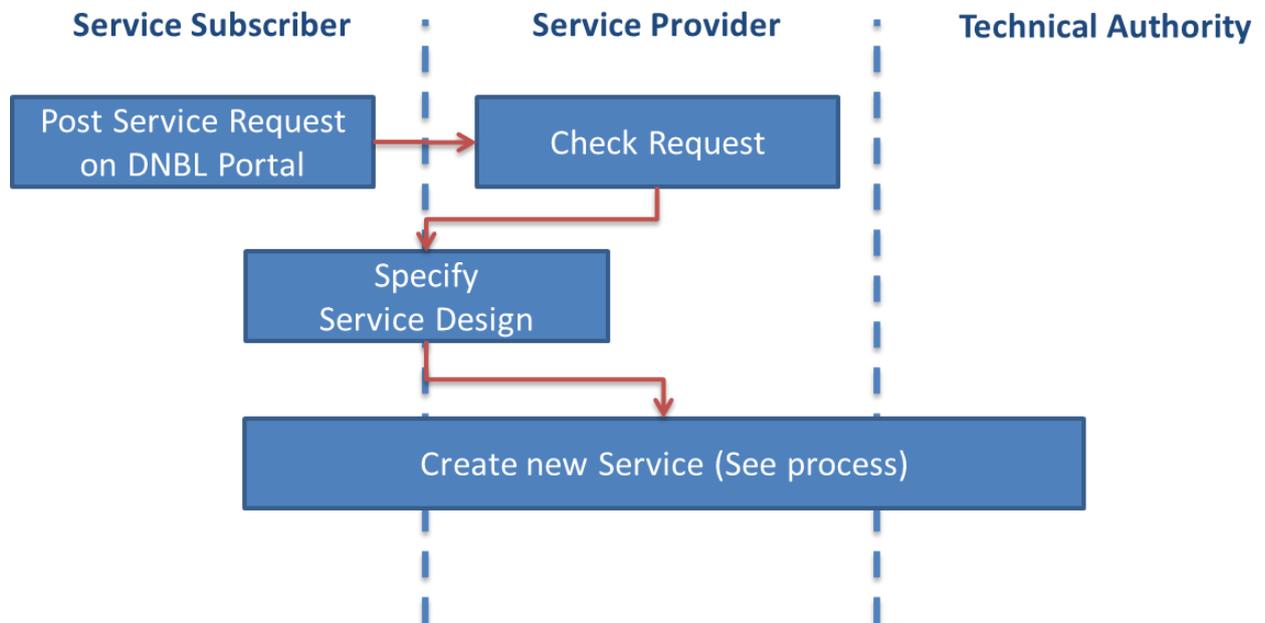


Figure 22: Process model for requesting the design of a new service

11 Final Remarks

DNBL has already supported multiple test events in the area of joint intelligence, surveillance and reconnaissance by providing verification and validation of the interoperability of NATO and national C4ISR capabilities prior to their deployment to Afghanistan.

The DNBL Framework and the platform for the community to exchange services and to collaborate are sponsored by HQ SACT until the end of 2015.

Annex 1 - Acronyms and Abbreviations

List of acronyms and abbreviation in order of appearance used in this document.

DNBL	Distributed Networked Battle Labs
NCIA	NATO Communications and Information Agency
HQ SACT	Headquarters Supreme Allied Command Transformation
ET&E	Experimentation, Test and Evaluation
UToU	DNBL portal User Terms of Use
MToU	DNBL portal Member Terms of Use
TOR	DNBL Terms of Reference
PfP	Partnership for Peace
TA	DNBL Technical Authority
ESA	Event support agreement
R&D	Research and development
SoW	Statement of work
CONOPs	Concept of Operations
TTPs	Technics, Tactics and Procedures
NNEC	NATO Network Enabled Capability
RFQ	Request for quotation
GFD	Government-furnished data
I&S	Infrastructure & Security
CFBLNet	Combined Federated Battle Labs Network
SPM	Subscriber project manager
STT	T&E team
TEM	ET&E manager
PoC	Point of contact
STANAG	Standardization Agreement
V&V	Validation and Verification
VPN	Virtual Private Network
DNS	Domain Name Server
NTP	Network Time Protocol
VoIP	Voice over IP
ITIL	Information Technology Infrastructure Library
MOP	Measures of Performance
MOE	Measures of Evaluation
ROM	Rough Order of Magnitude