NATO Communications and Information Agency

Acquisition Directorate
Boulevard Leopold III
B-1110 Brussels, Belgium

NCIA/ACQ/2023/06634
07 March 2023

To: Bidders List and Distribution List

Subject: Invitation For Bid IFB-CO-115498-TOPFAS-BMD **Amendment 4**

TOPFAS Ballistic Missile Defence (BMD) Increments 1&2

References:
- **A.** AC/4-D/2261(1996 Edition), Procedures for International Competitive Bidding
- **B.** AC/4-D(2008)0002-REV2, International Competitive Bidding Using Best Value Evaluation Methodology, dated 15 July 2015
- **C.** NCI Agency NOI NCIA/ACQ/2022/07167, dated 11 October 2022
- **D.** NCI Agency IFB-CO-115498-TOPFAS-BMD; NCIA/ACQ/2022/07297 dated 14 December 2022
- **E.** NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 1, NCIA/ACQ/2023/06521 dated 25 January 2023
- **F.** NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 2, NCIA/ACQ/2023/06569 dated 10 February 2023
- **G.** NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 3, NCIA/ACQ/2023/06603 dated 17 February 2023

Dear Prospective Bidders,

1. The purpose of this Amendment 4 is to:

a. Issue the Purchaser responses to all Requests for Clarifications received to date
b. Revise the IFB Bid Closing Date,
c. Issue revised IFB documents
    i. Book I Bidding Instructions
        1. 2.3.1. Update Bid Closing Date
        2. 2.5.1 Update Point of Contact
        3. 3.4.1.2.1 Update Point of Contact
        4. Delete 3.4.1.3.1 as per CR69
        5. 3.4.2 and 3.4.3 numbering updated
        6. 4.6.4 Changes to paragraphs and table added
    ii. Book I, Bidding Sheets
    iii. Book II, Special Provisions
        1. Article 24.2 reference updated as per CR57
    iv. Book II Statement of Work and Annexes have changes listed in document

2. In accordance with the Procedures for International Competitive Bidding AC/4-D/2261 (1996 Edition), paragraph 10 (b), sub-paragraph (iii), the Book I, Part I, Bidding Instructions, Section 2, General Bidding Information, Para 2.3.1, is hereby revised as follows:

FROM:

*"The closing date and time for submission of bids in response to this IFB is 12h00 / 12pm (Central European Time) on **Thursday, 20 March 2023** at which time bidding shall be closed".*

TO:

*The closing date and time for submission of bids in response to this IFB is 12h00 / 12pm (Central European Time) on **Friday, 21 April 2023** at which time bidding shall be closed.*

3. Revised bidding documents are provided with this IFB Amendment 4 as Attachment 1 and replace the original versions in their entirety. Potential Bidders are strongly advised to carefully review these revised bidding documents. With the exception of the revisions included in these documents, all other IFB documents remain unchanged from their original version as issued on 14 December 2022, unless updated in Amendments 1, 2 or 3 (References E-G).

4. NCI Agency responses to Bidders' questions received by 08 February 2023 are hereby published with this IFB Amendment 4 as Attachment 2. Previous responses to Clarification Requests have been greyed out for your convenience.

5. Any future Requests for Clarification (RfC) are limited to questions that are in response to answers by the Purchaser to existing Bidder RfC. Such additional requests shall arrive not later than fourteen (14) calendar days before the established Bid Closing Date. Any clarifications received after that date will be answered at the discretion of NCI Agency Additional RfC may be responded to, however will not extend the Bid Closing Date. This decision shall not be a subject for dispute.

6. Prospective Bidders are advised that the NCI Agency reserves the right to cancel this IFB at any time in its entirety and bears no liability for bid preparation costs incurred by firms or any other collateral costs if bid cancellation occurs.

7. This IFB remains the property of the NCI Agency and shall be protected in accordance with the applicable national security regulations.

8. The NCI Agency point of contact for all information concerning this IFB is the undersigned, Ms. Sara Stephens, Senior Contracting Officer, who may be reached at CO115498TOPFASBMD@ncia.nato.int.

For the Chief of Acquisition:

Sara Stephens

Digitally signed by Sara Stephens
Date: 2023.03.07 08:59:04 +01'00'

Sara Stephens
Senior Contracting Officer

Attachments:

1) Revised IFB Documents:

1.1 File # 01_NU_IFB-CO-115498-TOPFAS-BMD-Book-I-Bidding-Instructions_pdf
1.2 File # 02_NU_IFB-CO-115498-TOPFAS-BMD-Bidding-Sheets_.xls
1.3 File # 04_NU_IFB-CO-115498-TOPFAS-BMD-Book II-Part II Special Provisions_pdf
1.4 File # 06_NU_IFB-CO-115498-TOPFAS-BMD_Book II-Part IV-Statement of Work_.pdf
1.5 File # 07_NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS_.pdf
1.6 File # 07a_NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS-Matrix.pdf
1.7 File # 07a_NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS-Matrix.xls

2) Responses to Clarification Requests, Release Number 3

Distribution List for IFB-CO-115498-TOPFAS-BMD Amendment 4

All Prospective Bidders

NATO Delegation (Attn: Investment Adviser):

- Albania
- Belgium
- Bulgaria
- Canada
- Croatia
- Czech Republic
- Denmark
- Estonia
- France
- Germany
- Greece
- Hungary
- Iceland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Montenegro
- The Netherlands
- North Macedonia
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Turkey
- United Kingdom
- United States

NATO HQ

- NATO Office of Resources (NOR)
    - CIS and Cyber Capabilities Branch (CCC) Branch Head
    - NOR Secretariat Section (RPPB, IC, BC)

Strategic Commands

- SHAPE SDP J5 PLS, OF-5 Luc MEES
- SACT CAPDEV CAP OC2, OF-4 Stefan Meyer

ACO Liaison Office
All NATEXs
Embassies

INVITATION FOR BIDS

IFB-CO-115498-TOPFAS-BMD

GENERAL INDEX

BOOK I - THE BIDDING INSTRUCTIONS

BOOK II - THE PROSPECTIVE CONTRACT

IFB-CO-115498-TOPFAS-BMD

BOOK I
BIDDING INSTRUCTIONS

TABLE OF CONTENTS

SECTION 1 INTRODUCTION

1.1 Purpose and Scope

1.1.1 The NATO Communications and Information (NCI) Agency has been authorized to invite bids and award a contract for the procurement of a new, enhanced NATO-owned TOPFAS Application Suite with functionalities required to support the expansion of the Ballistic Missile Defence (BMD) capabilities.

1.1.2 All of the technical details and requirements of the project are explained in Book II, Part IV, Statement of Work (SOW) and the SOW annexes.

1.2 Overview of the Prospective Contract

1.2.1 Book II of this IFB provides the Prospective Contract that will require the selected Contractor to deliver a new, enhanced NATO-owned TOPFAS Application Suite with TOPFAS BMD capabilities. The Contractor shall perform all activities required in Book II Part IV (SOW and Annexes) and shall deliver the associated deliverables as per Book II Part I (Schedule of Supplies and Services (SSS)).

1.2.2 The Contract resulting from this IFB shall be awarded on a Fixed Price basis, with a price variation clause to cover cost fluctuations resulting from inflation.

1.2.3 The Contract will use elements of the agile methodology, with multiple work packages, each consisting of several sprints, allowing for multiple opportunities for acceptances of functional software.

1.2.4 The Contract will be governed by Book II, Part II (Contract Special Provisions), and Part III (Contract General Provisions).

1.3 Governing Rules, Eligibility, and Exclusion Provisions

1.3.1 This solicitation is an International Invitation for Bid (IFB) and is issued in accordance with the procedures for International Competitive Bidding (ICB) set forth in NATO document AC/4-D/2261 (1996 Edition) and its Annex X, dated 24 July 2009, with the exception explained in Section 4.3.1.2 as authorized by the Investment Committee.

1.3.2 Pursuant to these procedures, bidding is restricted to companies from participating NATO member countries (see Para 2.1.1.6) for which a

Declaration of Eligibility has been issued by their respective national authorities.

1.4 Best Value Evaluation Method

1.4.1 The evaluation method to be used in the selection of the successful Bidder under this solicitation will follow the Best Value Procedures set forth in AC/4-D/2261, Annex X, dated 24 July 2009, and AC/4(2008)0002-REV2-ANNEX 1, dated 15 July 2015, or deviations to the procedure, as approved by the NATO Investment Committee.

1.4.2 The Bid evaluation criteria and the detailed evaluation procedures are described in SECTION 4

1.4.3 Please note that the technical and price evaluations will be conducted in parallel by different evaluation teams.

1.4.4 The Bidder shall refer to the Purchaser all queries for resolution of any conflicts found in information contained in this document in accordance with the procedures set forth in paragraph 2.6 "Request for IFB Clarifications".

1.5 Security

1.5.1 This Invitation for Bid is NATO UNCLASSIFIED.

1.5.2 Contractor personnel will be required to possess a security clearance of "NATO SECRET" (NS) for the performance of the Contract.

1.5.3 The Contractor will be required to handle and store classified material to the level of "NATO RESTRICTED" (NR).

1.5.4 The Contractor shall have the appropriate facility and personnel clearances at the date of Contract Signature. Should the Contractor be unable to perform the Contract due to the fact that the facility/security clearances have not been provided by their respective national security agency, this lack of clearance cannot be the basis for a claim of adjustment or an extension of schedule, nor the lack of clearance be considered a mitigating circumstance in the case of an assessment of Liquidated Damages or a determination of Termination For Default by the Purchaser under the Prospective Contract.

1.5.5 Contractor personnel working at NATO or National sites without such a clearance confirmed by the appropriate national security authority and transmitted to the cognisant NATO or National security officer at least fourteen (14) days prior to the site visit, will be denied access to the site. Denial of such access by the Purchaser may not be used by the Contractor as the basis for a claim of adjustment or an extension of schedule nor can the denial of access be considered a mitigating circumstance in the case of

an assessment of Liquidated Damages or a determination of Termination for Default by the Purchaser.

1.5.6 Bidders are advised that Contract signature will not be delayed in order to allow the processing of NS security clearances for personnel or facilities and, should the otherwise successful Bidder not be in a position to accept the offered Contract within a reasonable period of time, due to the fact that its personnel or facilities do not possess the appropriate security clearance(s), the Purchaser may determine the Bidder's Offer to be non-compliant and offer the Contract to the next ranking Bidder. In such a case, the Bidder who would not sign the Contract shall be liable for forfeiture of the Bid Guarantee.

1.6 Bidders Conference

1.6.1 Prospective Bidders are invited to a Bidders Conference that will be held on [10-12 January 2023]. The technical and logistical details of participation at the Conference will be provided at a later date.

1.6.2 The purpose of the Bidders Conference is to brief the Prospective Bidders on the IFB. The Conference is planned to include a briefing on the bidding process and the bidding sheets, the Prospective Contract, and technical aspects of the scope. The agenda will be sent to attendees in advance.

1.6.3 Those companies that wish to participate in the Bidders Conference must indicate their intention to attend not later than 7 days prior to the date of the Conference to the Point of Contact stated in paragraph 2.5.1.

1.6.4 Bidders may submit questions in writing not later than 7 days prior to the date of the Conference to the email address in paragraph 2.5.1. The Purchaser will endeavour to respond to these questions during the Bidders Conference.

1.6.5 For any additional questions that are asked at the Conference, the Purchaser may attempt to answer them at that time, but any answer that may appear to change terms, conditions and/or specifications of the IFB shall be considered to be formally included in the IFB only after a written amendment to the IFB is issued in writing by the Purchaser.

1.6.6 Answers to all questions will be issued in writing to all Bidders as soon as practicable after the Conference, whether or not the Bidders attended the Conference. The formal written answers will be the official response of the

Agency, even if the written answer differs from the verbal response provided at the Conference.

1.6.7 Notwithstanding the written answers provided by the NCI Agency after the Bidders Conference, the terms and conditions of the IFB remains unchanged unless a formal IFB amendment is issued by the NCI Agency.

1.7 Documentation

1.7.1 All documentation – including the IFB itself, all applicable documents and any reference documents provided by the Purchaser – are solely to be used for the purpose of preparing a response to this IFB. They are to be safeguarded at the appropriate level according to their classification and reference documents are provided “as is“, without any warranty as to quality or accuracy.

SECTION 2 GENERAL BIDDING INFORMATION

2.1 Definitions

2.1.1 In addition to the definitions and acronyms set forth in the Contract Special Provisions (Part II) and Contract General Provisions (Part III) of the prospective Contract, the following terms and acronyms, as used in this Invitation for Bid shall have the meanings specified below:

2.1.1.1 "Bidder": a firm, consortium, or joint venture which submits an offer in response to this solicitation. Bidders are at liberty to constitute themselves into any form of Contractual arrangements or legal entity they desire, bearing in mind that in consortium-type arrangements a single judicial personality shall be established to represent that legal entity. A legal entity, such as an individual, Partnership or Corporation, herein referred to as the “Principal Contractor”, shall represent all members of the consortium with the NCI Agency and/or NATO. The “Principal Contractor” shall be vested with full power and authority to act on behalf of all members of the consortium, within the prescribed powers stated in an irrevocable Power of Attorney issued to the “Principal Contractor” by all members associated with the consortium. Evidence of authority to act on behalf of the consortium by the “Principal Contractor” shall be enclosed and sent with the Bid. Failure to furnish proof of authority shall be a reason for the Bid being declared non-compliant.

2.1.1.2 "Compliance": strict conformity to the requirements and standards specified in this IFB and its attachments.

2.1.1.3 "Contractor": the awardee of this solicitation of offers, who shall be responsible for the fulfilment of the requirements established in the prospective Contract.

2.1.1.4 “Firm of a Participating Country”: a firm legally constituted or chartered under the laws of, and geographically located in, or falling under the jurisdiction of a Participating Country.

2.1.1.5 “IFB”: Invitation for Bid.

2.1.1.6 “Participating Country”: any of the following 30 NATO nations (in alphabetical order): ALBANIA, BELGIUM, BULGARIA, CANADA, CROATIA, CZECH REPUBLIC, DENMARK, ESTONIA, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MONTENEGRO, THE NETHERLANDS, NORTH MACEDONIA, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, TURKEY, THE UNITED KINGDOM and THE UNITED STATES.

2.1.1.7 “Purchaser”: NATO Communications and Information Agency (NCI Agency) or its legal successor.

2.1.1.8 "Quotation" or "Bid": a binding offer to perform the work specified in the attached prospective Contract (Book II).

2.2 Eligibility and Origin of Equipment and Services

2.2.1 All Contractors, Subcontractors and manufacturers, at any tier, must be from Participating Countries.

2.2.2 None of the work, including project design, labour and services shall be performed other than by firms from and within Participating Countries.

2.2.3 No materials or items of equipment down to and including identifiable Sub-assemblies shall be manufactured or assembled by a firm other than from and within a Participating Country.

2.2.4 Unless otherwise authorised by the terms of the prospective Contract, the Intellectual Property Rights to all design documentation and related system operating software shall reside within NATO member countries, and no license fees or royalty charges shall be paid by the Contractor to firms, individuals or governments other than within the NATO member community.

2.3 Bid Delivery and Bid Closing

2.3.1 The closing date and time for submission of bids in response to this IFB is 12h00 / 12pm (Central European Time) on **Friday, 21 April 2023** at which time bidding shall be closed.

2.3.2 Bids shall be delivered to the appropriate email address below:

IFB-CO-115498-TOPFAS-BMD.Bids@ncia.nato.int

2.3.3 Late Bids

2.3.3.1 Bids which are delivered to the Purchaser after the specified time and date set forth above for Bid Closing are "Late Bids" and shall not be considered for award. Such Bids will remain unopened unless the Purchaser can determine that the Bid in question meets the criteria for consideration as specified below.

2.3.3.2 *Consideration of Late Bid* – The Purchaser considers that it is the responsibility of the Bidder to ensure that the Bid submission arrives by the specified Bid Closing time. A late Bid shall only be considered for award under the following circumstances:

2.3.3.2.1 A Contract has not already been awarded pursuant to the Invitation for Bid, and;

2.3.3.2.2 The Bid was sent to the correct email address specified in Section 2.3.2 and the delay was solely the fault of the Purchaser.

2.4 Requests for Extension of Bid Closing Date

2.4.1 Bidders are informed that requests for extension to the closing date for the IFB shall be submitted by the Bidder only through its respective country's NATO Delegation or Embassy to the Purchaser Point of Contact indicated in Section 2.5.1 below. Any request for extension shall be submitted by the respective NATO Delegation or Embassy **no later than fourteen (14) calendar days** prior to the established Bid closing date. Bidders are advised to submit their request in sufficient time as to allow their respective NATO Delegation or Embassy to deliver the formal request to the Purchaser within the above time limit.

2.5 Purchaser's Point of Contact

2.5.1 The Purchaser point of contact for all information concerning this IFB is:

Ms. Sara Stephens, Senior Contracting Officer

Acquisition, NCI Agency

Questions/Clarifications:

CO115498TOPFASBMD@ncia.nato.int

Bid Delivery:

All bids shall be delivered by email as stated in paragraph 2.3.2.

2.6 Request for IFB Clarifications

2.6.1 Bidders, during the solicitation period, are encouraged to query and seek clarification of any matters of a contractual, administrative and technical nature pertaining to this IFB.

2.6.2 All questions and requests for clarification shall be forwarded to the Purchaser using the Clarification Request (CR) Forms provided at Annex D of this Book I. Such questions shall be submitted by email to the point of contact specified in Section 2.5.1 above and shall arrive **not later than twenty eight (28) calendar days** prior to the stated "Bid Closing Date". The Purchaser is under no obligation to answer requests for clarification submitted after this time. Requests for clarification must address the totality of the concerns of the Bidder, as the Bidder will not be permitted to revisit areas of the IFB for additional clarification except as noted in Section 2.6.4, below.

2.6.3 Bidders shall keep the classification of their request NATO UNCLASSIFIED to facilitate a quicker review and response. Such requests shall be emailed to the point of contact specified in paragraph 2.5.1 above.

2.6.4 Additional requests for clarification are limited only to the information provided as answers by the Purchaser to Bidder requests for clarification.

Such additional requests shall arrive not later than fourteen (14) calendar days before the established Bid Closing Date.

2.6.5 It is the responsibility of the Bidders to ensure that all Clarification Requests submitted bear no mark, logo or any other form or sign that may lead to reveal the Bidders' identity in the language constituting the clarification itself. This prescription is not applicable to the means used for the transmission of the clarification (i.e. email or form by which the clarification is forwarded).

2.6.6 The Purchaser declines all responsibilities associated to any and all circumstances regardless of the nature or subject matter arising from the Bidders' failure or inability to abide to the prescription in Section 2.6.5.

2.6.7 The Purchaser may provide for a re-wording of questions and requests for clarification where it considers the original language ambiguous, unclear, subject to different interpretation or revelatory of the Bidder's identity.

2.6.8 Bidders are advised that subsequent questions and/or requests for clarification included in a Bid shall neither be answered nor considered for evaluation.

2.6.9 Except as provided above, all questions will be answered by the Purchaser and the questions and answers (but not the identity of the questioner) will be issued in writing to all prospective Bidders.

2.6.10 Where the extent of the changes implied by the response to a clarification request is of such a magnitude that the Purchaser deems necessary to issue revised documentation, the Purchaser will do so by the means of the issuance of a formal IFB amendment pursuant to AC/4-D/2261 and in accordance with paragraph 2.8.

2.6.11 The Purchaser reserves the right to reject questions and clarification requests clearly devised or submitted for the purpose of artificially obtaining an extension of the bidding time (i.e. clarifications re-submitted using different wording where such wording does not change the essence of the clarification being requested).

2.6.12 The published responses issued by the Purchaser shall be regarded as the authoritative interpretation of the Invitation for Bid. Any amendment to the language of the IFB included in the answers will be issued as an IFB Amendment and shall be incorporated by the Bidder in his offer.

2.7 Requests for Waivers and Deviations

2.7.1 Bidders are informed that requests for alteration to, waivers or deviations from the terms and conditions of this IFB and attached prospective Contract (Book II) will not be considered after the request for clarification process. Requests for alterations to the other requirements, terms or conditions of the Invitation for Bid or the prospective Contract may only be considered as

part of the clarification process set forth in paragraph 2.6 above. Requests for alterations to the specifications, terms and conditions of the Contract which are included in a Bid as submitted may be regarded by the Purchaser as a qualification or condition of the Bid and may be grounds for a determination of non-compliance.

2.8 Amendment of the IFB

2.8.1 The Purchaser may amend the IFB at any time prior to the Bid Closing Date. Any and all changes will be transmitted to all Bidders by an official amendment designated as such and signed by the Purchaser. This process may be part of the clarification procedures set forth in paragraph 2.6 or may be an independent action on the part of the Purchaser.

2.8.2 The Purchaser will consider the potential impact of amendments on the ability of prospective Bidders to prepare a Bid within the allotted time. The Purchaser may extend the "Bid Closing Date" at its discretion and such extension will be set forth in the amendment.

2.8.3 All such IFB amendments issued by the Purchaser shall be acknowledged by the Bidder in its Bid by completing the “Acknowledgement of Receipt of IFB Amendments” certificate at Annex B-2. Failure to acknowledge receipt of all amendments may be grounds to determine the Bid to be administratively non-compliant.

2.9 Modification and Withdrawal of Bids

2.9.1 Bids, once submitted, may be modified by Bidders, but only to the extent that the modifications are in writing, conform to the requirements of the IFB, and are received by the Purchaser prior to the Bid Closing Date as detailed in paragraph 2.3.1. Such modifications will be considered as an integral part of the submitted Bid.

2.9.2 Modifications to Bids which arrive after the Bid Closing Date will be considered as "Late Modifications" and will be processed in accordance with the procedure detailed in paragraph 2.3.3, except that unlike a "Late Bid", the Purchaser will retain the modification until a selection is made. A modification to a Bid which is determined to be late will not be considered in the evaluation and selection process. If the Bidder submitting the modification is determined to be the successful Bidder on the basis of the unmodified Bid, the modification may then be opened. If the modification makes the terms of the Bid more favourable to the Purchaser, the modified Bid may be used as the basis of Contract award. The Purchaser, however, reserves the right to award a Contract to the apparent successful Bidder on the basis of the Bid submitted and disregard the late modification.

2.9.3 A Bidder may withdraw its Bid at any time prior to Bid Opening without penalty. In order to do so, an authorised agent or employee of the Bidder must provide an original statement of the firm's decision to withdraw the Bid.

2.9.4 Except as provided in paragraph 2.10.4.2 below, a Bidder may withdraw its Bid after Bid Opening only by forfeiture of the Bid Guarantee.

2.10 **Bid Validity**

2.10.1 Bidders shall be bound by the term of their Bid for a period of twelve (12) months starting from the Bid Closing Date specified in paragraph 2.3.1 above.

2.10.2 In order to comply with this requirement, the Bidder shall complete the Certificate of Bid Validity set forth in Annex B-4. Bids offering less than the period of time referred to above for acceptance by the Purchaser may be determined to be non-compliant.

2.10.3 The Purchaser will endeavour to complete the evaluation and make an award within the period referred to above. However, should that period of time prove insufficient to render an award, the Purchaser reserves the right to request an extension of the period of validity of all Bids which remain under consideration for award.

2.10.4 Upon notification by the Purchaser of such a request for a time extension, the Bidders shall have the right to:

2.10.4.1 Accept this extension of time in which case Bidders shall be bound by the terms of their offer for the extended period of time and the Bid Guarantee and Certificate of Bid Validity extended accordingly; or

2.10.4.2 Refuse this extension of time and withdraw the Bid, in which case the Purchaser will return to the Bidder its Bid Guarantee in the full amount without penalty.

2.10.5 Bidders shall not have the right to modify their Bids due to a Purchaser request for extension of the Bid validity unless expressly stated in such request.

2.11 **Bid Guarantee**

2.11.1 The Bid Guarantee shall be submitted by:

2.11.1.1 email either directly by the banking institution or the Bidder to the email address in paragraph 3.4.2, plus

2.11.1.2 mail the original copy to the address in paragraph 3.4.1.2.1.

2.11.2 The Bidder shall furnish with its bid a guarantee in an amount equal to Three Hundred Thousand Euro (€300,000).

2.11.3 The Bid Guarantee shall be substantially similar to Annex C as an irrevocable, unqualified and unconditional Standby Letter of Credit (SLC) issued by any of the banks (used interchangeably with “financial institution”)

listed in Annex E or issued by a different financial institution and confirmed by any of the banks listed in Annex E. In the latter case, signed original letters from both the issuing institution and the confirming institution must be provided. The confirming bank shall clearly state that it will guarantee the funds, the drawing against can be made by the NCI Agency. Bid Guarantees shall be made payable to the Treasurer, NCI Agency.

2.11.4 "Standby Letter of Credit" or "SLC" as used herein, means a written commitment by a financial institution listed in Annex E either on its own behalf or as a confirmation of the Standby Letter of Credit issued by a different bank not listed in Annex E to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Purchaser of a written demand therefore. Neither the financial institution nor the Contractor can revoke or condition the Standby Letter of Credit.

2.11.5 Alternatively, a Bidder may elect to electronically make a cash deposit of the required Guarantee directly to the bank account of the NCI Agency (no cheques). The NCI Agency's bank account details will be provided separately upon request.

2.11.6 If the Bid Closing Date is extended after a Bidder's financial institution has issued a Bid Guarantee, it is the obligation of the Bidder to have such Bid Guarantee (and confirmation, as applicable) extended to reflect the revised Bid Validity date occasioned by such extension.

2.11.7 Failure to furnish the required Bid Guarantee in the proper amount, and/or in the proper form and/or for the appropriate duration by the Bid Closing Date may be cause for the bid to be determined non-compliant.

2.11.8 The Purchaser will make withdrawals against the amount stipulated in the Bid Guarantee under any of the following conditions:

2.11.8.1 The Bidder has submitted a bid and, after Bid Closing Date (including extensions thereto) and prior to the selection of the successful bid, withdraws its bid, or states that it does not consider its bid valid or agree to be bound by its bid;

2.11.8.2 The Bidder has submitted a successful bid, but the Bidder declines to sign the Contract offered by the Agency, such Contract being consistent with the terms of the solicitation documents;

2.11.8.3 The Purchaser has offered the Bidder the Contract for execution but the Bidder has been unable to demonstrate compliance with the security requirements of the Contract at the date of contract signature;

2.11.8.4 The Purchaser has entered into the Contract with the Bidder but the Bidder has been unable or unwilling to provide the Performance Guarantee required under the terms of the Contract within the time frame required.

2.11.9 Bid Guarantees will be returned to Bidders as follows:

2.11.9.1 To non-compliant Bidders forty-five (45) days after notification by the Purchaser of a non-compliant bid (except where such determination is challenged by the Bidder; in which case the Bid Guarantee will be returned forty-five (45) days after a final determination of non-compliance);

2.11.9.2 To all other unsuccessful Bidders within thirty (30) days following the award of the Contract to the successful Bidder;

2.11.9.3 To the successful Bidder upon submission of the Performance Guarantee required by the Contract or, if there is no requirement for such a Performance Guarantee, upon Contract execution by both parties.

2.11.9.4 pursuant to paragraph 2.10.4.2.

2.12 Cancellation of IFB

2.12.1 The Purchaser may cancel, suspend or withdraw for re-issue at a later date this IFB at any time prior to Contract award. No legal liability on the part of the Purchaser for payment of any sort shall arise and in no event will any Bidder have cause for action against the Purchaser for the recovery of costs incurred in connection with preparation and submission of a Bid in response to this IFB.

2.13 Electronic Transmission of Information and Data

2.13.1 The Purchaser will communicate answers to requests for clarification and amendments to this IFB to the prospective Bidders as soon as practicable.

2.13.2 Bidders are advised that the Purchaser will rely exclusively on email communication to manage all correspondence related to this IFB, including IFB amendments and clarifications.

2.13.3 Bidders are cautioned that electronic transmission of documentation which contains classified information is not allowed.

2.14 Supplemental Agreements

2.14.1 Bidders are required, in accordance with the certificate at Annex B-7 of these Instructions to Bidders, to disclose any prospective Supplemental

Agreements that are required by national governments to be executed by NATO/NCI AGENCY as a condition of Contract performance.

2.14.2 Supplemental Agreements are typically associated with, but not necessarily limited to, national export control regulations, technology transfer restrictions and end user agreements or undertakings.

2.14.3 Bidders are cautioned that failure to provide full disclosure of the anticipated requirements and the terms thereof, to the best of the Bidder's knowledge and experience, may result in the Purchaser withholding award of the Contract or cancelling an executed Contract if it is discovered that the terms of such Supplemental Agreements contradict salient conditions of the Prospective Contract to the extent that either key objectives cannot be accomplished or basic Contract principles and Purchaser rights have been abridged.

2.15 Notice of Limitations on Use of Intellectual Property Delivered to the Purchaser

2.15.1 Bidders are instructed to review Article 20, *Intellectual Property*, of the Contract Special Provisions set forth in Part III of Book II, and Clause 30, *Intellectual Property*, of the Contract General Provisions set forth in Part III of Book II. These Clauses set forth the definitions, terms and conditions regarding the rights of the Parties concerning Intellectual Property developed and/or delivered under this Contract or used as a basis of development under this Contract.

2.15.2 Bidders are required to disclose, in accordance with the Certificates at Annex B-10 and Annex B-11, the Intellectual Property proposed to be used by the Bidder that will be delivered with either Background Intellectual Property Rights or Third Party Intellectual Property Rights. Bidders are required to identify such Intellectual Property and the basis on which the claim of Background or Third Party Intellectual Property is made.

2.15.3 Bidders are further required to identify any restrictions on Purchaser use of the Intellectual Property that is not in accordance with the definitions and rights set forth in Clause 30 of the Contract General Provisions, or any other provision of the Contract concerning use or dissemination of such Intellectual Property.

2.15.4 Bidders are reminded that restrictions on use or dissemination of Intellectual Property conflicting with Article 20 of the Contract Special Provisions, Clause 30 of the Contract General Provisions or with the objectives and

purposes of the Purchaser as stated in the Prospective Contract shall result in a determination of a non-compliant Bid.

2.16 Receipt of an Unreadable Electronic Bid

2.16.1 If a bid received at the NCI Agency's facility through electronic means is unreadable to the degree that conformance to the essential requirements of the solicitation cannot be ascertained, the CO shall immediately notify the Bidder that the bid will be rejected unless the Bidder provides clear and convincing evidence:

2.16.1.1 of the content of the bid as originally submitted, and;

2.16.1.2 that the unreadable condition of the bid was caused by Purchaser software or hardware error, malfunction, or other Purchaser mishandling.

2.16.2 A Bid that fails to conform to the above requirements may be declared noncompliant and may not be evaluated further by the Purchaser.

2.16.3 If it is discovered, during either the Administrative, Price or Technical evaluation, that the Bidder has submitted an unreadable electronic bid, the Bidder may be determined to have submitted a non-compliant bid.

SECTION 3 BID PREPARATION INSTRUCTIONS

3.1 General

3.1.1 Bidders shall prepare and submit their bid in accordance with the requirements and format set forth in this IFB. Compliance with all bid submission requirements is mandatory. Failure to submit a bid in conformance with the stated requirements may result in a determination of non-compliance by the Purchaser and the elimination of the bid from further consideration.

3.1.2 Bidders **shall not simply restate the IFB requirements**. A Bid shall demonstrate that the Bidder understands the terms, conditions and requirements of the IFB and shall demonstrate the Bidder's ability to provide all the services and deliverables listed in the Schedules of the prospective Contract. Bidders shall take note of paragraph 3.1.3 below in this regard.

3.1.3 Bidders are informed that the quality, thoroughness and clarity of the Bid will affect the overall scoring of the bid. Although the Purchaser may request clarification of the bid, it is not required to do so and may make its determination on the content of the bid as written. Therefore, Bidders shall assume that inconsistencies, omissions, errors, lack of detail and other qualitative deficiencies in the submitted Bid will have a negative impact on the final Best Value score.

3.1.4 Partial bids and/or bids containing conditional statements will be declared non-compliant.

3.1.5 Bidders are advised that the Purchaser reserves the right to incorporate the successful Bidder's offer in whole or in part by reference in the resulting contract.

3.1.6 The specific format for each volume is stated in paragraph 3.2.1.

3.1.7 All documentation submitted as part of the bid shall be classified no higher than "NATO UNCLASSIFIED".

3.1.8 All notices and communications regarding this IFB shall be written and conducted in English. All documentation submitted as part of the bid shall be in English.

3.2 Bid Package Content

3.2.1 A complete bid submission shall consist of three volumes as shown in the following table.

Volume	Format and Quantity Details
I: Bid Administration	2 PDF files that include: 1. The completed, signed certificates found in Annex B, provided as a single PDF file. 2. A copy of the Bid Guarantee. Note: this shall also be delivered by email directly to: *NCIAFinanceTreasuryBankGuarantee@ncia.nato.int* ➢ All of the required contents are detailed in Section 3.4.
II: Price	Two (2) files in total, that include: 1. 1 MS Excel file: The completed Bidding Sheets template provided in Annex A-3. 2. 1 PDF file: The Offer Summary sheet of the Bidding Sheets. ➢ All of the required contents are detailed in Section 3.5.
III: Technical	Fourteen (14) files in total, that include: 1. Eleven (11) PDF files and three (3) MS Excel files as listed in Section 3.3.3.3. 2. It is understood that Bidders may need to split documents to remain within the email size limitation stated in paragraph 3.2.4 below, in which case they will submit more than 14 files as explained in Section 3.3.2 and 3.3.3. ➢ All of the required contents are detailed in Section 3.6.

3.2.2 "Arial" fonts in size 12, or equivalent, shall be used for normal text, and "Arial Narrow" fonts not smaller than size 10, or equivalent, for tables and graphics.

3.2.3 The submitted bid shall be in accordance with the Page Limit set in paragraph 3.6.

3.2.4 All emails submitted to the Purchaser shall be less than 15 MB in size.

3.3 **Package Marking**

3.3.1 The bid shall be consolidated into as few emails as possible and sent to the correct Bid Delivery email address stated in paragraph 2.3.2. The email shall have the following subject lines:

- 115498-TOPFAS-BMD Bid for *Company Name*

3.3.2 In the event the bid must be submitted in multiple emails to stay under the size limit stated in paragraph 3.2.4, the Bidder shall add "Email 1 of 2", "Email 2 of 2" as necessary to the subject line of the email.

3.3.3 The individual electronic files sent by email shall have the names listed below. In the event the documents must be split into more than one file (to ensure the size of the email stays within the limit stated in paragraph 3.2.4), the Bidder shall add "Part 1 of 2", "Part 2 of 2" as necessary to the file names.

3.3.3.1 Volume I, Bid Administration:

- 115498-TOPFAS-BMD-Company Name-Vol I-Admin
- 115498-TOPFAS-BMD-Company Name-Vol I-BidGuarantee

3.3.3.2 Volume II, Price:

- 115498-TOPFAS-BMD-Company Name-Vol II-Price
- 115498-TOPFAS-BMD-Company Name-Vol II-OfferSum

3.3.3.3 Volume III, Technical:

- Management
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech01-BQM
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech02-Initial-PMP
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech03-Initial-RAID

- 115498-TOPFAS-BMD-Company Name–Vol III–Tech04-Initial-CMP
- 115498-TOPFAS-BMD-Company Name–Vol III–Tech05-Initial-QP
- 115498-TOPFAS-BMD-Company Name–Vol III–Tech06-BOE

- Engineering
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech07-BQE
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech08-Initial-SDS
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech09-Initial-DRTM
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech10-Initial-MTP

- Supportability
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech11-BQS
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech12-Initial-PSP
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech13-TMS
  - 115498-TOPFAS-BMD-Company Name–Vol III–Tech14-OHS

3.3.4 "Company Name" – In the subject line of the email, and in the names of the individual files, the name of the Bidder shall be abbreviated to no more than 10 characters. For example, if a company's name is "Computer and Technology Research Company", the company name could be shorted to CTRC in the email and file names.

3.4 **Volume I: Bid Administration**

3.4.1 Quantity:

3.4.1.1. One (1) PDF file containing all the documents specified in paragraph 3.4.3 and;

3.4.1.2. One (1) electronic PDF file of the Bid Guarantee (paragraph 3.4.3.17) submitted to: NCIABankGuarantee@ncia.nato.int

3.4.1.2.1. In addition, an Original (Paper) copy of the Bid Guarantee shall be sent. This Original (Paper) shall be received no later than seven (7) business

days after the Bid Closing Date (in 2.3.1). This Original (Paper) copy shall be sent to:

ATTN: Ms. Sara Stephens, Senior Contracting Officer

IFB-CO-115498-TOPFAS-BMD

NCI Agency

Boulevard Leopold III

B-1110 Brussels, Belgium]

Tel: +32 2 707 8303

~~3.4.1.3.1. Failure to comply with paragraphs 3.4.1.2 and 3.4.1.3 may be cause for the bid to be determined non-compliant~~

3.4.2 No information disclosing or contributing to disclose the bid price shall be made part of the Bid Administration volume. Failure to abide to this prescription shall result in the bid being declared non-compliant.

3.4.3 The volume shall include the certificates set forth in the Annex to these Bidding Instructions, signed in the original by an authorised representative of the Bidder. The text of the certificates must not be altered in any way. The certificates are as follows:

3.4.3.1 Annex B-1 (Certificate of Legal Name of Bidder)

3.4.3.2 Annex B-2 (Acknowledgement of Receipt of IFB Amendments)

3.4.3.3 Annex B-3 (Certificate of Independent Determination)

3.4.3.4 Annex B-4 (Certificate of Bid Validity)

3.4.3.5 Annex B-5 (Certificate of Exclusion of Taxes, Duties and Charges)

3.4.3.6 Annex B-6 (Comprehension and Acceptance of Contract Special and General Provisions)

3.4.3.7 Annex B-7 (Disclosure of Requirements for NCI Agency Execution of Supplemental Agreements) with the prospective text of such Agreements, as applicable.

3.4.3.8 Annex B-8 (Certificate of Compliance AQAP 2110 or ISO 9001:2015 or Equivalent) with a copy of the relevant quality certification attached to it.

3.4.3.9 Annex B-9 (List of Prospective Subcontractors)

3.4.3.10 Annex B-10 (Bidder Background IPR)

3.4.3.11 Annex B-11 (List of Subcontractor and Third Party IPR)

3.4.3.12 Annex B-12 (Certificate of Origin of Equipment, Services, and Intellectual Property)

3.4.3.13 Annex B-13 (List of Proposed Key Personnel)

3.4.3.14 Annex B-14 (Certificate of Price Ceiling)

3.4.3.15 Annex B-15 (Disclosure of Involvement of Former NCI Agency Employment)

3.4.3.16 Annex B-16 (Code of Conduct: Post Employment Measures)

Please note this annex does not need to be signed; it is referenced in Annex B-15

3.4.3.17 Annex C: Bid Guarantee – Standby Letter of Credit

3.5 **Volume II: Price**

3.5.1 This volume is comprised of:

3.5.1.1 The completed Bidding Sheets Excel file provided with this IFB: IFB-CO-115498-TOPFAS-BMD-Bidding-Sheets

3.5.1.2 The Offer Summary sheet from the Bidding Sheets, provided as a one-page PDF file.

3.5.2 The Schedule of Supplies and Services Excel files will be completed by the Purchaser prior to contract award and does not need to be completed as part of the Bid.

3.5.3 General Rules

3.5.3.1 Bidders are advised that the total price shall not exceed the ceiling of EUR **22,302,296** for the base contract (CLINs 1–5).

3.5.3.2 Bids submitted in excess of the ceiling stated in paragraph 3.5.3.1 will be determined to be non-compliant and eliminated from further consideration.

3.5.3.3 CLIN 8 and CLIN 9 will not be evaluated.

3.5.3.4 Bidders shall prepare their Price Volume by completing the Bidding Sheet referenced in Section A-3 in accordance with the instructions specified in Annex A.

3.5.3.5 The structure of the Bidding Sheets shall not be changed, other than as indicated in these instructions, nor should any quantity or item description in the Bidding Sheets. The currency(ies) of each Contract Line Item and sub-item shall be shown. The prices provided shall be intended as the

comprehensive total price offered for the fulfilment of all requirements as expressed in the IFB documentation including but not limited to those expressed in the Statement of Work (SOW) and the Software Requirement Specifications (SRS).

3.5.3.6 Bidders shall furnish Fixed Prices for all required items in accordance with the format set forth in the Instructions for preparation of the Bidding Sheets. This includes Fixed Prices for all optional CLINs.

3.5.3.7 Offered prices shall not be “conditional" in nature. Any comments supplied in the Bidding Sheets which are conditional in nature, relative to the offered prices, may result in a determination that the Bid is non-compliant.

3.5.3.8 Bidders are responsible for the accuracy of their Price Quotations. Price Quotations that have apparent computational errors may have such errors resolved in the Purchaser’s favour or, in the case of gross omissions, inconsistencies or errors, may be determined to be non-compliant.

3.5.3.9 Bidders shall quote in their own national currency or in EURO. Bidders may also submit bids in multiple currencies including other NATO member states' currencies under the following conditions:

3.5.3.9.1 The currency is of a "Participating Country" in the project, and

3.5.3.9.2 The Bidder can demonstrate, either through sub-contract arrangements or in its proposed work methodology, that it will have equivalent expenses in that currency. All major subcontracts and their approximate anticipated value should be listed on a separate sheet and included with the Price Quotation.

3.5.3.10 The Purchaser, by virtue of his status under the terms of Article IX and X of the Ottawa Agreement, is exempt from all direct and indirect taxes (incl. VAT) and all customs duties on merchandise imported or exported.

3.5.3.11 Bidders shall therefore exclude from their price Bid all taxes, duties and customs charges from which the Purchaser is exempted by international agreement and are required to certify that they have done so through execution of the Certificate at Annex B-5: Certificate of Exclusion of Taxes, Duties, and Charges.

3.5.3.12 Unless otherwise specified in the instructions for the preparation of Bidding Sheets in Annex A, all prices quoted in the proposal shall be on the basis that all deliverable items shall be delivered “Delivery Duty Paid (DDP)” in accordance with the International Chamber of Commerce INCOTERMS ® 2010.

3.5.3.13 The Bidder's attention is directed to the fact that the Price Volume shall contain no document and/or information other than the priced copies of the Bidding Sheets. Any other document will not be considered for evaluation

3.5.3.14 The Bidders attention is further directed to the fact that the prospective contract Special Provisions includes Economic Price Adjustment (EPA) clause 7 and that the nature of the contract is Fixed Price with EPA.

3.6 **Volume III: Technical**

3.6.1 This volume is submitted as fourteen (14) separate documents (14 or more files, in the event a document must be split into multiple files), as listed in Section 3.3.3.3, which contain all of the various parts described in this section.

3.6.1.1 Part 1: Management Proposal, as described in section 3.6.4.

3.6.1.2 Part 2: Engineering Proposal, as described in section 3.6.5.

3.6.1.3 Part 3: Supportability Proposal, as described in section 3.6.6.

3.6.2 No information disclosing or contributing to disclose the bid price shall be made part of the Technical Volume. Failure to abide to this prescription shall result in the bid being declared non-compliant.

3.6.3 "Arial" fonts in size 12 shall be used for normal text, and "Arial Narrow" fonts not smaller than size 10 for tables and graphics.

3.6.4 PART 1: MANAGEMENT PROPOSAL

3.6.4.1 Bidder Qualifications – Management (BQM)

3.6.4.1.1 The Bidder shall provide sufficient documentation on the Bidder's organizational management qualifications enabling evaluation against the criteria in Section 4.5.2.1.1.

3.6.4.1.2 The Bidder shall provide sufficient documentation on the qualifications of the proposed key management personnel enabling evaluation against the criteria in Section 4.5.2.1.2.

3.6.4.2 Initial Project Management Plan (PMP) for evaluation against the criteria in Section 4.5.2.2, in maximum 50 pages.

3.6.4.3 Initial Project Master Schedule (PMS) for evaluation against the criteria in Section 4.5.2.3.

3.6.4.4 Initial RAID Register for evaluation against the criteria in Section 4.5.2.4.

3.6.4.5 Initial Configuration Management Plan (CMP) for evaluation against the criteria in Section 4.5.2.5, in maximum 30 pages.

3.6.4.6 Initial Quality Plan (QP) for evaluation against the criteria in Section 4.5.2.6, in maximum 30 pages.

3.6.4.7. Basis of Estimate (BOE)

3.6.4.7.1. The purpose of the BOE is to enable the Purchaser to accurately validate the Management Proposal outside the Price Evaluation Process.

3.6.4.7.2. The Bidder shall provide a BOE for all Work Packages in the respective Contract, including the Optional Work Package 3 that enables evaluation against the criteria in section 4.5.2.7.

3.6.4.7.3. The BOE shall solely provide level of effort estimates.

3.6.4.7.4. The BOE breakdown in accordance with the Bidding Sheet shall be all encompassing (include all efforts in delivering the deliverables). I.e. the effort estimates shall be directly correlated with the cost of the deliverables and once given the correlation factor it shall be possible to calculate the price of the deliverables.

3.6.4.7.5. The BOE shall not reveal any pricing information; e.g. the BOE shall not include cost per function point, or unit labour rates, or the above-mentioned correlation factor, etc.

3.6.5 PART 2: ENGINEERING PROPOSAL

3.6.5.1 Bidder Qualifications – Engineering (BQE)

3.6.5.1.1 The Bidder shall provide sufficient documentation on the Bidder's organizational engineering qualifications enabling evaluation against the criteria in Section 4.5.3.1.1.

3.6.5.1.2 The Bidder shall provide sufficient documentation on the qualifications of the proposed key engineering personnel enabling evaluation against the criteria in Section 4.5.3.1.2.

3.6.5.2 Initial Solution Design Specification (SDS) for evaluation against the criteria in Section 4.5.3.2, in maximum 50 pages.

3.6.5.3 Initial Deliverable Requirements Traceability Matrix (DRTM) for evaluation against the criteria in Section 4.5.3.3.

3.6.5.4 Initial Master Test Plan (MTP) for evaluation against the criteria in Section 4.5.3.4, in maximum 30 pages.

3.6.6 PART 3: SUPPORTABILITY PROPOSAL

3.6.6.1 Bidder Qualifications – Supportability (BQS)

3.6.6.1.1 The Bidder shall provide sufficient documentation on the Bidder's organizational supportability qualifications enabling evaluation against the criteria in Section 4.5.4.1.1.

3.6.6.1.2 The Bidder shall provide sufficient documentation on the qualifications of the proposed key supportability personnel enabling evaluation against the criteria in Section 4.5.4.1.2.

3.6.6.2 Initial Integrated Product Support Plan (IPSP) for evaluation against the criteria in Section 4.5.4.2, in maximum 30 pages.

3.6.6.3 Training Materiel samples (TMS) for evaluation against the criteria in Section 4.5.4.3, in maximum 30 pages.

3.6.6.4 Online Help samples (OHS) for evaluation against the criteria in Section 4.5.4.4, in maximum 20 pages.

3.7 **Bidder's Checklist**

3.7.1 The tables below provide an overview of all items to be delivered by the Bidder as part of this bid. Bidders are invited to use these tables to verify the completeness of their proposal.

Volume 1: Bid Administration

	Item	**Format**
1	Annex B-1: Certificate of Legal Name of Bidder	One PDF file
2	Annex B-1: Acknowledgment of Receipt of IFB Amendments	
3	Annex B-3: Certificate of Independent Determination	
4	Annex B-4: Certificate of Bid Validity	
5	Annex B-5: Certificate of Exclusion of Taxes, Duties, and Charges	
6	Annex B-6: Comprehension and Acceptance of Contract Special and General Provisions	
7	Annex B-7: Disclosure of Requirements for the NCI Agency Execution of Supplemental Agreements	

	Item	Format
8	Annex B-8: Certificate of Compliance AQAP 2110 or ISO 9001:2015 or Equivalent	
9	Annex B-9: List of Prospective Sub-Contractors	
10	Annex B-10: Bidder Background IPR	
11	Annex B-11: List of Subcontractor and Third Party IPR	
12	Annex B-12: Certificate of Origin of Equipment, Services, and Intellectual Property	
13	Annex B-13: List of Proposed Key Personnel	
14	Annex B-14: Certificate of Price Ceiling	
15	Annex B-15: Disclosure of Involvement of Former NCI Agency Employment	
16	Annex B-16: NCI Agency AD. 05.00, Code of Conduct: Post Employment Measures Information only. Not required to be submitted	
17	Annex C: Bid Guarantee	One copy as a PDF file; also submitted as required in 3.2.1

Volume 2: Price

	Item	Format
1	Completed Bidding Sheets, contained in: IFB-CO-115498-TOPFAS-BMD–Bidding-Sheets.xlsx	One copy of the full and complete price volume shall be in MS Excel format, which can be manipulated (i.e. not an image)
2	Offer Summary sheet from the Bidding Sheets file	One PDF copy of only the Offer Summary sheet

Volume 3: Technical

	Item	Format
1	**Management Proposal**	
	a. Bidder Qualifications – Management (BQM)	One PDF file
	b. Initial Project Management Plan (PMP)	One PDF file
	c. Initial RAID Register	One MS Excel file
	d. Initial Configuration Management Plan (CMP)	One PDF file
	e. Initial Quality Plan (QP)	One PDF file
	f. Basis of Estimate (BOE)	One MS Excel file
2	**Engineering Proposal**	
	a. Bidder Qualifications – Engineering (BQE)	One PDF file
	b. Initial Solution Design Specification (SDS)	One PDF file
	c. Initial Deliverable Requirements Traceability Matrix (DRTM)	One MS Excel file
	d. Initial Master Test Plan (MTP)	One PDF file
3	**Supportability Proposal**	
	a. Bidder Qualifications – Supportability (BQS)	One PDF file
	b. Initial Integrated Product Support Plan (IPSP)	One PDF file
	c. Training Materiel samples (TMS)	One PDF file
	d. Online Help samples (OHS)	One PDF file

SECTION 4 BID EVALUATION AND CONTRACT AWARD

4.1 General

4.1.1 The evaluation of bids will be made by the Purchaser solely on the basis of the requirements specified in this IFB.

4.1.2 All bids will be evaluated solely using the formula, evaluation criteria and factors contained herein. Technical Proposals will be evaluated strictly against the technical criteria and not against other Technical Proposals submitted.

4.1.3 The evaluation of bids and the determination as to the Best Value Score will be based only on that information furnished by the Bidder and contained in its Bid. The Purchaser shall not be responsible for locating or securing any information that is not identified in the Bid.

4.1.4 The Bidder shall furnish with his Bid all information requested by the Purchaser in Book I, Section 3, Bid Preparation Instructions. Significant omissions and/or cursory submissions will result in a reduced Best Value Score and may result in a determination of non-compliance without recourse to further clarification. The information provided by the Bidder in its proposal shall be to a level of detail necessary for the Purchaser to fully comprehend exactly what the Bidder proposes to furnish as well as its approach and methodologies.

4.1.5 During the evaluation, the Purchaser may request clarification of the bid from the Bidder and the Bidder shall provide sufficient detailed information in connection with such requests as to permit the Purchaser to make a final assessment of the bid based upon the facts. The purpose of such clarifications will be to resolve ambiguities in the Bid and to permit the Bidder to state his intentions regarding certain statements contained therein. The purpose of the clarification stage is not to elicit additional information from the Bidder that was not contained in the original submission or to allow the Bidder to supplement cursory answers or omitted aspects of the Bid. The Bidder is not permitted any cardinal alteration of the bid regarding technical matters and shall not make any change to his price quotation at any time.

4.1.6 The Purchaser reserves the right, during the evaluation and selection process, to verify any statements made concerning experience, facilities, or existing designs or materials by making a physical inspection of the Bidder's facilities and capital assets. This includes the right to validate, by physical inspection, the facilities and assets of proposed subcontractors.

4.1.7 The evaluation will be conducted in accordance with NATO Infrastructure Bidding Procedures as set forth in the document, and the Best Value evaluation procedures set forth in AC/4-D(2008)0002-REV2, “Procedures and Practices for Conducting NSIP International Competitive Bidding Using

Best Value Methodology", with the exception described in paragraph 4.3.1.2. The bid evaluation methodology to be followed, including the top-level evaluation criteria and their weighting factors, were agreed by the Host Nation.

4.2 Best Value Award Approach and Bid Evaluation Factors

4.2.1 The Contract resulting from this IFB will be awarded to the Bidder whose conforming offer provides the Best Value to NATO, as evaluated by the Purchaser in compliance with the requirements of this IFB and according to the evaluation method specified in this section.

4.2.2 The top level criteria are 60% Technical and 40% Price.

4.2.3 Technical Scoring

4.2.3.1 The 2nd level criteria for the technical evaluation are:

4.2.3.1.1 Management (M): 45% weight, based on the criteria listed in order of descending importance in section 4.5.2

4.2.3.1.2 Engineering (E): 35% weight, based on the criteria listed in order of descending importance (that is, most important listed first) in section 4.5.3.

4.2.3.1.3 Supportability (S): 20% weight, based on the criteria listed in order of descending importance in section 4.5.4.

4.2.3.1.4 The Technical Score will be calculated using the following formula:

TS = (45%*Management Score) + (35%*Engineering Score) + (20%*Supportability Score)

4.2.4 Price Scoring

4.2.4.1 The Price Score (PS) will be calculated using the following formula:

PS = 100 * (1-(Bid Price / (2*Average Bid Price)))

4.2.4.2 The "Bid Price" and the "Average Bid Price" will be calculated based on the sum of the proposed prices as defined in section 4.6.4.2.

4.2.4.3 Only those bids evaluated as compliant in both the Administrative and Technical evaluations will be used in the calculation of the Price Score. Therefore, the price scores cannot be calculated until after the technical evaluations are complete.

4.2.4.4 Bidders shall note that any Bid in excess of the stated price ceiling set forth in paragraph 3.5.3.1 may not be scored as the Bid may be determined to be non-compliant.

4.2.5 Best Value Final Scoring

4.2.5.1 The Best Value final score (FS) will be the sum of the weighted Technical Score (TS) and weighted Price Score (PS), according to the following formula:

FS = (TS*60%) + (PS*40%)

4.2.5.2 The maximum possible Best Value Score is 100. The Bid with the highest Best Value Score will be recommended to be the Apparent Successful Bidder.

4.3 **Evaluation Procedure**

4.3.1 The evaluation will be done in a three-step process, as described below:

4.3.1.1 Step 1: Administrative Compliance

4.3.1.1.1 Bids received will be reviewed for compliance with the mandatory administrative requirements specified in paragraph 4.4. Bids not meeting all of the mandatory administrative requirements may be determined to be non-compliant and not considered for further evaluation.

4.3.1.2 Step 2: Parallel Technical and Price Evaluations

4.3.1.2.1 In Step 2, the Technical and Price evaluations will be performed in parallel. That is, independent teams of evaluators will evaluate the bids as described in Sections 4.5 and 4.6 at the same time, instead of waiting for the technical evaluations to be completed before opening the price volumes. However, the final price scores cannot be calculated until after the technical evaluations are complete, since the price score only includes those proposals evaluated as technically compliant.

4.3.1.2.2 Bidders are advised that, since the evaluations are being conducted in parallel, they should not assume that they have been evaluated as technically compliant if they receive a clarification request regarding the Price volume.

4.3.1.2.2.1 Step 2A: Technical Evaluation

4.3.1.2.2.1.1 The Technical volumes will be evaluated against predetermined top-level criteria and identified sub-criteria (see paragraph 4.2.3 above), and scored accordingly. This evaluation will result in “raw” or unweighted technical scores against the criteria.

4.3.1.2.2.1.2 Bidders are advised that any Bid whose Technical Proposal receives a score of less than 20% of the total unweighted raw score possible in any of the sub-criteria listed in Section 4.5 of

this document may be determined by the Purchaser to be non-compliant and not considered for further evaluation.

4.3.1.2.2.2 Step 2B: Price Evaluation

4.3.1.2.2.2.1 The Price volumes will be opened and evaluated in accordance with section 4.6.

4.3.1.3 Step 3: Determination of Apparent Successful Bidder

4.3.1.3.1 Upon completion of the Technical and Price evaluations, the scores of the Bids considered to be technically compliant will be calculated. The Apparent Successful Bid will be determined in accordance with paragraph 4.7.

4.4 Evaluation Step 1 - Administrative Compliance

4.4.1 Bids will be reviewed for compliance with the formal requirements for Bid submission as stated in this IFB and the content of the Bid Administration Volume. The evaluation of the Bid Administration Volume will be made on its completeness, conformity and compliance to the requested information. This evaluation will not be scored in accordance with Best Value procedures but is made to determine if a Bid complies with the requirements of the Bidding Instructions and Prospective Contract. Specifically, the following requirements shall be verified:

4.4.1.1 The Bid was received by the Bid Closing Date and Time,

4.4.1.2 The Bid is packaged and marked properly,

4.4.1.3 The Bid Administration Volume contains the documentation listed in paragraph 3.3.3.1 and complies with the formal requirements established in paragraph 3.1.

4.4.1.4 The Bidder has not taken exception to the Terms and Conditions of the Prospective Contract or has not qualified or otherwise conditioned his offer on a modification or alteration of the Terms and Conditions or the language of the Statement of Work.

4.4.1.5 **Receipt of an unreadable electronic bid**. If a bid received by email is unreadable to the degree that conformance to the essential requirements of the solicitation cannot be ascertained, the CO immediately shall notify the Bidder that the bid will be rejected unless the Bidder provides clear and convincing evidence:

4.4.1.5.1 Of the content of the bid as originally submitted; and,

4.4.1.5.2 That the unreadable condition of the bid was caused by Purchaser software or hardware error, malfunction, or other Purchaser mishandling.

4.4.2 A Bid that fails to conform to the above requirements may be declared non-compliant and may not be evaluated further by the Purchaser.

4.4.3 Bids that are determined to be administratively compliant will proceed to Step 2A, Technical Evaluation, and Step 2B, Price Evaluation.

4.4.4 Notwithstanding paragraph 4.4.3, if it is later discovered in the evaluation of the Bid Administration Volume, Technical Volume or the Price Volume that the Bidder has taken exception to the Terms and Conditions of the Prospective Contract, or has qualified and/or otherwise conditioned his offer on a modification or alteration of the Terms and Conditions or the language of the Statement of Work, the Bidder may be determined to have submitted a non-compliant Bbd at the point in time of discovery.

4.5 Evaluation Step 2A – Technical Evaluation

4.5.1 The Technical Proposal will be evaluated against the criteria set forth in this section. For some criteria, there may be additional supporting factors at the next lower level. These lower level factors are not published in this IFB but are predetermined and included in the Technical Evaluation Scheme sealed before Bid Opening. The following paragraphs identify the aspects to be examined in the Technical Proposal evaluation and rating.

4.5.2 PART 1: MANAGEMENT

4.5.2.1 Bidder Qualifications – Management (BQM)

4.5.2.1.1 The Bidder's organizational management experience as demonstrated by documented evidence for the following requirements.

Requirement	Typical Documented Evidence
M01.01a. The Bidder performed similar-sized software projects in the last 5 years	Short descriptions of projects and their dates
M01.01b. The Bidder performed software projects of similar size and complexity in the military domain in the last 5 years	Short descriptions of projects and their dates
M01.02. The Bidder used agile methods in at least 3 previous software projects	Short descriptions of projects and their dates
M01.03. The Bidder has a defined organizational software development process	Reference to the organizational document of process definition; and if available, process maturity assessment

Requirement	Typical Documented Evidence
	report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent
M01.04. The Bidder has a defined organizational project management process	Reference to the organizational document of process definition; and if available, process maturity assessment report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent
M01.05a. The Bidder has a defined organizational software configuration management process	Reference to the organizational document of process definition; and if available, process maturity assessment report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent
M01.05b. The Bidder is currently using software configuration management tools	Names of tools and version numbers
M01.06. The Bidder has a defined organizational software quality assurance process	Reference to the organizational document of process definition; and if available, process maturity assessment report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent

4.5.2.1.2 The qualifications of the key management personnel proposed by the Bidder in Annex B-13, each summarized in a maximum three-page resume with annotations referring to relevant qualification paragraphs and sub-paragraphs in SOW Section 3.9.4:

(1) Project Manager
- The Project Manager’s experience
- The Project Manager’s education
- The Project Manager’s language proficiency
- The Project Manager’ certification

(2) Configuration Manager
- The Configuration Manager’s experience
- The Configuration Manager’s education
- The Configuration Manager’s language proficiency

(3) Quality Assurance Manager
- The Quality Assurance Manager’s experience
- The Quality Assurance Manager’s education
- The Quality Assurance Manager’s language proficiency
- The Quality Assurance Manager’s certification

4.5.2.2 Initial Project Management Plan (PMP)

4.5.2.2.1 The Initial PMP format and structure aligns with the SOW Section 6.4.

4.5.2.2.2 The Initial PMP describes the project organisation and identifies key personnel in the project organization, their qualifications, and their responsibilities.

4.5.2.2.3 The Initial PMP describes the Bidder's project implementation approach, project management approach, project control processes, used standards, and external relationships necessary to provide the deliverables.

4.5.2.2.4 The Initial PMP describes the Bidder's personnel assignments with specification of the personnel target capacity required at Effective Date of Contract. Note: Target capacity is to be understood as full-time equivalent (FTE) by role/function, for example x FTE full-stack software developer; it is not needed to identify Bidder personnel by name, except for key personnel.

4.5.2.2.5 The Initial PMP describes the Bidder's approach for the "ramp-up" period, meaning the time from Contract Award to Effective Date of Contract, required by the Bidder for starting up the project, i.e. establishing the project organization, bringing the project team at target capacity, and conduct knowledge build-up and preparations. The approach includes justifications and identifies assumptions and constraints in order for the Purchaser to assess the feasibility of the approach within the proposed "ramp-up" period duration.

4.5.2.2.6 The Initial Project Management Plan includes an annex with the specifications and dimensions of the number of NATO Software Factory user accounts, the Microsoft Azure Cloud Services and additional products that are required throughout the period of performance of the Contract. Separate specifications and dimensioning of NATO Software Factory resources are provided for the period from Contract Award to Final System Acceptance, the warranty period, and the yearly maintenance and support options. The annex provides sufficient detail on how the specifications and dimension are derived.

4.5.2.2.7 The Initial PMP identifies all major contractor-operating entities and any subcontractors involved in the work and describes the portion of the overall effort and deliverables allocated to them.

4.5.2.2.8 The Initial PMP describes how the various project management processes (quality management, configuration management, risk management, etc.) are integrated, either via a tool set and/or internal project management practices.

4.5.2.2.9 The Initial PMP describes the Bidder's and its subcontractors' approach to security management, including personnel and facility security.

4.5.2.2.10 The Initial PMP identifies assumptions and constraints.

4.5.2.2.11 The Initial PMP describes methodology used for cost and schedule estimation.

4.5.2.2.12 The Initial PMP includes a product breakdown structure (PBS) identifying all services and deliverables, with reference to the CLINs for traceability.

4.5.2.2.13 The Initial PMP defines all major milestones and major activities, all expected Purchaser involvements and all expected purchaser furnished items and associated timelines.

4.5.2.3 Initial Project Master Schedule (PMS)

4.5.2.3.1 The Initial PMP includes an Initial Project Master Schedule (PMS) as an annex that defines all major milestones and major activities, with reference to the element of the product breakdown structure, the durations of each activity, and the Contract end date.

4.5.2.3.2 The Initial PMS complies with the requirements of the SOW Section 6.4.1.

4.5.2.4 Initial RAID Register

4.5.2.4.1 The Initial Risk Register lists all project risks and for each risk indicates the minimum information required in the SOW Section 6.5.1. The Initial Risk Register contains a set of probable risks that demonstrates that the Bidder has a good understanding of the complexities and dependencies inherent in the project.

4.5.2.4.2 The Initial Action Register lists all action items and for each action item indicates the minimum information required in the SOW Section 6.5.2 (template only).

4.5.2.4.3 The Initial Issue Register lists all action items and for each issue indicates the minimum information required in the SOW Section 6.5.3 (template only).

4.5.2.4.4 The Initial Decision Register lists all taken decisions and for each decision indicates the minimum information required in the SOW Section 6.5.4 (template only).

4.5.2.5 Initial Configuration Management Plan (CMP)

4.5.2.5.1 The Initial CMP states compliance with the requirements and the format defined within [ACMP-2009-SRD-41], Examples of Configuration Management Plan Requirements, and identifies explicitly any requirements deemed by the Bidder to be not applicable for the Contract. The relevant sections are marked not applicable (N/A) followed by a short justification why the requirement is considered not applicable. [Reference SOW Section 6.6].

4.5.2.5.2 The Initial CMP defines the Bidder's software configuration management process of the functional and physical characteristics of the configuration items, including interfaces and configuration identification documentation.

4.5.2.5.3 The Initial CMP documents the configuration management organisation including the configuration manager role and any other supporting configuration management personnel.

4.5.2.5.4 The Initial CMP identifies the means by which continuity of effort and understanding is achieved between the Contractor (prime) and its Subcontractors, if any, and between the project manager and the configuration manager, and internally within the organization, for the allocated configuration items, integrating, interfacing or otherwise related configuration items, supplier organizations, test and evaluation activities, and managers.

4.5.2.5.5 The Initial CMP is tailored, specifically addressing how configuration management shall be performed using an incremental delivery approach and iterative development process and integrate with NATO Software Factory.

4.5.2.5.6 The Initial CMP identifies the alternative means and tools proposed by the Purchaser beyond the Azure DevOps tools furnished by the NATO Software Factory in order to meet the configuration management requirements.

4.5.2.5.7 The Initial CMP identifies and defines all top-level configuration items to be delivered under this Contract and where these top-level configuration items are traced to deliverables as defined in the product breakdown structure and Schedule of Supplies and Services.

4.5.2.5.8 The Initial CMP defines the template for engineering change proposals (ECP), which as a minimum includes the elements specified by the template in SOW Annex D.1.

4.5.2.5.9 The Initial CMP defines the template for request for deviation (RFD)/request for waiver (RFW), which as a minimum includes the elements specified by the template in SOW Annex D.2.

4.5.2.6 Initial Quality Plan (QP)

4.5.2.6.1 The Initial Quality Plan (QP) format and structure is compliant with the requirements of the SOW Section 6.7.

4.5.2.6.2 The Initial QP states compliance with [AQAP-2105], NATO Requirements for Quality Plans.

4.5.2.6.3 The Initial QP includes or refers to all applicable contractual processes and procedures within the Bidder's Quality Management System.

4.5.2.6.4 The scope of the Quality Management System is documented in the Initial QP as it applies to the Contract.

4.5.2.6.5 The Initial QP refers to and/or includes all procedures, plans and other documents applicable to the Contract.

4.5.2.6.6 The Initial QP specifies the activities (managerial and technical) to be implemented by the Bidder, either directly or by reference to procedures and documents.

4.5.2.6.7 The Initial QP includes how the Bidder will control externally provided products, processes and activities.

4.5.2.6.8 The Initial QP includes how processes are monitored, measured, analysed and continually improved. Appropriate performance indicators are determined.

4.5.2.6.9 The Initial QP describes how documentation requirements, including quality policy, quality objectives, scope of quality management system, procedures, records and other documents are maintained and controlled, including retention periods.

4.5.2.6.10 The Initial QP includes a Contract specific description of the organizational structure and identify those responsible for ensuring that the required activities are carried out. The responsibilities and authorities of responsible personnel related to quality, including the Management Representative are described. The independence of personnel designated for contract related quality responsibilities are clearly documented. The inter-relationships between those responsible personnel are explained.

4.5.2.6.11 The provision of resources, human resources, infrastructure, and work environment needed to implement the Contract requirements are specified in the Initial QP.

4.5.2.6.12 The Initial QP describes the Contractor's software corrective action system.

4.5.2.6.13 The Initial QP describes how the Contract specific activities for identification, management, traceability, review and validation of requirements is planned. Giving reference to related processes,

documents (i.e.: software requirements specifications) and test procedures. This includes, or is referenced to the Deliverable Requirements Traceability Matrix. It describes how the matrix is maintained and controlled.

4.5.2.6.14 The Initial QP describes the arrangements for communication with the Purchaser.

4.5.2.6.15 The Initial QP describes how the Bidder will ensure that only acceptable products intended for delivery are released to the Purchaser, and ensures that the Bidder's QA organization shall verify that all tests are adequately planned, designed and executed in accordance with the approved Master Test Plan.

4.5.2.6.16 The Initial QP describes how the Contract specific requirements for identification and control of non-conforming products will be carried out.

4.5.2.6.17 The Initial QP describes how internal audits will be performed in order to determine whether the Initial QP conforms to the requirements and effectively implemented and maintained.

4.5.2.7 Basis of Estimate (BOE)

4.5.2.7.1 The BOE provides realistic effort and duration estimates for all of the deliverables in the Bidding Sheet to demonstrate a good understanding of the complexity and level of effort of work to be conducted.

4.5.2.7.2 The BOE provides level of effort estimates for all of the deliverables as defined in the Bidding Sheet.

4.5.2.7.3 The BOE provides estimates of the duration for all of the deliverables as defined in the Bidding Sheet.

4.5.3 PART 2: ENGINEERING

4.5.3.1 Bidder Qualifications – Engineering (BQE)

4.5.3.1.1 The Bidder’s organizational engineering experience as demonstrated by documented evidence for the following requirements.

Requirement	**Typical Documented Evidence**
E01.01a. The Bidder used Microsoft Azure DevOps tools in at least 3 projects	Short descriptions of projects and their dates

Requirement	Typical Documented Evidence
E01.01b. The Bidder is using automated software testing tools	Names of tools and version numbers
E01.02. The Bidder used Microsoft .NET and C# in at least 3 projects	Short descriptions of projects and their dates
E01.03a. The Bidder used JavaScript in at least 3 projects	Short descriptions of projects and their dates
E01.03b. The Bidder used Angular or REST framework in at least 1 project	Short descriptions of projects and their dates with indication of frameworks
E01.04. The Bidder used SQL database in at least 3 projects	Short descriptions of projects and their dates

4.5.3.1.2 The qualifications of key engineering personnel proposed by the Bidder in Annex B-13, each summarized in a maximum three-page resume with annotations referring to relevant qualification paragraphs and sub-paragraphs in SOW Section 3.9.4:

(1) Technical Lead Desktop

- The Technical Lead Desktop's experience
- The Technical Lead Desktop's education
- The Technical Lead Desktop's language proficiency

(2) Technical Lead Web

- The Technical Lead Web's experience
- The Technical Lead Web's education
- The Technical Lead Web's language proficiency

(3) System Software Architect

- The System Software Architect's experience
- The System Software Architect's education
- The System Software Architect's language proficiency

(4) Product Owner Desktop

- The Product Owner Desktop's experience
- The Product Owner Desktop's education
- The Product Owner Desktop's language proficiency

(5) Product Owner Web

- The Product Owner Web's experience
- The Product Owner Web's education

- The Product Owner Web's language proficiency

(6) Lead UX Designer

- The Lead UX Designer's experience
- The Lead UX Designer's education
- The Lead UX Designer's language proficiency

(7) Scrum Master

- The Scrum Master's experience
- The Scrum Master's education
- The Scrum Master's language proficiency

(8) Test Manager

- The Test Manager's experience
- The Test Manager's education
- The Test Manager's language proficiency

4.5.3.2 Initial Solution Design Specification (SDS)

4.5.3.2.1 The Initial SDS describes the Bidder's proposed software application design, design consideration and design decisions to a level of detail that enables the Purchaser to understand and assess how the capabilities will fulfil the requirements and how they will be implemented.

4.5.3.2.2 The Initial SDS includes an analysis of the requirements where this analysis identifies potential issues with the requirements, and proposes changes to the requirements definitions to resolve inconsistencies or ambiguities, or to suggest no-cost improvements.

4.5.3.2.3 The Initial SDS includes:

(1) The proposed application design (diagrams), identifying key components and services and how they relate to each other;
(2) Description of purpose of each of the identified components and services;
(3) Description of business logic and algorithms;
(4) Identification of key technologies and frameworks to be used;
(5) Identification of all third-party software and components to be used, including licensing information;
(6) Assessment of the proposed solution against the non-functional requirements as defined in the statement of requirements.

4.5.3.2.4 In the case of newly proposed third-party software and components, the Initial SDS specifies the third-party product, version, its vendor, licence type, a summary of the main capabilities, full lifecycle cost

specification (licence/subscription fee), and any constraints that may apply to the product.

4.5.3.2.5 The Initial SDS records all fundamental solution decisions. Each such decision includes:

(1) An issue or problem statement paragraph that describes the issue/problem, the motivation for change, and a reference to requirements of statement of requirements, if applicable;
(2) An assumption paragraph, that provides background information on (external) context, expected future situations, etc.;
(3) A recommended solution paragraph that describes the proposed solution, its implications and justification.

4.5.3.3 Initial Deliverable Requirements Traceability Matrix (DRTM)

4.5.3.3.1 The Initial DRTM format and structure is compliant with the requirements of the SOW Section 6.10.

4.5.3.3.2 The Initial DRTM traces all TOPFAS BMD ARS[1] requirements to SRS requirements.

4.5.3.3.3 The Initial DRTM includes for each SRS requirement the work package allocation and MoSCoW prioritization category, i.e. “must have”, “should have” and “could have”.

4.5.3.3.4 The Initial DRTM includes the Bidder’s initial allocation of all SRS requirements to sprints in accordance with guidance provided in the SOW Section 4.2.3.

4.5.3.3.5 The Initial DRTM structure includes a Verification Cross Reference Matrix (VCRM) identifying the method(s) for verifying the requirements and trace requirement with test cases.

4.5.3.4 Initial Master Test Plan (MTP)

4.5.3.4.1 The Initial MTP format and structure is compliant with the requirements of the SOW Section 4.3.2.6.3.

4.5.3.4.2 The Initial MTP describes the Bidder’s approach to the testing, verification and validation activities to ensure that the deliverables meet the requirements of the Contract.

4.5.3.4.3 The Initial MTP describes the Bidder’s test organisation and its relationship with the contractor’s quality assurance functions.

[1] ARS stands for Architectural Requirements Specifications, the high-level BMD requirements.

4.5.3.4.4 The Initial MTP describes the Bidder's testing, verification and validation strategy compliant with the iterative software development and incremental delivery approach.

4.5.3.4.5 The Initial MTP describes dependencies with the nominal sequence for BMD verification and validation events.

4.5.3.4.6 The Initial MTP describes the Bidder's test, verification and validations processes.

4.5.3.4.7 The Initial MTP describes the Bidder's test environments and tools that will be used.

4.5.3.4.8 The Initial MTP describes how the Bidder intends to achieve verification of documentation artefacts, training material and source code.

4.5.3.4.9 The Initial MTP describes how the Bidder intends to achieve verification of compliance with the requirements of the statement of work and software requirements specifications.

4.5.3.4.10 The Initial MTP describes how the Bidder intends to achieve verification of compliance with internal and external interfaces as defined in interface control documents.

4.5.3.4.11 The Initial MTP describes how the Bidder intends to achieve verification by the operational community that the delivered capabilities are usable and acceptable.

4.5.3.4.12 The Initial MTP includes a **template** for the Test Execution Plan compliant with the SOW Section 4.3.2.6.4.

4.5.3.4.13 The Initial MTP includes a **template** for the Test Report, compliant with the SOW Section 4.3.2.6.5.

4.5.4 PART 3: SUPPORTABILITY

4.5.4.1 Bidder Qualifications – Supportability (BQS)

4.5.4.1.1 The Bidder's organizational supportability experience as demonstrated by documented evidence for the following requirements.

Requirement	**Typical Documented Evidence**
S01.01. The Bidder has a defined organizational software maintenance process	Reference to the organizational document of process definition; and if available, process maturity assessment report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent

Requirement	Typical Documented Evidence
S01.02a. The Bidder has a defined organizational end-user support process	Reference to the organizational document of process definition; and if available, process maturity assessment report or relevant certification such as CMMI, ISO/IEC 33001, ITIL or equivalent
S01.02b. The Bidder has implemented ITIL or an equivalent framework	Reference to the organizational document; and if available, assessment report or relevant certification
S01.03a. The Bidder delivered similar classroom training in the last 3 years	Short descriptions of training projects and their dates
S01.03b. The Bidder delivered similar eLearning training in the last 3 years	Short descriptions of training projects and their dates

4.5.4.1.2 The qualifications of the key supportability personnel proposed by the Bidder in Annex B-13, each summarized in a maximum three-page resume with annotations referring to relevant qualification paragraphs and sub-paragraphs in SOW Section 3.9.4:

(1) Lead Instructor

- The Lead Instructor’s experience
- The Lead Instructor’s military background and/or experience in instructing military personnel
- The Lead Instructor’s education
- The Lead Instructor’s language proficiency

4.5.4.2 Initial Integrated Product Support Plan (IPSP)

4.5.4.2.1 The Initial IPSP format and structure is compliant with the requirements of the SOW Section 6.8.

4.5.4.2.2 The Initial IPSP describes the Bidder’s approach to integrated product support, including activities and milestones to deliver integrated product support deliverables and services.

4.5.4.2.3 The Initial IPSP includes general information on the purpose and scope of the IPSP and top-level supportability issues such as software description and management organization.

4.5.4.2.4 The Initial IPSP identifies explicitly any requirements in the SOW deemed by the Bidder to be not applicable for the Contract. The relevant sections are marked not applicable (N/A) followed by a short justification why the requirement is considered not applicable.

4.5.4.2.5 The Initial IPSP briefly describes the mission scenario, the operational environment, the operational requirements and supportability objectives to ensure that supportability is thoroughly planned.

4.5.4.2.6 The Initial IPSP describes the anticipated third-party software and components (COTS and FOSS) acquisition approach.

4.5.4.2.7 The Initial IPSP provides a high-level description on plans for the IPS element (i.e. the TOPFAS Application Suite with its documentation and training materials) regarding maintenance concept, maintenance tasks and maintenance environment.

4.5.4.2.8 The Initial IPSP describes on plans for the IPS element regarding personnel and skill requirements.

4.5.4.3 Training Materiel samples (TMS)

4.5.4.3.1 In order to provide a qualitative impression, Training Materiel samples from the Bidder's earlier projects includes representative examples in reference to the SOW Section 4.5.4.

4.5.4.4 Online Help samples (OHS)

4.5.4.4.1 In order to provide a qualitative impression, Online Help samples from the Bidder's earlier projects includes representative examples in reference to the SOW Section 6.16.

4.6 **Evaluation Step 2B – Price Evaluation**

4.6.1 As stated in Section 4.3.1.2, the Price evaluation will be done in parallel to the Technical evaluation.

4.6.2 The Bidder's Price Quotation will be first assessed for compliance against the following standards:

4.6.2.1 The total prices of each bid shall not exceed the ceiling stated in Section 3.5.3.1.

4.6.2.2 The Price Quotation meets the requirements for preparation and submission of the Price Quotation set forth in the Bid Preparation Section and the Instructions for Preparation of the Bidding Sheets in Annex A.

4.6.2.3 Detailed pricing information has been provided and is current, adequate, accurate, traceable, and complete.

4.6.2.4 The Price Quotation meets requirements for price realism and balance as described below in paragraph 4.6.5.

4.6.3 A Bid which fails to meet the compliance standards defined in this section may be declared non-compliant and may not be evaluated further by the Purchaser.

4.6.4 Basis of Price Comparison

4.6.4.1 The Purchaser will convert all prices quoted into EURO for purposes of comparison and computation of price scores. The exchange rate to be utilised by the Purchaser will be the average of the official buying and selling rates of the European Central Bank at close of business on the last working day preceding the Bid Closing Date.

4.6.4.2 For computation of price scores the Purchaser will use a Present Value analysis of the evaluated prices. This calculation will convert the annual value, per the Payment Schedule, to a total Present Value. The rate to be utilised by the Purchaser will be the European Central Bank 10 Year Euro bond rate at close of business on the last working day preceding the Bid Closing Date.

4.6.4.3 The **Evaluated Bid Price** to be inserted into the formula specified at paragraph 4.2.4.1 will be the Present Value of the annual values of Contract CLINs 1-7. See example Present Value conversion:

10 Year Euro Bond Rate		3.21%
Year	Fixed Price	Present Value
1	€ 2,000,000	€ 2,000,000
2	€ 2,000,000	€ 1,937,797
3	€ 2,000,000	€ 1,877,528
4	€ 2,000,000	€ 1,819,134
5	€ 2,000,000	€ 1,762,556
6	€ 2,000,000	€ 1,707,737
7	€ 2,000,000	€ 1,654,624
8	€ 2,000,000	€ 1,603,163
9	€ 2,000,000	€ 1,553,302
10	€ 2,000,000	€ 1,504,991
11	€ 2,000,000	€ 1,458,184
12	€ 2,000,000	€ 1,412,832
13	€ 2,000,000	€ 1,368,890
Total	**€ 26,000,000**	**€ 21,660,737**

4.6.4.4 The sum of the Fixed Prices proposed for CLINs 1-7 as detailed below:

CLIN	Name
1	Project Management

CLIN	Name
2	Design & Engineering
3	Implementation
4	Integrated Product Support
5	COTS Software
6	In-service support and maintenance up to FSA
7	WP3 Maintenance and Support

4.6.5 Price Balance and Realism

4.6.5.1 In those cases in which the prices quoted in relation with this Invitation for bid appear to be unreasonably low in relation to the performance required under the prospective Contract and/or the level of effort associated with the tasks, the Purchaser will reserve the right to request the Bidder clarifications aimed to demonstrate the rationale for such circumstances.

4.6.5.2 Indicators of an unrealistically low bid may be the following, amongst others:

4.6.5.2.1 Labour Costs that, when amortised over the expected or proposed direct labour hours, indicate average labour rates far below those prevailing in the Bidder's locality for the types of labour proposed.

4.6.5.2.2 Direct Material costs that are considered to be too low for the amounts and types of material proposed, based on prevailing market prices for such material.

4.6.5.2.3 Line Item prices for supplies and services that are provided at no cost or at nominal prices.

4.6.5.3 If the Purchaser has reason to suspect that a Bidder has artificially debased its prices in order to secure Contract award, the Purchaser will request clarification of the Bid in this regard and the Bidder shall provide explanation on one of the following bases:

4.6.5.3.1 An error was made in the preparation of the price quotation. In such a case, the Bidder must document the nature of the error and show background documentation concerning the preparation of the price quotation that makes a convincing case that a mistake was made by the Bidder. In such a case, the Bidder shall petition the Purchaser to either remain in the competition or accept the Contract at the offered price, or to withdraw from the competition.

4.6.5.3.2 The Bidder has a competitive advantage due to prior experience or industrial/technological processes that demonstrably reduce the costs of Bidder performance and therefore the price offered is realistic. Such an argument must support the technical proposal offered and convincingly and objectively describe the competitive advantage and the net savings achieved by this advantage over standard market practices and technology.

4.6.5.3.3 The Bidder recognises that the submitted price quotation is unrealistically low compared to its cost of performance and, for business reasons, the Bidder is willing to absorb such a loss. Such a statement can only be made by the head of the business unit submitting the Bid and will normally be made at the level of Chief Operating Officer or Chief Executive Officer. In such a case, the Bidder shall estimate the potential loss and show that the financial resources of the Bidder are adequate to withstand such reduction in revenue.

4.6.5.4 If a Bidder fails to submit a comprehensive and compelling response on one of the bases above, the Purchaser may determine the Bid submitted as non-compliant. If the Bidder responds on the basis of 4.6.5.3.1 above and requests to withdraw from the competition, the Purchaser may, depending on the nature and gravity of the mistake, allow the Bidder to withdraw.

4.6.5.5 If the Purchaser accepts the Bidder's explanation of mistake in paragraph 4.6.5.3.1 and allows the Bidder to accept the Contract at the offered price, or the Purchaser accepts the Bidder's explanation pursuant to paragraph 4.6.5.3.3 above, the Bidder shall agree that the supporting pricing data submitted with his Bid will be incorporated by reference in the resultant Contract. The Bidder shall agree as a condition of Contract signature, that the pricing data will be the basis of determining fair and reasonable pricing for all subsequent negotiations for modifications of or additions to the Contract and that no revisions of proposed prices will be made.

4.6.5.6 If the Bidder presents a convincing rationale pursuant to paragraph 4.6.5.3.2 above, no additional action will be warranted. The Purchaser, however, reserves its right to reject such an argument if the rationale is not compelling or capable of objective analysis. In such a case the Bid may be determined to be non-compliant.

4.6.5.7 The Agency reserves the right to request prime contractors or the subcontractors to separately identify each of the direct/indirect costs, advise why each is required, and provide supporting documentation to substantiate each charge, such as: 1) catalogue price lists and any applicable discounts, 2) copies of the Subcontractor's orders from others for the same or similar items, including explanations for cost variations, 3) Subcontractor's internal cost estimate, or documentation of whatever means the Subcontractor used to arrive at the charge.

4.6.6 Once the offered prices as described in paragraph 4.6.4.2 have been calculated and checked, the formula set forth in paragraph 4.2.4.1 above will be applied to derive the Price Score of each Bid.

4.7 Evaluation Step 3 – Calculation of Best Value Scores

4.7.1 Upon conclusion and approval of the Technical Evaluation and Price Evaluation results, the pre-determined weighting scheme for the Technical Evaluation will be unsealed and the scores for the Engineering, Management and Supportability factors will be calculated for each compliant bid. Then all partial scores will be fed into the formula stated in paragraph 4.2.5 in order to obtain the Best Value Score of each Bid.

4.7.2 The highest scored Bid will be recommended as the Apparent Successful Bid.

4.7.3 A statistical tie is deemed to exist when the final scores of the highest scoring bids are within one point (1.0) of each other. (For example, final scores of 67.30 and 68.30 are within one point of each other and would therefore be considered a statistical tie. Final scores of 67.30 and 68.31 are more than one point apart and would not be considered a tie.) The Purchaser will then resolve the statistical tie by awarding the contract to the Bid with the highest weighed technical score.

4.7.4 Prior to confirmation of award, the Purchaser shall invite the Bidder with the Apparent Successful Offer to one or more rounds of pre-award discussions. These discussions shall aim at clarifying and confirming, within the boundaries of the IFB documents, any remaining topics and results in the preparation of the final contract documents.

4.7.5 Upon the successful completion of these pre-award discussions, to the Purchaser’s full satisfaction, confirmation of final Bid compliance will be noted.

4.7.6 The Purchaser will deliver the final set of contract documents to the Bidder for their signature. Upon the Purchaser’s countersignature of those contract documents, the contract shall be considered to be in effect.

Annex A Bidding Sheets

A-1 Introduction

1. Bid pricing requirements as addressed in this Annex are mandatory. Failure to abide to the bid pricing requirements included in this section may lead to the Bid being declared non-compliant and not being taken into consideration for award.

2. No alteration of the Bidding sheets – including, but not limited to quantity indications, descriptions, titles or pre-populated Not-to-Exceed amounts – are allowed with the sole exception of those explicitly indicated as allowed in this document or in the instructions embedded in the Bidding Sheets file.

3. Additional price columns may be added if multiple currencies are Bid, including extra provisions for all totals.

A-2 General Requirements

1. Bidders are required, in preparing their Price Volume to utilise the electronic files provided as part of this IFB and referenced in Annex A-3.

2. This Excel file includes detailed instructions on each tab that will facilitate Bidders' preparation of the bid pricing. These instructions are mandatory.

3. The prices and quantities entered on the document shall reflect the total items required to meet the Contractual requirements. The total price shall be indicated in the appropriate columns.

4. In preparing the Bidding Sheets, Bidders shall ensure that the prices of the Sub-items total the price of the major item of which they constitute a part.

5. All metrics (e.g., cost associated with labour) will be assumed to be standard or normalised to 7.6 hours/day, for a five-day workweek at NATO and National sites and Contractor facilities.

6. Should the Apparent Best Value Bid be in other than Euro currency, the award of the Contract will be made in the currency or currencies of the bid.

7. Bidders are advised that formulae are designed to ease evaluation of the Bidders proposal have been inserted in the electronic copies of the Bidding Sheets. Notwithstanding this, the Bidder remains responsible for ensuring that their figures are correctly calculated and should not rely on the accuracy of the formulae electronic copies of the Bidding Sheets.

8. If the Bidder identifies an error in the spreadsheet, it should notify the Purchaser through process described section 2.6. The Purchaser will then make a correction and notify all the Bidders of the update.

9. Prices shall not include any provision for taxes or duties for which the Purchaser is exempt.

A-3 Bidding Sheets

1. Bidders are required, in preparing their Price Volume to utilise the correct electronic Bidding Sheets file provided as part of this IFB. This is:

   "IFB-CO-115498-TOPFAS-BMD-Bidding-Sheets.xls"

2. Bidders shall include this file in its proposal in the same Excel format in which it is provided in this IFB.

Annex B Prescribed Administrative Forms and Certificates

Annex B-1. Certificate of Legal Name of Bidder

This Bid is prepared and submitted on behalf of the legal corporate entity specified below:

FULL NAME OF CORPORATION: _____

DIVISION (IF APPLICABLE): _____

SUB DIVISION (IF APPLICABLE): _____

OFFICIAL MAILING ADDRESS

_____

_____

_____

E-MAIL ADDRESS: _____

POINT OF CONTACT REGARDING THIS BID:

NAME: _____

POSITION: _____

TELEPHONE: _____

ALTERNATIVE POINT OF CONTACT:

NAME: _____

POSITION: _____

TELEPHONE: _____

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-2. Acknowledgement of Receipt of IFB Amendments

I confirm that the following amendments to Invitation for Bid CO-115498-TOPFAS-BMD have been received and the Bid, as submitted, reflects the content of such amendments.

Amendment no.	Date of Issued	Date of receipt	Initials

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-3. Certificate of Independent Determination

It is hereby stated that:

a. We have read and understand all documentation issued as part of IFB-CO-115498-TOPFAS-BMD. Our Bid submitted in response to the referred solicitation is fully compliant with the provisions of the IFB and the prospective Contract.

b. Our Bid has been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, with any other Bidder or with any competitor;

b. The contents of our Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to award, directly or indirectly to any other Bidder or to any competitor; and

c. No attempt has been made, or will be made by the Bidder to induce any other person or firm to submit, or not to submit, a Bid for the purpose of restricting competition.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-4. Certificate of Bid Validity

I, the undersigned, as an authorised representative of the firm submitting this Bid, do hereby certify that the pricing and all other aspects of our Bid will remain valid for a period of twelve (12) months from the Bid Closing Date of this Invitation for Bid.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-5. Certificate of Exclusion of Taxes, Duties and Charges

I hereby certify that the prices offered in the price quotation of this Bid exclude all taxes, duties and customs charges from which the Purchaser has been exempted by international agreement.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-6. Comprehension and Acceptance of Contract Special and General Provisions

The Bidder hereby certifies that he has reviewed the Contract Special Provisions and the NCI Agency Contract General Provisions set forth in the Prospective Contract, Book II, of this Invitation for Bid. The Bidder hereby provides his confirmation that he fully comprehends the rights, obligations and responsibilities of the Contractor as set forth in the Articles and Clauses of the Prospective Contract. The Bidder additionally certifies that the offer submitted by the Bidder is without prejudice, qualification or exception to any of the Terms and Conditions and he will accept and abide by the stated Contract Special Provisions and Contract General Provisions if awarded the Contract as a result of this Invitation for Bid.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

ANNEX B-7. Disclosure of Requirements for NCI Agency Execution of Supplemental Agreements

I, the undersigned, as an authorised representative of _____,
certify the following statement:

All supplemental agreements, defined as agreements, documents and/or permissions outside the body of the Contract but are expected to be required by my Government, and the governments of my Subcontractors, to be executed by the NCI Agency or its legal successor as a condition of my firm's performance of the Contract, have been identified, as part of the Bid.

These supplemental agreements are listed as follows:

(insert list of supplemental agreements or specify "none")

Examples of the terms and conditions of these agreements have been provided in our Offer. The anticipated restrictions to be imposed on NATO, if any, have been identified in our offer along with any potential conflicts with the terms, conditions and specifications of the Prospective Contract. These anticipated restrictions and potential conflicts are based on our knowledge of and prior experience with such agreements and their implementing regulations. We do not certify that the language or the terms of these agreements will be exactly as we have anticipated.

The processing time for these agreements has been calculated into our delivery and performance plans and contingency plans made in the case that there is delay in processing on the part of the issuing government(s).

We recognise that additional supplemental agreements, documents and permissions presented as a condition of Contract performance or MOU signature after our firm would be selected as the successful Bidder may be cause for the NCI Agency to determine the submitted Bid to be non-compliant with the requirements of the IFB;

We accept that should the resultant supplemental agreements issued in final form by the government(s) result in an impossibility to perform the Contract in accordance with its schedule, terms or specifications, the Contract may be terminated by the Purchaser at no cost to either Party.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-8. Certificate of Compliance AQAP 2110 or ISO 9001:2015 or Equivalent

I hereby certify that _____(name of Company) possesses and applies Quality Assurance Procedures/Plans AQAP 2110 or ISO 9001:2015 or equivalent as evidenced through the attached documentation[2].

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

[2] Bidders must attach copies of any relevant quality certification.

Annex B-9. List of Prospective Subcontractors

Name and Address of Sub-Bidder	DUNS Number [3]	Primary Location of Work	Items/Services to be Provided	Estimated Value of Sub-Contract

Date

Signature of Authorised Representative

Printed Name

Title

Company

[3] Data Universal Numbering System (DUNS). Bidders are requested to provide this data in order to help NCI AGENCY to correctly identify Subcontractors. If a Subcontractor's DUNS is not known this field may be left blank.

Annex B-10. Bidder Background IPR

I, the undersigned, as an authorised representative of Bidder _____, warrant, represent, and undertake that:

a. The Contractor Background IPR specified in the table below will be used for the purpose of carrying out work pursuant to the prospective Contract.

ITEM	DESCRIPTION

b. The stated Bidder has and will continue to have, for the duration of the prospective Contract, all necessary rights in and to the Background IPR specified above.

c. The Background IPR stated above complies with the terms specified in Article 8 of the Contract Special Provisions.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-11. List of Subcontractor and Third Party IPR

I, the undersigned, as an authorised representative of Bidder _____, warrant, represent, and undertake that:

a. The Subcontractor and/or IPR specified in the table below will be used for the purpose of carrying out work pursuant to the prospective Contract.

OWNER OF IPR (Source/Company)	ITEM	DESCRIPTION

b. The stated Bidder has and will continue to have, for the duration of the prospective Contract, all necessary rights in and to the IPR specified above necessary to perform the Contractor's obligations under the Contract.

c. The Subcontractor and/or Third Party IPR stated above complies with the terms Clause 30 the Contract General Provisions.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-12. Certificate of Origin of Equipment, Services, and Intellectual Property

The Bidder hereby certifies that, if awarded the Contract pursuant to this solicitation, he will perform the Contract subject to the following conditions:

(a) none of the work, including project design, labour and services shall be performed other than by firms from and within participating NATO member countries;

(b) no material or items of equipment down to and including identifiable sub-assemblies shall be manufactured or assembled by a firm other than from and within a participating NATO member country. (A sub-assembly is defined as a portion of an assembly consisting of two or more parts that can be provisioned and replaced as an entity); and

(c) The intellectual property rights to all design documentation and related system operating software shall reside in NATO member countries, and no license fees or royalty charges shall be paid by the Bidder to firms, individuals or Governments other than within the NATO member countries.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-13. List of Proposed Key Personnel

Key Personnel are not necessarily required to work full-time in that position. Therefore, it is possible for an individual to fill more than one Key Personnel role at the same time, assuming the person is qualified to perform both roles.

Position	SOW Reference	Name	Designation Period
Project Manager	3.9.4		
Quality Assurance Manager	3.9.4		
Configuration Manager	3.9.4		
Technical Lead Desktop	3.9.4		
Technical Lead Web	3.9.4		
System Software Architect	3.9.4		
Product Owner Desktop	3.9.4		
Product Owner Web	3.9.4		
Lead UX Designer	3.9.4		
Scrum Master	3.9.4		
Test Manager	3.9.4		
Lead Instructor	3.9.4		

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-14. Certificate of Price Ceiling

I hereby certify that the total price offered in the Price Volume of this Bid does not exceed the price ceilings provided in paragraph 3.5.3.1 of Book I - Bidding Instructions.

Note: All prices, or supporting pricing information, shall be included in the Price Volume only. There shall be no pricing information disclosed in the either the Bid Administration Volume or the Technical Volume.

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company

Annex B-15. Disclosure of Involvement of Former NCI Agency Employment

The Bidder hereby certifies that, in preparing its Bid, the Bidder did not have access to solicitation information prior to such information being released to Bidders (e.g., draft statement of work and requirement documentation).

The Bidder hereby acknowledges the post-employment measures applicable to former NCI Agency Personnel as per the NCI Agency Code of Conduct.

The Bidder hereby certifies that:

☐ Its personnel, at any tier, working as part of the company's team preparing the Bid have not held employment with NCI Agency within the last two years.

☐ It has obtained a signed statement from the former NCI Agency personnel below, who departed the NCI Agency within the last two years, that they were not previously involved in the project under competition (as defined in the extract of the NCI Agency Code of Conduct provided in Annex B-16 of this IFB):

Employee Name	Former NCI Agency Position	Current Company Position

The Bidder also hereby certifies that it does not employ and/or receive services from former NCI Agency Personnel at grades A5 and above or ranks OF-5 and above, who departed the NCI Agency within the last 12 months. This prohibitions covers negotiations, representational communications and/or advisory activities.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-16. NCI Agency AD. 05.00, Code of Conduct: Post Employment Measures

1. The NCI Agency will not offer employment contracts to former NCI Agency Personnel who departed less than 2 years earlier, unless prior approval by the General Manager has been received.
2. Former NCI Agency Personnel will not be accepted as consultants or commercial counterparts for two (2) years after finalization of their employment at NCI Agency, unless the General Manager decides otherwise in the interest of the Agency and as long as NATO rules on double remuneration are observed. Such decision shall be recorded in writing. Commercial counterparts include owners or majority shareholders, key account managers, or staff members, agents or consultants of a company and/or subcontractors seeking business at any tier with the NCI Agency in relation to a procurement action in which the departing NCI Agency staff member was involved when he/she was under the employment of the NCI Agency. As per the Prince 2 Project methodology, a Project is defined as a “temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case”. For the purpose of this provision, involvement requires (i) drafting, review or coordination of internal procurement activities and documentation, such as statement of work and statement of requirement; and/or (ii) access to procurement information that has not yet been authorized for release for outside distribution, including draft statements of work and requirement documentations; and/or (iii) being appointed as a representative to the Project governance (e.g., Project Board) with access to procurement information as per (ii) above; and/or (iv) having provided strategic guidance to the project, with access to procurement information as per (ii) above.
3. In addition to paragraph 2 above, former NCI Agency Personnel at grades A5 and above or ranks OF-5 and above are prohibited during twelve months following the end of their employment with the NCI Agency from engaging in negotiations, representational communications and/or advisory activities with the NCI Agency on behalf of a private entity, unless this has been agreed in advance by the NCI Agency General Manager and notified to the Agency Supervisory Board (ASB).
4. NCI Agency Personnel leaving the Agency shall not contact their former colleagues in view of obtaining any information or documentation about procurement activities’ not-yet-authorized release. NCI Agency Personnel shall immediately report such contacts to the Director of Acquisition.
5. The ASB Chairman will be the approving authority upon recommendation by the Legal Adviser when the NCI Agency Personnel concerned by the above is the NCI Agency General Manager and will notify the ASB.
6. NCI Agency Personnel leaving the Agency shall sign a statement that they are aware of the post-employment measures set out in this Directive.
7. The post-employment measures set out in this Directive shall be reflected in the NCI Agency procurement documents, such as IFBs, and contract provisions.

Annex C Bid Guarantee – Standby Letter of Credit

Standby Letter of Credit Number:

Issue Date: _____

Beneficiary: NATO CI Agency,
Financial Management Resource Centre,
Boulevard Leopold III,
B-1110 Brussels,
Belgium

Expiry Date: _____

1. We, (issuing bank) hereby establish in your favour our irrevocable standby letter of credit number {number} by order and for the account of (NAME AND ADDRESS OF BIDDER) in the original amount of € 300,000.00 (One Hundred and Thirty Thousand Euro) . We are advised this Guarantee fulfils a requirement under Invitation for Bid IFB-CO-115498-TOPFAS dated _____.

2. Funds under this standby letter of credit are available to you upon first demand and without question or delay against presentation of a certificate from the NATO CI Agency Contracting Officer that:

a) (NAME OF BIDDER) has submitted a Bid and, after Bid Closing Date (including extensions thereto) and prior to the selection of the lowest priced, technically compliant Bid, has withdrawn his Bid, or stated that he does not consider his Bid valid or agree to be bound by his Bid, or

b) (NAME OF BIDDER) has submitted a Bid determined by the Agency to be the lowest priced, technically compliant Bid, but (NAME OF BIDDER) has declined to execute the Contract offered by the Agency, such Contract being consistent with the terms of the Invitation for Bid, or

c) The NATO CI Agency has offered (NAME OF BIDDER) the Contract for execution but (NAME OF BIDDER) has been unable to demonstrate compliance with the security requirements of the Contract within a reasonable time, or

d) The NATO CI Agency has entered into the Contract with (NAME OF BIDDER) but (NAME OF BIDDER) has been unable or unwilling to provide the Performance Guarantee required under the terms of the Contract within the time frame required.

3. This Letter of Credit is effective the date hereof and shall expire at our office located at (Bank Address) on _____. All demands for payment must be made prior to the expiry date.

4. It is a condition of this letter of credit that the expiry date will be automatically extended without amendment for a period of sixty (60) calendar days from the current or any successive expiry date unless at least thirty (30) calendar days prior to the then current expiry date the NATO CI Agency Contracting Officer notifies us that the Letter of Credit is not required to be extended or is required to be extended for a shorter duration.

5. We may terminate this letter of credit at any time upon sixty (60) calendar days notice furnished to both (NAME OF BIDDER) and the NATO CI Agency by registered mail.

6. In the event we (the issuing bank) notify you that we elect not to extend the expiry date in accordance with paragraph 4 above, or, at any time, to terminate the letter of credit, funds under this credit will be available to you without question or delay against presentation of a certificate signed by the NATO CI Agency Contracting Officer which states

“The NATO CI Agency has been notified by {issuing bank} of its election not to automatically extend the expiry date of letter of credit number {number} dated {date} pursuant to the automatic renewal clause (or to terminate the letter of credit). As of the date of this certificate, no suitable replacement letter of credit, or equivalent financial guarantee has been received by the NATO CI Agency from, or on behalf of (NAME OF BIDDER), and the NATO CI Agency, as beneficiary, hereby draws on the standby letter of credit number _____ in the amount of € (Amount up to the maximum available under the LOC), such funds to be transferred to the account of the Beneficiary number _____ (to be identified when certificate is presented).”

Such certificate shall be accompanied by the original of this letter of credit and a copy of the letter from the issuing bank that it elects not to automatically extend the standby letter of credit, or terminating the letter of credit.

7. The Beneficiary may not present the certificate described in paragraph 6 above until 20 (twenty) calendar days prior to a) the date of expiration of the letter of credit should {issuing bank} elect not to automatically extend the expiration date of the letter of credit, b) the date of termination of the letter of credit if {issuing bank} notifies the Beneficiary that the letter of credit is to be terminated in accordance with paragraph 6 above.

8. Multiple drawings are allowed.

9. Drafts drawn hereunder must be marked, “Drawn under {issuing bank} Letter of Credit No. {number}” and indicate the date hereof.

10. This letter of credit sets forth in full the terms of our undertaking, and this undertaking shall not in any way be modified, amended, or amplified by reference to any document, instrument, or agreement referred to herein (except the International Standby Practices (ISP 98) hereinafter defined) or in which this letter of credit is referred to or to which this letter of credit relates, and any such reference shall not be deemed to incorporate herein by reference any document, instrument, or agreement.

11. We hereby engage with you that drafts drawn under and in compliance with the terms of this letter of credit will be duly honoured upon presentation of documents to us on or before the expiration date of this letter of credit.

12. This Letter of Credit is subject to The International Standby Practices-ISP98 (1998 Publication) International Chamber of Commerce Publication No.590.

Annex D Clarification Request Form

INVITATION FOR BID

IFB-CO-115498-TOPFAS-BMD

CLARIFICATION REQUEST FORM

IFB-CO-115498-TOPFAS-BMD

Company Name _____ Submission Date_____

ADMINISTRATION or CONTRACTING				
Serial No.	**IFB Ref.**	**Bidder's Question**	**NCI Agency Answer**	**Status**
A.1				
A.2				
A.3				
A.4				

IFB-CO-115498-TOPFAS-BMD

Company Name _____ Submission Date_____

PRICE				
Serial No.	**IFB Ref.**	**Bidder's Question**	**NCI Agency Answer**	**Status**
P.1				
P.2				
P.3				
P.4				

IFB-CO-115498-TOPFAS-BMD

Company Name _____ Submission Date_____

TECHNICAL				
Serial No.	**IFB Ref.**	**Bidder's Question**	**NCI Agency Answer**	**Status**
T.1				
T.2				
T.3				
T.4				

Annex E List of Acceptable Banks to Issue Bid Guarantees

#	*Bank
1	KBC Group
2	Bank of Montreal (BMO)
3	Royal Bank of Canada
4	Scotiabank
5	Danske Bank
6	Citibank Europe
7	BNP Paribas
8	Credit Agricole Group
9	Societe Generale
10	Commerzbank AG
11	Deutsche Bank
12	Intesa
13	UniCredit S.p.A.
14	ING Group
15	Rabobank Group
16	Banco Santander
17	BBVA
18	Barclays PLC
19	HSBC Holdings
20	Standard Chartered Plc
21	Bank of America
22	Wells Fargo
23	Swedbank AB

**These Banks are in NATO-member countries.*

Bidding Sheets Instructions

INTRODUCTION & IMPORTANT NOTES	
	Bidders should note that NCIA has recently updated its bidding sheet template and are encouraged to read the instructions in full for this new version before completing the bidding sheets. All bidders are required to submit pricing details to demonstrate the Purchaser's Pricing Principles are being applied as part of their bids. All data submitted in these sheets shall be complete, verifiable and factual and include the required details. Any exclusions may render the bid as non compliant thus removing the bidder from the bidding process. Bidders are **REQUIRED** to complete the following tabs: - **"Offer Summary"**, - **"CLIN Summary"**, - **"Labour"**, - **"Material"**, - **"Travel"**, - **"ODC",** - **"Rates"**. **Note that input cells in the "Offer Summary" and the "CLIN Summary" tabs are colour coded YELLOW.** The instructions for the detailed tabs can be found below, as well as in the green boxes within each detailed tab. G&A, Overhead, material handling and other indirect rates do not need to be separately calculated in the detail sheets but must be included in the totals for each category (Labour/Material/Travel/ODC) as appropriate. A list of the direct and indirect rates applied in the bid must also be provided in the "Rates" tab, although they do not need to be linked to any and the detailed calculations. The list of these rates will be requested in pre-contract award from the winning bidder. **Note: any information found within GREEN boxes throughout the entire document is provided as an instruction and/or example only.** Any formulas provided in these bidding sheets are intended only to assist the bidder. Any changes in formula can be made at the bidder's discretions, as long as the detailed costs are clear, traceable and accurate as required. Ultimately the bidder is responsible for **ALL** values, formulas and calculations within the bidding sheets that are submitted to the Agency. **Bids in MULTIPLE CURRENCIES should follow the following instructions:** - For the "Offer Summary" tab bidders must add "Fixed Price" column to the right of the current table for each additional currency. - For the "CLIN Summary" tab, Bidders have 2 options: A) Two columns "Unit Price" and "Total Fixed Price" may be added to the right of the current table for each additional currency of the bid; B) Bidders may duplicate the CLIN Summary tab for each currency bid. - For the Detailed tabs Bidders have 2 options: A) Provide all the detailed data for all currencies in the table provided, selecting the individual currencies from the dropdown lists and summing only common currencies together in CLIN Summary/Offer Summary Sheets B) Duplicate the CLIN Summary tab for each currency bid.

DETAILED TABs	DESCRIPTION

MATERIAL **LABOUR** **TRAVEL** **ODCs**	**Before filling in the tabs Material, Labour, Travel and ODC please read the paragraph 3.5.3.14 in the Bidding Instructions concerning the use of the Economic Price Adjustment (EPA) Clause.** The detailed tables are to be completed by the bidder with all columns populated, and shall be expanded to include as many rows as necessary to provide the detail requested. The bidder is required to identify for each item the CLIN it is associated with from the drop down menu. Each column should then be populated using the column- specific instructions in the first row. Bidder may not delete columns within tables, or omit information from columns, but may add columns if necessary, although it's not anticipated this will be needed. Note CLINs with no costs associated with that item should also be selected within the table, and noted that there is no cost within that table for the CLIN. For example, if there is no labour associated with CLIN X.1, Select CLIN X.1 in the first column and then in the second column note "No Labour is associated with this CLIN". This will help to ensure that all the proper detail has been accounted for and properly allocated. Important Note: The Total sum of the "fully burdened" cost column should equal the grand total cost for each category (Labour, Material, etc.) to include profit as well as all indirect rates (G&A/Overhead/Material handling/etc.) associated with that category. These indirect rates must be included in the total fixed price on the appropriate detailed tab but are no longer required to be shown as separate calculations at the bidding stage. However, the bidder is required to include the associated indirect costs in the totals of the detailed tab in the base unit costs. Alternatively, the bidder may choose to show these as separate calculations by expanding the table columns to show the additional costs due to these indirect rates (similar to the way profit is calculated). Note again although the detailed indirect rate calculations are not required at the bidding stage, this information will be requested from the winning bidder during pre-contract award discussions.
RATES	As discussed previously in these instructions, the detailed indirect rate calculations are not required to be included in the bidding sheets, although the bidders may chose to do so. However, ALL bidders are required to state the G&A/OH/Material handling and any other indirect rates that they have applied to the bid.

CLIN Number	CLIN DESCRIPTION	Fixed Price
	Declare Currency =>	

Grand Total Fixed Price - Base Contract	-
Grand Total Fixed Price - Base Contract + Evaluated Options	-
Grand Total Fixed Price - Base Contract + Evaluated Options + Non-Evaluated Options	-

CLIN 1	CLIN 1 (BASE-EVALUATED) - Project Management	-
CLIN 2	CLIN 2 (BASE-EVALUATED) - Design & Engineering	-
CLIN 3	CLIN 3 (BASE-EVALUATED) - Implementation	-
CLIN 4	CLIN 4 (BASE-EVALUATED) - Integrated Product Support	-
CLIN 5	CLIN 5 (BASE-EVALUATED) - COTS Software	-
Total Fixed Price Base Contract		**-**
CLIN 6	CLIN 6 (OPTION-EVALUATED) - In-Service Support and Maintenance up to FSA	-
CLIN 7	CLIN 7 (OPTION-EVALUATED) - WP3 Maintenance and Support	-
Total Fixed Price Evaluated Options		**-**
CLIN 8	CLIN 8 (OPTION-NON-EVALUATED) - Optional Additional Training Delivery	-
CLIN 9	CLIN 9 (OPTION-NON-EVALUATED) - Optional Additional Deployment	-
Total Fixed Price Non-Evaluated Options		**-**

CO-115498-TOPFAS-BMD CLIN Summary											
BASE CONTRACT											
CLIN	Description	SOW Reference	Required Completion Date	Delivery Destination	Delivery Form	Unit of measure	Quantity	Unit Price	Total Fixed Price	Investment or O&M	Optional Comments (Mandatory for zero costs lines)
								Declare Currency =>			
1	CLIN 1 (BASE-EVALUATED) - Project Management										
1.1	Project Management					SRS Requirement	834	-	-	Investment	Please note the instructions regarding CLIN 1.
1.1.1	*Project Management WP1*	*3.1-5, 3.9*	*EDC+25 months*	----	*PM Service*	*SRS Requirement*	*456*		-	*Investment*	
1.1.2	*Project Management WP2*	*3.1-5, 3.9*	*EDC+51 months*	----	*PM Service*	*SRS Requirement*	*378*		-	*Investment*	
TOTAL PRICE CLIN 1									-		
2	CLIN 2 (BASE-EVALUATED) - Design & Engineering										
2.1	Design					SRS Requirement	834	-	-	Investment	
2.1.1	*Design WP1*	*3.6, 3.8, 3.10-11, 4*	*EDC+13 months*	*NSF*	*Electronic*	*SRS Requirement*	*456*		-	*Investment*	
2.1.2	*Design WP2*	*3.6, 3.8, 3.10-11, 4*	*EDC+37 months*	*NSF*	*Electronic*	*SRS Requirement*	*378*		-	*Investment*	
2.2	System Development & Integration					SRS Requirement	834	-	-	Investment	
2.2.1	*System Development & Integration WP1*	*3.6, 3.8, 3.10-11, 4*	*EDC+13 months*	*NSF*	*Electronic*	*SRS Requirement*	*456*		-	*Investment*	
2.2.2	*System Development & Integration WP2*	*3.6, 3.8, 3.10-11, 4*	*EDC+37 months*	*NSF*	*Electronic*	*SRS Requirement*	*378*		-	*Investment*	
2.3	System Test, Validation & Delivery					SRS Requirement	834	-	-	Investment	
2.3.1	*System Test, Validation & Delivery WP1*	*3.6, 3.8, 3.10-11, 4*	*EDC+25 months*	*NSF*	*Electronic*	*SRS Requirement*	*456*		-	*Investment*	
2.3.2	*System Test, Validation & Delivery WP2*	*3.6, 3.8, 3.10-11, 4*	*EDC+49 months*	*NSF*	*Electronic*	*SRS Requirement*	*378*		-	*Investment*	
2.4	Support to BMD Programme								-	Investment	
2.4.1	Support to BMD Programme for WP1	4.8	EDC+27 months	----	Service and Support	Lot	1	-	-	Investment	
2.4.2	Support to BMD Programme for WP2	4.8	EDC+51 months	----	Service and Support	Lot	1	-	-	Investment	
TOTAL PRICE CLIN 2									-		
3	CLIN 3 (BASE-EVALUATED) - Implementation										
3.1	Deployment, Installation, Integration & Activation Services						834	-	-	Investment	
3.1.1	*Deployment, Installation, Integration & Activation WP1*	*4.3*	*EDC+25 months*	*NATO Facilities*	*Services*	*SRS Requirement*	*456*		-	*Investment*	
3.1.2	*Deployment, Installation, Integration & Activation WP2*	*4.3*	*EDC+49 months*	*NATO Facilities*	*Services*	*SRS Requirement*	*378*		-	*Investment*	
TOTAL PRICE CLIN 3									-		
4	CLIN 4 (BASE-EVALUATED) - Integrated Product Support										
4.1	Support Documentation					SRS Requirement	834	-	-	Investment	
4.1.1	*Support Documentation WP1*	*4, 6*	*EDC+13 months*	*NSF*	*Electronic*	*SRS Requirement*	*456*		-	*Investment*	
4.1.2	*Support Documentation WP2*	*4, 6*	*EDC+37 months*	*NSF*	*Electronic*	*SRS Requirement*	*378*		-	*Investment*	
4.2	Training								-	Investment	
4.2.1	Training Package WP1								-	Investment	
4.2.	TOPFAS SAT Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS SAT Train-The-Trainer Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OPT Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OPT Train-The-Trainer Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS CAT Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS CAT Train-The-Trainer Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Desktop Functional Manager Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Desktop & TOPFAS Online System Administrator	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Collaboration Apps & Services Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS eFGMT Force Generator Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS eFGMT System Administrator Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS NCRS Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS NCRS System Administrator Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Manager Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Assessor Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Reporter Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT System Administrator Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OCC E&F Tool Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OCC E&F Tool Functional Manager & System Administra	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RFI App Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RFI App System Administrator Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS TEM App Practitioner Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS TEM App System Administration Course	4.5	EDC+19 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Application Suite Transition Courses	4.5	EDC+19 months	NSF	Electronic	Lot	1	-	-	Investment	
4.2.2	Training Package WP2 (Update)								-	Investment	
4.2.	TOPFAS SAT Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS SAT Train-The-Trainer Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OPT Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OPT Train-The-Trainer Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS CAT Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS CAT Train-The-Trainer Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Desktop Functional Manager Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Desktop & TOPFAS Online System Administrator	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS Collaboration Apps & Services Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS eFGMT Force Generator Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS eFGMT System Administrator Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS NCRS Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS NCRS System Administrator Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Manager Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Assessor Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT Force Readiness Reporter Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RRT System Administrator Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OCC E&F Tool Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS OCC E&F Tool Functional Manager & System Administra	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RFI App Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS RFI App System Administrator Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2.	TOPFAS TEM App Practitioner Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	

4.2	TOPFAS TEM App System Administration Course	4.5	EDC+43 months	NSF	Electronic	Each	1	-	-	Investment	
4.2	TOPFAS Application Suite Transition Courses	4.5	EDC+43 months	NSF	Electronic	Lot	1	-	-	Investment	
4.2.3	Training Delivery WP1								-	Investment	
4.2	TOPFAS SAT Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS SAT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS OPT Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	6	-	-	Investment	
4.2	TOPFAS OPT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS CAT Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS CAT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS Desktop Functional Manager Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS Desktop & TOPFAS Online System Administrator	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS eFGMT Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS eFGMT System Administrator Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS NCRS Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS NCRS System Administrator Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RRT Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RRT System Administrator Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS OCC E&F Tool Transition Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS OCC E&F Tool Functional Manager & System Administra	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RFI App Practitioner Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	5	-	-	Investment	
4.2	TOPFAS RFI App System Administrator Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RFI App Train-The-Trainer Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS Collaboration Apps & Services Practitioner Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	5	-	-	Investment	
4.2	TOPFAS Collaboration Apps & Services Train-The-Trainer	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS TEM App Practitioner Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS TEM App System Administration Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS TEM App Train-The-Trainer Course	4.3.4.2, 4.5	EDC+25 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2.4	Training Delivery WP2								-	Investment	
4.2	TOPFAS SAT Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS SAT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS OPT Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	6	-	-	Investment	
4.2	TOPFAS OPT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS CAT Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS CAT Train-The-Trainer Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS Desktop Functional Manager Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS Desktop & TOPFAS Online System Administrator	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	3	-	-	Investment	
4.2	TOPFAS eFGMT Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS eFGMT System Administrator Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS NCRS Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS NCRS System Administrator Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RRT Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RRT System Administrator Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS OCC E&F Tool Transition Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS OCC E&F Tool Functional Manager & System Administra	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RFI App Practitioner Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS RFI App System Administrator Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS RFI App Train-The-Trainer Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS Collaboration Apps & Services Practitioner Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS Collaboration Apps & Services Train-The-Trainer	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
4.2	TOPFAS TEM App Practitioner Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	4	-	-	Investment	
4.2	TOPFAS TEM App System Administration Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	1	-	-	Investment	
4.2	TOPFAS TEM App Train-The-Trainer Course	4.3.4.2, 4.5	EDC+49 months	NATO Facilities	Course	Each	2	-	-	Investment	
TOTAL PRICE CLIN 4									-		
5	**CLIN 5 (BASE-EVALUATED) - COTS Software**										
5.1	COTS (3rd Party) Software and Components WP1	3.7	EDC+25 months	NCI Agency	Software and Licenses	Lot	1	-	-	Investment	
5.2	COTS (3rd Party) Software and Components WP2	3.7	EDC+49 months	NCI Agency	Software and Licenses	Lot	1	-	-	Investment	
TOTAL PRICE CLIN 5									-		
Total Fixed Price Base Contract									-		

EVALUATED OPTIONS

CLIN	Description	SOW Reference	Required Completion Date	Delivery Destination	Delivery Form	Unit of measure	Quantity	Unit Price	Total Fixed Price	Investment or O&M	Optional Comments (Mandatory for zero costs lines)
6	**CLIN 6 (OPTION-EVALUATED) - In-Service Support and Maintenance up to FSA**										
6.1	In-Service Support and Maintenance	4.3.4.4, 4.9.3	PSA WP1 to FSA	----	Service and Support & Maintenance Releases	Lot	1	-	-	O&M	
TOTAL PRICE CLIN 6									-		
7	**CLIN 7 (OPTION-EVALUATED) - WP3 Maintenance and Support**										
7.1	Maintenance and Support for Year 1								-	O&M	
7.1.1	Support to NCI Agency's second and third level service support process	5	FSA to FSA + 1 year	NCI Agency	In-Service Support	Lot	1	-	-	O&M	
7.1.2	Perform Corrective maintenance (Covered by Warranty)	5	FSA to FSA + 1 year	NSF	Maintenance Releases	Lot	1	NSP	NSP	O&M	Please note the instructions regarding CLIN 7.1.2.
7.1.3	Perform Preventive maintenance	5	FSA to FSA + 1 year	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.1.4	Perform Adaptive maintenance	5	FSA to FSA + 1 year	NSF	Maintenance Releases	man-days	500	-	-	O&M	
7.1.5	Perform Perfective maintenance, including change proposals and requests	5	FSA to FSA + 1 year	NSF	Maintenance and Baseline Releases	man-days	500	-	-	O&M	
7.1.6	Support system integration testing and user acceptance testing	5	FSA to FSA + 1 year	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.1.7	Support to the BMD Programme	5	FSA to FSA + 1 year	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.1.8	Perform testing, configuration & change management and CRQ process	5	FSA to FSA + 1 year	----	Service and Support	Lot	1	-	-	O&M	
7.1.9	Support IV&V testing	5	FSA to FSA + 1 year	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.1.10	Support system interfacing and the release and transition process	5	FSA to FSA + 1 year	----	Service and Support	Lot	1	-	-	O&M	
7.1.11	COTS (3rd Party) Software and Components	5	FSA to FSA + 1 year	NCI Agency	Software and Licenses	Lot	1	-	-	O&M	
7.2	Maintenance and Support for Year 2								-		

7.2.1	Support to NCI Agency's second and third level service support process	5	FSA + 1 year to FSA + 2 years	NCI Agency	In-Service Support	Lot	1	-	-	O&M	
7.2.2	Perform Corrective maintenance	5	FSA + 1 year to FSA + 2 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.2.3	Perform Preventive maintenance	5	FSA + 1 year to FSA + 2 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.2.4	Perform Adaptive maintenance	5	FSA + 1 year to FSA + 2 years	NSF	Maintenance Releases	man-days	500	-	-	O&M	
7.2.5	Perform Perfective maintenance, including change proposals and requests	5	FSA + 1 year to FSA + 2 years	NSF	Maintenance and Baseline Releases	man-days	500	-	-	O&M	
7.2.6	Support system integration testing and user acceptance testing	5	FSA + 1 year to FSA + 2 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.2.7	Support to the BMD Programme	5	FSA + 1 year to FSA + 2 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.2.8	Perform testing, configuration & change management and CRQ process	5	FSA + 1 year to FSA + 2 years	----	Service and Support	Lot	1	-	-	O&M	
7.2.9	Support IV&V testing	5	FSA + 1 year to FSA + 2 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.2.10	Support system interfacing and the release and transition process	5	FSA + 1 year to FSA + 2 years	----	Service and Support	Lot	1	-	-	O&M	
7.2.11	COTS (3rd Party) Software and Components	5	FSA + 1 year to FSA + 2 years	NCI Agency	Software and Licenses	Lot	1	-	-	O&M	
7.3	Maintenance and Support for Year 3								-		
7.3.1	Support to NCI Agency's second and third level service support process	5	FSA + 2 years to FSA + 3 years	NCI Agency	In-Service Support	Lot	1	-	-	O&M	
7.3.2	Perform Corrective maintenance	5	FSA + 2 years to FSA + 3 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.3.3	Perform Preventive maintenance	5	FSA + 2 years to FSA + 3 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.3.4	Perform Adaptive maintenance	5	FSA + 2 years to FSA + 3 years	NSF	Maintenance Releases	man-days	500	-	-	O&M	
7.3.5	Perform Perfective maintenance, including change proposals and requests	5	FSA + 2 years to FSA + 3 years	NSF	Maintenance and Baseline Releases	man-days	500	-	-	O&M	
7.3.6	Support system integration testing and user acceptance testing	5	FSA + 2 years to FSA + 3 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.3.7	Support to the BMD Programme	5	FSA + 2 years to FSA + 3 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.3.8	Perform testing, configuration & change management and CRQ process	5	FSA + 2 years to FSA + 3 years	----	Service and Support	Lot	1	-	-	O&M	
7.3.9	Support IV&V testing	5	FSA + 2 years to FSA + 3 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.3.10	Support system interfacing and the release and transition process	5	FSA + 2 years to FSA + 3 years	----	Service and Support	Lot	1	-	-	O&M	
7.3.11	COTS (3rd Party) Software and Components	5	FSA + 2 years to FSA + 3 years	NCI Agency	Software and Licenses	Lot	1	-	-	O&M	
7.4	Maintenance and Support for Year 4								-		
7.4.1	Support to NCI Agency's second and third level service support process	5	FSA + 3 years to FSA + 4 years	NCI Agency	In-Service Support	Lot	1	-	-	O&M	
7.4.2	Perform Corrective maintenance	5	FSA + 3 years to FSA + 4 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.4.3	Perform Preventive maintenance	5	FSA + 3 years to FSA + 4 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.4.4	Perform Adaptive maintenance	5	FSA + 3 years to FSA + 4 years	NSF	Maintenance Releases	man-days	500	-	-	O&M	
7.4.5	Perform Perfective maintenance, including change proposals and requests	5	FSA + 3 years to FSA + 4 years	NSF	Maintenance and Baseline Releases	man-days	500	-	-	O&M	
7.4.6	Support system integration testing and user acceptance testing	5	FSA + 3 years to FSA + 4 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.4.7	Support to the BMD Programme	5	FSA + 3 years to FSA + 4 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.4.8	Perform testing, configuration & change management and CRQ process	5	FSA + 3 years to FSA + 4 years	----	Service and Support	Lot	1	-	-	O&M	
7.4.9	Support IV&V testing	5	FSA + 3 years to FSA + 4 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.4.10	Support system interfacing and the release and transition process	5	FSA + 3 years to FSA + 4 years	----	Service and Support	Lot	1	-	-	O&M	
7.4.11	COTS (3rd Party) Software and Components	5	FSA + 3 years to FSA + 4 years	NCI Agency	Software and Licenses	Lot	1	-	-	O&M	
7.5	Maintenance and Support for Year 5								-		
7.5.1	Support to NCI Agency's second and third level service support process	5	FSA + 4 years to FSA + 5 years	NCI Agency	In-Service Support	Lot	1	-	-	O&M	
7.5.2	Perform Corrective maintenance	5	FSA + 4 years to FSA + 5 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.5.3	Perform Preventive maintenance	5	FSA + 4 years to FSA + 5 years	NSF	Maintenance Releases	Lot	1	-	-	O&M	
7.5.4	Perform Adaptive maintenance	5	FSA + 4 years to FSA + 5 years	NSF	Maintenance Releases	man-days	500	-	-	O&M	
7.5.5	Perform Perfective maintenance, including change proposals and requests	5	FSA + 4 years to FSA + 5 years	NSF	Maintenance and Baseline Releases	man-days	500	-	-	O&M	

7.5.6	Support system integration testing and user acceptance testing	5	FSA + 4 years to FSA + 5 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.5.7	Support to the BMD Programme	5	FSA + 4 years to FSA + 5 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.5.8	Perform testing, configuration & change management and CRQ process	5	FSA + 4 years to FSA + 5 years	----	Service and Support	Lot	1	-	-	O&M	
7.5.9	Support IV&V testing	5	FSA + 4 years to FSA + 5 years	NATO Facilities	Service and Support	Lot	1	-	-	O&M	
7.5.10	Support system interfacing and the release and transition process	5	FSA + 4 years to FSA + 5 years	----	Service and Support	Lot	1	-	-	O&M	
7.5.11	COTS (3rd Party) Software and Components	5	FSA + 4 years to FSA + 5 years	NCI Agency	Software and Licenses	Lot	1	-	-	O&M	
TOTAL PRICE CLIN 7									-		
Total Fixed Price-Evaluated Options									-		

NON-EVALUATED OPTIONS

CLIN	Description	SOW Reference	Required Completion Date	Delivery Destination	Delivery Form	Unit of measure	Quantity	Unit Price	Total Fixed Price	Investment or O&M	Optional Comments (Mandatory for zero costs lines)
8	**CLIN 8 (OPTION-NON-EVALUATED) - Optional Additional Training Delivery**										
8.1	TOPFAS SAT Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.2	TOPFAS SAT Train-The-Trainer Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.3	TOPFAS OPT Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.4	TOPFAS OPT Train-The-Trainer Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.5	TOPFAS CAT Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.6	TOPFAS CAT Train-The-Trainer Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.7	TOPFAS Desktop Functional Manager Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.8	TOPFAS Desktop & TOPFAS Online System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.9	TOPFAS Collaboration Apps & Services Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.10	TOPFAS eFGMT Force Generator Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.11	TOPFAS eFGMT System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.12	TOPFAS NCRS Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.13	TOPFAS NCRS System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.14	TOPFAS RRT Force Readiness Manager Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.15	TOPFAS RRT Force Readiness Assessor Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.16	TOPFAS RRT Force Readiness Reporter Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.17	TOPFAS RRT System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.18	TOPFAS OCC E&F Tool Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.19	TOPFAS OCC E&F Tool Functional Manager & System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.20	TOPFAS RFI App Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.21	TOPFAS RFI App System Administrator Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.22	TOPFAS TEM App Practitioner Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
8.23	TOPFAS TEM App System Administration Course	4.5.8	FAT WP1 to FSA + 5 year	NATO Nations	Course	Each	1	-	-		
TOTAL PRICE CLIN 8									-		
9	**CLIN 9 (OPTION-NON-EVALUATED) - Optional Additional Deployment**										
9.1	Deployment, Installation and Activation Services Single Site (incl. travel)	4.3.4.1.2	FAT WP1 to FSA + 5 year	NATO Nations	Services	Each	1	-	-		
TOTAL PRICE CLIN 9									-		
Total Fixed Price-Non-Evaluated Options									-		

CLIN	Labour category	Currency	Man-Days 2023	Man-Days 2024	Man-Days 2025	Man-Days 2026	Man-Days 2027	Man-Days 2028	Man-Days 2029	Man-Days 2030	Man-Days 2031	Man-Days 2032	Labour rate	Extended cost	Expat Allowance (ONLY if applicable)	Profit	Fully burdened cost	Subcontracted/ Name of Subcontractor
Example. CLIN 1.1.1	Systems Engineer	Euro (EUR)	25	20	15	10	5	10	15	20	25	30	50.00	8,750.00		875.00	9,625.00	No
CLIN 1.1	Insert Labour category name here													-	-	0.00	0.00	
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Total																	**0.00**	

CLIN	Equipment name	Item description	Currency	Quantity 2023	Quantity 2024	Quantity 2025	Quantity 2026	Quantity 2027	Quantity 2028	Quantity 2029	Quantity 2030	Quantity 2031	Quantity 2032	Unit cost	Extended cost	Profit	Fully burdened cost	Subcontracted/ Name of Subcontractor
Example. CLIN 1.1.1	EXAMPLE: BrandX Server: TS1593	Example: HT800003 (model number)	Euro (EUR)	10	20	25	5	5	10	15	20	10	5	150.00	18,750.00	1,875.00	20,625.00	No
CLIN 1.1	Insert Purchased Equipment name	Insert Item Description/Model number													0.00	0.00	0.00	
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	Insert Purchased Equipment name	Insert Item Description/Model number													0.00	0.00	0.00	
Total																	**0.00**	

CLIN	Origin/ Destination	Year	Currency	Nr of trips	Nr of people	Nr of days per trip	Cost per roundtrip	Per Diem	Extended cost	Profit	Total cost
Example. CLIN 1.1.1	Rome/The Hague	2023	Euro (EUR)	4	3	5	600.00	150.00	16,200.00	810.00	17,010.00
CLIN 1.1	Insert Origin/destination								-	0.00	0.00
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	Insert Origin/destination	-	0.00	0.00
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	Insert Origin/destination	-	0.00	0.00
	Insert Origin/destination	-	0.00	0.00
	Insert Origin/destination	-	0.00	0.00
	Insert Origin/destination	-	0.00	0.00
	Insert Origin/destination	-	0.00	0.00
Total				**0.00**

CLIN	Item name	Item description	Year	Currency	Unit type	Quantity	Unit cost	Extended cost	Profit	Total cost
Example. CLIN 1.1.1	Shipping	Shipping USA to BRU	2023	Euro (EUR)	Lot	2	3,000.00	6,000.00	300.00	6,300.00
CLIN 1.1	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
	Insert Other Direct Cost item							0.00	0.00	0.00
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	Insert Other Direct Cost item	0.00	0.00	0.00
	Insert Other Direct Cost item	0.00	0.00	0.00
	Insert Other Direct Cost item	0.00	0.00	0.00
	Insert Other Direct Cost item	0.00	0.00	0.00
Total				**0.00**

Rate Name	Rate description*	Percentage
[Insert Rate Name]		0%
[Insert Rate Name]		0%
[Insert Rate Name]		0%

CLIN	Description
1	**CLIN 1 (BASE-EVALUATED) - Project Management**
1.1	Project Management
1.1.1	Project Management WP1
1.1.2	Project Management WP2
TOTAL PRICE CLIN 1	
2	**CLIN 2 (BASE-EVALUATED) - Design & Engineering**
2.1	Design
2.1.1	Design WP1
2.1.2	Design WP2
2.2	System Development & Integration
2.2.1	System Development & Integration WP1
2.2.2	System Development & Integration WP2
2.3	System Test, Validation & Delivery
2.3.1	System Test, Validation & Delivery WP1
2.3.2	System Test, Validation & Delivery WP2
2.4	Support to BMD Programme
2.4.1	Support to BMD Programme for WP1
2.4.2	Support to BMD Programme for WP2
TOTAL PRICE CLIN 2	
3	**CLIN 3 (BASE-EVALUATED) - Implementation**
3.1	Deployment, Installation, Integration & Activation Services
3.1.1	Deployment, Installation, Integration & Activation WP1
3.1.2	Deployment, Installation, Integration & Activation WP2
TOTAL PRICE CLIN 3	
4	**CLIN 4 (BASE-EVALUATED) - Integrated Product Support**
4.1	Support Documentation
4.1.1	Support Documentation WP1
4.1.2	Support Documentation WP2
4.2	Training
4.2.1	Training Package WP1
4.2.1.1	TOPFAS SAT Practitioner Course
4.2.1.2	TOPFAS SAT Train-The-Trainer Course
4.2.1.3	TOPFAS OPT Practitioner Course
4.2.1.4	TOPFAS OPT Train-The-Trainer Course
4.2.1.5	TOPFAS CAT Practitioner Course
4.2.1.6	TOPFAS CAT Train-The-Trainer Course
4.2.1.7	TOPFAS Desktop Functional Manager Course
4.2.1.8	TOPFAS Desktop & TOPFAS Online System Administrator Course
4.2.1.9	TOPFAS Collaboration Apps & Services Practitioner Course
4.2.1.10	TOPFAS eFGMT Force Generator Practitioner Course
4.2.1.11	TOPFAS eFGMT System Administrator Course
4.2.1.12	TOPFAS NCRS Practitioner Course
4.2.1.13	TOPFAS NCRS System Administrator Course
4.2.1.14	TOPFAS RRT Force Readiness Manager Practitioner Course
4.2.1.15	TOPFAS RRT Force Readiness Assessor Practitioner Course

4.2.1.16	TOPFAS RRT Force Readiness Reporter Practitioner Course
4.2.1.17	TOPFAS RRT System Administrator Course
4.2.1.18	TOPFAS OCC E&F Tool Practitioner Course
4.2.1.19	TOPFAS OCC E&F Tool Functional Manager & System Administrator Course
4.2.1.20	TOPFAS RFI App Practitioner Course
4.2.1.21	TOPFAS RFI App System Administrator Course
4.2.1.22	TOPFAS TEM App Practitioner Course
4.2.1.23	TOPFAS TEM App System Administration Course
4.2.1.24	TOPFAS Application Suite Transition Courses
4.2.2	Training Package WP2 (Update)
4.2.2.1	TOPFAS SAT Practitioner Course
4.2.2.2	TOPFAS SAT Train-The-Trainer Course
4.2.2.3	TOPFAS OPT Practitioner Course
4.2.2.4	TOPFAS OPT Train-The-Trainer Course
4.2.2.5	TOPFAS CAT Practitioner Course
4.2.2.6	TOPFAS CAT Train-The-Trainer Course
4.2.2.7	TOPFAS Desktop Functional Manager Course
4.2.2.8	TOPFAS Desktop & TOPFAS Online System Administrator Course
4.2.2.9	TOPFAS Collaboration Apps & Services Practitioner Course
4.2.2.10	TOPFAS eFGMT Force Generator Practitioner Course
4.2.2.11	TOPFAS eFGMT System Administrator Course
4.2.2.12	TOPFAS NCRS Practitioner Course
4.2.2.13	TOPFAS NCRS System Administrator Course
4.2.2.14	TOPFAS RRT Force Readiness Manager Practitioner Course
4.2.2.15	TOPFAS RRT Force Readiness Assessor Practitioner Course
4.2.2.16	TOPFAS RRT Force Readiness Reporter Practitioner Course
4.2.2.17	TOPFAS RRT System Administrator Course
4.2.2.18	TOPFAS OCC E&F Tool Practitioner Course
4.2.2.19	TOPFAS OCC E&F Tool Functional Manager & System Administrator Course
4.2.2.20	TOPFAS RFI App Practitioner Course
4.2.2.21	TOPFAS RFI App System Administrator Course
4.2.2.22	TOPFAS TEM App Practitioner Course
4.2.2.23	TOPFAS TEM App System Administration Course
4.2.2.24	TOPFAS Application Suite Transition Courses
4.2.3	Training Delivery WP1
4.2.3.1	TOPFAS SAT Transition Course
4.2.3.2	TOPFAS SAT Train-The-Trainer Course
4.2.3.3	TOPFAS OPT Transition Course
4.2.3.4	TOPFAS OPT Train-The-Trainer Course
4.2.3.5	TOPFAS CAT Transition Course
4.2.3.6	TOPFAS CAT Train-The-Trainer Course
4.2.3.7	TOPFAS Desktop Functional Manager Course
4.2.3.8	TOPFAS Desktop & TOPFAS Online System Administrator Course
4.2.3.9	TOPFAS eFGMT Transition Course
4.2.3.10	TOPFAS eFGMT System Administrator Course
4.2.3.11	TOPFAS NCRS Transition Course
4.2.3.12	TOPFAS NCRS System Administrator Course
4.2.3.13	TOPFAS RRT Transition Course
4.2.3.14	TOPFAS RRT System Administrator Course
4.2.3.15	TOPFAS OCC E&F Tool Transition Course

4.2.3.16	TOPFAS OCC E&F Tool Functional Manager & System Administrator Course
4.2.3.17	TOPFAS RFI App Practitioner Course
4.2.3.18	TOPFAS RFI App System Administrator Course
4.2.3.19	TOPFAS RFI App Train-The-Trainer Course
4.2.3.20	TOPFAS Collaboration Apps & Services Practitioner Course
4.2.3.21	TOPFAS Collaboration Apps & Services Train-The-Trainer Course
4.2.3.22	TOPFAS TEM App Practitioner Course
4.2.3.23	TOPFAS TEM App System Administration Course
4.2.3.24	TOPFAS TEM App Train-The-Trainer Course
4.2.4	Training Delivery WP2
4.2.4.1	TOPFAS SAT Transition Course
4.2.4.2	TOPFAS SAT Train-The-Trainer Course
4.2.4.3	TOPFAS OPT Transition Course
4.2.4.4	TOPFAS OPT Train-The-Trainer Course
4.2.4.5	TOPFAS CAT Transition Course
4.2.4.6	TOPFAS CAT Train-The-Trainer Course
4.2.4.7	TOPFAS Desktop Functional Manager Course
4.2.4.8	TOPFAS Desktop & TOPFAS Online System Administrator Course
4.2.4.9	TOPFAS eFGMT Transition Course
4.2.4.10	TOPFAS eFGMT System Administrator Course
4.2.4.11	TOPFAS NCRS Transition Course
4.2.4.12	TOPFAS NCRS System Administrator Course
4.2.4.13	TOPFAS RRT Transition Course
4.2.4.14	TOPFAS RRT System Administrator Course
4.2.4.15	TOPFAS OCC E&F Tool Transition Course
4.2.4.16	TOPFAS OCC E&F Tool Functional Manager & System Administrator Course
4.2.4.17	TOPFAS RFI App Practitioner Course
4.2.4.18	TOPFAS RFI App System Administrator Course
4.2.4.19	TOPFAS RFI App Train-The-Trainer Course
4.2.4.20	TOPFAS Collaboration Apps & Services Practitioner Course
4.2.4.21	TOPFAS Collaboration Apps & Services Train-The-Trainer Course
4.2.4.22	TOPFAS TEM App Practitioner Course
4.2.4.23	TOPFAS TEM App System Administration Course
4.2.4.24	TOPFAS TEM App Train-The-Trainer Course
TOTAL PRICE CLIN 4	
5	**CLIN 5 (BASE-EVALUATED) - COTS Software**
5.1	COTS (3rd Party) Software and Components WP1
5.2	COTS (3rd Party) Software and Components WP2
TOTAL PRICE CLIN 5	
Total Fixed Price Base Contract	

Base CLINS

Milestone	Describtion
M01	Contract Award
M02	Effective Date of Contract (EDC)
M03	Completion Initiation Phase WP1

M04	10% SRS Requirements Developed WP1
M05	40% SRS Requirements Developed WP1
M06	70% SRS Requirements Developed WP1
M07	Completion Iterative Development WP1 (FAT)
M08	Completion Validation Phase WP1
M09	Partial System Acceptance (PSA) WP1
M10	10% SRS Requirements Developed WP2
M11	40% SRS Requirements Developed WP2
M12	70% SRS Requirements Developed WP2
M13	Completion Iterative Development WP2 (FAT)
M14	Completion Validation Phase WP2
M15	Partial System Acceptance (PSA) WP2
M16	Final System Acceptance (FSA)
M17	Warranty (paid in 4 quarterly payments)
	TOTAL

Breakdown

CLIN1

CLIN2

CLIN3

CLIN4

CLIN5

0

Optional CLINS

Milestone	
M18	ISS & Maintenance
M19	M&S Year 1
M20	M&S Year 2
M21	M&S Year 3
M22	M&S Year 4
M23	M&S Year 5
	TOTAL

CLIN6

CLIN7

0

Required Completion Date	Quantity	Unit Price	Total Fixed Price
		Declare Currency =>	0
	834	-	-
EDC+25 months	456		-
EDC+51 months	378		-
			-
	834	-	-
EDC+13 months	456		-
EDC+37 months	378		-
	834	-	-
EDC+13 months	456		-
EDC+37 months	378		-
	834	-	-
EDC+25 months	456		-
EDC+49 months	378		-
			-
EDC+27 months	1	-	-
EDC+51 months	1	-	-
			-
	834	-	-
EDC+25 months	456		-
EDC+49 months	378		-
			-
	834	-	-
EDC+13 months	456		-
EDC+37 months	378		-
			-
			-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-

EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
EDC+19 months	1	-	-
			-
EDC+43 months	1	-	-
EDC+43 months	1	-	-
EDC+43 months	1	-	-
EDC+43 months	1	-	-
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EDC+43 months	1	-	-
EDC+43 months	1	-	-
EDC+43 months	1	-	-
EDC+43 months	1	-	-
			-
EDC+25 months	4	-	-
EDC+25 months	2	-	-
EDC+25 months	6	-	-
EDC+25 months	3	-	-
EDC+25 months	3	-	-
EDC+25 months	2	-	-
EDC+25 months	3	-	-
EDC+25 months	3	-	-
EDC+25 months	2	-	-
EDC+25 months	1	-	-
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EDC+25 months	1	-	-
EDC+25 months	5	-	-
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EDC+25 months	1	-	-
EDC+25 months	5	-	-
EDC+25 months	2	-	-
EDC+25 months	4	-	-
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EDC+25 months	2	-	-
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EDC+49 months	4	-	-
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EDC+49 months	6	-	-
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EDC+49 months	4	-	-
EDC+49 months	2	-	-
EDC+49 months	3	-	-
EDC+49 months	3	-	-
EDC+49 months	2	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	4	-	-
EDC+49 months	1	-	-
EDC+49 months	1	-	-
EDC+49 months	4	-	-
EDC+49 months	2	-	-
EDC+49 months	4	-	-
EDC+49 months	1	-	-
EDC+49 months	2	-	-
			-
EDC+25 months	1	-	-
EDC+49 months	1	-	-
			-
			-

From EDC in Months	Calendar Date	Milestone Payment	Cumulative Payment	SRS Requirements Delivered & Accepted
	tbd	nil		n/a
	tbd	nil		n/a
1	-	nil		n/a

3	-	-	-	n/a
6	-	-	-	n/a
9	-	-	-	n/a
13	-	-	-	456
19	-	-	-	456
25	-	-	-	456
28	-	-	-	n/a
31	-	-	-	n/a
34	-	-	-	n/a
37	-	-	-	378
43	-	-	-	378
49	-	-	-	378
51	-	-	-	378
63	-	-	-	
	0	**-**		

Check

-
-
-
-
-
-

Check

834
834
834

Total =>
Check =>

From EDC in Months	Calendar Date	Milestone Payment	Cumulative Payment
37	-	-	-
57	-	-	-
69	-	-	-
81	-	-	-
93	-	-	-
105	-	-	-
	0	**-**	

-
-

-

10% Req	40% Req	70% Req	FAT	Validation Phase	PSA	FSA
15%	15%	15%	15%	20%	10%	
15%	15%	15%	15%	20%		10%
15%	15%	15%	20%	20%	5%	
15%	15%	15%	20%	20%	5%	
15%	15%	15%	15%	20%	10%	
15%	15%	15%	15%	20%	5%	5%
10%	10%	10%	20%	30%	10%	
10%	10%	10%	20%	30%	5%	5%
		10%	10%	20%	50%	
		10%	10%	20%	45%	5%
				10%	80%	
				10%	75%	5%
	5%	10%	35%	30%	10%	
	5%	10%	35%	30%	5%	5%
				90%	10%	
				1	1	
				1	1	
				1	1	
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	75%	10%	5%
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1	1	1	1

	100%	
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	5	
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	4	
	1	
	2	
	100%	
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	6	
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	3	
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	1	
	1	
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	1	
	1	
	4	
	1	
	1	
	4	
	2	
	4	
	1	
	2	

	90%	
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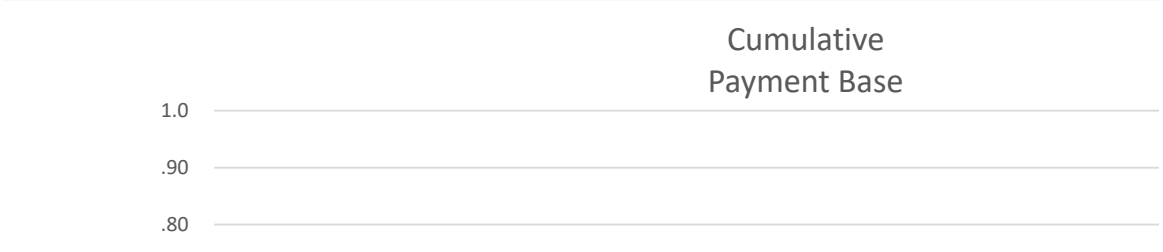

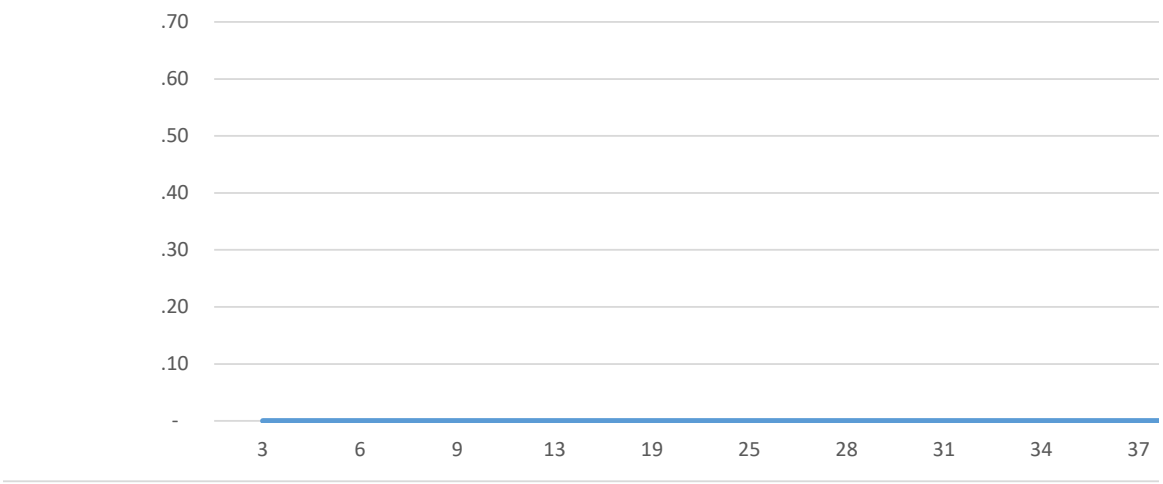

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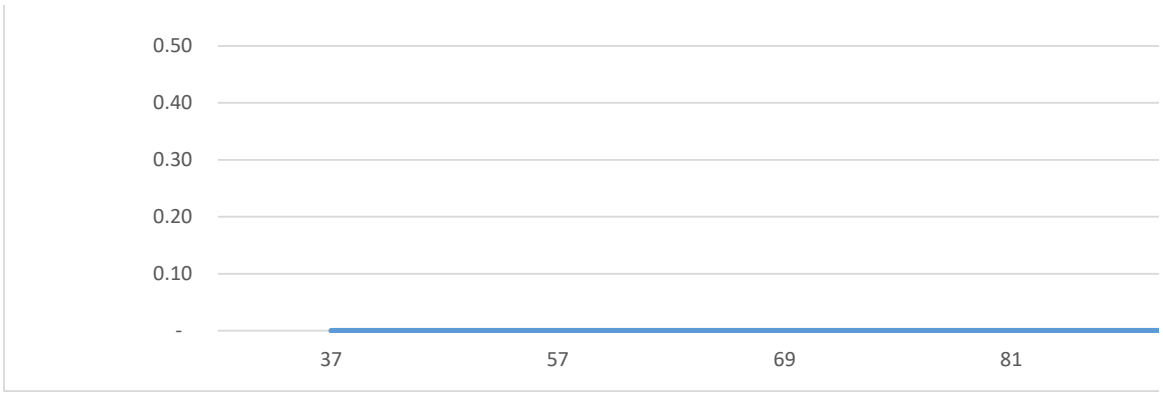
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WARRANTY	*check*	Notes
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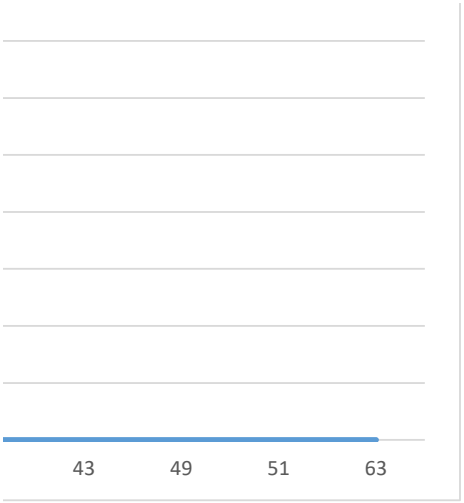
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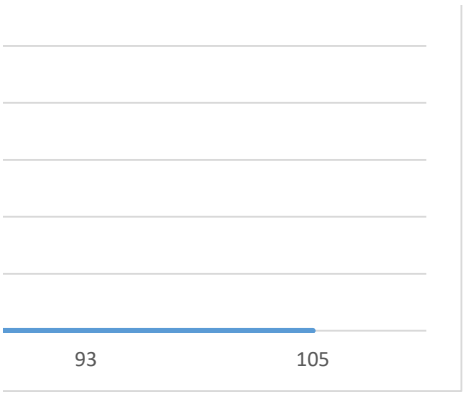
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10 Year Euro Bond Rate	3.21%

Rate will be updated at time of evaluation, per bidding inst

Base

Year	Fixed Price	Discount Factor	Present Value	From month:	Till month:
1	-	1.0000	-	0	12
2	-	1.0321	-	12	24
3	-	1.0652	-	24	36
4	-	1.0994	-	36	48
5	-	1.1347	-	48	60
6	-	1.1711	-	60	72
7	-	1.2087	-	72	84
8	-	1.2475	-	84	96
9	-	1.2876	-	96	108
10	-	1.3289	-	108	120
11	-	1.3716	-	120	132
12	-	1.4156	-	132	144
13	-	1.4610	-	144	156
Total	**-**		**-**		

Opt

Year	Fixed Price	Discount Factor	Present Value	From month:	Till month:
1	-	1.0000	-	0	12
2	-	1.0321	-	12	24
3	-	1.0652	-	24	36
4	-	1.0994	-	36	48
5	-	1.1347	-	48	60
6	-	1.1711	-	60	72
7	-	1.2087	-	72	84
8	-	1.2475	-	84	96
9	-	1.2876	-	96	108
10	-	1.3289	-	108	120
11	-	1.3716	-	120	132
12	-	1.4156	-	132	144
13	-	1.4610	-	144	156
Total	**-**		**-**		

Base+Opt

Year	Fixed Price	Discount Factor	Present Value	From month:	Till month:
1	-	1.0000	-	0	12
2	-	1.0321	-	12	24
3	-	1.0652	-	24	36
4	-	1.0994	-	36	48
5	-	1.1347	-	48	60
6	-	1.1711	-	60	72
7	-	1.2087	-	72	84
8	-	1.2475	-	84	96
9	-	1.2876	-	96	108

10	-	1.3289	-	108	120
11	-	1.3716	-	120	132
12	-	1.4156	-	132	144
13	-	1.4610	-	144	156
Total	**-**		**-**		

:ructions.

CO-115498-TOPFAS-BMD

PART II
CONTRACT SPECIAL PROVISIONS

Table of Contents

1 ALTERATIONS, MODIFICATIONS AND DELETIONS OF THE NCIA CONTRACT GENERAL PROVISIONS

1.1 Article 2 “Interpretations, Definitions and Acronyms” supplements Clause 2 “Definitions of Terms and Acronyms” of the Contract General Provisions.

1.2 Article 4 “Contract Type and Consideration” replaces Clause 7 “Firm Fixed Price Contract” of the Contract General Provisions.

1.3 Article 5 “Invoicing and Payment” supplements Clause 25 “Invoices and Payment” of the Contract General Provisions.

1.4 Article 8 “Acceptance Procedures – Agile Development” supplements Clause 21 “Inspection and Acceptance of Work” and Clause 22 “Inspection and Acceptance of Documentation” of the Contract General Provisions.

1.5 Article 9 “Final Systems Acceptance” supplements Clause 21 “Inspection and Acceptance of Work” and Clause 22 “Inspection and Acceptance of Documentation” of the Contract General Provisions.

1.6 Article 10 “Termination for Default” supplements Clause 39 “Termination for Default” of the Contract General Provisions.

1.7 Article 11 “Termination for Convenience of the Purchaser” delimits Clause 40 “Termination for Convenience of the Purchaser” of the Contract General Provisions.

1.8 Article 12 “Liquidated Damages” replaces Clause 38 “Liquidated Damages” of the Contract General Provisions.

1.9 Article 14 “Participating Countries” supplements Clause 9 “Participating Countries” of the Contract General Provisions.

1.10 Article 15 “Security” supplements Clause 11 “Security” of the Contract General Provisions.

1.11 Article 16 “Intellectual Property” supplements Clause 30 “Intellectual Property” of the Contract General Provisions.

1.12 Article 18 “Software Warranty” supplements Clause 31 “Software Warranty” of the Contract General Provisions.

1.13 Article 19 “Purchaser Furnished Property” supplements Clause 13 “Purchaser Furnished Property and Services” of the Contract General Provisions.

1.14 Article 21 “Pricing of Changes, Modifications, Follow-on Contracts and Claims” supplements Clause 19 “Pricing of Changes, Amendments and Claims” of the Contract General Provisions.

1.15 Article 22 “Acceptance of Design Documentation” supplements Clause 22 “Inspection and Acceptance of Documentation” of the Contract General Provisions.

1.16 Article 24 “Place and Terms of Delivery” replaces sub-Clause 20.1 of Clause 20 “Notice of Shipment and Delivery” of the Contract General Provisions.

1.17 Article 27 “Purchaser Right to Contract with Third Parties in Case of Contractor Default” supplements Clause 39 “Termination for Default” of the Contract General Provisions.

2 INTERPRETATIONS, DEFINITIONS AND ACRONYMS

2.1 This Article supplements Clause 2 (Definitions of Terms and Acronyms) of the NATO Communications and Information Agency (NCI Agency) Contract General Provisions.

2.2 As used throughout this Contract, the following terms shall have the meanings specified below unless otherwise specified in the Contract:

2.2.1 **“CLIN”**: Contract Line Item Number, as shown in the Schedule of Supplies and Services (SSS). For example, 1, 2, etc.

2.2.2 **“Compliance”**: strict conformity to the requirements and standards of the Contract.

2.2.3 **“Contractor”**: the awardee which shall be responsible for the fulfilment of the requirements established in the Contract.

2.2.4 **“Days”**: calendar days.

2.2.5 **“Deliverables”**: the items, features or services to be delivered by the Contractor at a Milestone Date or at any other stage during the performance of this Contract as listed in Part I (Schedule of Supplies and Services) and as more particularly described in the Statement of Work (SOW), and the Software Requirements Specification (SRS).

2.2.6 **“EDC”**: Effective Date of Contract.

2.2.7 **“FSA”**: Final System Acceptance.

2.2.8 **“Increment”**: a workable product resulting from a functional scope increase and delivered through iterative development. An Increment consists of multiple iterations and is delivered at the end of a Contract Work Package following acceptance testing on any Requirements that have been completed within the Increment.

2.2.9 **“MoSCoW Prioritization”**: a prioritization technique classifying the importance on the delivery of each Requirement. Note the terms “Must have”,

"Should have", "Could have", and "Will not have (at this time)" refer to the delivery priority of a Requirement; these terms do not mean that these Requirements are optional.

2.2.10 **"NATO Participating Country"**: any of the 30 NATO nations that have undertaken to share the cost of the project, namely, (in alphabetical order): Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, The Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, The United Kingdom and The United States of America.

2.2.11 **"Purchaser"**: the current NCI Agency or its legal successor.

2.2.12 **"Requirement":** a condition or capability possessed by the software or component to satisfy the Contract. The Requirements are expressed within the Software Requirements Specification (SRS).

2.2.13 **"SPI"**: Schedule Performance Index (SPI) is a measure of the efficiency of value delivery (Value Items' delivery). SPI shows the rate at which the work has been accomplished as of any given point in time (Earned Value), relative to the established Progress Measurement Baseline (PMB). The SPI, measured at the end of each sprint.

2.2.14 **"SSS"**: the Schedule of Supplies and Services.

2.2.15 **"Sub-CLIN":** Sub Contract Line Item Number that falls under a CLIN. These are listed in the SSS, for example, 1.2, 1.3, 1.4, etc. for the Services; and 1.2.1.1 or 1.4.1.3 for the Requirements.

3 SCOPE

3.1 The purpose of this Contract is to procure a new, enhanced NATO-owned TOPFAS Application Suite with functionalities required to support the expansion of the BMD capabilities.

3.2 All of the technical details and requirements of this project are explained in Part IV – Statement of Work (SOW), and its annexes, the Software Requirements Specification.

3.3 This Contract will be managed using an iterative software development and implementation approach, i.e. using Agile Scrum Framework or equivalent methodology, with sprints and baselines releases to provide regular deliveries of working software. The following paragraphs provide a high-level overview, which is then further explained in the SOW and its annexes.

3.4 The scope of work includes the analysis, design, development, implementation, maintenance and support for a new, enhanced, NATO-owned TOPFAS Application Suite with functionalities required to support the

expansion of the BMD capabilities. Key areas for this expansion are: support for the BMD Pol-Mil consultation process, between the strategic commands, the North Atlantic Council (NAC) and Military Committee (MC); greater focus on passive defence (military and civilian); support for Education, Training, Exercises and Evaluation Functional Services (ETEE FS) for the BMD capability; interfaces with Intelligence Functional Services (INTEL FS), and integration with the NATO platform and other functional and core services.

3.5 The required capabilities will be delivered through enhancements and extensions of the current TOPFAS Application Suite, resulting in a new baseline of the TOPFAS Application Suite fully replacing the existing one. The new TOPFAS Application Suite is to be deployed onto the NATO operational networks, testbeds, and implemented throughout the NATO Command Structure (NCS).

3.6 The delivery of the functionalities of TOPFAS is planned to be done progressively, in **two incremental baselines**, where each increment corresponds to a **Contract Work Package (WP1 and WP2)** and consists of **multiple iterations**.

3.7 The use of an **incremental delivery approach** is intended to meet the full range of operational requirements, but also to balance operational user priorities with technical risks, implementation risks, and development schedules in determining the scope of each increment.

3.8 The main work will be organized in two work packages (WP1 and WP2). In addition, an optional work package (WP3) is defined for Contractor furnished maintenance and support services. Furthermore, the scope of work includes optional services for training delivery and additional deployments of the TOPFAS Application Suite.

4 CONTRACT TYPE AND CONSIDERATION

4.1 This Article replaces Clause 7 of the Contract General Provisions.

4.2 This is a Fixed Price Contract subject to Economic Price Adjustment.

4.3 The Schedule of Supplies and Services (SSS) of this Contract, organized into Contract Line Items (CLINs), lists all services and/or deliverables, their priority, and their fixed price.

4.4 Included in the prices shown in the SSS are all costs for activities not specifically listed on the SSS, but that are considered necessary by the Contractor to execute the Statement of Work, included but not limited to:

- All travel, per diem and accommodation costs;
- All executive management, administrative or other support effort;

- All facility or other overhead costs;
- All other direct costs.

5 CONTRACT DURATION

5.1 This Contract will begin on the Effective Date specified in the Signature Page and, unless terminated at an earlier date in accordance with other terms and conditions of the Contract or extended by virtue of a formal Contract amendment, will terminate after 111 Months, broken down as follows:

5.1.1 63 months from Effective Date of Contract until FSA + one year warranty, and;

5.1.2 48 months of additional optional Operation and Maintenance (O&M) support.

6 INVOICING AND PAYMENT

6.1 This Article supplements and partly replaces Article 25 “Invoices and Payment” of the Contract General Provisions. Specifically, Articles 6.2 through 6.15 supplements Article 25 “Invoices and Payment” of the Contract General Provisions while Article 6.10 replaces Article 25.5 of the Contract General Provisions.

6.2 Payment for supplies and services furnished under this Contract shall be made in the currency quoted by the Contractor for the relevant portion of the Contract.

6.3 Payments will be made to the Contractor on achievement/delivery and upon written acceptance by the Purchaser of the Progress Payment Milestones defined at Tab “Payment Milestones” of the SSS.

6.4 Where Optional CLINs are exercised, payments shall be made in accordance with the stipulations of the relevant amendment providing for the exercise of such Options.

6.5 No payment shall be made with respect to undelivered supplies, works not performed; services not rendered and/or incorrectly submitted invoices.

6.6 The Purchaser shall not be liable for any amount resulting from the performance of services or the delivery of equipment outside the scope of this Contract.

6.7 Payment to the Contractor will be made within 30 days of receipt of properly supported and documented invoices and upon acceptance in writing by the Purchaser.

6.8 All invoices shall refer to CO-115498-TOPFAS-BMD and Purchase Order Number # {will be filled out at Contract award}.

6.9 Invoices shall be properly supported with any necessary reports, certificates, statements, receipts, written evidence of acceptance by the Purchaser and any other required documentation in accordance with the terms of the Contract.

6.10 All invoices shall be sent electronically to: accountspayable@ncia.nato.int. No paper invoices will be accepted.

6.11 Iterative Development Phase - the Contractor can request authorisation to invoice pro rata with the new SRS Requirements that have been successfully developed.

6.11.1 In accordance with the SSS payment milestones “X% SRS Requirements Developed” (M04, M05, M06, M10, M11, M12) for work package 1 and 2 respectively, the Contractor can submit the request following the sprint where the 10%, 40% and 70% thresholds of Requirements developed has been reached. Requirements will be considered successfully developed, when the requirement has been verified at a sprint review meeting, has passed software testing (with test report), and has no pending work items and no open/pending critical or high defects.

6.11.2 At the SSS payment milestones “Completion Iterative Development (FAT)” (M07 and M13) for work package 1 and 2 respectively, the Contractor can request authorisation to invoice pro rata with the value of new SRS Requirements successfully verified during the FAT and when the exit criteria of the Iterative Development Phase have been fully met (SOW 4.3.2.9).

6.12 Validation Phase

6.12.1 At the SSS payment milestones “Completion Validation Phase” (M08 and M14) for work package 1 and 2 respectively, the Contractor can request authorisation to invoice pro rata with the value of new SRS requirements successfully validated in the scope of the validation activities (viz. SIT, UAT, IVVQ) and when the exit criteria (SOW 4.3.3.5) of the Validation Phase have been fully met. The number of new SRS Requirements successfully validated, cannot exceed the number of new SRS Requirements successfully verified at the previous milestones M07 and M13 respectively.

6.12.2 For training package delivery, the Contractor can request authorisation to invoice for the training packages delivered, per SSS on a quarterly basis.

6.13 Transition Phase

6.13.1 At the SSS payment milestones “Partial System Acceptance (PSA)” (M09 and M15) for work package 1 and 2 respectively, the Contractor can request authorisation to invoice pro rata with the value of new SRS requirements successfully deployed and when the exit criteria (SOW 4.3.4.5) of the Transition Phase have been fully met. The number of new SRS requirements

successfully deployed, cannot exceed the number of new SRS requirements successfully validated at the previous milestones M08 and M14 respectively.

6.13.2 For training delivery, the Contractor can request authorisation to invoice for the training courses delivered, per SSS on a quarterly basis.

6.14 Closure Phase

6.14.1 At the SSS payment milestone “Final System Acceptance (FSA)” (M16), the Contractor can request authorisation to invoice pro rata with the value of new SRS requirements accepted and when the exit criteria (SOW 4.4.2) of the Closure Phase have been fully met. The number of new SRS requirements successfully accepted, cannot exceed the number of new SRS requirements successfully deployed at the previous milestone M16.

6.14.2 The amount of the invoices – both following the Initial Acceptance for each Service and the acceptance of subsequent Requirements – is equal to 90% of the value of the accepted Requirements. The remaining 10% that is not invoiced at that time, will be paid during the one-year warranty period following FSA.

6.14.3 The total amount of the warranty will be paid in four quarterly payments of 25% of the total warranty amount upon approval of a quarterly status report.

6.15 Exercised optional CLIN 6 will be paid in eight quarterly payments of 12.5% of the CLIN upon approval of a quarterly status report. Exercised optional Sub-CLINs 7.1-7.5 will be paid in four quarterly payments of 25% of the Sub-CLIN amount upon approval of a quarterly status report. Exercised options under CLIN 8 and 9 shall be invoiced quarterly following successful delivery and acceptance.

6.16 Invoices related to Economic Price Adjustment shall further comply with stipulations of article 7.6 below.

7 ECONOMIC PRICE ADJUSTMENT

7.1 The price of this Contract is subject (upwards or downwards) to adjustment or revision within the limits defined herein:

7.2 Milestones 1 to 6 are Firm Fixed Price not subject to this EPA Clause.

7.3 Beginning for Milestone 07 of the Contract until the end of the period of performance (to include any options), if a variation occurs in the cost of labour and/or materials forming part of the Contract, then the Contract price shall be adjusted (upwards or downwards), in accordance with the formula in below para 7.7.

7.4 The revision shall be based on the evolution of the Labour Cost Index and the Producer Price index, as published by OECD statistics at respectively

https://stats.oecd.org/viewhtml.aspx?datasetcode=ULC_EEQ&lang=en and https://stats.oecd.org/viewhtml.aspx?datasetcode=MEI_PRICES_PPI&lang=en

7.5 The labour and material allocations and the portion of the Contract price subject to price adjustment have been established here and remain fixed through the life of the Contract and shall not be modified except in the event of significant changes to the scope of the Contract.

7.6 When a price adjustment is due (i.e. at each Milestone acceptance from Milestone 7 onwards), the Contractor shall submit a separate invoice for the price indexation in accordance with this Article, quoting the cumulated amount of price indexations implemented so far and the PO# .The indexed prices will become the new Contract price. After MS 17 a Contract Amendment shall reflect the final Contract prices as adjusted.

7.7 Economic Price Adjustment Formula

7.7.1 $P = Po * (0.2 + 0.4\ L/Lo + 0.4\ M/Mo)$

In which

P Revised price for the Milestone at the time of acceptance

Po Total Base Contract price of the original Milestone at Effective Date of Contract (EDC)

L Labour index value registered in month “n” after EDC, n defined per Milestone as per below table

M07	Completion Iterative Development WP1 (FAT)	n = 11
M08	Completion Validation Phase WP1	n = 16
M09	Partial System Acceptance (PSA) WP1	n = 22
M10	10% SRS Requirements Developed WP2	n = 26
M11	40% SRS Requirements Developed WP2	n = 29
M12	70% SRS Requirements Developed WP2	n = 32
M13	Completion Iterative Development WP2 (FAT)	n = 35
M14	Completion Validation Phase WP2	n = 40
M15	Partial System Acceptance (PSA) WP2	n = 46
M16	Final System Acceptance (FSA)	n = 50
M17	Warranty (paid in 4 quarterly payments)	n = 57

“n” shall not be subject to slippage in case of project delay: if the Contractor is late in achieving a milestone, the price of that milestone will remain adjusted to the economic conditions in the above table.

Lo Basic index for Labour value at EDC.

M Material (Producer Price) index in month “n” after EDC, n defined per Milestone as per above table

Mo Basic index for Producer Price value at EDC.

7.8 Calculations of price increases shall be made as soon as possible after publication of the index figure relating to the approved month “n” after EDC

7.9 Where any index figure published is stated to be a provisional figure, the Contractor may opt

7.9.1 either: to use that provisional figure in his calculation and present an appropriate invoice,

7.9.2 or: to delay presentation of his invoice until a definitive index figure is published.

7.9.3 No further adjustment will be allowed, up or down, following revision of any index figure if an invoice is presented using provisional indices.

7.9.4 Maximum Variation: The increase to the basic total basic Contract price shall not exceed 20% until MS 17, within an overall maximum of 50% for the whole duration of the Contract with options or any agreed extension thereof.

7.10 The index applicable to the revision formula and to be read from the OECD website mentioned above, shall be the one from the country where the task is performed, providing the currency applicable to the Milestone payment is the one from that Country. In case the task is performed in a non Euro currency Country but the Contractor initially bided in Euro (Host Nation currency), the index to be used shall be the one from the Host Nation (Belgium).

7.11 For optional CLINs, the price from the SSS will be revised by the above formula and same principles. The indexes M and L will be the one published 3 months before the start date of the optional performance. The amount of the Contract will be adjusted to reflect the amount of the option as calculated above in the amendment reflecting the unilateral exercise of the option by the Purchaser.

8 CONDITIONAL WORK PACKAGE AND OPTIONS

8.1 The Contract Work Package 2 is conditional to acceptance of Payment Milestone M08 “Completion Validation Phase WP1” as described in Article 6.12.1 and the Contractor’s Schedule Performance Index (SPI) (see also Article 11) is above 0.70 at the time M08 acceptance. The Purchaser shall not be liable for any cost related to WP2 if these conditions are not met.

8.2 The Contract includes the optional CLIN 6 for in-service support and maintenance starting from PSA of Work Package 1 until FSA.

8.3 The Contract further includes the optional Work Package 3, for maintenance and support of the TOPFAS Application Suite baseline for up to five years,

starting from final system acceptance with the first year being concurrent with the warranty period. These optional Sub-CLINs for yearly maintenance and support are under CLIN 7.

8.4 Other Contract options include additional Contractor furnished training delivery services and Contractor furnished deployment services for the TOPFAS Application Suite to additional sites. The Purchaser reserves the right to exercise these options zero, one or multiple times. These optional Sub-CLINs are under CLIN 8 and 9.

8.5 The total value of these optional CLINs is not included in the initial Contract value stated on the signature page of the Contract. The Purchasers reserves the right to unilaterally exercise this option or part of them at any time from Contract Award until two months before the end of the Contract.

8.6 The Purchaser's liabilities and obligations under this Contract at the time of its signature, and unless a formal Contract Amendment is issued in accordance with the terms of this Article and Clause 16 (Changes) of the Contract General Provisions, are limited in scope and amount to performance and deliverables associated to the base Contract as described in the SSS and SOW.

8.7 The Contractor understands that there are no obligations under this Contract for the Purchaser to exercise any of the Options and that the Purchaser bears no liability should it decide not to exercise them (either totally or partially).

8.8 Further, the Purchaser reserves the right to Contract with another company (or the same), to perform the tasks described in the Options of the current Contract through a new Contract with other conditions.

8.9 Any optional CLINs may be exercised unilaterally by the Purchaser (SOW 8.4), and confirmed by written amendment to the Contract which will establish the payment terms.

8.10 The delivery dates for the options will be specified in the amendment, and Acceptance of the items delivered under this Contract will be made according to Article 9.

9 ACCEPTANCE PROCEDURES

9.1 This Article supplements Clauses 21 and 22 of the Contract General Provisions.

9.2 "Acceptance" is the action by which the Purchaser formally acknowledges that the Contractor has fully demonstrated that the Deliverables, Works performed and Services furnished are "complete" or have been performed according to the definition, requirements and criteria set forth in the Statement of Work. Acceptance will be determined at each major milestones and decision gates as specified in the Statement of Work. Success criteria are described for each

milestone in various section of the Statement of Work and will determine the level of acceptance.

9.3 Contract payment milestones, as designated in the Schedule of Supplies and Services, shall only be considered as complete and eligible for payment when all milestone entry and exit criteria, and any works or events as defined in this Contract as associated and underlying the payment milestone has been formally delivered (as defined in the SOW) and acknowledged as delivered and accepted by the Purchaser. Payment milestones shall only be considered as confirmed and fully achieved when the Purchaser has advised the Contractor formally in writing that all conditions necessary for milestone completion have been successfully met. All documents and data pertaining to the considered payment milestone shall be prepared by the Contractor and approved by the Purchaser.

10 FINAL SYSTEMS ACCEPTANCE (FSA)

10.1 This Article supplements Clauses 21 and 22 of the Contract General Provisions.

10.2 The Contractor shall commence FSA upon the acceptance by the Purchaser of all deliverables within PSA.

10.3 Within two weeks after Partial System Acceptance (as defined in SOW 4.3.4.3) for the contracted Work Package 2, for any Requirements not yet completed the Purchaser shall inform the Contractor whether:

10.3.1 These Requirements will be removed from the Contract, with a 10% penalty assessed as explained in paragraph 13.4, or;

10.3.2 The Contract will be extended with one or more Work Package, with liquidated damages assessed as described in paragraph 13.3, to allow the Contractor to complete specific Requirements.

10.4 After the final contracted Work Package has been accepted by the Purchaser, the Contractor shall request FSA in writing to the Purchaser in accordance with requirements and process defined in SOW Section 4.4 “Closure Phase”.

10.5 The Contractor shall prepare and deliver a written report of the close-out meeting in the form of meeting minutes that shall be reviewed and signed by the representatives of the Contractor and Purchaser respectively.

11 TERMINATION FOR DEFAULT

11.1 This Article supplements Clause 39 of the Contract General Provisions.

11.2 At the end of each sprint, the Purchaser will monitor the Contractor's Schedule Performance Index (SPI). The SPI shall be calculated in accordance with SOW Section 3.9.9 "BMD Scope Implementation Monitoring".

11.3 The SPI will be used to mathematically measure the "failure to make progress as to endanger performance", as stated in Clause 39.1.2 of the General Contract Provisions. It does not obviate the other basis upon which the Termination for Default clause may be invoked. If the SPI falls below 0.70, the Purchaser will consider that the Contractor is "failing to make progress as to endanger performance."

12 TERMINATION FOR CONVENIENCE OF THE PURCHASER

12.1 This Article delimits Clause 40 of the Contract General Provisions.

12.2 Notwithstanding the provisions of the Termination for Convenience clause in the Contract General Provisions, the maximum liability of the Purchaser in the event the Purchaser terminates the Contract pursuant to this Clause will not exceed the value of that amount already paid under the Contract to the point of termination, the outstanding unpaid invoices for deliveries accepted and the next two planned sprints following the current one. For example, if the Purchaser terminates the Contract for convenience in sprint 5, the maximum liability of the Purchaser will equal the value of sprints 6 and 7. The value of the sprint is calculated based on the values of the Services and Requirements, as stated in the SSS, scheduled for those two sprints.

12.3 This does not imply the Contractor is automatically due the value of the next two sprints following a Termination for Convenience; this simply limits the liability of the Purchaser in this situation.

13 LIQUIDATED DAMAGES

13.1 This Article replaces Clause 38 of the Contract General Provisions.

13.2 If the Contractor fails to meet the delivery schedule of any milestones specified in the SSS, or any extension thereof;

13.3 The actual damage to the Purchaser for the delay will be difficult or impossible to determine. Therefore, in lieu of actual damages the Contractor shall pay to the Purchaser, for each day of delinquency in achieving the milestone, fixed and agreed liquidated damages of 0.1% (zero point one percent) per day of the associated payment set forth in the Payment Milestones Tab of the Contract SSS.

13.4 Liquidated damages shall be payable from the first day of delinquency and shall accrue at the rate specified in Article 13.3 above to 15% (fifteen percent) of the value of each payment milestone individually, not to exceed 10% (ten percent) of the total value of the Contract. These liquidated damages shall accrue automatically and without any further notice being required.

13.5 The Contractor acknowledges that any sums payable under this Article are in the nature of liquidated damages and not penalties, and represent a reasonable estimate of fair compensation for the losses that may be reasonably anticipated from such failure to perform obligations.

13.6 The amount of Liquidated Damages due by the Contractor shall be recovered by the Purchaser in the following order of priority:

13.6.1 By deducting such damages from the amounts due to the Contractor against the Contractor's invoices.

13.6.2 By drawing from the performance guarantee.

13.6.3 By reclaiming such damages through appropriate legal remedies.

13.7 In addition, the Purchaser may terminate this Contract in whole or in part, as provided in paragraph 39.1 of Clause 39 – “Termination for Default” of the Contract General Provisions and in that event the Contractor shall be liable to pay the excess costs provided in paragraph 39.5.

13.8 The Contractor shall not be charged with liquidated damages when the delay arises out of causes beyond the control and without the fault or negligence of the Contractor as defined in paragraph 39.6 of Clause 39 – “Termination for Default” of the Contract General Provisions. In such event, subject to the Disputes and Arbitration Clause, the Purchaser shall ascertain the facts and extent of the delay and shall extend the time for performance of the Contract when in his judgement the findings of fact justify an extension.

13.9 The rights and remedies of the Purchaser under this clause are in addition to any other rights and remedies provided by law or under this Contract.

14 CONTRACT ADMINISTRATION

14.1 The Purchaser is the NATO Communications and Information Agency (NCI Agency). The Purchaser is the Point of Contact for all Contractual and Technical issues. The Contractor shall accept Contract modifications only in writing from the Purchaser’s Contracting Authority

14.2 Formal letters and communications shall be sent by email, or delivered in person, by registered mail, courier or other delivery service, to the official points of contact quoted in this Contract.

14.3 Informal notices and informal communication may be exchanged by any other means, including telephone.

14.4 All notices and communication shall be effective upon receipt.

14.5 Official Points of Contact are:

Purchaser	
Contractual Issues	**Technical Issues**
NCI Agency Boulevard Léopold III B-1110 Brussels, Belgium Sumiko Duncan +32 2 707 8303 sumiko.duncan@ncia.nato.int	NCI Agency Oude Waalsdorperweg 61 2597 AK The Hague, The Netherlands Maurice van Soest +31 70 374 3638 maurice.vansoest@ncia.nato.int
Contractor	
Contractual Issues	**Technical Issues**

15 TECHNICAL DIRECTION

15.1 For the direct official control and coordination of requirements, the Purchaser designates the Project Manager specified below as the staff element that has the authority to coordinate, monitor, and control Contractor's performance under this Contract:

NCI Agency

Oude Waalsdorperweg 61

2597 AK The Hague, Netherlands

Attn: [To be inserted at Contract Award]

Phone: [To be inserted at Contract Award]

E-mail: [To be inserted at Contract Award]

15.2 The Purchaser may designate other staff elements as technical focal points for the execution of specific tasks and who will provide the Contractor with instruction and guidance, within the general scope of work, in performance of their duties and working schedule.

15.3 Notwithstanding the prescriptions of this Article, neither the Purchaser's Project Manager, nor any Technical Representative has the authority to change the terms and conditions of the Contract. If the Contractor has reason to believe that the Project Manager/Technical Representative is requesting work that is inconsistent with the scope of the Contract, the Contractor shall immediately inform the Purchaser's Contracting Authority for confirmation of the actions. Failure to obtain confirmation that the action of the Project Manager is under the authority of the Contract shall render any subsequent claim null and void.

15.4 Upon receipt of such notification above, the Purchaser's Contracting Authority will:

15.4.1 confirm the effort requested is within scope, or

15.4.2 confirm that the instructions received constitute a change and request a quotation for a modification of scope and/or price, or

15.4.3 rescind the instructions.

16 PARTICIPATING COUNTRIES

16.1 This Article supplements Clause 9 of the Contract General Provisions.

16.2 The Contractor may issue sub-contracts to firms and purchase from qualified vendors in any of the following 30 NATO participating nations: Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, The Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, The United Kingdom and The United States of America. None of the work, including project design, labour and services, shall be performed other than by firms from and within participating countries as per NATO policy.

16.3 The Contractor shall notify in writing to the Purchaser immediately upon being informed of any change in the nationality of its Sub-contractor(s) which would prevent the Contractor from further complying with Clause 15.2 above. Upon receipt of this information from the Contractor, the Purchaser may, within three months from this notification, require the Contractor to find an alternate subcontractor, complying with the requirements set out in Clause 15.2 above.

16.4 Unless authorised by NATO Policy, no material or items of equipment down to and including identifiable sub-assemblies delivered under this Contract shall

be manufactured or assembled by a firm other than from and within a participating country.

16.5 The Intellectual Property Rights to all designed documentation and system operating software shall reside in NATO member countries, and no license fee, or royalty charges shall be paid by the Contractor to firms, individuals or governments other than within the NATO member community.

17 CONFIDENTIALITY AND NON-DISCLOSURE

17.1 For purposes of this Article, "Confidential Information" shall include all information pertaining to any part of this Contract or any program related to this Contract that is not marked “Non-Confidential”.

17.2 Confidential Information does not include information that is: (a) publicly known at the time of disclosure or subsequently becomes publicly known through no fault of the Contractor; (b) discovered or created by the Contractor before disclosure by the Purchaser; (c) learned by the Contractor through legitimate means other than from the Purchaser or its representatives; or (d) is disclosed by the Contractor with the Purchaser's prior written approval.

17.3 Without prejudice to other obligations imposed by NATO Security regulations, the Contractor shall hold and maintain the Confidential Information in strictest confidence for the sole and exclusive benefit of the Purchaser. The Contractor shall carefully restrict access to Confidential Information to employees, sub-Contractors and third parties as is reasonably required and shall require those persons to sign nondisclosure restrictions at least as protective as those in this Contract. The Contractor shall not, without prior written approval of the Purchaser, use for the Contractor's own benefit, publish, copy, or otherwise disclose to others, or permit the use by others for their benefit or to the detriment of the Purchaser, any Confidential Information. The Contractor shall return to the Purchaser any and all records, notes, and other written, printed, or tangible materials in its possession pertaining to Confidential Information immediately if the Purchaser requests it in writing.

17.4 The provisions of this Article and the associated Contractor’s duties shall survive the termination of this Contract and remain in effect until the Purchaser sends the Contractor written notice releasing the Contractor from the obligations imposed by this Article, or for a further period of three (3) years after Contract close-out, whichever occurs first, and without prejudice to other obligations imposed by applicable NATO Security regulations.

17.5 The Contractor shall include the substance of the language of this Article in any subcontract/Contract issued for the purpose of the fulfilment of the obligations Contracted under this Contract regardless of the legal nature of the entity subscribing such subcontract.

17.6 The Contractor agrees that compliance with the obligations imposed by the terms of this Article is of the essence and that failure to abide to these terms shall constitute sufficient grounds for the termination of the Contract for default.

18 SECURITY

18.1 This Article supplements Clause 11 of the Contract General Provisions.

18.2 The Contractor is responsible, in accordance with NATO and National Security regulations, for the proper handling, storage and control of any classified documents and information as may be furnished to the Contractor in relation to the performance of this Contract. As such, the Contractor's premises shall be able to handle information up to NATO Restricted.

18.3 The security classification of this Contract and its annexes is "NATO UNCLASSIFIED". However, the Contractor's technical personnel working on the Contract will need to access NATO SECRET data and therefore shall hold a valid NATO SECRET security clearance for the duration of the Contract. This access to NATO SECRET data shall occur only at NATO premises and never at the Contractor's own premises.

18.4 Contractor's personnel visiting or working at Purchaser's facilities in connection with this Contract shall hold a NATO SECRET security clearance valid for the duration of the Contract. This requirement applies to all subcontracts issued by the Contractor for the effort under this prime Contract.

18.5 It is the responsibility of the Contractor to ensure that its personnel obtain the required security clearances and transmit this information to the sites to be visited in adequate time that the site may perform the appropriate administration.

18.6 The Contractor is advised that the personnel security process may be lengthy. The Purchaser bears no responsibility for the failure of the Contractor to secure the required clearances for its personnel within the necessary time.

18.7 Failure of the Contractor to obtain proper security clearances to have access to any NATO sites, and any attendant delay in the project which results from this access refusal, is not the basis for excusable delay under the terms of the Contract concerning default. The Contractor bears full responsibility and liability under the Contract for delays arising from the failure of the Contractor to adhere to the security requirements.

18.8 If during the performance of the Contract, Contractor's personnel need to be escorted because of non-availability of the security clearance required by the Site, the Contractor shall pay to the Purchaser a compensatory fee of 800 Euro per day of escort.

18.9 In the absence of valid security clearances for the Contractor's personnel at Contract signature, the Purchaser reserves the right to terminate the Contract for “Default”.

19 CONFLICT OF INTEREST

19.1 A conflict of interest means that because of other activities or relationships with other persons or entities, a Contractor is unable, or potentially unable to render impartial assistance or advice to the Purchaser, or the Contractor’s objectivity in performing the Contract work is, or might be otherwise impaired, or the Contractor has an unfair competitive advantage.

19.2 Conflict of interest includes situations where the capacity of a Contractor (including the Contractor’s executives, directors, consultants, subsidiaries, parent companies or subcontractors) to give impartial, technically sound advice or objective performance is or may be impaired or may otherwise result in a biased work product or performance because of any past, present or planned interest, financial or otherwise in organizations whose interest may substantially affected or be substantially affected by the Contractor’s performance under the Contract.

19.3 The Contractor is responsible for maintaining and providing up-to-date conflict of interest information to the Contracting Officer. If, after award of this Contract or task order herein, the Contractor discovers a conflict of interest with respect to this Contract which could not reasonably have been known prior to award, or if any additional conflicts or potential conflicts arise after award, the Contractor shall give written notice to the Contracting Officer as set forth below.

19.4 If, after award of this Contract herein, the Purchaser discovers a conflict of interest with respect to this Contract or task order, which has not been disclosed by the Contractor, the Purchaser may at its sole discretion request additional information to the Contractor, impose mitigation measures or terminate the Contract for default in accordance with Article 39 (Termination for Default) of the Contract General Provisions.

19.5 The Contractor's notice called for in paragraph 19.2 shall describe the actual, apparent, or potential conflict of interest, the action(s) the Contractor has taken or proposes to take to avoid or mitigate any conflict, and shall set forth any other information which the Contractor believes would be helpful to the Contracting Officer in analysing the situation. Any changes to the Contractor’s Conflict of Interest Mitigation Plan, if any is incorporated in the Contract, should be also detailed.

19.6 The Contractor has the responsibility of formulating and forwarding a proposed mitigation plan to the Contracting Officer, for review and consideration. This responsibility arises when the Contractor first learns of an actual, apparent, or potential conflict of interest.

19.7 If the Purchaser in its discretion determines that the Contractor's actual, apparent, or potential conflict of interest remains, or the measures proposed are insufficient to avoid or mitigate the conflict, the Contracting Officer will direct a course of action to the Contractor designed to avoid, neutralize, or mitigate the conflict of interest.

19.8 If the parties fail to reach agreement on a course of action, or if having reached such agreement the Contractor fails to strictly adhere to such agreement during the remaining period of Contract performance, the Contracting Officer has the discretion to terminate the Contract for default or alternatively refrain from exercising any further Option or Work Package under the Contract.

19.9 The Contractor's misrepresentation of facts in connection with a conflict of interest reported or a Contractor’s failure to disclose a conflict of interest as required shall be a basis for default termination of this Contract.

20 INTELLECTUAL PROPERTY

20.1 This Article supplements Clause 30 (Intellectual Property) of the Contract General Provisions.

20.2 All Foreground IPR is the property of the Purchaser. Consequently, no statement shall be made restricting the rights of the Purchaser. All Foreground IPR are immediately and exclusively transferred and assigned to the Purchaser as from their coming into existence or, as the case may be, as from the conclusion of this Contract for rights already in existence at the time of execution of this Contract.

20.3 Any use by the Purchaser of Contractor Background IPR for the purpose of carrying out work pursuant to the Contract shall, subject to any obligation on the part of the Contractor to make payments to any third party in respect of IPR which is licensed from such third party, be free of any charge to Purchaser. The Contractor hereby grants to the Purchaser a non-exclusive, royalty-free and irrevocable licence throughout NATO, NATO operations (including out of area operations) and/or among NATO member nations to use and authorise others to use any Contractor Background IPR for the purpose of exploiting or otherwise using the Foreground IPR for any purpose.

20.4 The Purchaser retains the right to redeploy the Software and capabilities provided and associated documentation necessary under the Contract within NATO, and/or among NATO Nations, and/or among NATO Partner Nations.

20.5 This licence shall also allow the Purchaser and its member nations to use and authorise others to use the software for further adaptation, integration, modifications and future procurements.

20.6 The Contractor intends to use the Background IPR stated in Contract Special Provisions - Annexes B and C hereto for the purpose of carrying out work pursuant to this Contract.

20.7 The Contractor warrants, undertakes, and represents that any derivative product created under this Contract from the stated Background IPR shall be considered as Foreground IPR and, therefore, shall be governed by the terms and conditions specified in Clause 30.3 (Foreground IPR) of the Contract General Provisions.

20.8 In addition, regarding the Contractor’s Background IPR, the Purchaser shall have the right to further re-transfer this software (source code excluded) and associated documentation necessary and/or useful for use and integration, to companies eligible for other NATO procurements, subject to an appropriate license agreement. There shall be no additional charges or fees associated with this license agreement beyond the Firm Fixed Price of this Contract.

20.9 Any use of Contractor and Third Party Background IPR as stated in Annexes B and C, and unless specifically applicable to COTS items, is not limited to the number of users or the number of licenses required by the Contract for use of the system. With the exception of COTS items, the Purchaser reserves the right to use or authorise NATO members to use the Background IPR as stated in Annexes B and C for any number of users and number of licenses as required, at no additional cost to the Purchaser.

20.10 All Software, except COTS, delivered under this Contract shall not be marked with corporate logos, proprietary information or contain warnings limiting the rights to use or reproduction nor shall those markings be included in the operating and/or maintenance manuals or instructions accompanying such software.

21 KEY PERSONNEL

21.1 The individuals listed in ANNEX B are considered to be key to the performance of this Contract and may not be replaced by the Contractor with substitute personnel without the prior written approval of the Purchaser.

21.2 The Contractor's Key Personnel assigned to this Contract shall remain working on the Contract for as long as required by the terms of the Contract. However, in the event where the Contractor has no control over the individual's non-availability (e.g., resignation, sickness, incapacity, etc.), the Contractor shall notify the Purchaser of a change of key personnel within working 3 days of the date of knowledge of the prospective vacancy. The Contractor must nominate a substitute(s) of equivalent or higher qualification and experience within 15 working days of the date at which the Contractor has knowledge of the loss of service of such key personnel. The replacement personnel shall be in place within 7 days of Purchaser approval.

21.3 If the Contractor is unable to nominate and/or replace the lost personnel within the timeframe mentioned in 18.2 above, the Purchaser may conclude that the loss of the Key Personnel endangers progress under the Contract to the extent that the Purchaser may resort to the Clause 39 – "Termination for Default" of the Contract General Provisions for redress of the situation.

21.4 The Purchaser shall approve the dedicated personnel, as well as the replacement personnel. The Purchaser has the right to refuse any proposed substitution as not meeting the qualifications and request the Contractor to offer another qualified individual in lieu thereof.

21.5 The Purchaser reserves the right to reject a Contractor's Key Personnel after acceptance of a Contractor's Key Personnel on the basis of his/her CV if the individual is not providing the required level of support. The Purchaser will inform the Contractor in writing in case such a decision is taken and the Contractor shall propose and make another Key Personnel available within three working days after the written notification.

21.6 Key Personnel are not necessarily required to work full-time in that position. Therefore, it is possible for an individual to fill more than one Key Personnel role at the same time, assuming the person is qualified to perform both roles.

22 SOFTWARE WARRANTY

22.1 This Article supplements Clause 31 of the Contract General Provisions.

22.2 For all Requirements delivered under this Contract, the Contractor shall provide a warranty in accordance with Part IV - Statement of Work, Section 4.10, *Warranty*, and Clause 31 of the Contract General Provisions.

22.3 This warranty period shall extend for one year following the written declaration of Final Systems Acceptance (FSA) by the Purchaser's Contracting Authority.

22.4 In the event of any inconsistency in language, terms or conditions with regards to warranty, the terms or conditions stipulated in Part IV - Statement of Work, Section 4.10 shall have precedence over Clause 31 of the Contract General Provisions.

23 PURCHASER FURNISHED PROPERTY AND SERVICES

23.1 This Article supplements Clause 13 (Purchaser Furnished Property) of the General Contract Provisions.

23.2 The Purchaser will provide the Contractor with the property and services for the performance of the Contract as specified in Section 2.1 of the SOW.

23.3 As specified in Section 3.6 of the SOW, the Contractor shall develop software in the NATO Software Factory (NSF). The Purchaser will provide the Contractor with a set of user accounts in the NSF and the services and products requested and justified by the Contractor in his bid as described in Special Provision ANNEX E.

23.3.1 The Contractor has specified and dimensioned the number of NATO Software Factory user accounts and the Microsoft Azure Cloud Services and additional products that are required throughout the period of performance of the Contract as part of his bid and as reflected in ANNEX E.

23.3.2 The Contractor's proposed additional services and products to be hosted on the NATO Software Factory shall be provided with justification and are subject to Contractor approval. When approved, the Contractor shall implement and provision the support associated with these services and products throughout period of performance of the Contract.

23.3.3 The Contractor shall not exceed the number of NATO Software Factory user accounts and the amount of the Microsoft Azure Cloud Services dimensioned as mentioned in ANNEX E.

23.3.4 The Contractor shall not use any internal tools (ALM management, work items management, build tools or repositories, etc.), storage or document management system outside of the tools provided by NATO Software Factory or explicitly approved by the Purchaser.

24 SOFTWARE LICENSES

24.1 Any software licenses purchased on behalf of or provided to the Purchaser by the Contractor shall be perpetual licenses. In the event a perpetual license model is not available for a particular software product, the Contractor shall request written approval from the Purchaser in advance.

24.2 Any software licenses the Contractor purchases on behalf of the Purchaser, and/or transfers or provides to the Contractor shall provide the same usage rights as required by Article ~~16~~ **20**. The Contractor shall ensure that any software licenses that will ultimately need to be assigned to the Purchaser can be done so at no additional cost.

24.3 The Purchaser reserves the right to exclude from the awarded Contract the purchase of software licenses which the Purchaser may procure through centralized Contracts. In this case, the Contract terms, schedule and prices will be modified accordingly, and the software licenses will be provided to the Contractor in the form of "Purchaser Furnished Items".

25 COTS PRODUCT REPLACEMENT

25.1 If any COTS products specified in the Contract are upgraded or discontinued by their original providers for commercial or technological reasons, the Contractor shall propose their substitution by the new versions that are intended as market replacement of the original products. The proposed items shall provide an equivalent or enhanced performance without a price or life-cycle support cost increase and the Contractor shall be responsible for the installation, integration and transition of data and information to the new version.

25.2 The Contractor shall provide price and performance data to support an improvement in performance and/or a reduction in price and/or life-cycle support costs. If necessary for evaluation by the Purchaser, the Contractor shall provide a demonstration of the proposed items. Should the Purchaser decide that the proposed item(s) should be included in the Contract, an equitable price adjustment will be negotiated and the proposed item(s) shall be added to the Contract by bilateral modification under the authority of this Article.

26 PRICING OF CHANGES, MODIFICATIONS, FOLLOW-ON CONTRACTS AND CLAIMS

26.1 This Article supplements Clause 19 of the Contract General Provisions.

26.2 The Purchaser may at any time, by written order designated or indicated to be a change order, and without notice to the sureties, if any, make changes within the scope of any Contract or Task Order, in accordance with Clause 16 (Changes) of the Contract General Provisions.

26.3 Changes, modifications, follow-on Contracts of any nature, and claims shall be priced in accordance with Clause 19 (Pricing of Changes, Amendments and Claims) of the Contract General Provisions, and with the "Purchaser's Pricing Principles" as set out in the Annex to the Contract General Provisions.

26.4 Contractor price quotations for Contract changes or modifications shall be provided at no cost to the Purchaser and shall have a minimum validity period of six (6) months from submission.

26.5 The pricing information contained in the cost breakdown sheets submitted with the Bidding sheets, as part of the Contractor’s proposal, and especially the forward labour rates provided, will constitute the basis for any future negotiations related to possible future amendments to this Contract.

27 ACCEPTANCE OF DESIGN DOCUMENTATION

27.1 This Article supplements Clause 22 of the Contract General Provisions.

27.2 The acceptance by the Purchaser of the Contractor’s design documentation required by this Contract signifies that the documents delivered appear logical and consistent. The acceptance does not constitute an endorsement or approval of the design by the Purchaser and does not relieve the Contractor of the obligation to meet the performance requirements of this Contract in the event that the design eventually proves to be non-compliant at the testing.

28 INDEMNITY

28.1 The Contractor will indemnify and hold harmless NATO and its servants or agents, against any liability, loss or damage arising out of or in connection of the Deliverables and Services under this Contract, including the provisions set out in Articles 29 "Patent and Copyright indemnity" and 30 “Intellectual Property” of the NCI Agency General Provisions.

28.2 The Contractor will indemnify NATO and its servants or agents, against claims made against NATO and its servants or agents, by their personnel, and their sub-Contractors (including their personal representatives) in respect of personal injury or death of such personnel or loss or destruction of or damage to the property of such personnel.

28.3 The Contractor will consult with the Agency over the handling of any claim or action to which the provisions of this Article may be relevant and will consult with the Agency over the handling of any such claim and conduct of any such action and will not without prior consultation and without the concurrence of the Agency settle or compromise any such claim or action.

28.4 In the event of an accident resulting in loss, damage, injury or death arising from negligence or wilful intent of an agent, officer or employee of NATO for which the risk has been assumed by the Contractor, the Contractor shall involve the Agency in any investigation into the cause of the accident.

29 PLACE AND TERMS OF DELIVERY

29.1 This Article replaces Clause 20.1 of the Contract General Provisions.

29.2 All deliverables under this Contract shall be delivered DDP ("Delivered Duty Paid") as defined by the INCOTERMS published by the International Chamber of Commerce (Publication No. 560) to the places and at such times as stipulated in the Schedule of Supplies and Services. The Contractor shall note that the Purchaser is exempt from customs duties and Value Added Tax as per Clause 26 – "Taxes and Duties" of the Contract General Conditions.

30 SUPPLEMENTAL AGREEMENT(S), DOCUMENTS AND PERMISSIONS

30.1 The Contractor has submitted all relevant draft supplemental agreement(s), documents and permissions prior to Contract award, the execution of which by the Purchaser is/are required by national law or regulation. If any supplemental agreements, documents and permissions are introduced after Contract award, and it is determined that the Contractor failed to disclose the requirement for the execution of such agreement from the Purchaser prior to Contract signature, the Purchaser may terminate this Contract for default in accordance with Clause 29 – "Termination for Default" of the Contract General Conditions.

30.2 Supplemental agreement(s), documents and permissions, the execution of which by the Purchaser is/are required by national law or regulation and that have been identified by the Contractor prior to the signature of this Contract, but have not yet been finalised and issued by the appropriate governmental authority, are subject to review by the Purchaser. If such supplemental agreement(s), documents and permissions are contrary to cardinal conditions of the signed Contract between the Parties, and the Purchaser and the appropriate governmental authority cannot reach a mutual satisfactory resolution of the contradictions, the Purchaser reserves the right to terminate this Contract and the Parties agree that in such case the Parties mutually release each other from claim for damages and costs of any kind, and any payments received by the Contractor from the Purchaser will be refunded to the Purchaser by the Contractor.

31 COMPREHENSION OF CONTRACT AND SPECIFICATIONS

31.1 The Contractor warrants that he has read, understood and agreed to each and all terms, clauses, specifications (including drawings) and conditions specified in the Contract and that this signature of the Contract is an acceptance, without reservations, of the said Contract terms within their normal and common meaning.

31.2 The specifications set forth the performance requirements for the Contractor's proposed work as called for under this Contract. Accordingly, notwithstanding any conflict or inconsistency which hereafter may be found between achievement of the aforesaid performance requirements and adherence to the Contractor's proposed design for the work, the Contractor hereby warrants that the work to be delivered will meet or exceed the performance requirements of the said specifications.

31.3 The Contractor hereby acknowledges that he has no right to assert against the Purchaser, its officers, agents or employees, any claims or demands with respect to the aforesaid specifications as are in effect on the date of award of this Contract:

- based upon impossibility of performance, defective, inaccurate, impracticable, insufficient or invalid specifications, implied warranties of suitability of such specifications, or;
- otherwise derived from the aforesaid specifications, and hereby waives any claims or demands so based or derived as might otherwise arise.

31.4 Notwithstanding the "Changes" Clause or any other Clause of the Contract, the Contractor hereby agrees that no changes to the aforesaid specifications which may be necessary to permit achievement of the performance requirements specified herein for the Contractor's proposed work shall entitle the Contractor either to any increase in the fixed price as set forth in this Contract or to any extension of the delivery times for the work beyond the period of performance in the Schedule of Supplies and Services.

32 PURCHASER RIGHT TO CONTRACT WITH THIRD PARTIES IN CASE OF CONTRACTOR DEFAULT

32.1 This Article supplements Clause 39 (Termination for Default) of the Contract General Provisions.

32.2 In the event that the Contractor fails to deliver or make progress on the provision of any components of this project in accordance with the milestones and delivery dates stipulated in the SSS and SOW, and is notified by the Purchaser in writing that the Contractor is in a state of default in accordance with Clause 39 of the Contract General Provisions (Termination for Default), the Purchaser reserves the right to enter directly into contracts with any third

party, including commercial entities, and Contractor's Subcontractors for provision of the Contract Work Package.

32.3 The provisions of this Article are in addition to and in no way limit the rights of the Purchaser contained in other applicable clauses of this Contract, including but not limited to, Clause 21 (Inspection and Acceptance of Work) and Clause 39 (Termination for Default) of the Contract General Provisions.

33 EXPORT AGREEMENT AND LICENSE

33.1 It is the Contractor's responsibility to ensure compliance with all relevant or necessary national export provisions in executing the work under this Contract. Copies of the documentation will be supplied to the Purchaser on request.

34 INDEPENDENT CONTRACTOR

34.1 The Personnel provided by the Contractor are at all times employees of the Contractor and not the Purchaser. In no case shall Contractor personnel act on behalf of or as an agent for NATO or any of its bodies. In no way shall the Contractor personnel claim directly or indirectly to represent NATO in an official capacity or claim themselves to be NATO employees.

34.2 The Purchaser shall not be responsible for securing work permits, lodging, leases nor tax declarations, driving permits, etc., with national or local authorities. Consultants employed under this Contract are not eligible for any diplomatic privileges or NATO employee benefits.

35 FORCE MAJEURE

35.1 If the performance of this Contract, or any obligation hereunder is prevented, restricted or interfered with by reason of fire, flood, earthquake, explosion or other casualty or accident, strikes or labour disputes, war or other violence, including acts of terrorism, any law, order, proclamation, regulation, ordinance, demand or requirement of any governmental agency, or any other act, event or condition whatsoever beyond the reasonable control of the affected Party, the Party so affected, upon giving prompt notice to the other Party, shall be excused from such performance to the extent of such prevention, restriction or interference, provided, however, that the Party so affected shall take all reasonable steps to avoid or remove such cause of non-performance and shall resume performance hereunder with dispatch whenever such causes are removed.

36 RESPONSIBILITY OF THE CONTRACTOR TO INFORM EMPLOYEES OF WORK ENVIRONMENT

36.1 The Contractor shall inform his employees under this Contract of the terms of the Contract and the conditions of the working environment.

36.2 Specifically, personnel shall be made aware of all risks associated with the performance under this Contract, the conditions of site in which the performance is to take place and living conditions while performing within the boundaries of the Contract. The selection of adequate personnel shall remain sole responsibility of the Contractor.

37 PERFORMANCE GUARANTEE

37.1 This Article replaces paragraph 8.4 of the Contract General Provisions as follows:

37.2 The standby letter of credit shall be issued by a financial institution listed in ANNEX D either on its own behalf or as a confirmation of the Standby Letter of Credit issued by a different bank not listed in ANNEX D to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Purchaser of a written demand therefore. Neither the financial institution nor the Contractor can revoke or condition the Standby Letter of Credit.

38 ENGINEERING CHANGE PROPOSALS (ECP)

38.1 This Article supplements Article 16 of the Contract General Provisions.

38.2 Engineering Change Proposals (ECP) as defined in this Article are proposals for changes relevant to tasks, deliverables, technical requirements, processes, schedules or any other term of the Contract which are submitted in written form by the Contractor upon request from the Purchaser or independently when such changes are necessary in light of varied facts or circumstances which prevent the execution of the Contract in its form.

38.3 Any Engineering Change Proposal (ECP) submitted by the Contractor to the Purchaser in a format as in Annex D.1 to the SOW or compatible with any Contractor’s internal change management methodology standards or forms, that shall in any case, contain as a minimum, the elements listed in Annex D.1 to the SOW.

38.4 As required, the ECP shall be provided with following attachments:

38.4.1 Revised copy of the Contract documents in native electronic format edited to incorporate the changes being proposed in a way that changes are immediately identifiable.

38.4.2 Revised Schedule of Supplies and Services.

38.4.3 A detailed price breakdown of all costs to identify single elements of cost contributing to the total. All labour costs quoted as part of any ECP shall be consistent with those stipulated in the Contract

38.4.4 Revised annexes and any other relevant document.

38.5 The Purchaser shall assess the ECP being proposed by the Contractor and subject to its sole judgment and without recourse by the Contractor approve or reject the ECP by the mean of written communication to be dispatched solely by the Purchaser's Contracting Authority.

38.6 The Contractor shall proceed with the performance on the approved ECP and not on a Pending or Rejected ECP.

38.7 Formally approved ECPs shall be treated as interim authorization to proceed with the changes proposed strictly and limited to the scope, content and price as specified in the approved ECP.

38.8 The Purchaser shall not be liable for any cost incurred by the Contractor for performance rendered, regardless of the nature or time, associated to ECPs not formally approved by the Purchaser's Contracting Authority.

38.9 All formally approved ECPs will be incorporated in the Contract via the issuance of a formal Contract Amendment at the earliest practical time after their issuance.

38.10 The production of any ECP regardless of its final approval or rejection shall be at no cost for the Purchaser.

39 CONTRACT CLOSE-OUT

39.1 Planned Closure

39.1.1 Planned Contract Close-out occurs after all products and services provided by the Contractor have been accepted by the Purchaser.

39.1.2 The Contractor shall finalise all plans (e.g. Project Management Plan (PMP), Integrated Logistics System Plan (ILSP)) and all records (e.g. Risk, Issue Register and Lessons Log).

39.1.3 The Contractor shall apply the project closure practices defined in PRINCE2.

39.1.4 The Contractor shall plan a Contract Close-out Meeting (CCM) to review all products and services are delivered, and all activities are successfully completed.

39.1.5 Contract Close-out Meeting (CCM) and its report shall mark the End of Contract.

39.2 Premature Closure

39.2.1 Premature Close-out occurs when the Purchaser decides to close the Contract at an earlier phase than the FSA, in the case of a Termination for Default (per Article 39 of the Contract General Provisions) or a Termination for Convenience (per Article 40 of the Contract General Provisions). It does not mean that the work in progress is simply abandoned, but that the project salvages (at the discretion of the Purchaser) anything of value created to date and checks that any gaps left by the cancellation of the project are clearly defined.

39.2.2 Upon the decision on premature close-out, the Contractor shall:

- Update the Project Plan with actuals from the final phase.
- Identify the status of the Developmental Items under development.
- Identify the work that has not started yet.
- Identify the products already developed.
- Agree the means for recovering products that have been completed or are in progress (if appropriate).
- Develop an Exception Plan to include additional work to create, make safe or complete products that needs to be delivered to the Purchaser.

40 NCI AGENCY SUPPLIER CODE OF CONDUCT

40.1 The NCI Agency has a Supplier Code of Conduct located at https://www.ncia.nato.int/business/do-business-with-us/code-of-conduct.html and it constitutes part of this Contract.

40.2 This Supplier Code of Conduct sets standards and practices for suppliers and their subcontractors to adhere to when doing business with the NCI Agency in the areas of labour rights, human rights, data protection, ethical conduct and the environment. It contains fundamental, basic principles that any supplier based in a NATO country should already be operating in compliance with.

40.3 In the event of any inconsistency in language, terms or conditions with the Contract General Provisions, the Contract General Provisions takes precedence.

END OF CONTRACT SPECIAL PROVISIONS

ANNEX A. KEY PERSONNEL

a. The following Key Personnel shall be subject to the stipulations contained in Clause 18 (Key Personnel) of the Contract Special Provisions for the period of designation indicated below

b. The required qualifications are the same for the "Deputy" positions as for the lead positions in the same role. (For example, Deputy Project Manager and Project Manager.)

Position	SOW Reference	Name	Designation Period
Project Manager	3.9.4.2		
Quality Assurance Manager	3.9.4.3		
Configuration Manager	3.9.4.4		
System Software Architect	3.9.4.5		
Technical Lead Desktop	3.9.4.6		
Technical Lead Web	3.9.4.6		
Product Owner Desktop	3.9.4.7		
Product Owner Web	3.9.4.7		
Lead UX Designer	3.9.4.8		
Scrum Master	3.9.4.9		
Test Manager	3.9.4.10		
Lead Instructor	3.9.4.11		

ANNEX B. CONTRACTOR BACKGROUND IPR

a. The Contractor Background IPR specified in the table below will be used for the purpose of carrying out work pursuant to the Contract.

Item	Description / IP Ownership	Indicate if COTS[1]

b. The Contractor represents that it has and will continue to have, for the duration of this Contract, all necessary rights in and to the IPR specified above necessary to meet the Contractor's obligations under the Contract.

c. The Contractor Background IPR stated above complies with the terms specified in Clause 17 of the Contract Special Provisions and shall be licensed to the Purchaser according to the terms and conditions specified therein and in Clause 30 of the Contract General Provisions.

ANNEX C. SUBCONTRACTOR AND THIRD PARTY IPR

a. The Subcontractor and Third Party Background IPR specified in the table below will be used for the purpose of carrying out work pursuant to the Contract.

Item	Description / IP Ownership	Indicate if COTS[1]

b. The Contractor represents that it has and will continue to have, for the duration of this Contract, all necessary rights in and to the IPR specified above necessary to meet the Contractor's obligations under the Contract.

c. The Subcontractor and Third Party Background IPR stated above complies with the terms specified in Clause 16 of the Contract Special Provisions and shall be licensed to the Purchaser according to the terms and conditions specified therein and in Clause 30 of the Contract General Provisions.

ANNEX D. LIST OF ACCCEPTABLE BANKS TO ISSUE PERFORMANCE GUARANTEES

#	Bank
1	KBC Group
2	Bank of Montreal (BMO)
3	Royal Bank of Canada
4	Scotiabank
5	Danske Bank
6	Citibank Europe
7	BNP Paribas
8	Credit Agricole Group
9	Societe Generale
10	Commerzbank AG
11	Deutsche Bank
12	Intesa
13	UniCredit S.p.A.
14	ING Group
15	Rabobank Group
16	Banco Santander
17	BBVA
18	Barclays PLC
19	HSBC Holdings
20	Standard Chartered Plc
21	Bank of America
22	Wells Fargo
23	Swedbank AB

*These Banks are in NATO-member countries.

ANNEX E. NSF RESOURCES ALLOCATED TO THE CONTRACTOR

TO BE COMPLETED AT CONTRACT AWARD

IFB-CO-115498-TOPFAS BMD
BOOK-II-PART-IV-SOW

STATEMENT OF WORK

Version 3.0

23/02/2023

TABLE OF CONTENTS

INDEX OF FIGURES

INDEX OF TABLES

Document Revision History

Date	Version	Changes
23 Feb 2023	3.0	Modified paragraphs [030], [111] and [SOW-304]; Inserted paragraph [206(i)] and [SOW-440(i)];
13 Feb 2023	2.0	Editorial change paragraph [036](c); Modified paragraph [038]; Modified paragraph [046]; Editorial change [SOW-029]; Inserted paragraph [132(i)]; Inserted [SOW-187(i)], [SOW-187(ii)]; Modified [SOW-278], [SOW-482](5);
08 Dec 2022	1.0	IFB package release version

1 Introduction

1.1 Purpose

[001] This statement of work is for the procurement of a new, enhanced NATO-owned TOPFAS Application Suite with functionalities required to support the expansion of the BMD capabilities.

[002] The statement of work defines the Contractor's tasks and responsibilities for the analysis, design, development, implementation, maintenance and support of a new, enhanced TOPFAS Application Suite, satisfying the software requirements specified in Annex A, Software Requirements Specifications to this statement of work.

1.2 Background

[003] TOPFAS is NATO's modern suite of software applications, consisting of desktop applications, server-hosted or web applications, and integrated services, in support of the NATO Crisis Response Process. Each application within the TOPFAS Application Suite serves a distinct purpose and offers specific capabilities to multiple, distinct communities of interest. A more detailed overview of the current TOPFAS Application Suite baseline is provided in Annex B,TOPFAS Application Suite.

[004] The Ballistic Missile Defence (BMD) Programme delivered a BMD baseline capability incorporated within the current TOPFAS Application Suite baseline.

[005] The BMD Programme further comprises the transition from this BMD baseline capability to an enhanced BMD capability within the TOPFAS Application Suite, which forms the scope of this statement of work. The scope of these enhancements are specified in the Software Requirements Specifications (Annex A).

1.3 Conventions and Interpretations

[006] The headings in this statement of work are for ease of reference only and shall not affect its interpretation.

[007] In this statement of work, unless the context otherwise requires:

(a) The term “Contract Award” is the date of the last signature of the Contract by the Parties and the date the Contract enters into force;

(b) The term “Effective Date of Contract” is the date agreed upon by the Parties for beginning the period of performance under the Contract;

(c) A number in brackets [number] precedes each informational or context paragraph; a unique identifier, consisting of a prefix and number [SOW-number] precedes each requirement;

(d) Requirements are formulated using the form “shall” and contractually binding. Context information supporting the requirements definition is provided using the form “will” and implies the intent or aim on the part of the Purchaser; the context forms one part with the requirements;

(e) Any phrase introduced by the words "including", "includes", "in particular", "for example" or similar, shall be construed as illustrative and without limitation to the generality of the related general words;

(f) Any reference made to a section or paragraph encompasses the referenced section or paragraph including all subordinate sections and paragraphs;
(g) The convention used for dates (e.g. quoting dates of meetings) is day-month-year and not month-day-year.

1.4 Scope of Work Overview

[008] This section provides a summary of the scope of work of this statement of work.

[009] The scope of work includes the analysis, design, development, implementation, maintenance and support for a new, enhanced, NATO-owned TOPFAS Application Suite with functionalities required to support the expansion of the BMD capabilities. Key areas for this expansion are: support for the BMD Pol-Mil consultation process, between the strategic commands, the North Atlantic Council (NAC) and Military Committee (MC); greater focus on passive defence (military and civilian); support for Education, Training, Exercises and Evaluation Functional Services (ETEE-FS) for the BMD capability; interfaces with Intelligence Functional Services (INTEL-FS), and integration with the NATO platform and other functional and core services.

[010] The required capabilities will be delivered through enhancements and extensions of the current TOPFAS Application Suite, resulting in a new baseline of the TOPFAS Application Suite fully replacing the existing one. The new TOPFAS Application Suite is to be deployed onto the NATO operational networks, testbeds, and implemented throughout the NATO Command Structure (NCS).

[011] The delivery of the functionalities of TOPFAS is to be done progressively, in two incremental baselines, where each increment corresponds to a Contract work package and consists of multiple iterations.

[012] The use of an incremental delivery approach is intended to meet the full range of operational requirements, but also to balance operational user priorities with technical risks, implementation risks, and development schedules in determining the scope of each increment.

[013] As shown in Figure 1.1, the main work will be organized in two work packages (WP1, and WP2). In addition, an optional work package (WP3) is defined for Contractor furnished maintenance and support services. Furthermore, the scope of work includes optional services for training.

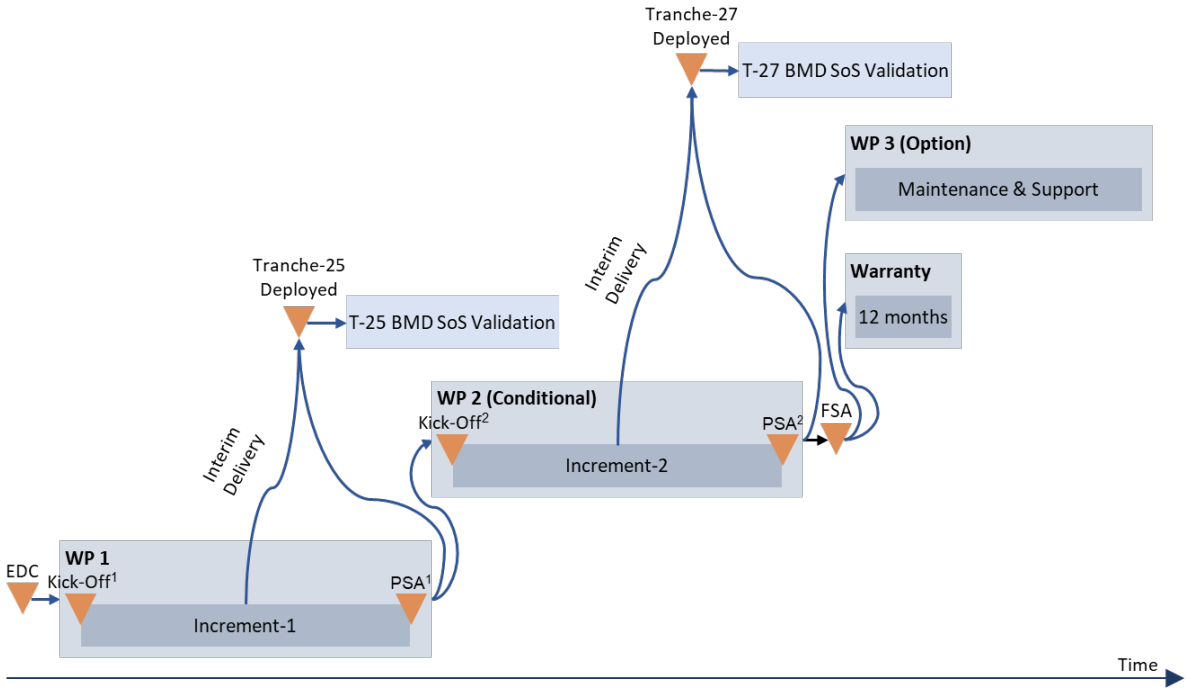

Figure 1.1 - Work Packages Breakdown and Increments

[014] Figure 1.2 illustrates the main stages of the Contract, including a ramp-up phase, the three (3) work packages and the major delivery milestones: Partial System Acceptance (PSA) and Final System Acceptance (FSA).

[015] The Contractor will have to deliver all supplies and services as specified in this statement of work and as stated in the Schedule of Supplies and Services (SSS), with an associated expected delivery time. With the expected delivery time, the Purchaser understands delivered and accepted. The Contractor will need to incorporate within its schedules sufficient time, a minimum of 15 business days, for the Purchaser to validate and accept each deliverable and milestone.

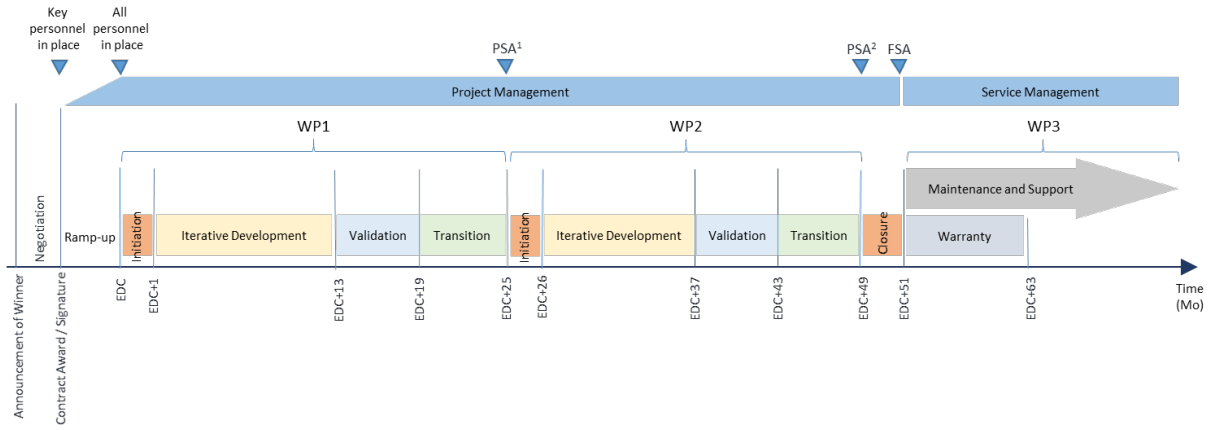

Figure 1.2 – Overview of Timelines and Stages

1.4.1 Work Package 1: Deliver TOPFAS BMD Capabilities

[016] Work Package 1 (WP1) comprises of the Contractor activities for developing and delivering the TOPFAS BMD Tranche-25 allocated scope of functionality, which is to be implemented by adding new BMD capabilities and making enhancements to the current baseline of the TOPFAS Application Suite.

[017] This work package includes delivering the migrated BMD baseline capabilities already part of the current TOPFAS Application Suite; will implement the training and exercise scope allocated to TOPFAS domain; build interfaces with ETEE-FS; and will establish interfaces with INTEL-FS to support TOPFAS BMD OPFOR functions. The functional scope comprising Work Package 1 is defined in the Annex A, Software Requirements Specifications.

[018] The major tasks to be carried out under this work package include project management, requirements analysis, application design, coding, user involvement activities (such as user validation workshops), capability testing and verification, security testing, development and delivery of training, and provision of transition support.

[019] After completing the iterative development phase and successful performing the user acceptance tests, system integration tests and independent verification and validation testing, the incremental baseline will be deployed to sites of the operational networks and Purchaser’s testbeds and reference platforms.

[020] Users and support elements will receive training to use the new operational baseline. Existing training courses are to be updated accordingly, and if necessary new courses will be developed.

[021] Work Package 1 will be concluded when the partial system acceptance criteria have been fulfilled.

[022] On achieving partial system acceptance of Work Package 1, the Contractor will take over maintenance and support responsibility of the new TOPFAS Application Suite baseline and any follow-on deployed baseline releases or patches. This responsibility will continue until final system acceptance is achieved.

1.4.2 Work Package 2: (Conditional) Deliver TOPFAS BMD Capabilities

[023] Work Package 2 (WP2) comprises of the Contractor activities for developing and delivering the TOPFAS BMD Tranche-27 allocated scope of functionality and further evolving and extending the TOPFAS Application Suite capabilities delivered under Work Package 1.

[024] Work Package 2 is conditional, As per contract special provision 8

[025] This work package includes implementation of Pol-Mil consultation functions, the CBRN related functions, interfaces with CBRN FS as well as passive defence and BMD planning support functions. Updates of interfaces such as those of AirC2IS, ETEE-FS and INTEL-FS will also be included within Work Package 2. Furthermore, user feedback from Work Package 1 delivery will also be incorporated within the Work Package 2 baseline. The functional scope comprising Work Package 2 is defined in the Annex A, Software Requirements Specifications

[026] The major tasks to be carried out under this work package include project management, requirements analysis, application design, coding, user involvement activities (such as user validation workshops), capability testing and verification, security testing, development and delivery of training, and provision of transition support.

[027] After completing the iterative development phase and successful performing the user acceptance tests, system integration tests and independent verification and validation testing, the incremental baseline will be deployed to sites of the operational networks and Purchaser's testbeds and reference platforms.

[028] Users and support elements will receive training to use the new operational baseline. Existing training courses are to be updated accordingly, and if necessary new courses will be developed.

[029] Work Package 2 will be concluded when the partial system acceptance criteria have been fulfilled.

[030] On achieving partial system acceptance of Work Package 2, the Contractor will continue the maintenance and support responsibility of the new TOPFAS Application Suite baseline and any follow-on deployed baseline releases or patches until final system acceptance is achieved.

[031] Final system acceptance will be granted when the Purchaser has verified completeness of the entire scope and has determined that it meets the requirements of the Contract. Subsequently, on successful achievement of the final system acceptance, the warranty period will commence.

1.4.3 Warranty

[032] Starting on the date of the final system acceptance, the Contractor will provide one-year warranty for all deliverables and services furnished under this Contract.

1.4.4 Work Package 3: Optional Maintenance and Support Services

[033] The optional Work Package 3 specifies the Contractor furnished services for the maintenance and support of the TOPFAS Application Suite baseline for up to five years, starting from final system acceptance with the first year being concurrent with the warranty period.

2 Purchaser's Responsibilities

[034] The Purchaser's project manager (PM) will act as the Purchaser's technical representative and will be the primary interface between the Contractor and Purchaser after Contract Award.

[035] The Purchaser's project manager will be supported by specialists in certain areas (e.g. the technical lead) who may be delegated to act on the project manager's behalf in their area of expertise.

[036] The following services and items will be provided by the Purchaser for the performance of the Contract:
(a) Coordinating access to subject-matter experts (SME) and user communities;
(b) Coordinating access to NATO sites the Contractor will have to visit;
(c) Provide Purchaser Furnished Property and Services as per Section 2.1.

2.1 Purchaser Furnished Property and Services

[037] The Purchaser will provide the Contractor with NATO documentation and references if such are required for the efforts under the Contract.

[038] The Purchaser will provide the Contractor with available technical descriptions of external NATO interfaces if such are required for the efforts under the Contract. To note is that many of the external capabilities and services, for example ETEE-FS and INTEL-FS, are currently under development and all interfaces will evolve. Their interface control documents (ICD) will be made available in due time.

[039] The Purchaser will equip the Contractor with one NATO RΞSTRICTED (NR) laptop to be used for sharing of electronic material up to NR. For access to material of classification higher than NR, the Contractor will have to visit one of the Purchaser's main facilities in order to be able to review the classified material required for the efforts under this Contract.

[040] The Purchaser will make available to the Contractor, by facilitating access at Purchaser facilities, the operational networks for deployment and if needed, for validation and training activities required under the Contract.

[041] The Purchaser will provide the Contractor with "NATO Software Factory DevSecOps" services, "NATO Software Factory" (NSF) in short, a cloud-sourced development, integration and test platform covering the entire application development lifecycle (see Section 2.2).

[042] The Purchaser will provide the Contractor for its project team a set of user accounts with access to the NATO Software Factory and services furnished by the platform.

[043] The Purchaser will provide the Contractor with access to the current source code and development baseline of the TOPFAS Application Suite and relevant components, including databases, documentation and training packages, hosted on the NATO Software Factory.

[044] The Purchaser will make available to the Contractor, by facilitating access at Purchaser facilities, the reference test environments for the deployment, integration testing and validation activities required under the Contract.

[045] The Purchaser will make available to Contractor, by facilitating access at Purchaser facilities, the integration testbed (ITB) facilities for deployment, integration testing and validation activities required under the Contract.

[046] The Purchaser will provide the Contractor with the required access to the Service Oriented Architecture (SOA) and Identity Management (IdM) platform (see [SOA-IdM-ICD], [SOA-IdM-SDS and [SOA-IdM-SUM]), latest by the kick-off Meeting for the Work Package 2.

[047] The Teleplan Globe AS (Norway) Maria GDK is a map component integrated within the TOPFAS Application Suite. The NCI Agency maintains an enterprise development agreement for the TOPFAS Application Suite, with a license that extends to Contractors. The Purchaser will make available the Teleplan Globe AS Maria GDK to the Contractor, if such is required for the efforts under the Contract.

2.2 NATO Software Factory DevSecOps Services

[048] The NATO Software Factory DevSecOps services offer a cloud-sourced development, integration and test platform covering the entire application development lifecycle.

[049] The platform makes use of standardized application development processes and common tooling. This approach supports the Purchaser's strategy in moving towards an agile capability development approach embracing a high degree of componentization and reuse through services, with an improved return on investment.

[050] To ensure better coherency among the capabilities being developed and maintained within the NATO enterprise, the Purchaser is mandating the use of the NATO Software Factory DevSecOps services. This approach will improve and tighten the collaboration between Purchaser and industry and ensures transparency of progress and quality throughout the development lifecycle, essential both to performance monitoring and quality assurance performed by the Purchaser.

[051] The NATO Software Factory DevSecOps services are hosted in a secure public cloud and will be offered as Platform as a Service (PaaS) based on the Microsoft Azure DevOps platform. Therefore, the highest level of security classification that is allowed to be used on this platform is NATO UNCLASSIFIED.

[052] The NATO Software Factory DevSecOps services will provide cloud services and a series of tools (toolchain) based on both Microsoft and Open-Source Stack (OSS) technology ecosystems. These include source code hosting, configuration management, build and continuous integration pipelines, (automated) testing, work item management, artefacts repository and collaboration space.

[053] The NATO Software Factory DevSecOps services, currently host the latest source code and development baseline of the TOPFAS Application Suite and relevant components, including databases, documentation and training packages.

[054] The Purchaser furnished services part of the NATO Software Factory is limited to the following:

(a) User accounts with access to the NATO Software Factory:

- Basic Profile for Microsoft Azure DevOps services;
- NATO Software Factory DevSecOps Security Services;

- NATO Software Factory Microsoft Office 365 E1 license (Microsoft Office 365 online, Microsoft Teams for collaboration, Microsoft SharePoint for documentation management and collaboration);

(b) Git for source code control;
(c) NATO Software Factory Microsoft Azure Cloud services access (DevTestLabs, build server, integration platform);
(d) Microsoft Azure Cloud Services costs;

It does not include:
(a) The Microsoft Azure DevOps Test Plan access (to be provided by the Contractor Microsoft Visual Studio appropriate licenses, Test Professional or Enterprise);
(b) Development tools individual licenses (e.g. Microsoft Visual Studio).

[055] The NATO Software Factory Business/Help Desk Support is limited to working days between the hours of 0900-1700 hrs (CET) Monday to Thursday, and 0900-1500 hrs (CET) on Friday.

3 General Requirements

[056] This section defines the general requirements of this statement of work.

[057] The Purchaser's main facilities are at either The Hague-The Netherlands, Brussels-Belgium or Mons-Belgium, but depending on the nature of the works, activities may need to be conducted at other facilities than the Purchaser's main facilities.

3.1 Communication

[SOW-001] The Contractor shall use the English language in all its communications relevant to this Contract, i.e. in conversations, meetings, workshops, emails, reports, etc.

3.2 Meetings

[058] The term meetings includes workshops, formal reviews and validation activities.

[SOW-002] Meetings requiring in person attendance shall take place at one of the Purchaser's main facilities, with location at the discretion of the Purchaser. If circumstances of the meeting require, at the discretion of the Purchaser, the Contractor shall meet in person at other Purchaser's facilities.

[SOW-003] If meeting/conference rooms at the specified Purchaser facilities are not available in the timeframe required to support an in-person meeting, the Contractor shall:

(1) Reschedule the meeting to such time as meeting/conference rooms are available at the Purchaser's facilities, with no further adjustment to schedule or cost; or

(2) If the Contractor prefers the meeting to take place within the foreseen timeframe, provide suitable meeting/conference rooms (e.g. hotel meeting/conference rooms) for the meeting in close proximity of the Purchaser's facilities at no additional cost to the Purchaser; or

(3) Alternatively, if the Purchaser agrees, arrange to host the meeting at the Contractor's facilities. These meeting/conference rooms shall be provided at no additional cost to the Purchaser.

[SOW-004] For meetings taking place at the Contractor's facilities, the Contractor shall enable the Purchaser and relevant stakeholders to participate in the meeting remotely using video conferencing technology (i.e. Microsoft Teams).

[SOW-005] Unless specified otherwise, at least two (2) weeks prior to all meetings required under this Contract, the Contractor shall send an invitation, including agenda and objectives of the meeting.

[SOW-006] If any artefacts or deliverables are to be reviewed in preparation of the meeting, the Contractor shall provide these artefacts in advance and with sufficient time for the Purchaser to review them and provide feedback to the Contractor.

[SOW-007] The Contractor shall record meeting minutes and provide the minutes to the Purchaser within three business days after the meeting.

[SOW-008] The Contractor shall meet with the Purchaser as required to discuss progress of work or any other matter relevant this Contract.

3.3 Security Aspects

[059] Security aspects relevant to the Contractor's work are defined in the Contract Provisions. This section identifies additional security requirements related to the execution of the Contractor's work.

[SOW-009] All Contractors' personnel assigned to work under this Contract shall have a NATO SΞCRET (NS), or higher, security clearance throughout the period of performance of the Contract.

[SOW-010] The Contractor shall process all its personnel through NATO security at each of the Purchasers' facilities, adhering to the local procedures for clearances, to obtain unescorted access (unescorted security badges) for the duration of the on-site activities.

[SOW-011] The Contractor shall seek prior Purchaser approval for any service or deliverable planned to be produced and delivered with a security classification level higher than NATO UNCLASSIFIED (NU).

[SOW-012] The Contractor shall ensure secure transfer of any classified service and deliverable from the Contractor's facilities to the Purchaser's facilities.

3.4 Location of Performance

[SOW-013] The Contractor shall perform the main effort set forth in the Contract at the Contractor's facilities, unless specified otherwise or agreed by the Purchaser.

[SOW-014] The Contractor's project teams shall be co-located to enable agile execution of the works (e.g. conducting daily stand-up meetings) and support extensive collaboration (for more details regarding the development approach, see Section 4.1).

3.5 Company References

[SOW-015] The Contractor shall not use any names or acronyms that can be associated with the Contractor (e.g. company name) for any of the developed artefacts (e.g. file names, class names, XML namespaces, documents, etc.).

3.6 NATO Software Factory

[SOW-016] The Contractor shall use the NATO Software Factory services furnished by the Purchaser (Section 2.1) in support of delivering all capabilities and services, or the development thereof, under the Contract.

[060] The Contractor and the Purchaser, or its mandated representatives or third parties, will conduct development and maintenance activities simultaneously against a single code base. This means that no fork of existing repositories is allowed for the efforts performed under the Contract.

[SOW-017] The Contractor shall support and collaborate with the Purchaser, or its mandated representatives or third parties, use existing repositories and integrate any

changes and modifications made by the Purchaser, or its mandated representatives or third parties.

[SOW-018] The Contractor shall furnish its project team with capable physical (development) workstation and enable connectivity and provide access for its project team to the NATO Software Factory services from its facilities and from mobile (development) workstations when project team members are away from the Contractor's facilities, e.g. on travel duty.

(1) Workstations shall have virus/malware detection and weekly software patching enabled;
(2) Workstations shall be provided with peripherals for video and voice collaboration;
(3) Mobile devices, e.g. laptops, shall have full disk encryption enabled.

[SOW-019] The Contractor shall deliver to the Purchaser a named-list of its project team members, including their email addresses, after Contract Award but no later than three weeks prior to the Effective Date of Contract.

[061] When the Purchaser has received the named-list project team members from the Contractor, the Purchaser will create accounts for these project team members within the NATO Software Factory. The NATO Software Factory accounts for key personnel will be created immediately after Contract Award once the Contractor's key personnel has been confirmed.

[SOW-020] The Contractor shall verify that its project team members have access to the NATO Software Factory after having received their account information.

[SOW-021] The Contractor shall notify the Purchaser immediately of any changes in the Contractor's project team composition to allow the Purchaser to manage effectively and efficiently the NATO Software Factory accounts assigned to Contractor's project team.

[SOW-022] The Contractor shall enable and maintain full traceability between requirements, product backlog items, source code, test cases, etc. within the NATO Software Factory.

[SOW-023] The Contractor shall organize the engineering artefacts within the NATO Software Factory in a structured and logical way as configuration items that will enable the Purchaser to quickly find any artefacts based on context (e.g. work package, increment\baseline release\deliverable, etc.) and artefact type.

[SOW-024] The Contractor shall ensure that all artefacts uploaded and all services delivered on the NATO Software Factory are kept at NATO UNCLASSIFIED, or lower security classification level.

[SOW-025] In case it would not be feasible to stay at NATO UNCLASSIFIED, or lower security classification level on the NATO Software Factory (e.g. not feasible to use declassified or mock data), the Contractor shall perform the work at a Contractor's furnished secure environment.

[062] As per Section 2.1, the Purchaser will furnished NATO Software Factory accounts and Microsoft Azure Cloud Services.

[063] The Contractor may also propose additional products and services to be hosted on the NATO Software Factory in addition to the products and services furnished by the Purchaser.

[SOW-026] The Contractor shall specify and dimension of the number of NATO Software Factory user accounts, the Microsoft Azure Cloud Services and additional products and services that are required throughout the period of performance of the Contract. Separate dimensioning shall be provided for the period from Contract Award to Final System Acceptance, the warranty period, and the yearly maintenance and support options. The details for each period shall provide sufficient information on how the specifications and dimension are derived and shall include:

(1) Number of user accounts required monthly, e.g. the Contractors' project team size for each of the following profiles: developers, testers, stakeholders;
(2) Design and specifications of the type and configuration(s) of the virtual workstations, servers and services that are required concurrently for development, build, testing and integration activities;
(3) The quantity and characteristics of virtual workstations, servers and associated services (storage, Kubernetes Service, container registry, database service, etc.) required and their monthly usage/load profiles. Products and services shall be defined using the Azure Pricing calculator pubic profile (https://azure.microsoft.com/en-us/pricing/calculator/);
(4) Specifications and quantity of any additional services and tooling to be hosted on the NATO Software Factory that the Contractor deems necessary and not yet covered in the services and tooling furnished by the Purchaser.

Extra care should be taken in the proposed dimensioning to minimize the overall cost by deploying and running the required resources only when actually used.

[SOW-027] The Contractor shall provide these specifications and dimensions as an annex to the Project Management Plan (see Section 6.4).

[064] These specifications and dimensioning of NATO Software Factory resources will be inserted in the Annex E to Contract Special Provisions before Contract Award.

[SOW-028] The Contractor shall limit use of the NATO Software Factory resources to the specifications and dimensions of the number of NATO Software Factory user accounts, the Microsoft Azure Cloud Services and additional products that are required throughout the period of performance of the Contract, in accordance with Article 23 and Annex E of the Contract Special Provisions.

[SOW-029] In case additional products and services to be hosted on the NATO Software Factory are proposed, the Contractor shall be provide justification for the use of these products and services.

[065] The additional product and services are subject to Contractor approval.

[SOW-030] After Purchaser approval has been obtained for the additional products and services, the Contractor shall submit any NATO Software Factory service request, including hosting of additional products and services on the platform to the Purchaser, who will evaluate the request and engage with the NATO Software Factory service support team for implementation of the request.

[SOW-031] The Contractor shall implement and provision the support associated with these products and services throughout period of performance of the Contract.

[SOW-032] The Contractor shall not use any internal tools (ALM management, work items management, build tools or repositories, etc.), storage or document management system outside of the tools provided by NATO Software Factory or explicitly approved by the Purchaser.

[SOW-033] The Contractor shall acquire/procure the necessary licenses/subscriptions for its project team members and maintain those licenses throughout the period of performance of the Contract. These shall include but not limited to:
(1) The Microsoft Azure DevOps Test Plan access (appropriate Microsoft Visual Studio licenses, e.g. Test Professional or Enterprise);
(2) Development tools individual licenses (e.g. Microsoft Visual Studio).
Note: See Section 3.7 for further license/subscription requirements on third-party software and components.

3.7 Third-Party Software and Components

[066] The TOPFAS Application Suite uses and integrates several Commercial-of-the-Shelf (COTS), non-commercial and open-source, i.e. Free-of-the-Shelf (FOSS) software, components, libraries and packages. This includes the development environment, office and other specialised applications for use by the project team. This collection of software, components, libraries and packages, are referred to as third-party software and components.

[067] To ensure a consistent and uniform user experience, the variation of third-party components used within the TOPFAS Application Suite will be limited. Furthermore, the choice of third-party software and components should not limit the distribution or installation of the TOPFAS Applications Suite or any of its components.

[SOW-034] The Contractor shall acquire/procure the required third-party software and component licenses/subscriptions, including the integrated development environment, development tools, etc., for its project team members and maintain those licenses throughout the period of performance of the Contract.

[SOW-035] The Contractor shall place all third-party software and components, including vendor-supplied documentation artefacts (e.g. manuals) under configuration control.

[SOW-036] The Contractor shall use and integrate any updates (major, minor, patch releases) of any of the third-party software and components when these become available.

[SOW-037] The Contractor shall maintain a roadmap for the third-party software and components based on available information provided by vendors (e.g. anticipated or published release cycle) for at least the next three (3) years. The Contractor

shall consult the Purchaser regarding the appropriate timeframe for inclusion of major versions and favour long-term support (LTS) releases when available.

[SOW-038] Subject to Purchaser approval, the Contractor may propose the use and integration of new third-party software and components, for example to replace existing software or components, or to support the implementation of new requirements.

[SOW-039] When approved by the Purchaser, the Contractor shall deliver a minimum of ten licenses and/or subscriptions, in addition to procuring its own licenses/subscriptions, of new third-party software and components and maintain those licenses/subscriptions throughout the period of performance of the Contract, meeting the following conditions:

(1) If the more cost-effective option is to deliver an enterprise licence/subscription rather than per seat/developer, then the Contractor shall deliver and maintain an enterprise license/subscription instead;
(2) The Contractor shall deliver the third-party software and components, including the licenses and/or subscriptions from the moment these third-party software and components are being introduced within the services and deliverables to be delivered;
(3) The Contractor shall deliver all third-party software and component licenses/subscriptions registered with the NCI Agency as license holder;
(4) The Contractor shall ensure that all upgrades, update and patch releases of the third-party software and components are included within the provided licenses/subscriptions;
(5) The Contractor shall deliver renewed/extended licenses/subscriptions of these third-party throughout the period of performance of the Contract;
(6) The Contractor shall ensure that none of the third-party software and components have a run-time or per end-user/seat license-fee;
(7) The Contractor shall ensure that none of the third-party software and components limit the right to use, copy, distribution or installation of the deliverables, the TOPFAS Applications Suite or any of its components;
(8) The Contractor shall ensure a consistent and uniform user experience not restricted or affected by the choice of third-party software or component;
(9) Unless it is essential and approved by the Purchaser, the Contractor shall not modify the source code of the third-party software or components in order to secure future compatibility. Any such modification of the source code shall be documented adequately to analyse and resolve backward compatibility issues, which may arise during regression testing with newer versions of these components.

3.8 Build, Integration and Test Platform

A Contractor furnished build, integration and test platform can be used as an internal build, test, and integration and staging environment. However, this platform intended to complement the mandated NATO Software Factory for internal Contractor usage, not as a substitute for it.

[SOW-040] The Contractor shall establish and utilize an internal build, integration and test platform to support internal testing, integration, verification and validation activities.

3.9 Project Management

[068] The objective of the Contractor's project management is to establish a project organization and guide the delivery of services and capabilities of this Contract through a controlled, well-managed, visible set of activities to achieve the desired outcomes. Wherever possible, the Contractor's project management should aim to eliminate problems and ensure that those problems that do occur are identified early, assessed accurately, and resolved quickly.

3.9.1 Project Organization and Management

[SOW-041] The Contractor shall establish and maintain a project organization to manage and deliver all services necessary to discharge of all its responsibilities set forth in the Contract.

[SOW-042] The Contractor shall establish a project management process using PRINCE2, or a similar and internationally recognized project management standard, and perform effective project management throughout the period of performance of the Contract.

[SOW-043] The Contractor shall incorporate within the Project Master Schedule the time required from Contract Award/Signature to Effective Date of Contract for ramp-up of the project, i.e. establishing the project organization, bringing the project team at target capacity, acquire knowledge transfer from the Purchaser and build-up, and conduct preparations.

[069] For more details on the ramp-up and phased approach, see Section 4.1. The Contractor is to include a sufficient ramp-up period as the schedule requirements are firm after Contract signature and schedule risks are expected to be identified by the Contractor a priori.

3.9.2 Project Board

[070] A project board is formed by the Purchaser according to PRINCE2 principles and serves as the primary mechanism for monitoring project status, resolving issues or conflicts within the project, as well as advising the Purchaser's project manager.

[071] The Purchaser's C2 Centre Chief chairs the project board in an "Executive" role.

[072] The Contractor will be considered a member of the project board as the "Senior Supplier" role.

[073] The user community (or representative) will be considered a member of the project board as the "Senior User" role.

[074] The other members (e.g. "Assurance") are designated representatives of the Purchaser.

[SOW-044] Depending on the context of the meeting, the Contractor will be invited and shall participate in the project board meeting.

3.9.3 Resources and Personnel

[SOW-045] The Contractor shall provide the necessary resources and personnel, appropriately skilled and experienced, to deliver the services and capabilities that meet the requirements set forth in the Contract.

[SOW-046] The Contractor shall take all reasonable steps to ensure continuity of resources and personnel assigned throughout the period of performance of the Contract.

[SOW-047] The Contractor's personnel shall be available to travel and may be required perform duties (e.g. conduct preparations or perform upgrades) during weekends, official holidays, and after regular business hours as the Purchaser's operational or practical requirements necessitate.

[SOW-048] The Contractor personnel identified below shall be considered as key personnel in accordance with the Contract Special Provisions:

(1) Project Manager;
(2) Quality Assurance Manager;
(3) Configuration Manager;
(4) System Software Architect;
(5) Technical Lead Desktop;
(6) Technical Lead Web;
(7) Two Product Owners;
(8) Lead UX Designer;
(9) Scrum Master;
(10) Test Manager;
(11) Lead Instructor.

[075] The Purchaser will assess the key personnel assigned to the project throughout the period of performance of the Contract. If the Purchaser has any concerns with the assigned key personnel e.g. the Purchaser deems the key personnel's skill level not meeting the requirements set forth in the Contract, or the key personnel's performance is insufficient, the Purchaser will request for a suitable replacement of the relevant key personnel.

[076] The Purchaser will reserve the right to interview the key personnel, or any replacement thereof.

[SOW-049] The Contractor shall provide to the Purchaser an (updated) list of the key personnel and their resumes during Contract negotiations prior to Contract Award.

[SOW-050] The Contractor shall make available its key personnel for interviews with the Purchaser during Contract negotiations prior to Contract Award.

[077] Contract Award will only proceed when Contractor proposed key personnel has been assessed and considered acceptable by the Purchaser.

[SOW-051] The Contractor shall ensure that assigned key personnel is available from the Contract Award onwards.

[SOW-052] The Contractor shall make available replacement key personnel for interviews with the Purchaser from the moment the Contractor formally notifies the Purchaser of the replacement.

3.9.4 Key Personnel Qualifications

3.9.4.1 General

[SOW-053] All key personnel shall be proficient in the English language for effective verbal and written communication and for technical documentation.

3.9.4.2 Project Manager

[SOW-054] The Contractor shall designate a Project Manager, who shall direct and co-ordinate the activities of the Contractor's project organization. Responsibilities include establishing project plans as well as their proper execution, coordinating with the project teams to ensure that all project requirements, deadlines and schedules are on track, submitting project deliverables, preparing status reports, and coordinating with Purchaser.

[SOW-055] The Contractor’s Project Manager shall be prepared at all times to present and discuss the status of Contract activities with the Purchaser’s Project Manager, Contracting Officer, or Technical Lead.

[SOW-056] The Contractor’s Project Manager shall serve as point of contact for the IVVQ (Independent Verification, Validation and Quality) Service Line and for the BMD Programme Office.

[SOW-057] The Contractor’s Project Manager shall meet the following minimum qualifications:

(1) Have a master’s degree in management, engineering, or business administration;
(2) Have a formal certification through Project Management Institute, PRINCE2, or equivalent;
(3) Strong understanding of agile project management methodologies;
(4) Have seven years of proven experience in managing projects similar to this project in technical and financial scope;

3.9.4.3 Quality Assurance Manager

[SOW-058] The Contractor shall designate a Quality Assurance Manager, who shall be responsible for establishing, implementing and enforcing an effective quality programme in order to ensure the processes and project deliverables adhere to the quality standards set in the Quality Plan and under this Contract.

[SOW-059] The Contractor’s Quality Assurance Manager responsibilities are:

(1) Design, implement and improve quality standards;
(2) Ensure that quality standards are met;
(3) Ensure that all tests are planned, designed and performed in accordance with the Master Test Plan;
(4) Ensures that all formal test activities or events related to the Contractor’s configuration items are conducted in compliance with Quality Assurance procedures and signs the Certificate of Conformity;
(5) Training, motivating, coaching to team members and taking corrective action when needed;
(6) Create reports to track status and progress.

[SOW-060] The Contractor’s Quality Assurance Manager shall report to a separate manager within the Contractor's organization at a level equivalent to or higher than the Project Manager.

[SOW-061] The Contractor’s Quality Assurance Manager shall meet the following minimum qualifications:

(1) Have a bachelor’s degree in computer science, or related/equivalent studies;
(2) Have worked at least five years as a quality assurance manager in projects of a similar nature, both in terms of scope and level of complexity;
(3) Have excellent communication skills and effective in communicating expectations to the project team members;
(4) Have eye for details and the ability to analyse data, and create and review processes.
(5) Working knowledge of at least one of the industrial software quality management standards, such as CMMI, ISO/IEC-15504 (ISO/IEC-33001), ISO-12207, etc.
(6) Desirable to have a practitioner or assessor certification of at least one of the industrial software quality management standards.

3.9.4.4 Configuration Manager

[SOW-062] The Contractor shall designate a Configuration Manager who shall be responsible for all configuration management activities throughout the period of performance of the Contract.

[SOW-063] The Configuration Manager shall plan, establish and execute effective configuration management throughout the project lifecycle and ensure that the project team follows established configuration management process for delivery in an iterative development environment.

[SOW-064] The Contractor’s Configuration Manager shall meet the following minimum qualifications:

(1) Have a bachelor’s degree in computer science, information technology, or a related field;
(2) Have worked at least five years as a configuration manager in projects of a similar nature, in terms of scope, level of complexity and in an iterative development environment;
(3) Have strong analytical skills;
(4) Have experience with configuration management tools.

3.9.4.5 System Software Architect

[SOW-065] The Contractor shall designate an overall System Software Architect responsible for defining and maintaining:

(1) The high-level structure of a software system (architecture), its main components and their interfaces;
(2) The interactions of these components with each other and with external systems;
(3) The general architectural vision that guides the system design and serves as a basis for mutual understanding between all parties involved in product development.

[SOW-066] The Contractor's System Software Architect shall take care of such significant aspects as functionality, performance, resilience, reuse, comprehensibility, scalability, security, technology constraints, and trade-offs.

[SOW-067] The Contractor's System Software Architect shall create high level concepts and diagrams but also write code examples, proofs of concept, and prototypes serving as a basis for developers who further work with these snippets to get them to production.

[SOW-068] The Contractor's System Software Architect shall meet the following minimum qualifications:
(1) Have a master's degree in computer science, or related/equivalent studies;
(2) Have at least seven years of experience in leading technical roles in projects similar to this project in complexity and scope;
(3) Proved knowledge of cloud technologies;
(4) Current hands-on experience with application programming (minimum 30% of time;
(5) Understanding of the particular business domain.

3.9.4.6 Technical Leads

[SOW-069] The Contractor shall designate a Technical Lead for each of the development tracks, i.e. desktop and web applications development.

[SOW-070] The Contractor's Technical Leads shall be responsible for designing and developing the required capabilities to specifications.

[SOW-071] The Contractor's Technical Leads shall steer the development teams towards a common technical vision, writing code at least 30% of the time, and define technical options and agree on solutions for future streams of work.

[SOW-072] The Contractor's Technical Leads shall actively seek for optimizing and improving the development process to increase productivity and/or improve quality of the deliverables. This also includes identifying and conducting code-refactoring activities to improve quality, performance and/or provide a stable foundation for further development.

[SOW-073] The Contractor's Technical Leads shall meet the following minimum qualifications:
(1) Have a master's degree in computer science, or related/equivalent studies;
(2) Have at least seven years of experience in leading technical roles in projects similar to this project in complexity and scope;
(3) Have applicable documented expert knowledge and experience in Microsoft .NET, C#, Angular framework, REST, JavaScript, SQL databases, micro-services and hosting infrastructure;
(4) Current hands-on experience with application programming (minimum 30% of time);
(5) Have the capacity to perform complex design and software engineering tasks and multiple tasks simultaneously;
(6) Have the capacity to direct and co-ordinate all activities necessary to complete a major engineering program or multiple smaller tasks or programs.

3.9.4.7 Product Owners

[SOW-074] The Contractor shall designate a Product Owner for each of the development tracks, i.e. desktop and web applications development, who shall be responsible for designing product/capability features according to user needs and presenting those to stakeholders.

[SOW-075] The Contractor's Product Owners shall be overseeing the development, provide guidance, and assist the scrum/product development team(s) to meet the objectives of each sprint.

[SOW-076] The Contractor's Product Owners shall be responsible for managing the product backlog by making sure that it is up-to-date in terms of priorities and aligned with the vision of the product/capabilities.

[SOW-077] The Contractor's Product Owners shall ensure that the product backlog is transparent, visible, and understandable.

[SOW-078] The Contractor's Product Owners shall write (or have the team write) user-centric items (typically user stories, supported by user experience designs), ranks and prioritizes them, and adds them to the product backlog.

[SOW-079] The Contractor's Product Owners shall meet the following minimum qualifications:

(1) Have a master's degree in computer science or related/equivalent studies; having a bachelor's degree only can be compensated with extra experience;
(2) Have at least five years of experience as product owner in projects similar to this project in complexity and scope in respective desktop and web applications;
(3) In the case of bachelor's degree, have at least eight years of experience as product owner in projects similar to this project in complexity and scope;
(4) Have an in-depth knowledge of agile methodologies;
(5) Have strong presentation skills.

[SOW-080] It is desirable that the Contractor's Product Owners have functional domain knowledge and experience in military operations planning.

3.9.4.8 Lead UX Designer

[SOW-081] The Contractor shall designate a Lead User Experience (UX) Designer, to design applications that maximize ease of use, are uniform in look-and-feel, and ensure consistency of graphical user interface functions and behaviour across the application and application suite.

[SOW-082] The Contractor's lead UX designer shall be able to investigate user experience design requirements, develop comprehensive UX design guidelines, produce high-quality UX design solutions through wireframes, visual and graphic designs, flow diagrams, storyboards, site maps, and prototypes.

[SOW-083] The Contractor's lead UX designer is up to date with best practices and emerging trends in user experience design and user interface technology, and delivers exceptional visual design.

[SOW-084] The Contractor's lead UX designer shall provide advice and guidance on the implementation of UX testing and effectiveness evaluation activities in order to optimize the applications' user experience.

[SOW-085] The Contractor's lead UX designer shall meet the following minimum qualifications:
(1) Have a bachelor's degree in computer science, or related/equivalent studies;
(2) Has proficiency in professional UX design work for both desktop (MS Windows) and web applications;
(3) Has the ability to interpret analytics and recommend and/or implement changes to applications as needed;
(4) Have at least five years of experience as UX Designer in projects similar to this project in complexity and scope.

3.9.4.9 Scrum Master

[SOW-086] The Contractor shall designate a Scrum Master who shall be responsible for ensuring that development teams follow scrum framework values and agile practices, mentoring and motivating the teams to improve processes, facilitating meetings and decision-making processes, and eliminating team impediments so that the expected delivery goals are achieved.

[SOW-087] The Contractor's Scrum Master shall meet the following minimum qualifications:
(1) Have a bachelor's degree in computer science, or related/equivalent studies;
(2) Have at least five years of experience as scrum master in projects similar to this project in complexity and scope;
(3) Have an in-depth knowledge of agile methodologies.

3.9.4.10 Test Manager

[SOW-088] The Contractor shall designate a Test Manager who shall be responsible for planning and executing all test activities conducted under this Contract and shall manage the testing team.

[SOW-089] The Contractor's Test Manager shall meet the following minimum qualifications:
(1) Have a master's degree in computer science, or related/equivalent studies;
(2) Have at least five years of experience as test manager/senior test engineer in projects similar to this project in complexity and scope;
(3) Have documented expert knowledge and experience with automating testing and test reporting for Azure DevOps.

3.9.4.11 Lead Instructor

[SOW-090] The Contractor shall designate a Lead Instructor who shall be responsible for ensuring the integrity and quality of all training deliverables and training activities conducted under this Contract. The Lead Instructor shall have a leading role in delivering the training courses.

[SOW-091] The Contractor's Lead Instructor shall meet the following minimum qualifications:
(1) Have a bachelor's degree or equivalent;

(2) Have at least five years of experience in developing training materiel and two years of experience in leading training materiel development teams;
(3) Have at least five years of experience in instructing software applications;
(4) Have effective verbal and written communication skills, with ability to communicate direct feedback in a compelling way that empowers others;
(5) Have effective presentation skills, strong classroom-management skills and stage presence;
(6) Being able to relate the practical use of a software application to the applicable functional/operational context;
(7) Desirable to have a military background and/or have experience in instructing military personnel (e.g. commissioned officers).

3.9.5 Technical Personnel Qualifications

[078] This section specifies specific skills for individuals of the Contractor's project team that are deemed required for this Contract.

[SOW-092] The Contractor shall designate a team of experienced software developers to the project team, including the following skills:

3.9.5.1 Front-end Developer

[SOW-093] The Contractor's front-end developers shall meet the following minimum qualifications:
(1) Mandatory:
(a) Must have minimum 2 years proven experience in the following programming languages/libraries: Angular, Typescript, JavaScript, CSS3 and HTML5;
(b) Knowledge of creating Angular components, services, good understanding of state management and UI performance;
(c) Knowledge of CSS pre-processors;
(d) Knowledge of UI UX principals and user flow;
(e) Should be comfortable with RxJS and Angular CLI.
(2) Preferred:
(a) Experience working with Git source control;
(b) Experience with Automated testing (unit/integration/end to end) (e.g. Playwright);
(c) Cross browser compatibility and have high performance across the board;
(d) Passion for user experience and user-centric development.

3.9.5.2 Back-end Developer

[SOW-094] The Contractor's back-end developers shall meet the following minimum qualifications:
(1) Mandatory:
(a) Must have minimum 4 years proven experience of software development experience using .NET, C#, and T-SQL;
(b) Solid understanding of object-oriented programming (OOP) and computer science foundations;

(c) Database development experience using SQL Server and Entity Framework.

(2) Preferred:
(a) .NET Core;
(b) Experience with WebAPI and JSON;
(c) Experience using Git;
(d) Experience writing unit tests;
(e) Familiarity with CI/CD pipelines;
(f) Familiarity with the Agile Development Processes.

3.9.6 Project Management Plan

[SOW-095] The Contractor shall deliver a Project Management Plan (PMP) compliant with Section 6.4, and document its project organization, project management processes and project execution and delivery approach.

[079] The acceptance of the Project Management Plan by the Purchaser signifies only that the Purchaser agrees to the Contractor’s approach in meeting the contractual obligations. This acceptance does not relieve the Contractor from its responsibilities to meet the requirements stated in the Contract. The requirements of the Contract supersede any statement in the Project Management Plan in case of any conflict, ambiguity or omission.

[SOW-096] The Contractor shall ensure the Project Management Plan remains current to reflect the actual state of the Contractor's organization, processes and efforts throughout the period of performance of the Contract.

[SOW-097] The Contractor shall deliver follow-on revisions (post the accepted baseline) of the Project Management Plan to the Purchaser for Purchaser assessment.

3.9.7 Risk Management

[SOW-098] The Contractor shall establish a risk management process and perform risk management throughout the period of performance of the Contract.

[SOW-099] The Contractor shall document its risk management process within the Project Management Plan.

[SOW-100] The Contractor shall document all risks to the project in the risk register as part of the RAID register (Section 6.5) and maintain the risk register to reflect the actual status of risks throughout the period of performance of the Contract.

[SOW-101] The Contractor shall periodically, at least once every three (3) months, conduct a risk assessment, deliver an updated risk register and report on any significant changes in the risks.

3.9.8 Issue Management

[080] Issue management is the process of identifying, tracking, analysing, reporting and resolving all project issues.

[SOW-102] The Contractor shall establish an issue management process and perform issue management throughout the period of performance of the Contract.

[SOW-103] The Contractor shall document its issue management process within the Project Management Plan.

[SOW-104] The Contractor shall document all project issues in the issue register as part of the RAID register (Section 6.5) and maintain the issue register to reflect the actual status of issues throughout the period of performance of the Contract.

3.9.9 BMD Scope Implementation Monitoring

[SOW-105] To enable the Purchaser to monitor progress, the Contractor shall establish a process to track value delivery performance in accordance by the BMD Scope Implementation Monitor (BSIM) methodology as outlined in this section.

[081] The BSIM methodology is based on the concept of Value Items (VI), which in the context of this Contract refers to the software requirements, training, documentation, and deployment.

[SOW-106] Two basic metrics shall be utilized for progress monitoring in accordance with the BSIM methodology, as displayed in Figure 3.1:

(1) Schedule Performance Index (SPI) is a measure of the efficiency of value delivery (Value Items' delivery). SPI shows the rate at which the work has been accomplished as of any given point in time (Earned Value), relative to the established Progress Measurement Baseline (PMB) (Figure 3.2), i.e. anticipated value delivery performance as a function of time.
   (a) A SPI value equal to 1 indicates that the project is on schedule;
   (b) A SPI below 1 indicates that the project is behind schedule;
   (c) A SPI above 1 indicates that the project is ahead of schedule.

(2) Value Delivery Progress (VDP) is the metric which shows the progress of value delivery as ratio of the work accomplished (Earned Value) to the total work (Value at Completion) assigned to the Value Item.

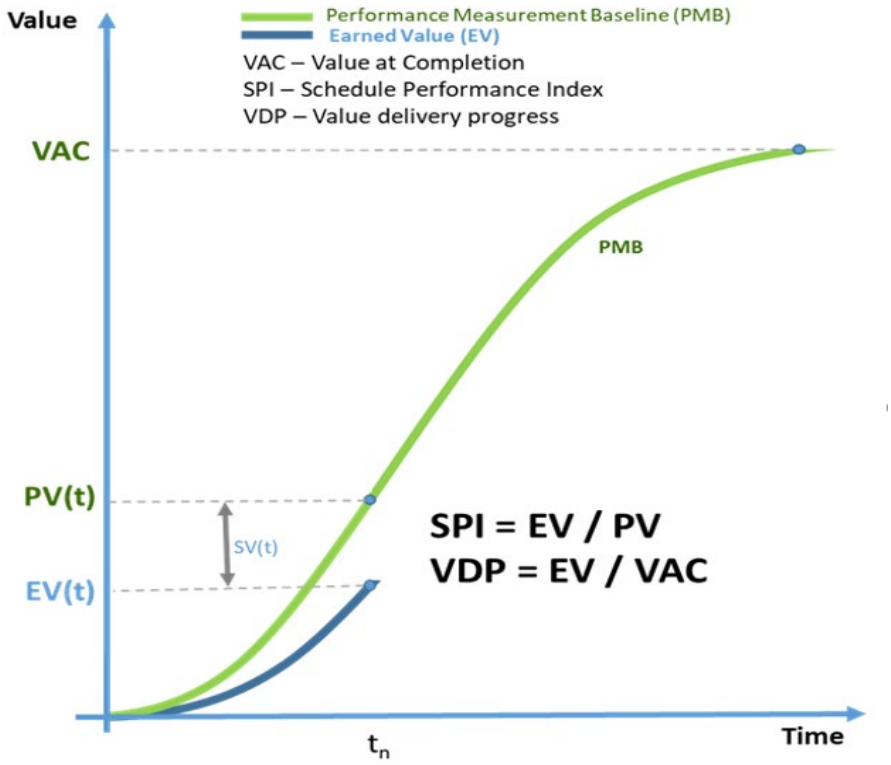

Figure 3.1 - Progress Monitoring Metrics SPI and VDP

[SOW-107] The Progress Measurement Baseline (PMB) presents the plan of the Value Items delivery. The PMB shall:

(1) Identify the value items to be delivered;
(2) Assign Value Items to the iterative development cycles defined by the project (sprints) and to the respective verification and validation events;
(3) Allocate value points to each Value Item (10 pts per VI)[1];
(4) Allow to calculate Planned Value (PV) of each development cycle (sprint) implementing a subset of the requirements;
(5) Allow to calculate cumulative Planned Value (PV) as a cumulative sum (a running total) of the value points;
(6) Be baselined and further controlled through configuration management;

[1] Each Value Item has allocated 10 value points. In order to calculate the Planned Value, for each Value Item that is delivered in the iterative development cycle (a sprint) and then is subject to validation (e.g. a software requirement), a 50%/50% distribution of the value points shall be applied: five value points shall be allocated to the respective iterative development cycle and five value points to the validation (Figure 3.2). Value points allocated to the validation shall be further distributed among applicable validation events.

(7) Be in Excel format to facilitate computation of BSIM metrics, the use of pivot tables, and generation of diagrams.

[SOW-108] The Contractor shall agree with the Purchaser on the PMB for each work package prior to execution of the first iterative development cycle (first sprint) of the respective work package.

[SOW-109] The Deliverable Requirements Traceability Matrix (DRTM) as described in Section 6.10 shall be used to measure progress and calculate BSIM metrics on the basis of implementation and verification of requirements in the iterative development, validation and transition phases, respectively:

(1) A value factor is assigned to each requirement, which will be used to calculate the value weight of the sprint implementing a subset of the requirements. Successful completion of each sprint will add up to the EV (earned value) metric at the time of completion.

(2) A value factor is assigned to each verification event in the DRTM as related to each requirement. Successful completion of each verification event as evidenced in its report will add up to the EV metric at the time of completion.

[SOW-110] The Contractor shall keep progress and SPI and VDP measurements up-to-date, at minimum at the end of each sprint, and calculate the BSIM metrics. The progress information and BSIM metrics shall always be accessible by the Purchaser.

[SOW-111] The Contractor shall provide a status update of the progress against the progress measurement baseline, and BSIM metrics at the end of each sprint.

[SOW-112] The Contractor shall deliver a report for the BMD Programme on the progress against the progress measurement baseline, calculated BSIM metrics and provides an assessment of causes of the deviation from the PMB. The report shall include a remediation plan if the BSIM metrics' values indicate a negative trend compared to the PMB.

[SOW-113] The report for the BMD Programme shall be delivered monthly and after each formal verification and validation activity.

[SOW-114] The Contractor shall support the BMD Programme in assessing the progress against the progress measurement baseline, e.g. through meetings and/or with providing additional supporting details when requested.

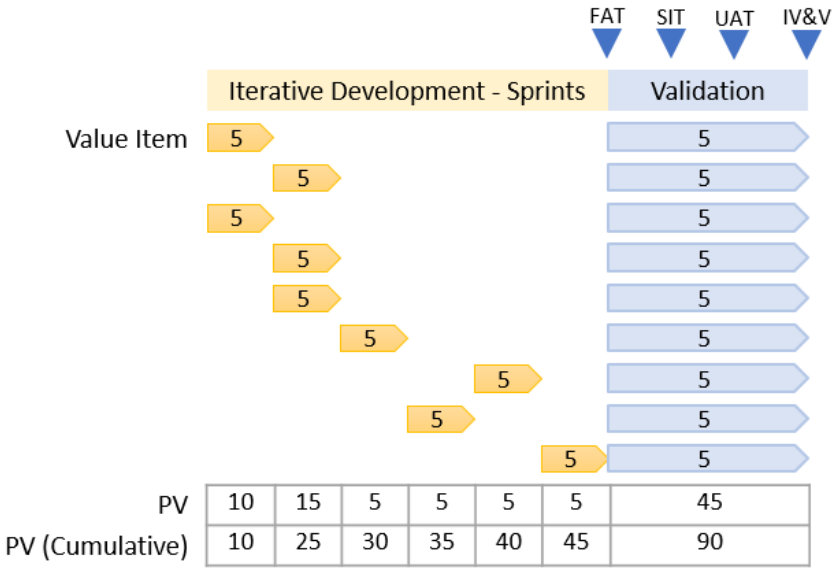

Figure 3.2 – PMB Value points allocation to Value Items subject to validation

	Iterative development							
	Sprint	Sprint	Sprint	Sprint	Sprint	Validation	Training	Transition
Value Item	5					5		
Value Item		5				5		
Value Item			5			5		
Value Item	5					5		
Value Item		5				5		
Value Item		5				5		
Value Item				5		5		
Value Item					5	5		
Value Item			5			5		
Value Item							10	
Value Item							10	
Value Item							10	
Value Item								10
Value Item								10
Value Item								10
Value Item								10
PV	10	15	10	5	5	45	30	40
PV (cumulative)	10	25	35	40	45	90	120	160

Figure 3.3 – Example Progress Measurement Baseline (Table format)

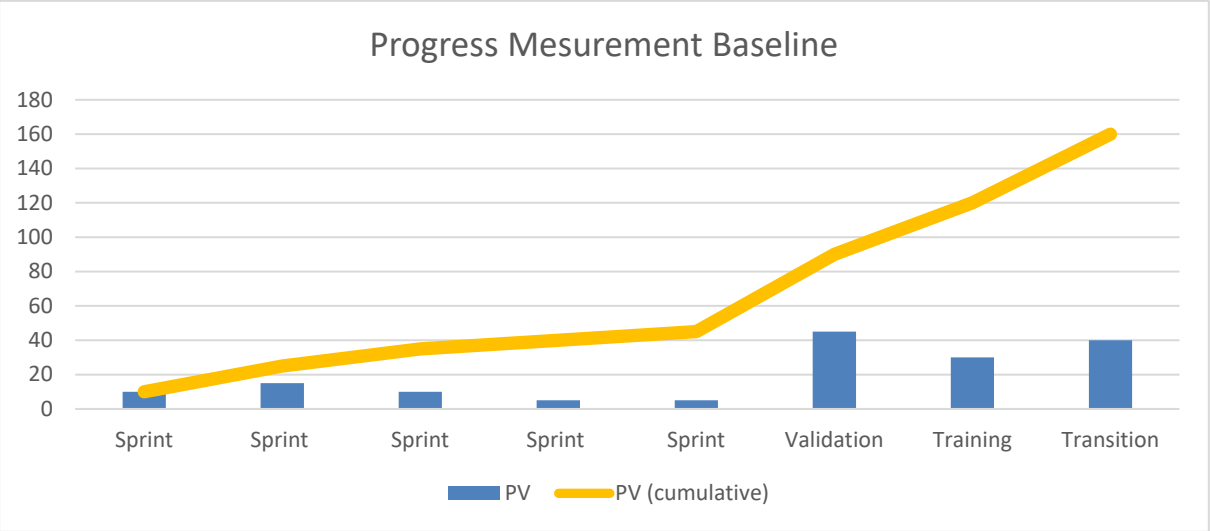

Figure 3.4 – Example Progress Measurement Baseline (Graph format)

3.10 Configuration Management

[SOW-115] The Contractor shall implement a configuration management process consistent with [ACMP-2100] and the additional guidelines from ACMP standards within [STANAG-4427] and [NCIA-AD-06.00.16].

[SOW-116] The Contractor shall deliver a Configuration Management Plan (CMP) compliant with Section 6.6, document its configuration management processes and describe how it intends to meet the configuration management requirements of the Contract.

[SOW-117] The Configuration Management Plan, when accepted, shall serve as a working document to plan, guide, and measure the configuration management process.

[SOW-118] The Contractor shall perform configuration management using the Azure DevOps tools furnished within the NATO Software Factory. Any configuration management requirements that cannot be fulfilled due to limitations of the furnished Azure DevOps tools, shall be met by alternative means or tools by the Contractor with the approval of the Purchaser.

[SOW-119] The Contractor shall allow the Purchaser access these tools for viewing and extracting configuration information.

[SOW-120] The Contractor shall establish and maintain three (3) configuration baselines for each work package release (ref [NCIA-AD-06.00.16]), as follows:
(1) Functional Baseline (FBL or “as required”);
(2) Allocated Baseline (ABL or “as designed”);
(3) Product Baseline (PBL, or "as built”).
See Section 3.10.1 for specifications of the configuration baselines.

[SOW-121] The Contractor shall identify and define all top-level configuration items to be delivered under this Contract.

[SOW-122] The top-level configuration items shall be broken down into a tree/hierarchy of its parts and sub-parts consisting of deliverables, the relevant documentation of

these deliverables, all dependent third-party components and libraries and respective documentation.

[SOW-123] The configuration items shall be organized around working and executable software units (i.e. applications or executable services) and each configuration item shall be assigned a unique identifier.

[SOW-124] The Contractor shall establish a Configuration Management Database (CMDB) that persists the configuration items attributes, (inter-) relationships, dependencies, and configuration baselines. The CMDB shall be maintained in sync with the NATO Software Factory.

[SOW-125] The CMDB shall have support for tracing higher and subordinate configuration items using their identifiers or other attributes.

[SOW-126] The Contractor shall ensure that the configuration baselines and configuration items are persistently stored, maintained and managed throughout the period of performance of the Contract.

[SOW-127] It shall be possible from the CMDB, at any time, to generate Configuration Status Reports for any specified baseline where the report provides a full history on all configuration items in the baseline including information on changes, deviations, waivers, releases, etc.

[SOW-128] The CMDB and configuration management tools shall support generation of Configuration Status Accounting (CSA) reports in a readable and structured document format (Microsoft Excel or Word format).

[SOW-129] A baseline in the CMDB shall:

(1) Be defined by version controlled artefacts that all resides in the proper repositories in the NATO Software Factory;
(2) Include any (off-the-shelf) software and (off-the-self) software license(s) where all software license(s) shall be registered with the NCI Agency as the end-user;
(3) Include all (supporting) documentation, e.g. off-the-shelf OEM manuals, operations and maintenance support documentation, training documentation, quality assurance documentation, security documentation, configuration management documentation, and warranty documentation.

[SOW-130] It shall be possible from the CMDB and configuration management tools to generate a package (as one or several electronic files) with all the artefacts included in a PBL release.

[SOW-131] The configuration management tools using the CMDB shall have support for comparison of baselines and precisely identify the changes to the individual items from one baseline to the other (including versions of third-party software components and libraries).

[SOW-132] The Contractor shall be responsible for the Configuration Status Accounting (CSA) and reporting for all configuration items.

[SOW-133] The Contractor shall perform Configuration Audits to check configuration items for compliance with their configuration documentation:

(1) Functional Configuration Audit (FCA) for which the inputs are the Functional Baseline, the Allocated Baseline and the Product Baseline. The output is the Audit Conformity Report.
(2) Physical Configuration Audit (PCA) for which the inputs are the Product Baseline and the Service Baseline. The output is the Audit Conformity Report.

[SOW-134] The Contractor shall invite the Purchaser's configuration management representative to the PCA and FCA with a minimum of two weeks' notice. When the Purchaser attends an audit, the Contractor shall answer any specific questions directed by the Purchaser's representatives, and shall record the minutes of the audit meeting.

[SOW-135] The Contractor shall solve any deficiencies found during the configuration management audits within the agreed timeframe and update the baseline accordingly.

[SOW-136] The Contractor's PBL version numbering strategy shall be compliant with [NCIA-AI-TECH-06.03.01].

3.10.1 Configuration Baselines

[SOW-137] Functional Baseline: The Functional Baseline (FBL) shall be derived from the software requirements specifications and shall be established at the successful completion and accepted incremental baseline allocation.

[SOW-138] Allocated Baseline: The Allocated Baseline (ABL) reflects the "as-designed" configuration of the system (SDD as specified in Section 6.11), and its conformity to the Functional Baseline.

[SOW-139] Product Baseline: The Product Baseline (PBL) shall be established after successful completion of the incremental development phase. It shall contain all delivered configuration items that comprise the baseline. It reflects the "as-built" configuration of the system. Besides the product itself, the PBL shall comprise:
(1) System documentation artefacts, including the installation and configuration manual, maintenance and administration manual, coherent with the baseline release;
(2) User documentation artefacts, including online help, standard operating procedures manual and training materiel, coherent with the baseline release;
(3) Programmer's manual, finalised software design description (SDD), and the interface control document (ICD), coherent with the baseline release.

[SOW-140] Since incremental development with multiple deliveries approach is used, the Contractor shall establish the first PBL for the first released product, and the second PBL for the second release combining the first release functionalities with the additional ones. The PBL for second work package shall include, therefore supersede the PBL of the first work package.

3.10.2 Engineering Change Proposals

[082] In compliance with ACMP-2009, the Purchaser-led Change Control Board (CCB), including BMD Programme representatives will govern the configuration change

process by reviewing and deciding on the Engineering Change Proposals. The relevant Contractor representatives will be invited to the CCB for consultation.

[083] Engineering Change Proposals (ECP) are proposals for changes relevant to tasks, deliverables, requirements, processes, or any other term of the Contract, which are submitted in written form by the Contractor independently, or upon request from the Purchaser, when such changes are necessary in light of varied facts or circumstances, which prevent the execution of the Contract in its form.

[SOW-141] The Contractor shall prepare engineering change proposals in accordance with Article 38 of the Contract Special Provisions.

[SOW-142] The Contractor submit engineering change proposals to the CCB for approval that are compliant with the template provided in Annex D.1.

[SOW-143] When approved, the Contractor shall implement the engineering change proposal.

[SOW-144] The Contractor shall place all submitted engineering change proposals under configuration control.

3.10.3 Requesting Deviations/Waivers

[084] A Request for Deviation (RFD) is defined as "planned departure" from a specific requirement where "departure" defined as the "inability of a product to meet one of its functional performance or technical requirements".

[085] A Request for Waiver (RFW) is defined as "unplanned departure" from a specific requirement.

[SOW-145] When required, the Contractor shall prepare and submit request for deviations/request for waivers to the Purchaser for approval that is compliant with the template provided in Annex D.2.

[SOW-146] The Contractor shall submit permanent departures from contractual requirements by means of an engineering change proposal rather than by request for deviation.

[SOW-147] The Contractor shall place all submitted RFDs/RFWs under configuration control.

3.11 Quality Assurance

[SOW-148] The Contractor shall establish and maintain a Quality Management System (QMS) throughout the period of performance of the Contract to ensure that procedures are developed, implemented and maintained to adequately control the development, production, testing, configuration management, execution and support of all deliverables or services. QMS shall comply with the requirements as defined by [AQAP-2110 and AQAP-2210].

[SOW-149] The Contractor shall establish, implement and maintain the Analysis and Corrective Action System as an essential part of the QA programme to document and track, until closure, all failures, faults and problems applying to the QA programme.

[SOW-150] Through this quality management system, the Contractor shall perform all efforts necessary to conduct quality assurance and quality control, and ensure processes and deliverables adhere to quality standards set under this Contract.

[SOW-151] The Contractor shall deliver a Quality Plan (QP) compliant with Section 6.7 that describes the Contractor's approach to quality assurance and quality control and how it intends to meet the requirements of the Contract.

3.11.1 Defect Management Process

[086] A software defect is an error, flaw or fault in a software application or system that causes it to produce an incorrect or unexpected result, behave in unintended way, or does not meet with the end user expectations or the requirements.

[087] Defects can be discovered at any stage in the capability lifecycle, at design, development, testing, but also "in operation", after deployment and activation of the capabilities.

[088] The Purchaser will refer to the term defect rather than bug as the term is generally applicable to software and non-software artefacts. A bug is to be considered a type of defect and the terms might be used interchangeably.

[SOW-152] The Contractor shall establish and maintain a defect management process using the NATO Software Factory throughout the period of performance of the Contract.

[SOW-153] The Contractor shall trace a defect from identification, through development and verification of a solution/fix for it, and eventually closure of the defect.

[SOW-154] The Contractor shall create test cases for every defect raised and use these test cases to validate correct implementation of the solution/fix for each defect.

[SOW-155] The Contractor shall report on the status of defects at the end of every sprint and at the end of every increment.

[SOW-156] The Contractor shall record and classify all defects in accordance with the Purchasers' NATO Software Factory template and categorization nomenclature for severity as defined by Table 3.1 - Defect Severity Categories.

[SOW-157] The Contractor's product owner shall determine the defect severity; However the Purchaser reserves the right to override the severity category and thus the defect's resolution priority, when it considers a defect to be of lower or higher severity.

[SOW-158] The defect's resolution priority shall be according to the severity, but ultimately will be determined by the order in the backlog as agreed between the Contractor and the Purchaser.

Table 3.1 - Defect Severity Categories

Severity	**A rating of the impact of a defect on the project or software application. Allowed values and suggested guidelines are:**
Critical	Must fix with highest priority. A defect that causes failure or termination of one or more functions, components or the complete system, causes data corruption, jeopardize safety or security. Also within this category fall failures to meet user expectations or requirements and failing or unusable functions with no acceptable alternative method existing to achieve required results.
High	A defect that causes failure or termination of one or more functions, components or the complete system. However, an acceptable alternative method exists to achieve required results.
Medium	A defect that causes the application to produce incorrect, incomplete or inconsistent results, or some undesirable behaviour. However, an acceptable alternative method exists to achieve required results.
Low	A minor or cosmetic defect that has no effect on achieving the required result.

3.11.2 Source Code Quality Management

[089] To avoid unintended/unauthorised code change sets being committed and to assure source code quality, a source code review process is to be put in place. This must be enforced by strictly controlled policies defined for the repositories. Direct commits to a master, develop or release branches are not permitted.

[090] A reviewer of pull request will have relevant domain expertise. For example, if a merge request includes back-end changes, a back-end engineer must improve it; if it includes front-end changes, a front-end engineer must approve it; if a merge request includes user-facing changes, the product owner must be approved it; if a merge request includes database migrations or changes to expensive queries, a database maintainer must approved it.

[SOW-159] The Contractor shall implement and adhere to a strictly controlled source code commit policies, where all pull requests without exception are being reviewed by the technical lead, or designated senior developer, and validated by a functional tester, both with domain expertise.

[SOW-160] The Contractor technical leads shall annotate all pull requests during review and return the pull request of insufficient quality to the developer for correction. Pull request shall be kept small to understand their context and reason with the logic.

[SOW-161] The Contractor shall ensure that each pull request is linked to at least one work item. This to ensure full traceability within the NATO Software Factory.

[SOW-162] The Contractor shall create automated or manual test cases for every work item (product backlog item or bug) and use these test cases to validate correct implementation of the solution/fix for each defect. Test cases shall include not only the verification of normal behaviour (“happy path”), but also of error and edge conditions.

[SOW-163] The Contractor shall apply automated software metrics analysis within the NATO Software Factory using SonarQube and maintain quality thresholds defined.

Those quality thresholds must be defined and agreed with the Purchaser in the Quality Plan (Section 6.7).

[SOW-164] The Contractor's technical leads shall only commit pull requests with a clean (empty) SonarQube issue list (code smells, anti-patterns, security vulnerabilities, and coding style violations) for the pull request.

[SOW-165] The Contractor shall when reviewing the pull requests consider security in accordance with the OWASP Code Review Guide.

[SOW-166] The Purchaser reserves the right to perform random code inspections and code walkthroughs to ensure that the quality of software development is within acceptable range. The Purchaser also reserves to provide comments on any pull request as part of their review process. The Contractor shall timely process any discrepancies identified by the Purchaser and take the appropriate corrective actions.

3.11.3 Audits

[091] The Purchaser reserves the right to perform reviews and quality audits at any of the Contractor facilities.

[092] Review and audit activities do not relieve the Contractor from any contractual quality responsibilities.

[SOW-167] The Contractor shall periodically, at least once a year, review the QA programme and audit it for adequacy, compliance and effectiveness.

[SOW-168] The Contractor shall make available to the Purchaser's quality assurance personnel and auditors all information and artefacts deemed necessary to perform reviews and quality audits, on their own initiative or on request by the Purchaser.

[SOW-169] The Contractor shall fully support the Purchaser in performing reviews and quality audits at any of the Contractor facilities and activities , and in particular:

(1) Make available the necessary Contractor personnel for coordination meetings prior, during and post quality audit inspection visits and for answering questions and furnishing information related to the Contract;
(2) Host inspection visits by Purchaser's quality assurance personnel and auditors;
(3) Allow the Purchaser's quality assurance personnel and auditors to inspect and monitor the Contractor's processes applicable to this Contract.

4 Work Packages 1&2: Capability Development and Delivery

[093] Work Packages 1 and 2 aim to deliver the required scope in two incremental baselines.

[094] Work Package 1 is awarded with the base Contract. The Contractor will be awarded Work Package 2 subject to the evaluation of its performance in developing and delivering Work Package 1.

[095] This section starts with outlining the intended incremental delivery approach common to each work package, which is followed by specifying engineering and support services to be delivered. These services include requirements analysis, application design, coding, user involvement activities (such as user validation workshops), testing and verification, security accreditation, training development and transition support.

4.1 Approach

[096] The required capabilities will be delivered through adaptation of the current baseline of the TOPFAS Application Suite, implementing and satisfying the requirements specified within this statement of work and the software requirements specified within Annex A to this statement of work.

[097] Figure 4.1 below represents the ramp-up phase and first work package. Following Contract Award (CAW)/Contract Signature, a ramp-up period will allow the Contractor to bring its project team to target capacity, acquire knowledge transfer from the Purchaser and update their proposed solution in view of the latest TOPFAS Application Suite baseline, which might have evolved since the bid preparation.

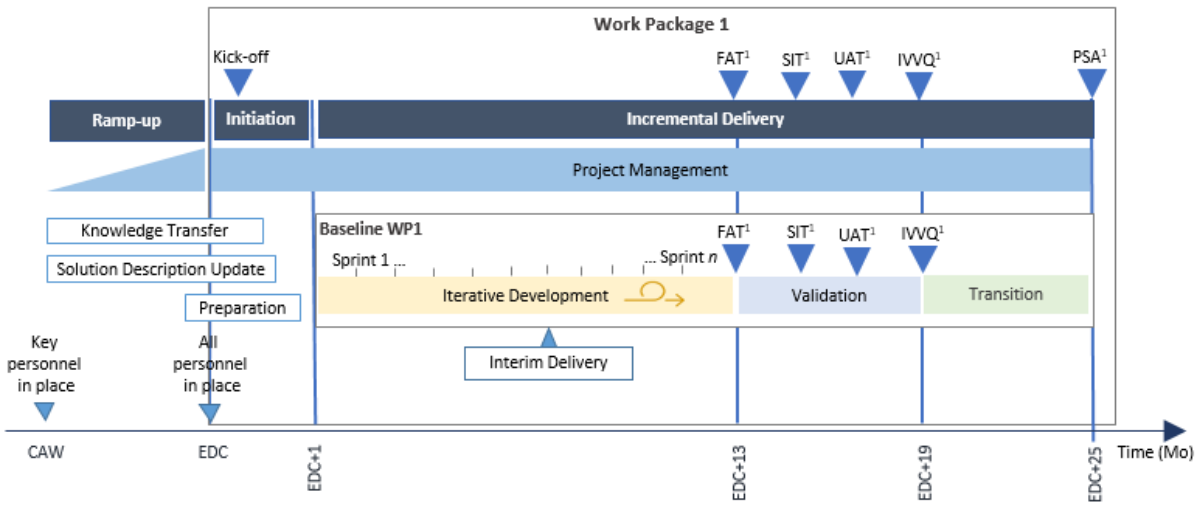

Figure 4.1 – WP1 Incremental Delivery: Iterative Development, Validation and Transition

[098] On Effective Date of Contract (EDC) a one-month initiation phase commences, allowing the Contractor to finalize its technical preparations before the incremental delivery phase of the first work package starts. The kick-off meeting will take place at the start of the initiation phase.

[099] Similarly, Work Package 2 will commence with an initiation phase and kick-off meeting as shown in Figure 4.2.

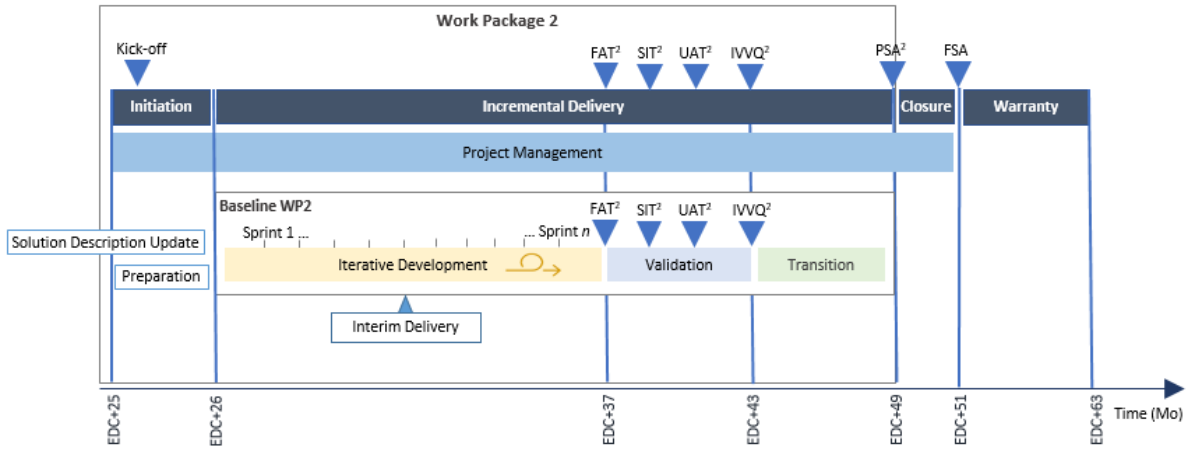

Figure 4.2 - WP2 Incremental Delivery: Iterative Development, Validation and Transition

[100] Through this incremental delivery approach, the full range of requirements will be met, while allowing to balance operational user priorities with technical risks, implementation costs, and development schedules in determining the scope of each baseline.

[101] WP1 will deliver Increment-1, and WP2 will deliver Increment-2. However, triggered by the needs of the BMD Programme System of System (SoS) verification and validation schedule (see Section 4.8.1 - 4.8.4), it will be required to deliver and deploy one or more interim baseline release. This interim baseline delivery will comprise of the high-priority requirements already implemented in early sprints. Such an interim TOPFAS delivery will have to pass an informal factory acceptance testing when the interim delivery occurs prior to the planned formal factory acceptance testing at the end of the iterative development phase.

[102] For the incremental delivery phase, where software development is conducted, the Purchaser will mandate an iterative software development and implementation approach, i.e. using Agile Scrum Framework or equivalent methodology (see Figure 4.3).

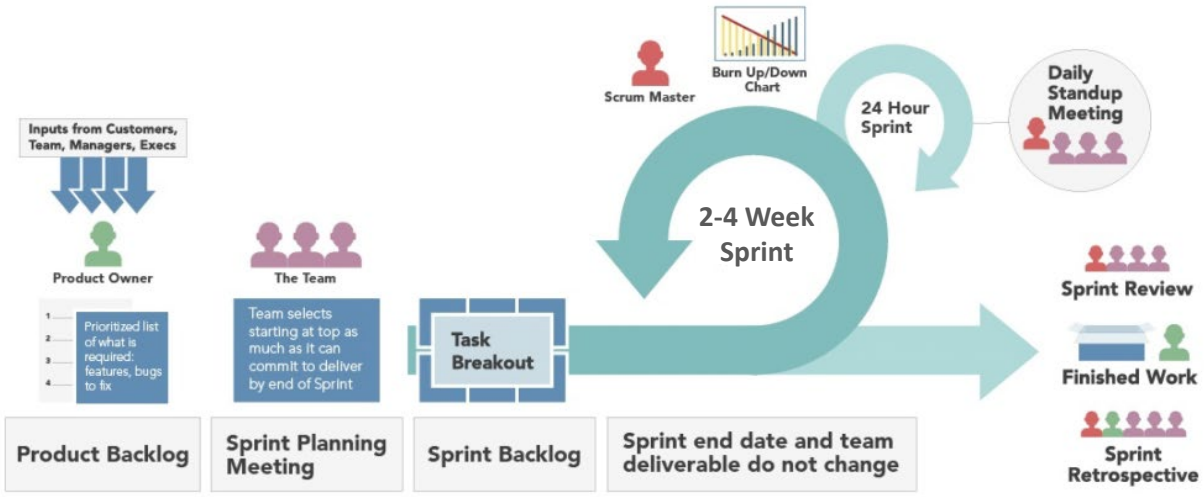

Figure 4.3 - Agile Scrum Framework

[103] Each work package, or incremental baseline, is to deliver a distinct functional scope, which is developed iteratively in smaller, more frequent iterations, based on operationally prioritised requirements. The duration of an iteration, or sprint in Scrum terminology, will be four (4) weeks at most, two (2) weeks desired.

[104] During the iterative development phase of each baseline, the functional scope will be refined into detailed designs together with stakeholders and key users. This phase incorporates multiple iterations of requirements analysis, design, development and testing activities. To facilitate this phase and the validation of the capabilities, early builds will be made available and workshops with the user community will be organised for review and to collect feedback. This feedback will be rolled into the baseline under implementation or can be planned for the next baseline depending on prioritization and feasibility.

[105] The capabilities delivered at the last iteration of iterative development phase will have to have a quality at the level of being ready for deployment to production. This phase will be concluded with a factory acceptance test (FAT).

[106] The iterative development phase will be followed by a validation phase, with each baseline passing through a sequence of validation activities, starting with a system integration test (SIT), user acceptance test (UAT), and finally the independent validation and verification (IVVQ) prior to deploying the baseline to the operational environment.

[107] The overall progress will be closely monitored by the Purchaser in accordance with the BMD Scope Implementation Monitoring methodology as described in Section 3.9.9.

[108] Once the validation activities have been completed successfully, the transition phase will start. The transition phase will focus on ensuring an efficient migration from the existing operational baseline to the new capabilities deployed, with continuity of service and minimal degradation of services during the transition.

[109] The Contractor will be responsible for the deployment of each incremental baseline to the NATO operational networks and test and integration environments, and implement the capabilities throughout the NATO Command Structure (NCS), under the supervision of and with support from the Purchaser. There will be multiple deployments to the operational, test and integration environments of incrementally delivered functionality, for example to support the validation by the user community or for the BMD Programme System of System verification and validation.

[110] During the transition phase, the Contractor will also provide support and deliver training for the new capabilities to the different user communities.

[111] Successful conclusion of the transition phase is marked by the partial system acceptance (PSA). Starting with the partial system acceptance of the first baseline (Work Package 1), the Contractor will be responsible for maintenance and support of the current TOPFAS Application Suite baseline and follow-on deployed baseline releases until final system acceptance (FSA) is achieved.

[112] The partial system acceptance of the final baseline will be followed by the closure phase during which the Purchaser will conduct the final validation of all deliverables and verify fulfilment of contractual obligations. The closure phase is concluded with the final system acceptance, which also indicates the start of the one-year warranty period.

[113] After final system acceptance, the Purchaser assumes full responsibility, with the exception of Contractor furnished maintenance and support services under warranty and during the optional maintenance and support services provided post the warranty period if the Purchaser decides to exercise the option.

4.2 Initiation Phase

[114] The objective of the initiation phase is to start the work, to review the Contractor's approach and to make the necessary preparations for the next phase, including completion of knowledge transfer from the Purchaser to the Contractor.

[115] A kick-off meeting will be held at the start of the phase and this is where the Purchaser and Contractor Team review the Contractor's plans and approach to the development and delivery of the capabilities.

[116] Some of the goals associated with this phase are:

(a) Verify that the Contractor's project resources are assigned in line with defined qualification requirements and have completed the required knowledge transfer to start the work;
(b) Verify the Contractor's access to the NATO Software Factory and build environment;
(c) Ensure that the NATO Software Factory is configured and tuned to the Contractor's implementation approach and objectives;
(d) Validate the Contractor's proposed solution design, plans and approach to development;
(e) Establish the initial product backlog of requirements and deliverables within the NATO Software Factory;
(f) Review the initial scope and establish the first sprint backlog.

4.2.1 Kick-off Meeting for Work Package 1

[SOW-170] The Contractor's key personnel shall meet with the Purchaser's project team and BMD Programme representatives for a kick-off meeting within one week after the Effective Date of Contract.

[SOW-171] The Contractor shall deliver to the Purchaser no later than two weeks prior to the start of the kick-off meeting the meeting invitation, including agenda and the following Contractor documentation:

(1) Project Management Plan (PMP), including Project Master Schedule (Section 6.4);
(2) RAID Register, with populated Risk Register (Section 6.5);
(3) Initial allocation of product backlog items to sprints for Work Package 1;
(4) Deliverable Requirements Traceability Matrix (DRTM) (Section 6.10);
(5) Solution Design Specification (SDS) (Section 6.9);
(6) Training Plan (Section 4.5.3);
(7) Configuration Management Plan (CMP) (Section 6.6);
(8) Quality Plan (Section 6.7);
(9) Master Test Plan (MTP) (Section 4.3.2.6.3);
(10) Integrated Product Support Plan (Section 6.8).

[SOW-172] During the kick-off meeting, the Contractor shall provide an introduction and present its Project Management Plan, its approach and schedule. The Contractor's presentation shall:

(1) Present the Product Breakdown Structure (PBS) defining all the deliverables planned for each work package;
(2) Include the initial allocation of product backlog items (requirements) to sprints;
(3) Demonstrate that the schedule is realistic and that a team of skilled personnel has been allocated that matches the identified resource qualifications;
(4) Demonstrate the initial Deliverable Requirements Traceability Matrix (DRTM);
(5) Demonstrate that the solution design specification prescribes a solution design that fully maps to the requirements in the software requirements specifications.

[117] During the kick-off meeting, the Purchaser shall provide feedback to the Contractor on the provided information and the documentation submitted prior to the meeting. The agenda should include sufficient time to discuss each of the artefacts.

4.2.2 Kick-off Meeting for Work Package 2

[118] If the Contractor has been approved to proceed with Work Package 2, a second kick-off meeting shall take place during the initiation phase of Work Package 2.

[119] The scope and the procedure for the kick-off meeting shall be the same as the one for Work Package 1, the objective being the re-commencement of iterative development with updated documentation covering the requirements specified for Work Package 2.

[SOW-173] The Contractor's key personnel shall meet with the Purchaser's project team and BMD Programme representatives for a kick-off meeting within one week after the start of the initiation phase of Work Package 2.

4.2.3 Preparation Next Phase

[120] The requirements defined in Annex A, Software Requirements Specifications, are the starting point for developing the required operational functions and capabilities. The requirements are provided with traceability to BMD Programme Architecture Requirements Specifications (ARS) and have an initial allocation to work packages and prioritization in accordance with the MoSCoW method.

[121] These requirements are to be entered in the NATO Software Factory and subsequently further analysed and expanded ("deepened") into user stories or other product backlog items in order to meet users' expectations. Allocation of resulting product backlog items to the sprints' backlog are to be based on related requirements prioritization in accordance with MoSCoW so that each sprint backlog includes a set of "must have", "should have" and "could have" requirements. When considering allocation to a sprint, the selected product backlog items need to be functionally coherent and complete with respect to product theme and expected outcome.

[122] The work package allocation, MoSCoW priorities and associated sprint allocation of requirements will be reassessed regularly and revised as required based on changed priorities and the performance and progress by the Contractor.

[SOW-174] The Contractor shall establish and maintain the product backlog of requirements within the NATO Software Factory based on the software requirements specifications (defined in Annex A) and deliverables as specified within this statement of work.

[SOW-175] The Contractor shall analyse the scope of the product backlog and develop an initial allocation of backlog items to sprints, taking into account the MoSCoW prioritization and aforementioned guidance. The MoSCoW prioritization of requirements is used for scheduling reasons, i.e. to achieve Final System Acceptance all requirements shall be fulfilled.

[SOW-176] The Contractor shall for the established sprint backlog of the upcoming sprint analyse and deepen the sprint backlog items, translate them into detailed user stories or other product backlog items, complemented with detailed specifications and design, which shall be reviewed together with the Purchaser.

4.2.4 Entry and Exit Criteria

[SOW-177] The Contractor shall comply with the following entry criteria for the initiation phase:

(1) The Contractor has delivered to the Purchaser a named-list of project team members;
(2) Contractor resources and personnel are in place to commence the initiation phase;
(3) The Purchaser has no concerns with the key personnel and project team composition;
(4) The planned knowledge transfer to Contractor personnel during the ramp-up period has been completed;
(5) The Contractor has delivered to the Purchaser no later than two weeks prior to the start of the kick-off meeting, the meeting invitation and Contractor documentation.

[SOW-178] The Contractor shall comply with the following exit criteria for a successful conclusion of the initiation phase:

(1) The kick-off meeting has been held and the submitted meeting minutes are accepted by Purchaser;
(2) Contractor resources and personnel are in place to commence the next phase;
(3) Contractor has confirmed access to the NATO Software Factory and build environment and that the NATO Software Factory is configured and tuned to the Contractor's implementation approach and objectives;
(4) The Purchaser comments/concerns regarding the plans and documentation have been addressed, there are no pending concerns and the documents have been baselined;
(5) The Risk Register and the Issue Register, as part of the RAID Register are properly initialized with manageable risks and issues, and contains suitable mitigation/action plans. Action items and decisions have been recorded;

(6) The product backlog of requirements and deliverables has been established within the NATO Software Factory;
(7) The analysis, deepening and specifications of the first sprint backlog items have been completed, and the Purchaser has no concerns with the details specifications and designs;
(8) Allocation of product backlog items to the first sprint is completed and agreed with the Purchaser;
(9) The Progress Measurement Baseline (Section 3.9.9) for the work package has been established and agreed with the Purchaser.

[123] If the Contractor fails to meet the exit criteria, then the Purchaser will not give the Contractor the permission to proceed.

4.3 Incremental Delivery Phase

4.3.1 Overview

[124] The objective of the incremental delivery phase within a work package is to iteratively develop and deliver a new, enhanced TOPFAS Application Suite baseline with new capabilities to support BMD processes, and workflows.

[125] The newly developed enhanced TOPFAS Application Suite baseline will replace/update the existing operational baseline, integrate with core services, and interoperate with other functional services to meet the interoperability requirements.

[126] The baseline delivered at the last iteration of iterative development phase will be subject to factory acceptance testing (FAT).

[127] A validation phase will follow the iterative development phase, with each baseline passing through a sequence of validation activities, starting with system integration testing (SIT), user acceptance testing (UAT), and finally the independent validation and verification (IVVQ) prior to deploying the baseline to the operational environment.

[128] In order to conduct verification and validation activities, including user validation workshops (Section 4.3.2.4) and BMD Programme System of System verification and validation (Section 4.8.2), the Contractor will deploy, in coordination with the Purchaser, the new (interim) baseline release onto the NATO test and integration environments and if needed to the NATO operational network (for sites see Section 4.3.4.1).

[129] Once the validation activities have been completed successfully, the transition phase will start. The Contractor will deploy, in coordination with the Purchaser, the new baseline onto the NATO operational network and implement the capabilities throughout the NATO Command Structure (NCS).

[130] The transition will focus on ensuring an efficient migration from the existing operational baseline to the newly deployed baseline, while maintaining continuity of service with minimal degradation of services during the transition. At the same time, users and support elements will receive training to use and manage the capabilities of the newly delivered baselines. Existing training courses are to be updated accordingly by the Contractor, and if necessary, new courses shall be developed.

[SOW-179] The Contractor shall design, develop, integrate, test, and deliver new, enhanced NATO-owned incremental baselines of the TOPFAS Application Suite, implementing and satisfying the software requirements specified within Annex A to this statement of work.

[SOW-180] The Contractor shall implement the TOPFAS Application Suite capabilities specified in the software requirements specification (Annex A) in TOPFAS Desktop and TOPFAS Online application/apps where applicable.

[SOW-181] The Contractor shall implement and integrate the TOPFAS Desktop application modules that are web based (existing and new) within TOPFAS Online with the same functionality.

[SOW-182] The Contractor shall implement web-based BMD specific modules (e.g. Missile Defence - Assets/Asset List/PCAL/JPCAL/JPDAL/IPB Report/Defence Design/OPFOR TBM COA) and integrate these modules in both TOPFAS Desktop and TOPFAS Online with the same functionality.

[SOW-183] The Contractor shall implement any requirement related to force requirements in TOPFAS Desktop and TOPFAS Online (e.g. TOPFAS OMT, TOPFAS RRT and/or TOPFAS eFGMT) where applicable.

[SOW-184] The Contractor shall implement any requirement related to data exchange with XML using the latest FASInterop schema in TOPFAS Desktop and TOPFAS Online where applicable, in order to maintain interoperability.

[SOW-185] The Contractor shall implement any requirement related to Education, Training, Exercises and Evaluation and ETEE-FS in TOPFAS TEM and relevant applications/apps of TOPFAS Desktop and TOPFAS Online.

[131] In case there is scope remaining, i.e. requirements not implemented or accepted, at the end of the last planned incremental delivery (Work Package 2), the Purchaser may decide to add another incremental baseline in order to complete and deliver the remaining scope.

[SOW-186] In case there is scope remaining and the Purchaser has decided to add another incremental baseline, the Contractor shall deliver the additional incremental baseline at no additional cost.

[132] The current baseline of the TOPFAS Application Suite will be maintained actively by the Purchaser throughout the development of the new incremental baselines. The Contractor will have to incorporate any changes/updates made to the current baseline.

[SOW-187] The Contractor shall incorporate any external changes/updates made to the baseline of the TOPFAS Application Suite while developing the new (next) incremental baseline.

[132(i)] The external capabilities and services to integrate or to interface the TOPFAS Application Suite with are under development and all interfaces will evolve over time. The interface control documents will become available in due time. The intent is to be interoperable with the latest versions of the external capabilities and services as long as the interface control document is available a minimum of 12 months prior to a

planned baseline delivery of the TOPFAS Application Suite or any of its individual applications.

[SOW-187(i)] The Contractor shall integrate and interface the TOPFAS Application Suite with the latest interface control documents of all external capabilities and services it currently integrates or interfaces with, or any new capability and service identified within the scope of this Contract.

[SOW-187(ii)] The Contractor shall maintain and update the TOPFAS Application Suite or any of its individual applications, to integrate and to be interoperable with the latest versions, and their latest interface control documents, of the external capabilities and services as long as the relevant interface control document is available a minimum of 12 months prior to a planned baseline delivery.

4.3.2 Iterative Development Phase

[133] After a successful initiation, a work package will run through an iterative development phase for an increment, consisting of a series of time-boxed sprints. One increment per work package is the norm, but the Purchaser can request multiple incremental baseline releases.

[SOW-188] The Contractor shall use an iterative development approach, i.e. using Agile Scrum Framework or equivalent methodology.

[SOW-189] The Contractor shall break up the iterative development phase into a sequence of sprints, where the duration of a sprint shall not exceed four (4) weeks.

[134] Each consecutive sprint shall implement a new scope of requirements and consolidate it with the resulting capabilities from the previous sprint. The aim will be to deliver a “shippable capability” (i.e. a working piece of software that is ready to be deployed and thus include documentation and other relevant support artefacts) at the end of each time-boxed sprint.

[SOW-190] The Contractor shall include all activities required for requirements analysis, design, development, integration, testing, documentation, etc. within the scope of a single sprint in order to deliver a shippable capability at the end of each time-boxed sprint.

4.3.2.1 Sprint Planning

[SOW-191] For each sprint, the Contractor shall conduct a sprint planning meeting and invite the Purchaser and BMD Programme representatives to participate in the meeting. The sprint planning meeting shall normally take place at the Contractor’s facilities.

[SOW-192] In preparation of the sprint planning meeting, the Contractor shall review, and if required, update the product backlog and prepare the sprint backlog for the upcoming sprint. After prioritising defects, the key criteria in selecting product backlog items for a sprint while taking into account the MoSCoW prioritization, are completeness with respect to product theme and expected outcome, and whether the backlog items are sufficiently deepened and designed for the development team to implement.

[SOW-193] The Contractor shall analyse and deepen the allocated sprint backlog items, translate them into detailed user stories or other backlog items, complemented with detailed specifications and design that meets the users' expectations, which shall be reviewed together with the Purchaser.

[SOW-194] The Contractor shall present the sprint backlog during the sprint planning meeting and if required, revise the sprint backlog in collaboration with the Purchaser.

[SOW-195] During the sprint planning meeting, the Contractor shall record risks, issues, action items and decisions in the RAID Register, but no formal meeting minutes are required.

[135] The Purchaser will participate in the sprint planning meeting with subject-matter experts to support the Purchaser in assessing the sprint planning and the specifications of the sprint backlog items, and to provide feedback to the Contractor.

[SOW-196] The Contractor shall engage with the Purchaser and as required with end-user representatives and subject-matter experts, to review the sprint backlog items, user stories, design proposals and concepts.

4.3.2.2 Sprint and Daily Stand-up

[SOW-197] The Contractor shall use the sprint timeframe to develop and deliver shippable capabilities meeting the requirements of the Contract.

[SOW-198] The Contractor shall use the sprint timeframe to develop and deliver other deliverables supporting the shippable capabilities, i.e. design documentation, manuals and online help (Section 6) with each new sprint baseline.

[SOW-199] The Contractor shall use the sprint timeframe to develop and deliver training courses, training packages and other training aids such as instruction videos as per Section 4.5.4.

[SOW-200] The Contractor shall conduct a daily stand-up meeting at the beginning of each day of the sprint, to ensure that the sprint activities are progressing as scheduled, set the context and goals for the coming day's work and identify any impediments the team brings to the stand-up meeting and need to be resolved. No formal meeting minutes are required.

[SOW-201] The Contractor shall facilitate participation of the Purchaser in the daily stand-up meeting (e.g. by using video conferencing technology).

[SOW-202] The Contractor shall identify and discuss issues with the Purchaser's project manager and/or technical lead promptly, however, and not delay notifying the Purchaser until the sprint review.

[SOW-203] The Contractor shall engage with the Purchaser, and if deemed necessary with end-user representatives and subject-matter experts, either to resolve impediments, confirm possible solutions, or to review already completed backlog items and other artefacts.

[SOW-204] To enable the interfacing between TOPFAS and other capabilities and services, the Contractor shall provide support to Purchaser or its contractors responsible for implementing such interfaces with TOPFAS.

4.3.2.3 Sprint Review Meeting

[136] The aim of the sprint review meeting at the end of the sprint is to inspect the resulting shippable capabilities with the sprint backlog items the Contractor considers done. This minimizes overall risk and allows for identifying and resolving issues early on in the process and correct where necessary.

[137] The Purchaser will participate in the sprint review meeting with subject-matter experts, including end-user representatives, to support the Purchaser in assessing the resulting capabilities, and to provide feedback to the Contractor.

[SOW-205] For each sprint, the Contractor shall conduct a sprint review meeting and invite the Purchaser, BMD Programme representatives and relevant subject-matter experts to participate in the meeting. The sprint review meeting shall normally take place at the Contractor's facilities.

[SOW-206] The Contractor shall at the sprint review meeting:

(1) Provide a project status brief (highlight report) to the Purchaser, including an overall status update of the project, any identified changes to the product backlog, Project Master Schedule, action items, risk register, issue register, etc. Note: this shall include an assessment from the Contractor on the outlook for being able to deliver all the requirements defined for the current work package;
(2) Report the final status of the sprint backlog items, planned tasks, and achievements and progress during the sprint to the Purchaser;
(3) Provide the Purchaser with new, updated and working, version of the capabilities being developed;
(4) Demonstrate the new, updated and working, version of the capabilities being developed to Purchaser, with reference to the completed sprint backlog items, and ensure the capabilities are in a releasable state;
(5) Update the Deliverable Requirements Traceability Matrix and confirm with the Purchaser the allocation of the Earned Value points to the Value Items produced during the sprint;
(6) Calculate the BSIM performance metrics;
(7) Provide the SonarQube report showing that no new technical debt has been introduced during the sprint.

[138] The Purchaser will provide immediate feedback on the capabilities during the sprint review meeting.

[SOW-207] The Contractor shall collect the feedback and where necessary, create new project backlog items to be prioritized during the next sprint in order to address the feedback.

[SOW-208] The Contractor shall prioritise any defects found during the testing associated with each sprint for correction within the same sprint for critical and major defects (classified in accordance with Section 3.11.1), or unless the remaining time within the sprint is not sufficient, within the next iteration.

[SOW-209] The Contractor shall ensure that no defect, discovered through sprint testing or not, shall stay open for more than two sprints. This by principle, i.e. delivering

working software. Exceptions are justified only after consultation with the Purchaser, when the defect's resolution requires more time.

4.3.2.4 User Validation Workshops

[139] To increase the likelihood of successful acceptance, regular user validation workshops will be conducted, requiring active participation of user representatives. These workshops will provide an opportunity to get early feedback from the users on prototype mock-ups and capabilities developed so far.

[SOW-210] The Contractor shall organize and conduct one user validation workshop for each application (existing and new) per work package at the Purchaser designated facilities. Any additional user validation workshops required, shall be hosted at Contractor facilities and allow for remote participation using video conferencing technology.

4.3.2.5 Continuous Integration and Continuous Delivery

[SOW-211] The Contractor shall set up and maintain an automatic build environment, including daily builds, within the NATO Software Factory.

[SOW-212] The Contractor shall set up and maintain a continuous integration and continuous delivery build pipeline within the NATO Software Factory, with automated deployment to a Purchaser furnished reference environment, in order to verify that the software deploys and functions correctly.

[SOW-213] The Contractor shall report on the results of the continuous integration and continuous delivery in the sprint test reports.

4.3.2.6 Testing, Validation and Verification

[140] Testing of the developing solution is a continuing process that will be conducted within iterations and as deliverables are completed. Purchaser involvement in testing, verification and validation is integral to the iterative development and incremental delivery approach.

[141] As Figure 4.4 illustrates, the software testing during the iterative development will be followed by a sequence of formal verification and validation activities, either performed and lead by the Contractor or performed and lead by the Purchaser.

[142] The Purchaser reserves the right to develop additional test cases and conduct its own independent testing.

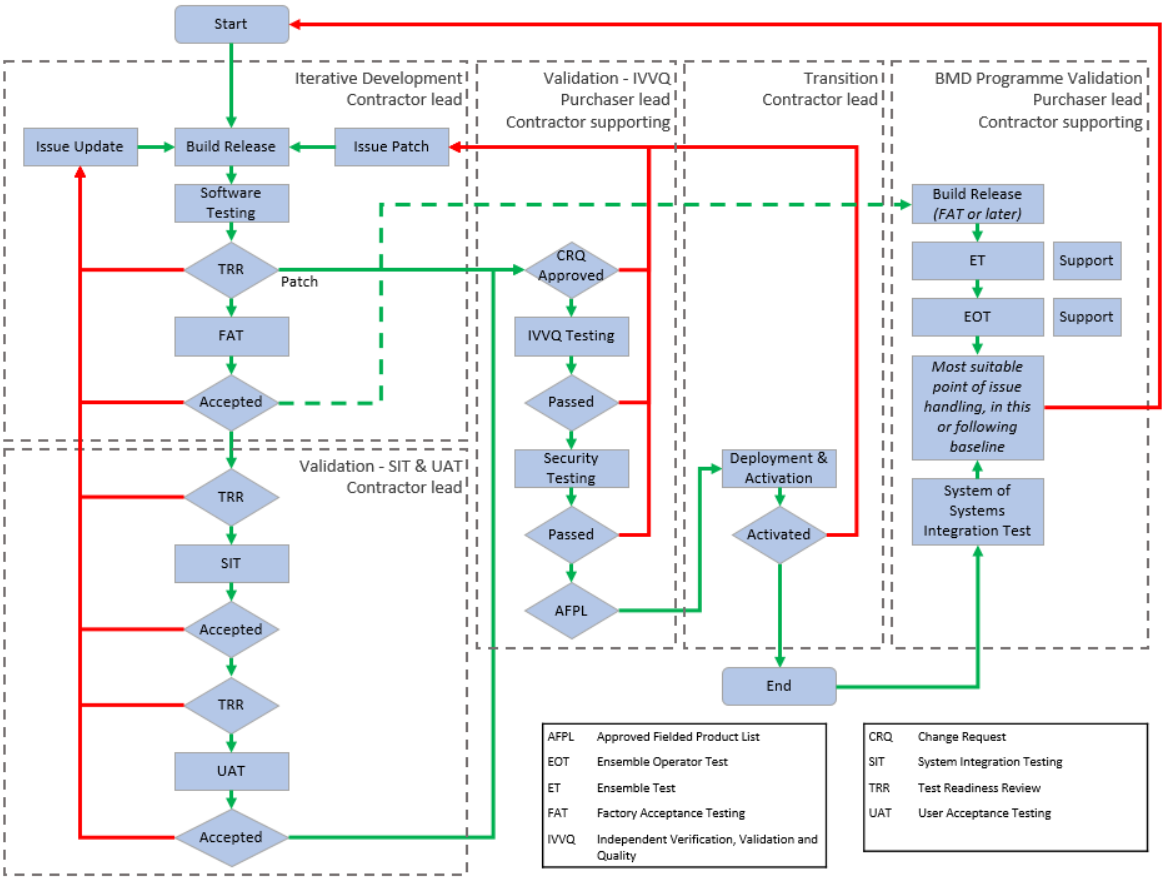

Figure 4.4 - Testing, Verification and Validation Process

[SOW-214] For the purpose of testing, verification, and validation, the Contractor shall develop, deliver and maintain:

(1) **Test scenarios**: test scenarios are credible stories that provide context to the tester when working through the test cases. The ideal test scenario is a realistic and complex story. Test scenarios serve as the basis for lower-level test case creation and a single test scenario can cover one or more test cases. For specific test activities, like system integration testing and user acceptance testing, specific scenarios shall be developed;

(2) **Test cases**: A test case has a unique identifier, references to software requirements specifications, software backlog items and design specifications, preconditions, events, a series of steps (also known as actions) to follow, input, output, expected result, acceptance criteria, actual result and exception handling;

(3) **Test scripts** (as required): A test script is a procedure, or programing code that replicates user actions;

(4) **Test data**: The test data shall support the test scenarios and test cases. The data sets shall provide the quantities, sizes and varieties of object types and attribute values; the exceptional values; and the update frequencies appropriate to the type of testing to verify that all requirements and acceptance criteria are met. The test data should use the latest version of the reference data agreed across multiple capabilities. All the test data set and changeable environmental components are collected in separate files and stored as test data, i.e. test database and test artefacts.

[SOW-215] The Contractor shall develop any test harnesses, simulators and stubs, including all script/code/data/tools, necessary for testing, verification or validation of a baseline.

[SOW-216] The Contractor shall use the NATO Software Factory for test management, the development of test scenarios, test cases, test scripts, test data, etc.

[SOW-217] The Contractor shall respond to any Purchaser clarification requests regarding test performance and results within three business days.

4.3.2.6.1 Functional and Non-Functional Software Testing

[SOW-218] The Contractor shall perform functional and non-functional software testing, including unit testing, system testing, regression testing and performance testing (e.g. stress testing, load testing and reliability testing), throughout the development lifecycle in order to identify and correct defects as early as possible and minimize impact on cost and schedule.

[SOW-219] The Contractor shall develop and execute test cases to test and verify correct implementation of the requirements of the Contract.

[SOW-220] The Contractor shall execute unit tests within the NATO Software Factory environment with sufficient frequency and coverage to test and verify correct implementation of the requirements of the Contract.

[SOW-221] The Contractor shall whenever feasible, develop and execute automated tests to test and verify correct implementation of the requirements. Where automated tests are not feasible, the Contractor shall define and execute manual tests and ensure that through the combination of automated and manual tests all requirements of the Contract are covered.

[SOW-222] The Contractor shall develop and execute automated testing of all interfaces that the baseline implements that can be consumed by external capabilities. The automated test of such interfaces shall:
(1) Be implemented as a test harness using an appropriate test framework;
(2) Test all methods of all services according to documented interface/service specifications.

[SOW-223] The Contractor shall develop end-to-end (E2E) automated tests integrated in the continuous integration/continuous deployment pipeline covering a minimum of 50% of the application functionality implemented using web based technology.

[SOW-224] The Contractor shall perform testing in accordance with the OWASP Testing Guide.

[SOW-225] The Contractor shall cover all applicable threat types and corresponding security test cases (e.g. Unauthorized user/Fake identity/Password cracking; Cross-site scripting (XSS); Buffer overflows; URL manipulation; SQL injection; Denial of service) within its security testing.

4.3.2.6.2 Formal Testing, Verification and Validation

[SOW-226] The Contractor shall perform formal testing, verification and validation, on the release candidate of each baseline in order to verify its quality and obtain the authorizations necessary to deploy the baseline release on NATO networks.

[SOW-227] After each formal test, verification and validation activity, the Contractor shall conduct a test review meeting together with the Purchaser within the next business day after conclusion of the activity. The aim of the meeting is to ensure that the results and defect categorization are agreed upon.

[SOW-228] The Contractor shall perform dry runs prior to performing the formal test, verification and validation activities.

[SOW-229] The Contractor shall anticipate conducting dry runs and performing the formal test, verification and validation activities more than once when the test results are unsatisfying.

[143] The formal testing, verification and validation activities cover multiple phases. Specifics will be provided by phase. For example, the factory acceptance testing will be specified as part of the iterative development phase, while the user acceptance testing will be specified under the validation phase.

4.3.2.6.3 Master Test Plan

[SOW-230] The Contractor shall deliver a master test plan (MTP) that documents the Contractor's approach to the testing, verification and validation activities to ensure that the deliverables meet the requirements of the Contract.

[SOW-231] The Contractor shall use the [ISO/IEC/IEEE-29119] standard as reference guideline for the master test plan format and contents.

[SOW-232] The master test plan shall describe:
(1) The Contractor's test organization and its relationship with the Contractor's quality assurance functions;
(2) The test engineering roles;
(3) The testing, verification and validation strategy compliant with the iterative software development and incremental delivery approach;
(4) Dependencies with the nominal sequence for BMD verification and validation events (see 4.8);
(5) The test, verification and validations processes;
(6) The testing environments and tools that will be used.

[SOW-233] The master test plan shall describe how the Contractor intends to meet the following objectives:
(1) Verification of documentation artefacts, training material and source code;
(2) Verification of compliance with the requirements of the statement of work and software requirements specifications;
(3) Detect defects early and ensure that they traced through to correction;
(4) Ensure that changes and modifications do not degrade the current capabilities;
(5) Verification of compliance with internal and external interfaces as defined in interface control documents;
(6) Verification by the operational community that the delivered capabilities are usable and acceptable.

[SOW-234] The Master Test Plan shall include templates for the Test Execution Plan and Test Report as annexes.

4.3.2.6.4 Test Execution Plans

[144] The test execution plans are to be developed and delivered for each formal test, verification and validation activity conducted by the Contractor. The test execution plans are in addition to the mater test plan and specify the detailed planning of the formal test, verification or validation activity.

[SOW-235] The Contractor shall deliver a test execution plan for each formal test, verification and validation activity that details the Contractor's approach, including test design, the prerequisites, baseline under review, the scope to be tested, verified or validated, the test cases to be executed, the schedule of the activities, including agenda, and the participants.

4.3.2.6.5 Test Reports

[SOW-236] The Contractor shall deliver test reports of the test activities performed during each sprint at the sprint review meeting.

[SOW-237] The Contractor shall deliver test reports for each formal test, verification, and validation activity conducted by the Contractor within five business days after the conclusion of such activity.

[SOW-238] The test report shall include the following information:

(1) An executive summary of the activities performed, an assessment of the results, and statistics of the total number of test executed, tests passed, failed or not executed, as well as the number of defects discovered;
(2) In case of a formal test, verification or validation activity performed, the final result/conclusion of the activity;
(3) An overview of the activities performed, with reference to the test execution plan, if applicable, dates, location;
(4) Identification of the baseline and specifications of the test environment;
(5) A record of each planned test case (with reference to test execution plan, if applicable) with the individual results of each test case, a record of any retesting conducted and of any additional test cases that have been executed beyond the original planned scope. In case of test case failure, associated defects shall be referenced;
(6) A record of the requirements and product backlog items covered;
(7) A record of all defects discovered, including the backlog item identifier and status;
(8) A record of all feedback provided with a response, action items, and/or product backlog item identifier.

4.3.2.7 Test Readiness Review

[145] The test readiness review (TRR) will be conducted to determine if the baseline under review is ready to proceed into formal testing by review of the test execution plans and deciding whether the test scenarios, test cases and test data are complete and other prerequisite are in place.

[SOW-239] The Contractor organise and conduct a test readiness review together with the Purchaser and BMD Programme representatives no later than two weeks prior to each formal test, verification and validation activity.

[SOW-240] The Contractor shall deliver the following at time of inviting the Purchaser for a test readiness review:
(1) Test execution plan;
(2) Baseline release, including user and administrator manuals, technical design documentation;
(3) Test scenarios, test cases, test scripts and test data;
(4) Updated Deliverable Requirements Traceability Matrix.

[SOW-241] The Contractor shall present the status of preparations and readiness for formal testing, verification or validation, including the results of test dry-runs conducted by the Contractor prior to the test readiness review, and make available all test artefacts for review during the test readiness review.

4.3.2.8 Factory Acceptance Test

[146] The purpose of the factory acceptance test (FAT) is to demonstrate through a comprehensive set of test cases, that the off-the-shelf and uniquely developed elements of the baseline have been integrated, e.g. provide the required interactions with other capabilities, and meet the requirements of the Contract.

[147] The Purchaser will observe the factory acceptance testing and reserves the right to participate in executing test cases to confirm compliance and to conduct its own test case verification after demonstration of a test case by the Contractor.

[SOW-242] The Contractor shall perform factory acceptance test and invite the Purchaser and BMD Programme representatives to attend.

[SOW-243] The Contractor shall support the Purchaser in conducting its own verification during the factory acceptance test.

[SOW-244] The Contractor shall execute a comprehensive set of test cases to test and verify the baseline release meets the allocated functional and non-functional requirements defined in Annex A, and other contractual requirements. This shall include the execution of test cases for all supporting capabilities, including installers and data migration utilities and scripts.

[SOW-245] The Contractor shall verify completeness of functionality against allocated functional and non-functional requirements defined in Annex A, and other contractual requirements, with traceability from\to requirement, to product backlog item, to test cases in the Deliverable Requirements Traceability Matrix (DRTM).

[148] In case the baseline delivered is not accepted by Purchaser, additional work (through added sprints) will have to be performed by the Contractor to ultimately satisfy the contractual requirements.

4.3.2.9 Entry and Exit Criteria

[SOW-246] The Contractor shall comply with the following entry criteria for the iterative development phase:
(1) The Contractor has concluded the previous phase successfully.

[SOW-247] The Contractor shall comply with the following exit criteria for a successful conclusion of the iterative development phase:

(1) The Contractor has delivered updates of the Project Management Plan and RAID registry;
(2) The Contractor has submitted all pending engineering change proposals for the baseline;
(3) The Contractor has delivered sprint review meeting reports and test reports;
(4) The Contractor has delivered meeting reports of workshops and other meetings held during this phase;
(5) The Contractor has conducted the necessary user validation workshops;
(6) The Contractor has successfully conducted the factory acceptance testing with a minimum 80% pass on the test cases executed;
(7) The Contractor has resolved all outstanding critical defects during this phase and has delivered a baseline release for validation, including source code;
(8) The Contractor has delivered the system documentation artefacts, including the installation and configuration manual, maintenance and administration manual, coherent with the baseline release;
(9) The Contractor has delivered the user documentation artefacts, including online help and standard operating procedures manual, coherent with the baseline release;
(10) The Contractor has delivered the programmer's manual, finalised software design description (SDD), and the interface control document (ICD), coherent with the baseline release;
(11) The Contractor has delivered the draft test execution plans, test scenarios, test cases and test data for the user acceptance tests and system integration tests;
(12) The Contractor has delivered the draft documentation for the change request (CRQ) in preparation for IVVQ Testing (Section 4.3.3.3);
(13) The Contractor has delivered the final TNA coherent with the baseline release (Section 4.5.2);
(14) The Contractor has delivered the draft training scenarios and training packages coherent with the baseline release (Section 4.5);
(15) The Contractor has delivered the initial version of the Release and Deployment Plans (Section 4.3.4.1.1).

[149] If the Contractor fails to meet the exit criteria, then the Purchaser will not give the Contractor the permission to proceed.

4.3.3 Validation Phase

[150] Following completion of the iterative development phase and successful factory acceptance testing of a baseline, the validation phase will commence. The validation phase consists of system integration testing, user acceptance testing and independent verification and validation of the baseline release delivered.

[151] In case the baseline release is not accepted by Purchaser, additional work (through added sprints) will have to be performed by the Contractor to ultimately satisfy the acceptance criteria and meet the contractual requirements.

4.3.3.1 System Integration Test

[152] The purpose of system integration test (SIT) is to validate the baselines coexistence with other capabilities and services, and test the interfaces and functional dependencies between them. With multiple integrated capabilities, assuming that each has already passed system testing, system integration testing proceeds to test their required interfaces and interactions.

[153] The Purchaser will observe the system integration testing and reserves the right to participate in executing test cases to confirm compliance and to conduct its own test case verification after demonstration of a test case by the Contractor.

[SOW-248] The Contractor shall perform a test readiness review (4.3.2.7) prior to conducting system integration testing.

[SOW-249] The Contractor shall develop for test artefacts in coordination with Purchaser subject-matter experts and BMD Programme representatives.

[SOW-250] The test cases shall be based on operationally realistic test scenarios, with representative test data in terms of structure, content and size to emulate real-word conditions.

[SOW-251] The test cases, supported by the test scenarios, shall cover all internal and external interfaces delivered by a baseline to verify and validate the interoperability between them.

[SOW-252] The Contractor shall plan, prepare, organise and conduct system integration testing for each baseline, which shall take place at one of the Purchaser's facilities, using a Purchaser-specified integration test bed or operating environment.

[SOW-253] The Contractor shall conduct system integration testing dry-runs with Purchaser subject-matter experts, prior to conducting the system integration testing.

[SOW-254] The Contractor shall deliver an updated baseline release that incorporates defect corrections and the lessons-learned from the system integration testing.

4.3.3.2 User Acceptance Testing

[154] User acceptance testing (UAT) acts as a final verification of the required operational functionality as defined in the requirements specifications and proper functioning of the capability. It proves to the users that the capability is working according to their understanding of their own operational requirements and validates the fitness for purpose of the capabilities delivered.

[155] The user acceptance testing allows the users to test the new capabilities in a controlled environment to their satisfaction before they commit to using it in operation.

[SOW-255] The Contractor shall plan, prepare, organise and conduct a user acceptance testing for each incremental baseline, which shall take place at one of the Purchaser's facilities.

[SOW-256] The Contractor shall develop test artefacts in coordination with Purchaser subject-matter experts and representatives of the operational community.

[SOW-257] The test cases shall use operationally realistic test scenarios, with representative test data in terms of structure, content and size to emulate real-word conditions.

[SOW-258] The test cases, supported by the test scenarios, shall cover the functional scope delivered by a baseline to ensure that the essential user requirements as specified in the software requirements specifications and statement of work are met.

[SOW-259] The test cases, supported by the test scenarios shall be designed such that it enables the users to validate the software acceptance criteria as defined in Annex C.

[SOW-260] The Contractor shall conduct user acceptance test dry-runs with Purchaser subject matter experts, prior to conducting user acceptance testing.

[SOW-261] The Contractor shall perform a test readiness review (see section 4.3.2.7) prior to conducting user acceptance testing.

[SOW-262] The user acceptance testing shall be conducted by representatives of the operational community, Purchaser subject-matter experts and BMD Programme representatives; Contractor personnel shall support them.

[SOW-263] The Contractor shall plan, organise, and conduct training in advance of user acceptance testing. Training related to the user acceptance testing shall be included in Sub-CLINs 2.3 and will be in addition to the formal training courses to be provided during the transition phase (see section 4.3.4.2).

[SOW-264] The Contractor shall deliver an updated baseline release that incorporates defect corrections and the feedback received during the user acceptance testing.

4.3.3.3 Independent Verification and Validation Testing

[156] All bespoke developed and (new) off-the-shelf software releases to be used on NATO networks will undergo a release management process, initiated by submitting a change request (CRQ), and will be subject to the independent verification and validation testing.

[157] CRQ process guidance is included in NCI Agency technical instructions and standard operating procedures [NCIA-AI-23.02], [NCIA-SOP-06.03.05] and [NCIA-SOP-23.01]. The CRQ process also applies to patch and corrective baseline releases.

[158] The purpose of the independent verification and validation testing is to demonstrate that the baseline release is compliant with the NATO network policies and meets the security requirements for use on NATO networks managed by the NCI Agency. The objective is to have the baseline release approved and included in the NATO Approved Fielded Product List (AFPL).

[159] The baseline release to undergo independent verification and validation shall be the baseline used for user acceptance testing or a later one. The process of independent verification and validation testing is anticipated to take 6-8 weeks from submitting the baseline change request.

[160] In conjunction with the independent verification and validation testing, an independent security penetration testing will be conducted by the Purchaser.

[SOW-265] The Contractor shall be responsible for successfully obtaining the AFPL approval allowing use of the baseline release on the NATO networks (NS, NR and NU).

[SOW-266] The Contractor shall support the Purchaser with submitting the change request (CRQ) to the CRQ Governance Board and deliver all required artefacts in support of the change request. These include:
(1) Release build, including third-party software as required;
(2) Standard operating procedures user manual;
(3) Installation and configuration manual;
(4) Maintenance and administration manual;
(5) Test reports;
(6) Release notes;
(7) Release and deployment plan;
(8) Support plan.

[SOW-267] The Contractor shall use the latest Purchaser templates for request for changes and artefacts in support of it.

[SOW-268] In case third-party software is used for the baseline, the Contractor shall deliver the software, licences and warranty documentation to the Purchaser prior to the submission of the request for change.

[SOW-269] In order to allow deployment of a pre-release, for example for use during a workshop or user acceptance testing, the Contractor shall support the Purchaser with submitting the change request to the CRQ Governance Board for a limited authorization to operate (LATO) and deliver all required artefacts in support of the change request.

[SOW-270] The Contractor shall support, if necessary at Purchaser facilities, the independent verification and validation testing, and security testing performed by the Purchaser for each release submitted through the CRQ process.

[SOW-271] In order to avoid delays in obtaining AFPL due to failure in testing or vulnerabilities, the Contractor shall prepare and support pre-testing of the baseline release.

[161] The Purchaser will provide the Contractor with a test report after conclusion of each test session, documenting the test results. Any failures and possible remedial actions will be indicated.

[SOW-272] The Contractor shall resolve any discrepancies and vulnerabilities and support additional independent verification and validation testing required to verify these fixes.

4.3.3.4 Training Readiness Review

[162] The training readiness review will be conducted to determine if the training courses and training packages for the baseline are ready, meet the requirements and all training prerequisite are in place, prior to proceeding with the transition. For training requirements, see Section 4.5.

[SOW-273] The Contractor shall prepare and deliver the draft training scenarios and training packages for Purchaser review at the end of the iterative development phase.

[SOW-274] The Contractor shall organise and conduct a training readiness review together with the Purchaser and BMD Programme representatives.

[SOW-275] The Contractor shall present the status of preparations and readiness for commencing the training.

4.3.3.5 Entry and Exit Criteria

[SOW-276] The Contractor shall comply with the following entry criteria for the validation phase:

(1) The Contractor has concluded the previous phase successfully.

[SOW-277] The Contractor shall comply with the following exit criteria for a successful conclusion of the validation phase:

(1) The Contractor has successfully conducted the system integration testing with a minimum 80% pass on the executed test cases;
(2) The Contractor has successfully conducted the user acceptance testing with a minimum 90% pass on the executed user acceptance criteria;
(3) The Contractor has successfully passed the independent verification and validation testing and the baseline release is on the AFPL;
(4) The Contractor has incorporated the feedback received during the user acceptance testing and has resolved all newly discovered and outstanding critical and high severity defects during this phase and provided an updated baseline releases, as required;
(5) The Contractor has delivered a release build, including source code, any third-party software, licences and warranty documentation. This shall include any third-party software and components as per Section 3.7, that have not been delivered yet;
(6) The documentation artefacts supporting the change request (CRQ) have been reviewed and accepted by the Purchaser;
(7) The Contractor has delivered revisions of the system documentation artefacts including the installation and configuration manual, maintenance and administration manual, coherent with the baseline release that have been reviewed and accepted by the Purchaser;
(8) The Contractor has delivered revisions of the user documentation artefacts, including online help and standard operating procedures manual, coherent with the baseline release that have been reviewed and accepted by the Purchaser;
(9) The Contractor has delivered revisions of the programmer’s manual, software design description (SDD) and interface control document (ICD), coherent with the baseline release that have been reviewed and accepted by the Purchaser;
(10) The training scenarios and training packages have been reviewed and accepted by the Purchaser;
(11) The Contractor has delivered meeting reports of meetings held during this phase;
(12) The Contractor has delivered test reports of the test activities conducted during this phase.

4.3.4 Transition Phase

[163] Following successful completion of the validation phase, the transition phase will commence. The objective of the transition phase is to deploy the approved baseline release onto the NATO operational network, training platform, and relevant test and reference environments, and deliver training and support.

[164] The transition phase, and thus the work package, will be concluded with a partial system acceptance (PSA) once all services and deliverables have been delivered and accepted by the Purchaser.

4.3.4.1 Deployment

[165] The deployment, i.e. installation, migration and activation, of a baseline release on the NATO operational networks, training platform, (integration) test beds and reference environments will be the responsibility of the Contractor, supervised by the Purchaser.

[166] The current TOPFAS Application Suite has a mixed architecture, with both centralised and decentralised components serving the NATO Command Structure. Further instances are deployed on the NCI Agency Reference Environment, the NCI Agency test beds and at the NCI Academy.

Table 4.1 - Overview Operational Sites, Reference Environment and Testbeds

#	Command/Site, Location
Allied Command Operations	
Strategic	
1	SHAPE, BEL
Operational - Joint	
2	HQ JFC Brunssum, NLD
3	HQ JFC Naples, ITA
4	HQ JFC Norfolk, USA
Operational - Component	
5	Air Command Ramstein, DEU
6	JFAC at Air Command Ramstein, DEU
7	Land Command Izmir, TUR
8	Maritime Command Northwood, GBR
9	Backup BMDOC, either DEU or ESP
Allied Command Transformation	
Transformation and Training	
10	Joint Force Training Centre, Bydgoszcz, POL
11	Joint Warfare Centre, Stavanger, NOR
NATO Communications and Information Agency	
Training and Support	
12	NCI Agency Support and Reference Environment

13	NCI Agency Bi-SC AIS IVVQ Testbed
14	NCI Agency BMD Integration Testbed (ITB)
15	NCI Academy, Oeiras, PRT

[SOW-278] The deployment of an instance of a baseline release shall include:
(1) Installation and configuration of the baseline release including the deployment of published services on the SOA&IdM platform.
(2) Integrate the newly installed baseline with the available core and other functional services;
(3) Migrate the existing capabilities of equivalent instance, e.g. training, exercise, operational, to the newly installed baseline. Data and databases shall be migrated without any data loss or data degradation;
(4) Activate the newly installed baseline and verify the correct installation and configuration;
(5) After Purchaser approval, deactivate and uninstall the previous baseline.

[SOW-279] The Contractor shall deploy an instance of each release submitted for independent verification and validation (RCQ process) to the Bi-SC AIS IVVQ Test Bed from the Purchaser's facilities. After successful completion of the first deployment, these deployments could be conducted remotely if agreed with by the Purchaser.

[SOW-280] The Contractor shall deploy an instance of each release for system integration testing activities to the BMD Integration Testbed and NCI Agency Support and Reference Environment from the Purchaser's facilities.

[SOW-281] The Contractor shall deploy an instance of each release to the NCI Agency Support and Reference Environment from the Purchaser's facilities. After successful completion of the first deployment, these deployments could be conducted remotely if agreed with by the Purchaser.

[SOW-282] The Contractor shall deploy instances of limited approval (LATO) baseline releases to the NATO operational network from the Purchaser's facilities for validation workshops, user acceptance testing, training, and BMD Programme System of System verification and validation, as required throughout the period of performance of the Contract.

[SOW-283] The Contractor shall deploy and activate multiple instances of an approved baseline release (up to four: operational instance, exercise instance, training instance and test instance) to the NATO operational network for the operational sites listed in Table 4.1. In general, the deployment shall be conducted from the Purchaser's facilities. Specific components, e.g. TOPFAS Desktop, may require local support on each site.

[SOW-284] The Contractor shall be responsible for ensuring that the deployed instances are installed and correctly configured, fully functional and accessible across the NATO network domain, i.e. from all connected sites (Table 4.1), with satisfying performance.

[SOW-285] The Contractor shall deploy and activate an instance of an approved baseline release to the NCI Agency Support and Reference Environment and BMD Integration Testbed as required, from the Purchaser's facilities.

[SOW-286] The Contractor shall deploy and activate up to two instances of each baseline release, including candidate releases as required, to the NCI Academy (on-site) training environment for training.

[SOW-287] The Contractor shall coordinate the deployment sequence and timeframes with the Purchaser and site POCs to accommodate for specific requirements, exercises, holiday periods and other considerations.

[SOW-288] The Contractor shall deliver a deployment report for each deployment, documenting deployment specific details of the activities conducted and results of the activation tests performed.

[SOW-289] In case issues or defects are discovered during the transition, the Contractor shall deliver an updated baseline release or patch to resolve the issue/defect and support the request for change process to obtain approval.

4.3.4.1.1 Release and Deployment Plan

[SOW-290] The Contractor shall deliver a Release and Deployment Plan that documents the Contractor's approach to all deployment and activation tasks, and describe (key) personnel involved and how it intends to meet the deployment and activation requirements of the Contract.

[SOW-291] The Release and Deployment Plan shall detail the overall schedule of deployment and activation activities, including required off-site and on-site preparations, baseline installation and configuration activities, data migration activities, and activation activities.

[SOW-292] The Release and Deployment Plan shall cover the deployment of each baseline release of each module and include an agreed process for transitioning from the current baseline to the newly installed baseline.

[SOW-293] The Release and Deployment Plan shall include "back-out" procedures for deactivating and removing installed the newly installed baseline and restoring existing services if any part of the new baseline is found to be interfering with the operation of other Purchaser capabilities.

[SOW-294] The Release and Deployment Plan shall include activation test procedures and test cases that verify that the newly baseline has been installed and configured correctly and is fully functional, including the interfaces to/with external capabilities and services.

[SOW-295] The Contractor shall deliver the initial version of the Release and Deployment Plans (one for each independent TOPFAS component) for Purchaser review prior to the factory acceptance test and keep the document artefact current and relevant throughout the period of performance of the Contract.

4.3.4.1.2 Optional Additional Deployments

[167] This section describes the requirements for additional Contractor furnished deployment services for the TOPFAS Application Suite to additional sites.

[168] The Purchasers reserves the right to exercise this option one or multiple times at any time from Contract Award.

[SOW-296] On purchaser request, the Contractor shall deploy and activate multiple instances of a baseline release (up to three (3): operational instance, exercise instance, training instance) to one site (on-site).

[SOW-297] The Contractor shall be responsible for ensuring that the deployed instances are installed and correctly configured, fully functional, and accessible across the relevant network domain, i.e. from all connected sites, with satisfying performance.

4.3.4.2 Training

[169] During the transition phase, the Contractor will provide training to operational community and the Purchaser's support staff.

[SOW-298] The Contractor shall plan, prepare and deliver training for each baseline in accordance with Section 4.5.

(1) The Contractor shall deliver administrator training to the Purchaser's service delivery and support staff prior to the deployment of a baseline;
(2) The Contractor shall deliver the necessary end-user training courses to the operational community in proximity of the deployment and activation of a baseline.

4.3.4.3 Partial System Acceptance

[170] The transition phase will be concluded with a partial system acceptance (PSA) of the baseline, which will be granted when the Purchaser has verified completeness of the entire baseline delivery and has determined that it meets the requirements of the Contract.

[SOW-299] The Contractor shall develop and deliver a partial system acceptance report, which shall reference relevant CLINs and includes:

(1) Traceability of the delivered and deployed baseline(s) and associated artefacts;
(2) Traceability of any other artefact delivered;
(3) Traceability of services delivered;
(4) Requirements deliverable requirements traceability matrix, including completion status;
(5) Overview of outstanding non-critical defects with a correction action plan for addressing these defects.

[SOW-300] The Contractor shall request partial system acceptance in writing to the Purchaser, supported by a partial system acceptance report and meeting invitation.

[SOW-301] The Contractor's personnel shall meet with the Purchaser's project team and BMD Programme representatives for a partial system acceptance meeting. At the discretion of the Purchaser, meeting by video conference might be acceptable.

[SOW-302] During the meeting, the Contractor shall include in its presentation:

(1) An overview of the key dates of the Contract, amendments and engineering change proposals;

(2) A summary of the scope, with overview of main deliverables and services delivered, highlights and main achievements;
(3) Key dates of project milestones and acceptance;
(4) Invoicing log, including listing outstanding payments;
(5) Outstanding CLINs delivered to be formally accepted;
(6) Defect correction action plan and approach to maintenance and support services to be furnished until final system acceptance.

[SOW-303] The Contractor shall prepare and deliver a written report of the meeting in the form of meeting minutes that shall be reviewed and signed by the representatives of the Contractor and Purchaser respectively.

4.3.4.4 Maintenance and Support

[SOW-304] On passing partial system acceptance of the first Work Package until successfully achieving final system acceptance, the Contractor shall provide maintenance and in-service support for the first TOPFAS Application Suite baseline release and any follow-on deployed baseline releases, service releases or patches in accordance with the provisions stipulated in Section 4.9.3.

4.3.4.5 Entry and Exit Criteria

[SOW-305] The Contractor shall comply with the following entry criteria for the transition phase:
(1) The Contractor has concluded the previous phase successfully;
(2) The Contractor has coordinated the provision of training at the Purchaser's facilities;
(3) The Contractor has delivered and sent the invitation for the training to be delivered.

[SOW-306] The Contractor shall comply with the following exit criteria for a successful conclusion of the transition phase:
(1) The Contractor has completed the deployment of multiple instances of the baseline releases on the NATO operational network and the instances are fully functional and operational;
(2) The Contractor has completed the deployment of multiple instances of the baseline releases to the NCI Agency Support and Reference Environment, the reference and test beds, and the NCI Academy and the instances are fully functional and operational;
(3) The Contractor has delivered deployment reports for each deployment;
(4) The Contractor has resolved all critical and high severity defects discovered during this phase and provided updated baseline releases, as required;
(5) The Contractor has delivered revisions of the system documentation artefacts including the installation and configuration manual, maintenance and administration manual, coherent with the baseline release that have been reviewed and accepted by the Purchaser;
(6) The Contractor has delivered revisions of the programmer's manual, software design description, including interface control document, coherent with the baseline release that have been reviewed and accepted by the Purchaser;
(7) The Contractor has completed the delivery of training;

(8) The Contractor The Contractor has delivered training course evaluation reports of all training courses conducted during this phase;
(9) The Contractor has incorporated feedback and lessons-learned in the training scenarios and training packages and has delivered an updated version;
(10) The Contractor has delivered meeting reports of meetings held during this phase;
(11) The Purchaser has verified completeness of the entire delivery of the baseline and has determined that it meets the requirements of the Contract;
(12) The Purchaser comments/concerns regarding the defect correction action plan and approach to maintenance and in-service support to be provided until final system acceptance have been addressed;
(13) The partial system acceptance meeting has been held and the submitted meeting minutes are accepted by Purchaser;
(14) The partial system acceptance has been granted.

4.4 Closure Phase

[171] The objective of the closure phase is for the Purchaser to conduct the final validation of all deliverables, confirming complete hand-over, and verify that all contractual requirements (except warranty) have been met by the Contractor.

[172] Final system acceptance (FSA) will be granted when the Purchaser has verified completeness of the entire delivery and has determined that it meets the requirements of the Contract. Subsequently, on successful achievement of the final system acceptance, the warranty period will commence.

[SOW-307] The Contractor shall develop and deliver a final system acceptance report, which shall reference relevant CLINs and includes:
(1) Traceability of delivered and deployed baselines and associated artefacts;
(2) Traceability of any other artefact delivered;
(3) Traceability of services delivered;
(4) Updated deliverable requirements traceability matrix, including completions status;
(5) Overview of outstanding non-critical defects with a correction action plan for addressing these defects under warranty.

4.4.1 Close-out Meeting

[SOW-308] The Contractor shall request final system acceptance in writing to the Purchaser, supported by a final system acceptance report and close-out meeting invitation.

[SOW-309] The Contractor’s personnel shall meet with the Purchaser’s project team and BMD Programme representatives for a close-out meeting. At the discretion of the Purchaser, meeting by video conference might be acceptable.

[SOW-310] During the close-out meeting, the Contractor shall include in its presentation:
(1) An overview of the key dates of the contract, amendments and engineering change proposals;
(2) A summary of the scope, with overview of main deliverables and services delivered, highlights and main achievements;
(3) Key dates of project milestones and acceptance;

(4) Invoicing log, including listing outstanding payments;
(5) Outstanding CLINs delivered to be formally accepted;
(6) Defect correction action plan and approach to maintenance and in-service support to be provided during the warranty period.

[SOW-311] The Contractor shall prepare and deliver a written report of the close-out meeting in the form of meeting minutes that shall be reviewed and signed by the representatives of the Contractor and Purchaser respectively.

4.4.2 Entry and Exit Criteria

[SOW-312] The Contractor shall comply with the following entry criteria for the closure phase:
(1) The Contractor has concluded the previous phase successfully;
(2) The Contractor has at least successfully passed one of the BMD Programme SoS validation EOTs;
(3) The Contractor has verified and confirmed hand-over of all deliverables under this Contract;
(4) The Contractor has delivered the final system acceptance report and is requesting final system acceptance;
(5) The Contractor has delivered the Certificate of Conformity.

[SOW-313] The Contractor shall comply with the following exit criteria for a successful conclusion of the closure phase:
(1) The Purchaser has assessed completeness of the entire delivery and has determined that it meets all requirements of the Contract (except warranty);
(2) The Purchaser comments/concerns regarding the defect correction action plan and approach to maintenance and in-service support to be furnished during the warranty period have been addressed;
(3) The close-out meeting has been held and the submitted meeting minutes are accepted by Purchaser;
(4) The final system acceptance has been granted.

4.5 Training

4.5.1 General

[173] Accompanied with the deliveries of WP1 and WP2 of the, the Contractor will develop and provide training for users, support staff and trainers of the capabilities of new TOPFAS Application Suite baseline.

[174] Definitions:
(a) **Face-to-face learning:** Students and instructor are physically present at the same training facilities, at the same time (synchronously);
(b) **Live online learning:** Students and instructor are possibly in different geographical locations, and they connect to the same digital training environment at the same time (synchronously). Live online learning was previously known as Remote Delivery;
(c) **Self-paced online learning:** Learning activity that is not led by an instructor where students access online learning materials, individually at a time of their own choosing (asynchronously) and from any geographical location. They spend as much time on the training activity as they choose or is required. Self-paced online learning can range from full modules of several hours of training time

(eLearning) to 'micro-learning' that only covers a few minutes of focused instruction or performance support;

(d) **Hybrid learning:** The instructor is physically present in one of the NCI Academy training facilities, together with a number of students. In addition, there are students in other locations who connect remotely to the same physical classroom, at the same time (synchronously);

(e) **Blended learning**: Multiple delivery types are used within the bounds of achieving the same course objectives, most commonly using self-paced online as a precursor to live online, MTT, or face-to-face;

(f) **eLearning:** Self-paced online learning, covering a complete or partial course;

(g) **Micro-learning:** Self-paced online learning that focuses on one or two learning objectives, and usually covers a few minutes of focused instruction or performance support;

(h) **Online tutorial:** Online manuals or online help. These are applications or system related documents and are not part of the training, but serve as reference material;

(i) **Training Needs Analysis (TNA):** a series of activities within the Global Programming – Development Methodology resulting in a set of education and training (E&T) solutions that satisfy a requirements package. This defines the objectives required to eliminate gaps and the necessary plans, which result in the delivery of E&T solutions. For Education and Individual Training (E&IT) solutions, this requires the application of the NATO Systems Approach to Training.

(j) **Course Control Documents (CCDs):** A set of documents used to define a NATO E&IT solution based on an E&IT requirement. Alternative formats include Programme of Instruction, Qualification Standard, Training Plan, Curriculum and Syllabus.

(k) **NCI Agency Learning Management System (LMS):** The Learning Management System managed by NCI Academy. The LMS is used to host the SCORM compliant eLearning content. The NCI Academy LMS is called JADL (Joint Advanced Distributed Learning) and it is based on ILIAS. The JADL server is located in Norfolk, United States.

(l) **NCI Academy Training Network (ATN):** The ATN facilitates face-to-face training on premises in the NCI Agency building Oeiras and Live Online training with students connecting from anywhere using unmanaged devices. The local network connects all the classrooms and labs in the NCI Academy, as well as a computing and storage infrastructure hosted in the Academy's server room to support in-house training, designated Training Landing Zone (TLZ). The local network and the TLZ are both part of the global training delivery capability of the NCI Academy, which is called ATN, also remotely accessible by students through a Virtual Desktop Infrastructure (VDI) gateway exposed to the Internet.

[175] The Purchaser will provide access to the NCI Academy Training Network (ATN) and to the NCI Agency Learning Management System (LMS) at the NCI Academy.

[176] For reference, the current training catalogue for the TOPFAS Application Suite comprises of the following training courses and webinars:

(a) TOPFAS SAT Practitioner Course;

(b) TOPFAS SAT Train-The-Trainer Course;

(c) TOPFAS OPT Practitioner Course;

(d) TOPFAS OPT Train-The-Trainer Course;

(e) TOPFAS CAT Practitioner Course;
(f) TOPFAS CAT Train-The-Trainer Course;
(g) TOPFAS OMT Practitioner Course;
(h) TOPFAS Desktop Functional Manager Course;
(i) TOPFAS Desktop System Administrator Course;
(j) TOPFAS eFGMT Force Generator Practitioner Course;
(k) TOPFAS eFGMT Functional Manager Course;
(l) TOPFAS NCRS Practitioner Course;
(m) TOPFAS RRT Force Readiness Manager Practitioner Course;
(n) TOPFAS RRT Force Readiness Assessor Practitioner Course;
(o) TOPFAS RRT Force Readiness Reporter Practitioner Course;
(p) TOPFAS RRT System Administrator Course;
(q) TOPFAS OCC E&F Tool Practitioner Course;
(r) TOPFAS OCC E&F Tool Functional Manager and System Administrator and Course.

[177] In addition, instruction videos exist, each focusing on a specific modules and functions of the TOPFAS Application Suite.

[178] The existing training material, i.e. training packages and instruction videos, will be made available to the Contractor, but are to be revised fully and expanded with new courses to meet the Contract requirements, specifically in relation to the outcome of the Training Need Analysis, which is defined below.

[SOW-314] The Contractor shall plan, execute and control the training process as defined in the NATO Bi-SC Education and Individual Training Directive (E&ITD) 075-007 [NATO-Bi-SC-DIR-075-007].

[SOW-315] The Contractor shall perform Training Needs Analysis to justify all the training activities for the TOPFAS Application Suite.

[SOW-316] The Contractor shall apply the NATO Systems Approach to Training as defined in [NATO-Bi-SC-DIR-075-007].

[SOW-317] The Contractor shall perform all required analysis, design, development, implementation and evaluation tasks according to the guidance provided in [NATO-Bi-SC-DIR-075-007].

[SOW-318] The Contractor shall be able to design, develop and perform the following training delivery methods:
(1) Face-to-face learning;
(2) Live online learning;
(3) Self-paced online learning;
(4) Hybrid learning;
(5) Blended learning.

[SOW-319] The Contractor shall provide training for users, support staff and trainers (train-the-trainer) through a combination of face-to-face, live online, self-paced online, hybrid or blended learning in accordance with the [NATO-Bi-SC-DIR-075-007], and TOPFAS Application Suite specific training requirements.

[SOW-320] The Contractor shall demonstrate that all required personnel have been trained in accordance with the training plan.

[SOW-321] The training courses shall utilise a combination of lecture and hands-on exercises to ensure students completing a course can perform to the level agreed to in the training plan. This shall include:
(1) Development and delivery of training courses and training materials.
(2) Training of users, support staff and trainers on the capabilities;

[SOW-322] The Contractor shall deliver training courses at Purchaser-specified facilities.

[SOW-323] The Contractor shall furnish all facilities, services and equipment (including servers and workstations for students and teachers, network equipment, all required software, etc.) necessary to carry out the on-site training activities.

[179] In case the Purchaser-specified facilities are furnished with Purchaser-owned (training) equipment, the Purchaser may decide to make the equipment available to the Contractor for the conduct of training courses.

[SOW-324] In case training courses are to be provided on a Purchaser-identified training environment or other platform, the Contractor shall prepare, install and configure a training environment (including training databases, etc.) on the Purchaser-furnished equipment necessary to carry out the on-site training activities.

[SOW-325] In case training courses are to be provided on a Purchaser-identified operational platform, there shall be no interference with operational activities.

[SOW-326] The training courses shall cover for the various categories of roles based on the TNA or specific direction from the Purchaser.

[SOW-327] The training activities shall be made available on the following platforms:
(1) NCI Academy Learning Management System, Joint Advanced Distributed Learning (JADL) for self-paced online training;
(2) NCI Academy Physical Training Facilities for face-to-face training;
(3) NCI Academy Training Network (ATN) for live online training.

4.5.2 Training Need Analysis

[SOW-328] The Contractor shall conduct Training Needs Analysis (TNA) in accordance with [NATO-Bi-SC-DIR-075-007] and in consultation with the Purchaser. The TNA tasks shall include as a minimum:
(1) A Target Audience Analysis;
(2) A Task Analysis aligned to operations and maintenance task analysis [SOW-627] and [SOW-628];
(3) Development of performance and Learning objectives;
(4) Training Strategy proposal.

[SOW-329] The Contractor shall base training process program and procedures on the results of the TNA.

[SOW-330] The Contractor shall identify the required prerequisites for training participants, as part of the TNA.

[SOW-331] The Contractor shall base the scope, delivery methods, and duration of training courses and materiel on the TNA.

4.5.2.1 Target Audience Analysis

[SOW-332] The Contractor shall conduct a Target Audience Analysis in accordance with [NATO-Bi-SC-DIR-075-007] utilizing any information already determined by the Purchaser training staff and produce a summary population table.

[SOW-333] The Contractor shall assess the current skills of operational staff that will use/operate the TOPFAS Application Suite and the importance and difficulty of tasks via discussions with Purchaser-identified experts.

4.5.2.2 Task Analysis

[SOW-334] The Contractor shall exploit results of the operations and maintenance task analysis performed in the context of the maintenance and administration [SOW-627] and [SOW-628] to identify and list all user, maintenance and support tasks for each module of the TOPFAS Application Suite.

[SOW-335] The Contractor shall conduct a Task Analysis in accordance with the [NATO-Bi-SC-DIR-075-007] to identify and list all user, maintenance and support tasks for each module of the TOPFAS Application Suite.

[SOW-336] The Task Analysis shall include identified roles of users who will use the TOPFAS Application Suite to accomplish their tasks.

[SOW-337] The Task Analysis shall include a Difficulty, Importance and Frequency (DIF) Analysis to determine the priority and training effort to be applied to the Performance Objectives (PO).

[SOW-338] The DIF analysis shall identify the difficulty and importance of each major task to be performed by each category of roles and the frequency with which the task will be performed.

[SOW-339] The Task Analysis shall include a Performance Gap Analysis to assess the gap between the current skills of the target audience and the tasks they will be expected to perform in the use and support of the TOPFAS Application Suite in order to determine which performance gaps can be addressed by training.

4.5.2.3 Performance Objectives

[SOW-340] The Contractor shall develop Performance Objectives for those tasks for which trainable performance gaps have been determined and document them in accordance with Annex J of [NATO-Bi-SC-DIR-075-007].

[SOW-341] The Contractor shall document the results of the task analysis in the Course Control Document II (CCD II) - Course Proposal in accordance with [NATO Bi-SC DIR 075-007], Chapter 5 and Annex L.

4.5.2.4 Instructional Analysis

[SOW-342] The Contractor shall conduct an Instructional Analysis in accordance with [NATO-Bi-SC-DIR-075-007], Chapter 6 that includes but is not limited to, the following activities:

(1) Identify the main teaching points associated with enabling elements by breaking out the skills and knowledge into sub-components in order to achieve the Performance Objectives identified;

(2) Identify all components and sub-components of the tasks that make up the performance objective, including supporting skills and knowledge elements as well as other attributes, such as attitudes;
(3) Identify the main points (the teaching points) associated with the supporting (enabling) elements.

[SOW-343] The contractor shall take all the Performance Objectives that require Education and Individual Training (E&IT) and create a list of Enabling/Learning Objectives (ELO) in accordance with [NATO-Bi-SC-DIR-075-007], Chapter 6 and Annex N.

4.5.2.5 Training Strategy Development

[SOW-344] The contractor shall define instructional strategies in accordance with the guidance provided in [NATO-Bi-SC-DIR-075-007], Chapter 6, by identifying and selecting:
(1) Instructional methods such as demonstration-performance, case studies or lectures;
(2) Instructional media (e.g. slides, diagrams, video recordings, models, simulators, real equipment);
(3) Learning environment, e.g. face-to-face, live-online, or hybrid learning (combination of both).

[SOW-345] The contractor shall formulate a proposal for instructional strategy based on the selected instructional methods, media and the environment in accordance with [NATO-Bi-SC-DIR-075-007], Chapter 6.

[SOW-346] The contractor shall document the Course Control Document III (CCD III) - Programme of Classes in accordance with [NATO-Bi-SC-DIR 075-007], Chapter 5 and Annex R to define the training solution which shall include the ELO and provide the details supporting the overall instructional strategy including the final structure of the content, teaching points, the instructional method, the time allocated to complete the ELO and student assessment details.

4.5.2.6 Training Need Analysis Report

[SOW-347] The Contractor shall deliver a TNA report in accordance with [NATO-Bi-SC-DIR 075-007] that shall include the following:
(1) A description of the TNA approach and activities;
(2) An account of the Task Analysis performed;
(3) The results of the Performance Gap Analysis, Task Analysis, DIF Analysis, Target Audience Analysis, and the Instructional Strategy Analysis;
(4) The final list of Performance Objectives (POs);
(5) The final list of Enabling/Learning Objectives (ELOs);
(6) The list of Teaching Points developed for each of the Course Control Documents II and III as summaries of the proposed E&IT solutions.

4.5.3 Training Plan

[180] The Contractor should consider for planning, developing and delivering training that the maximum capacity of a classroom is 12 participants.

[SOW-348] The Contractor shall deliver a Training Plan template, intended for documenting the Contractor's approach to training planning, development and delivery, detailing the milestones, training organization, personnel and training development activities, and describe how it intends to meet the training requirements of the Contract with direct mapping to the training process requirements defined above in reference to [NATO-Bi-SC-DIR-075-007].

[SOW-349] Based on the TNA report results, the Contractor shall fully develop and maintain the Training Plan, to describe how the requirements for initial and follow-on training will be met.

[SOW-350] The Training Plan shall describe in a coherent way how training will be developed, delivered, and maintained throughout the life of the capability.

[SOW-351] The Training Plan shall describe any required knowledge transfer related to the maintenance of the training by the NCI Academy. These include technical maintenance of training related hardware, software licences, eLearning content update requirements, like software tools, source code availability, etc.

[SOW-352] The Contractor's Training Plan shall include training design documentation using the Course Control Document (CCD) III – Programme of Classes template provided in [NATO-Bi-SC-DIR-075-007] Annex R-4.

[SOW-353] The Training Plan shall describe the training documentation for each course including but not limited to the course plans, time schedules, and instructors in addition to CDD III.

[SOW-354] The Training Plan shall define a modular approach to the training courses and training delivery with focus on user roles and responsibilities.

[SOW-355] The Training Plan shall describe the quality management process for training in conformance with the Contractor's Quality Plan.

[SOW-356] The Training Plan shall include a training development and delivery schedule, in relation to the overall Contract schedule.

[SOW-357] The Contractor shall recommend in the training plan the delivery types of training (i.e. face-to-face, live online, self-paced online, hybrid or blended learning) and the rationale for those recommendations for each type of training (user, administrator, support staff, train-the-trainer, etc.).

[SOW-358] The Training Plan shall describe how the delivery of training courses shall be planned and executed, including timely communication with the stakeholders (e.g. instructors, students, hosts, etc.) and securing adequate training resources, materiel and facilities.

4.5.4 Training Development

[SOW-359] The Contractor shall develop distinct training modules and training courses for the complete TOPFAS Application Suite by fully revising and expanding the existing training courses, taking into account the results of the Training Need Analysis.

[SOW-360] The Contractor shall develop distinct training modules and training courses that differentiate between the user roles of the TOPFAS Application Suite.

[SOW-361] The Contractor shall develop new training courses and modules for the TOPFAS Request for Information app.

[SOW-362] The Contractor shall develop new training courses and modules for TOPFAS Collaboration Apps and Services.

[SOW-363] The Contractor shall develop new training courses and modules for TOPFAS Training and Exercise Management app.

[SOW-364] The Contractor shall develop a new system administrator training course for TOPFAS eFGMT.

[SOW-365] The Contractor shall develop a new system administrator training course for TOPFAS NCRS.

[181] The aim of a transition course is aid existing TOPFAS users with the transition to the new incremental baseline release by providing them the knowledge and skills of changes and newly introduced functions.

[SOW-366] The Contractor shall develop user transition training courses TOPFAS Application Suite.

[SOW-367] The Contractor shall develop and deliver training materiel for each training module and training course, including:
(1) Student Manual;
(2) Student Handouts;
(3) Instructor Guide;
    (a) Course title and description;
    (b) Course plans;
    (c) Course presentations;
    (d) Learning objectives;
    (e) Instructional methodologies;
    (f) Performance standards;
    (g) In-class assignments or laboratories;
    (h) Lesson exercises/quizzes/exams with answer sheets;
    (i) Training system installation and configuration procedures;
(4) Training aids of all types including real equipment, references and job aids;
(5) Question database and sample tests;
(6) Training Certificate;
(7) Course evaluation feedback form;
(8) Self-paced online learning content (eLearning/micro-learning).

[SOW-368] The Contractor shall develop and deliver a student manual for each training module and training course, with necessary information on all lesson objectives and contents, guidance for all learning activities and cross-references to assist the students in achieving the course objectives.

[SOW-369] The student manual shall include concepts, functions and features presented in the course, including a full set of Microsoft PowerPoint presentations, to be used in lieu of the application, i.e. essential screenshots describing the features and demonstrating the usage and results, as well as exercises.

[SOW-370] The student manual shall take into account results from the DIF analysis and shall enable students to perform their major tasks.

[SOW-371] The instructor guide shall contain all necessary information to prepare and conduct lessons and to evaluate students, including exercises, quizzes, and examinations and their corresponding answer sheets, and shall also provide notes to instructors to assist in conducting the lecture or exercise.

[SOW-372] The hand-outs are additional aids that supplement the student manuals when covering areas identified as difficult and/or particularly important. These shall cover alternative approaches and provide realistic examples of task execution.

[SOW-373] The Contractor shall prepare and deliver operationally-realistic training scenarios, including workflows, databases, samples, practical exercises, etc. for use within training courses and training activities.

[SOW-374] The training material shall include all the information required to conduct the courses and maintain the training material.

[SOW-375] The training material shall follow an instructional methodology that links training objectives with course structure, instructional techniques, course content, and assessment tools.

[SOW-376] The Contractor shall develop and deliver all the training material in the UK English language.

[SOW-377] The Contractor shall deliver training courses in the English language.

[SOW-378] Before put in use, the training materiel shall be submitted for review by the Purchaser, which may result in feedback for improvement. The Contractor shall implement the changes directed by the Purchaser and provide updated training materiel.

[SOW-379] The Contractor shall develop and deliver a set of self-paced online learning modules in the form of eLearning and micro-learning as identified in the Training Plan to enable end users and self-service users to perform the tasks associated with their roles.

[SOW-380] The eLearning/micro-learning shall complement the face-to-face training by defining and explaining the key concepts and terminology of the TOPFAS Application Suite, and by providing additional practice opportunities.

[SOW-381] All eLearning training material shall be prepared in compliance with the Sharable Content Object Reference Model (SCORM) Edition 2004.

[SOW-382] All eLearning material shall be suited for and delivered on the NCI Academy Learning Management System (JADL).

[SOW-383] The Contractor shall ensure that the software used to produce the eLearning is included in the NATO AFPL.

[SOW-384] The eLearning package shall allow modifications by the Purchaser to reflect changes in the training concept and/or content without any additional cost to the Purchaser.

[SOW-385] The Contractor shall provide to Purchaser, all the eLearning assets including the SCORM packages, source code files, graphic and multimedia assets.

[SOW-386] The eLearning package shall be user transparent, efficient and integrating the specific features for instructor and student without requiring special training in authoring systems technology or help from subject-matter experts.

[SOW-387] The Contractor shall provide all the appropriate training documentation to support the Purchaser staff to perform the trainings using the Learning Management System (JADL).

[SOW-388] The contractor shall provide performance support materiel (eLearning/micro-learning) to support users after the training during their work, with the following characteristics: bite-sized learning chunks designed to model or explain concrete tasks, ideally embedded in-application performance support, including a search function to make all performance supporting materials findable at the point of need.

[SOW-389] The Contractor shall propose for Purchaser agreement a set of instruction videos to be developed, covering a range of functions and usage for each of the user roles identified.

[SOW-390] After Purchaser agreement, the Contractor shall develop and deliver the set of instruction videos.

[SOW-391] The Contractor shall integrate the instruction videos in the NCI Academy Learning Management System (JADL).

[SOW-392] The Contractor shall integrate the training material/packages, eLearning material and instruction videos in the TOPFAS Help Centre.

[SOW-393] The Contractor shall develop and deliver administrator training modules and training courses required to enable assigned Purchaser personnel to support and maintain the baseline release at second and third level. Note: These training modules and/or courses cover the system/site administrator roles and responsibilities.

[SOW-394] The administrator training modules and training courses shall cover all aspects of the installation and configuration manual (Section 6.14), the maintenance and administration manual (Section 6.15) and standard operating procedures manual (Section 6.17).

4.5.5 Training Delivery

[SOW-395] The Contractor shall plan, prepare and deliver the training modules and training courses in a physical classroom at Purchaser designated facilities.

[SOW-396] The Contractor shall coordinate with Purchaser the requirements and availability of training facilities at the Purchaser’s facilities no later than three months prior to the planned training.

[SOW-397] The Contractor shall prepare and deliver the invitations for the training no later than two months prior to the planned training.

[SOW-398] The Contractor shall provide each course participant with a printed copy of the student manual; other (student) materiel physical or electronically as required by the course.

4.5.6 Assessment and Evaluation

[SOW-399] The Contractor shall conduct an assessment of the participants at the end of each course, score the participant's results and review the answers together with the participants.

[SOW-400] The Contractor shall include a quiz in each eLearning to facilitate student self-assessment.

[SOW-401] The Contractor shall propose assessment and evaluation methodology to the purchaser as part of the Training Plan.

[SOW-402] The Contractor's Training Assessment methodology shall be based on [NATO-Bi-SC-DIR-075-007] Sections 7-6, 7-7 and NCI Academy Standard Operating Procedure [ASOP-07.01.25] NCI Academy Grading and Assessment for assessment approaches and instruments and include:
(1) Examination methodologies and certification;
(2) Minimum score to achieve for successfully passing the course;
(3) A pass/fail policy, based on results of achievement tests
(4) Test/retest policies
(5) Course(s) to be done to get the certification for each role;
(6) Description of role's certification process.

[SOW-403] The contractor shall develop an assessment plan structured according to the template provided in [NATO-Bi-SC-DIR-075-007], Table 6-2 that specifies how achievement of the POs will be assessed and how the student progress based on the assessment of the ELOs will be monitored.

[SOW-404] The Contractor shall submit to the Purchaser a Training Course Evaluation Report following each training. The report shall contain the following:
(1) Student attendance and performance record;
(2) Consolidated feedback from participants' feedback forms;
(3) Problems encountered (if any);
(4) Actions taken or recommended;
(5) Suggested follow-up actions.

[SOW-405] The Contractor shall in consultation with the Purchaser, revise the training materiel for each course to reflect feedback and follow-up actions from the initial session of each course.

[SOW-406] The Contractor shall ensure that each student is instructed at the end of each course (instructor-led or eLearning) to complete and return the course evaluation feedback form provided as part of the instructor-led training course or eLearning.

[SOW-407] The Contractor shall deliver training certificates to each participant of each training course delivered, in accordance with NCI Academy Standard Operating Procedure [ASOP-07.01.25] NCI Academy Grading and Assessment. The certificates shall be delivered to the participants not later than two (2) weeks following the completion of the training. The students who carry out testing and achieve a 70% overall grading or higher on an NCI Academy course, shall be assessed as having achieved a "pass" and receive a Certificate of Qualification. Those students who achieve 69% or lower shall be classed as having "failed" and will have issued a Certificate of Attendance. In the remarks section comments there will be an explanation stating why the student did not achieve proficiency in

the subject area. If the course being taught has no formal testing, practical or theoretical, then a Certificate of Completion shall be issued at the end of the course.

4.5.7 Hand-over to the Purchaser

[SOW-408] The Contractor shall conduct a detailed Handover – Takeover (HoTo) for trainers from NCI Agency Business Areas and the NCI Academy.

[SOW-409] Accompanied with the deliveries of WP1 and WP2 of the new TOPFAS Application Suite baseline, the Contractor shall deliver the associated complete set of training materiel to the Purchaser.

[SOW-410] As part of the hand-over process, the Contractor shall train the Purchaser trainers to allow Purchaser instructors to deliver all training courses.

4.5.8 Optional Additional Training Delivery

[182] This section describes the requirements for additional Contractor furnished training delivery services for the TOPFAS Application Suite.

[183] The Purchasers reserves the right to exercise this option one or multiple times at any time from Contract Award.

[SOW-411] On purchaser request, the Contractor shall prepare and deliver additional training courses.

4.6 Deployable Equipment Kit

[184] A deployable equipment kit will be used for workshops, testing, verification, training and when needed for other activities provided by the Contractor.

[185] A deployable equipment kit is a separately networked (cabled) set of servers and laptops that can be deployed easily to Purchaser designated facilities as required to support Contractor activities. Note: the use of wireless network connectivity (Wi-Fi) is not possible due to security concerns.

[186] Multiple activities can take place in parallel and the Contractor will have to assess the size and number of deployable equipment kits required. The maximum anticipated capacity per activity will be 20 participants.

[SOW-412] The Contractor shall furnish one or more deployable equipment kits for workshops, testing, validation, training and other activities as required.

[SOW-413] The Deployable Equipment Kit specifications shall meet or exceed the minimum TOPFAS Application Suite system specifications.

[SOW-414] The Contractor shall be fully responsible for the configuration and maintenance of the deployable equipment kits throughout the performance period of the Contract.

[SOW-415] The Contractor shall ensure that the equipment runs with up-to-date firmware, operating system updates and antivirus/malware software throughout the performance period of the Contract in order to reduce security vulnerabilities and exploitation of vulnerabilities.

[SOW-416] The Contractor shall be full responsible for shipment to sites, transportation and deployment at the sites, and shipment from the sites, of the deployable equipment kits.

[SOW-417] The Contractor shall be fully responsible for the administrative procedures, i.e. custom clearance, registration of equipment details prior to arrival, etc.

[SOW-418] The Contractor shall incorporate significant time within its planning for administrative procedures, shipment and deployment, on-site (security) inspections, etc. of a deployable equipment kit.

4.7 Test, Verification, Validation and Assurance (TVVA)

[187] The Purchaser's Independent Verification, Validation and Quality (IVVQ) Service Line will be conducting independent verification and validation of the throughout the period of performance of the Contract. The aim of the independent verification and validation activities will be the evaluation of Contractor performance and verification and validation of Contractor services and deliverables.

[SOW-419] The Contractor shall support Purchaser IVVQ representatives in monitoring, inspecting, and assessing Contractor performance, services and deliverables, if needed at the Contractor's facilities. In particular:

(1) The Contractor shall make itself available for answering questions and furnishing information related to the Contract;
(2) The Contractor shall allow the Purchaser IVVQ representatives to monitor, inspect, and assess on-going Contractor activities as well as any technical and quality processes;
(3) When requested, the Contractor shall make available any deliverable to the Purchaser IVVQ representatives, whether the deliverable is under development, draft or final.

[SOW-420] The Contractor shall make available and transfer to the Purchaser IVVQ representatives all information deemed necessary to perform the TVVA activities, on his own initiative or on request by the Purchaser IVVQ representatives.

[SOW-421] The Contractor's test manager shall work closely with the Purchaser IVVQ representatives throughout the execution of all test, verification and validation activities.

4.8 Support to BMD Programme

[188] The requirements-owner of the BMD functional scope is the BMD Programme; the Contractor will provide support to the BMD Programme in order to enable the integration, testing and (system-of-system) verification, validation and acceptance of TOPFAS.

[189] There will be several verification and validation activities conducted by the BMD Programme. The timetable for the provision of these support services will be communicated to the Contractor by the Purchaser with sufficient time notice.

[190] The BMD Programme approach is based upon a tranche-based capability delivery methodology [TBCDM].

[SOW-422] The Contractor shall support BMD Programme in inspecting, integration, verification, validation and acceptance of all services and deliverables.

4.8.1 Tranche Gate Reviews

[SOW-423] The Contractor shall support the following tranche gate reviews for the BMD Tranches they are contributing to:
(1) Development Commitment Gate (DVC) at the end of the initiation phase;
(2) Transition Readiness Gate (TNR), at the end of the validation phase;
(3) Operational Readiness Gate (OPR), at the end of the transition phase.

[191] These gates represent the milestones of the BMD Programme Tranche-Based Capability Delivery Methodology [TBCDM] where each review successively gives or denies approval to proceed to the next stage.
(a) The Development Commitment Gate is the milestone that signifies the completion of the initiation phase, so that the works can enter the iterative development phase;
(b) The Transition Readiness Gate is the milestone that signifies that the envisaged system functions have been implemented, integrated, validated, and verified against the agreed criteria, so that the works can enter the transition phase;
(c) The Operational Readiness Gate is the milestone that signifies that the capabilities have been implemented successfully, so that capabilities can be declared operational.

[192] The Purchaser, taking into account the nature of iterative development process, will task the Contractor with expected support actions for these reviews with sufficient time notice.

[SOW-424] The initial Software Design Description (Section 6.11) and Deliverable Requirements Traceability Matrix (Section 6.10) are the primary artefact that the Contractor is expected to bring to a sufficiently mature state (barring possible amendments necessitated during iterative development) to enable the BMD Programme to successfully achieve the Development Commitment Gate.

[SOW-425] Following successful achievement of the user acceptance testing and the system integration testing, the results of IVVQ Testing (Section 4.3.3.3) will be key to enable the BMD Programme to successfully achieve the Transition Readiness Gate.

[SOW-426] Achieving the Partial System Acceptance (Section 4.3.4.3) will be key to enable the BMD Programme to successfully achieve the Operational Readiness Gate.

4.8.2 Support to System-of-System Verification and Validation

[193] In line with the tranche-based capability delivery methodology [TBCDM], the BMD Programme will be conducting system-of-system verification and validation events.

[194] The BMD Programme System of System verification and validation events are cyclic with firm timelines, which are depicted in Figure 4.5, Figure 4.6 and Figure 4.7 below.

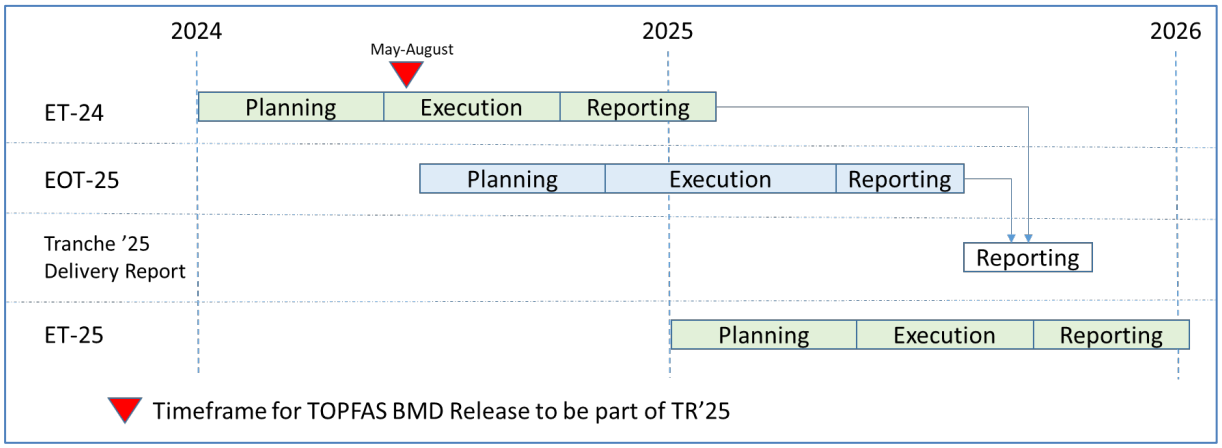

Figure 4.5 - BMD Programme System of System Verification and Validation 2024-2026

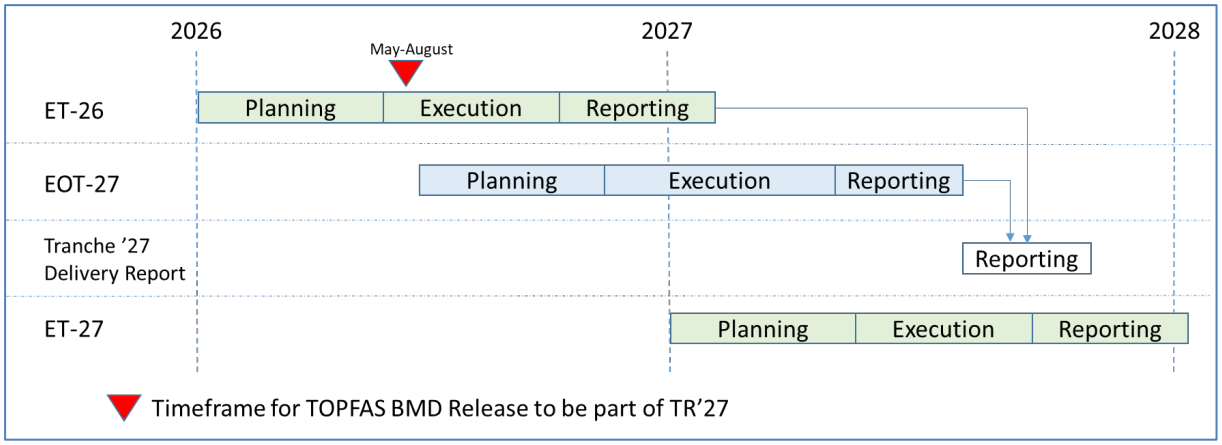

Figure 4.6 - BMD Programme System of System Verification and Validation 2026-2028

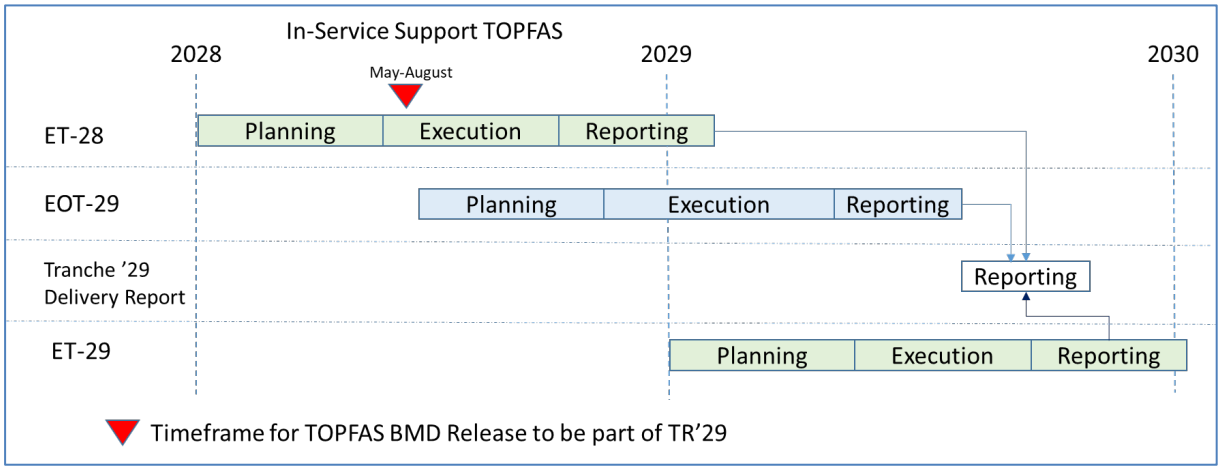

Figure 4.7 - BMD Programme System of System Verification and Validation 2028-2030

[SOW-427] The Contractor shall support annual BMD Ensemble Testing (ET) and two-yearly Ensemble Operator Testing (EOT) in the form of installation and configuration of the system and software applications in the BMD Integration Test Bed (ITB), operator support during data preparation, test scenario preparation, test execution, and test result analysis.

[SOW-428] The Contractor shall align its support efforts with the BMD ET and EOT events, and if required deliver and deploy interim baseline releases in order for TOPFAS to be validated within these events.

[SOW-429] The Contractor shall support BMD System of Systems Integration Testing for each delivery in the form of installation and configuration of the system and software applications, operator support during data preparation, test scenario preparation, test execution, and test result analysis.

[SOW-430] The Contractor shall plan, organise, and conduct end-user training to the BMD Team with each release to the BMD Integration Testbed in preparation for the ET and EOT events. This training shall be included in Sub-CLIN 2.4 and will be in addition to the formal training courses to be provided during the transition phase (see section 4.3.4.2).

[SOW-431] The Contractor shall support issue/defect review activities.

[SOW-432] The Contractor shall plan, organise, and conduct on-site user training in advance of BMD System of Systems Integration Testing, ET and EOT.

4.8.3 Support to Site Integration Tests

[SOW-433] The Contractor shall support the BMD Programme Site Integration Tests for each baseline delivery in the form of installation and configuration support, operator support during data preparation, test scenario preparation, test execution, and test result analysis.

4.8.4 Support to Capability Assessment and Validation Exercises

[SOW-434] The Contractor shall support the capability assessment and validation exercises conducted by the operational community in the form of installation and configuration support, operator support during data preparation, exercise scenario preparation, exercise execution, and exercise result analysis.

4.8.5 Support to the BMD Scope Implementation Monitoring

[SOW-435] The Contractor shall support the BMD Scope Implementation Monitoring (BSIM) by establishing and agreeing with the Purchaser the progress measurement baseline (PMB) for each work package prior to execution of the first development cycle, monitoring the progress of the value items development with the use of the DRTM and BSIM metrics, reporting the progress against the PMB with an assessment of the causes and remediation in case the BSIM metrics show deviation from the PMB.

4.9 Integrated Product Support

4.9.1 General

[SOW-436] The Contractor shall establish an integrated product support (IPS) process, using the [ALP-10] or [AIA/ASD SX000i] specification as guidance, and perform Integrated product support throughout the period of performance of the Contract.

[SOW-437] The Contractor shall align delivery of all Integrated product support related deliverables and services with the incremental delivery approach of the Contract.

4.9.2 Integrated Product Support Plan

[SOW-438] The Contractor shall deliver an integrated product support plan (IPSP) compliant with Section 6.8, and document its integrated product support process tailored to the Contract, including activities and milestones to deliver integrated product support deliverables and services.

[SOW-439] The Contractor shall document the planned maintenance and support activities in the Integrated Product Support Plan, based on the definitions, concepts and requirement set forth in the Contract.

[195] The in-service support plan documents the schedule, organization and resources of support during the in-service phase (from the first baseline release until final system acceptance, during warranty and during the optional maintenance and support furnished post the warranty period), considering the maintenance and support definitions and concept.

[SOW-440] The Contractor shall deliver an in-service support plan (ISSP) as an annex to the integrated product support plan compliant with Section 6.8.1.

4.9.3 Maintenance and Support

4.9.3.1 Definitions

[196] The support concept is the set of activities and processes in charge of managing the various levels of support and to escalate the problem to the appropriate level in accordance with the defined responsibilities.

[197] It is based on the incident management process defined in ISO/IEC 20000, the Information Technology Infrastructure Library (ITIL) framework, software supportability concept of [ASD S3000L]/[ASD SX000i] or equivalent.

[198] Support Level: the extent of technical assistance provided for an information technology capability to its users. The service management is divided into three different levels of service, which interface each other to activate the proper level of support appropriate for the type of incident that occurred or the request that has been made in accordance with the event happened on the system.

[199] First Level Support: implements the incident management process in accordance with the ITIL framework or equivalent. As part of the incident management, the service desk receives the issue from the user, puts it into a standard format (incident or service\change request), performs an initial assessment and distributes it to the predefined actors to solve it.

[200] Second Level Support: implements the problem management process in accordance with the ITIL framework or equivalent. The problem management process receives the trouble tickets from the service desk and performs the following tasks (not limited to):
(a) (Re-)evaluation of trouble ticket category, criticality and priority,
(b) Identification of the root cause of the issue (e.g. by issue replication testing),
(c) Identification of workarounds,

(d) Identification and initial planning of possible short, medium and long-term solutions (e.g. workarounds, patches, or new baseline or configuration item releases),
(e) Create problem analysis report and change request including schedule of implementation, and synchronization with the baseline maintenance process;
(f) Presentation of the problem analysis report and change requests to the change control board (CCB) for approval,
(g) Monitor and control the approved change request during implementation,
(h) Trigger third level support and/or third level maintenance process to implement the change request, in case the incident cannot be solved at second level;
(i) Perform the post-change request implementation review.

[201] Third Level Support: implements the deployment and release management process in accordance with the ITIL framework or equivalent. The deployment and release management process receives the approved change request from the second level support and performs the following tasks (not limited to):
(a) Activating third level maintenance when new solutions shall be developed;
(b) Development of the solution (i.e. new configuration item fix, repair, replacement, patch, or release);
(c) Testing of the solution (i.e. issue/deficiency replication testing, regression testing);
(d) Update of baseline content and status;
(e) Submit the solution for independent verification and validation testing;
(f) Release of the solution;
(g) Delivery and deployment of the solution.

[202] Maintenance Level: the echelon at which maintenance tasks are performed on an information technology capability. The levels are distinguished by the relative sophistication of skills, facilities and equipment available at them. Thus, although typically associated with specific organizations and/or geographic locations, in their purest form, the individual maintenance levels denote differences in inherent complexity of maintenance capability. For all maintenance levels is intended that:
(a) All proactive maintenance tasks are defined in the maintenance and administration manual (Section 6.15) and scheduled in the maintenance plan.
(b) Reactive maintenance activities are triggered by reported incidents, or service/change requests.

[203] First Level Maintenance: It is responsible for the very basic maintenance activities including the software failure recovery by simple diagnostics. It is responsible for activating the second level of maintenance when it is needed. It implements the initial preventive maintenance procedures and any additional service/capability and/or site-specific procedures that are defined in the corresponding operations and maintenance manual. First level maintenance procedures do not require specialised tools and/or specialised personnel.

[204] Second Level Maintenance: It is responsible for isolation and resolution of system-level maintenance and management of defect/bug reports and repair including the simple software customizations, software reloading/installation, execution of scripts, management of users/profiles usually performed by system administrators. It is responsible to activate the third level of maintenance when it is needed. It implements the initial preventive maintenance procedures and any additional service/capability

and/or site-specific procedures that are defined in the corresponding manual. Second level maintenance procedures do not require specialised tools.

[205] Third Level Maintenance: It is responsible for activities that involves a change to the system baseline, such as software patches or new releases including the bug recording and reporting, advanced troubleshooting and configuration changes with the changing environment. It is responsible for specialised hardware repair, if applicable. Third level maintenance is activated by third level support and can be initiated either to define the solution to a problem (corrective maintenance) or to maintain up to date software baseline (adaptive maintenance) e.g. security patches, operating system upgrades, minor software configuration changes due to operational/interface needs and refactoring. It implements the initial preventive maintenance procedures and any additional procedures that are defined in the corresponding manual. Third level maintenance procedures often require specialised tools and/or Personnel such as software architects, programmers, advanced system administrators and specialists.

[206] Fourth Level Maintenance: It is the responsibility of the software original developer under warranty and through separate agreements post warranty. It is activated from the third level of maintenance and covers, the four type of maintenance (corrective, adaptive, perfective and preventive maintenance) and change requests. It requires software maintenance, testing (both in simulated and emulated environments), patch creation, release and deployment services.

4.9.3.2 Maintenance and Support Concept

[206(i)] The current (legacy) TOPFAS Application Suite baseline will be provide to the Contractor “as-is”.

[SOW-440(i)] The Contractor shall be responsible for maintenance and support of the full TOPFAS Application Suite, including any legacy/latent defects and deficiencies.

[207] The NCI Agency’s service support team for the TOPFAS Application Suite, or its mandated representatives or third parties, will be performing maintenance and support services in parallel with the Contractor (including source code changes)

[SOW-441] The Contractor shall support and collaborate with the NCI Agency’s service support and maintenance team or its mandated representatives or third parties.

[SOW-442] The Contractor shall integrate any changes and modifications made by the NCI Agency’s service support and maintenance team or its mandated representatives or third parties.

[SOW-443] The Contractor shall deliver a maintenance and support concept, i.e. a collection of processes that are designed to ensure the operational efficiency of the operational baseline, including:

(1) Processes and procedures;
(2) Maintenance and support tasks at all levels;
(3) Maintenance and support environment;
(4) Locations;
(5) Constraints;
(6) Organization and personnel skills;

(7) Roles and responsibilities (responsible, accountable, consulted and informed (RACI).

[SOW-444] The maintenance and support concept shall refer to applicable functional and non-functional requirements.

[SOW-445] The maintenance and support concept shall define the second and third level support process interfaces to the other processes, including the existing NCI Agency Service Desk (first level support) and various NATO sites and organizations.

[SOW-446] The maintenance and support concept shall define the delivered baselines maintenance and support processes and flow amongst the various NATO facilities, organizations, groups, and people. This shall include the flow and interfaces between various maintenance and support levels.

[SOW-447] On passing partial system acceptance of the first baseline until successfully achieving final system acceptance, the Contractor shall provide in-service support and maintenance services for the first TOPFAS Application Suite baseline and any follow-on deployed baselines. This support shall include:
(1) Second and third level support;
(2) Third and fourth level maintenance, including implementation of fixes to defects and subsequently produce emergency patches and minor updates in between baseline releases to ensure that the operational baselines running in production fulfils its availability requirements.

[SOW-448] The Contractor shall deliver the support and maintenance documentation artefacts, training, and resources in order to allow the Purchaser to fully operate the solution, to perform first, second and third level support and maintenance from partial system acceptance of the final baseline onwards.

[SOW-449] Starting from partial system acceptance of the first baseline, until the end of the warranty period, all maintenance activities beyond Purchaser capabilities/skills (as per maintenance concept and Contractor delivered training and documentation) required to restore operational baselines from a critical failure shall be performed by Contractor provisioned dedicated on-site interventions and/or off-site resolutions.

[SOW-450] The Contractor shall maintain and deliver renewed/extended licenses of the third-party software and components in accordance with Section 3.7 and ensure that these licenses cover the full period of performance.

[SOW-451] The Contractor shall monitor the availability of third-party software and component upgrades and patches in accordance with the requirements stipulated in Section 3.7.

[SOW-452] When the agreed by the Purchaser, the Contractor shall introduce and integrate upgrades and patches of all third-party software and components in accordance with the requirements stipulated in Section 3.7.

[SOW-453] For any critical failure or defect that is beyond the capability of the Purchaser, the Contractor shall ensure system restoration within two (2) business days from the moment of Purchaser notification by providing workarounds; and within ten (10) days for critical defect fixing including the fault identification, software recoding,

patch creation, software testing and release of the new patch release. Corrective baseline or patch releases shall be done quarterly for non-critical bugs.

4.9.4 Supply Support

4.9.4.1 System Inventory

[SOW-454] The Contractor shall provide the Purchaser's Integrated Product Support (IPS) point of contact with an inventory and distribution list (IDL), in electronic Microsoft Excel format at least fourteen days before each baseline release.

[SOW-455] The inventory and distribution list shall be site-specific (as required) with reference to relevant CLIN, and shall include all deliverables furnished under this Contract, as follows:
(1) Date of distribution;
(2) All software artefacts, i.e. all software applications, components, tools, (if applicable), etc.;
(3) All hardware devices, if applicable;
(4) All licences, if applicable, including license key and renewal dates;
(5) All documentation artefacts, i.e. manuals, drawings, reports, etc.;
(6) All training packages.

4.9.5 Packaging, Handling, Storage, Transportation

[SOW-456] The Contractor shall deliver all deliverables, including all spares and repaired goods, DDP Destination (Incoterms 2000) to the NATO destinations, at Contractor’s expense. The Purchaser shall not be held liable for any storage, damage or any other charges involved in transportation prior to delivery at destination.

[SOW-457] The Contractor shall be responsible for the availability of proper storage facilities and availability of material handling equipment that may be required for the shipment at the destination.

[SOW-458] The Contactor shall liaise with the destination and coordinate availability of proper storage facilities and material handling equipment through the Purchaser’s integrated product support officer.

[SOW-459] In case classified items need to be transported, the Contractor shall adhere to the regulations concerning transportation of classified materials.

[SOW-460] The Contractor shall be responsible for the transfer and delivery of installation packages of all software, firmware and modifications thereof provided under this Contract to the respective destination.

[SOW-461] In case electronic storage media (CD/DVD, USB storage device, etc.) is used to deliver or transfer deliverables, then the Contractor shall physically label this media with the contract information, CLIN, identification, release date and security classification. The label shall be durable and non-erasable to ensure proper identification is warranted at all times.

[SOW-462] Fourteen days prior to the delivery of any shipment, the Contractor shall provide the Purchaser with a notice of shipment comprising the following details:
(1) Shipment date;

(2) Purchaser contract number;
(3) CLIN;
(4) Consignor's and consignee's name and address;
(5) Items description and quantity;
(6) Number of 302 Forms used (if applicable).

4.9.5.1 Customs

[SOW-463] The Contractor shall be responsible for customs clearance and/or export licences of all deliveries into their destination countries.

[SOW-464] The Contractor's shall be responsible for taking into account the time needed at customs, including eventual delays in obtaining customs clearance, and arrange for timely ship. The Purchaser shall not be held responsible for delays incurred, even when utilising Purchaser provided Customs Form 302 (if applicable).

4.10 Warranty

[SOW-465] The Contractor shall warrant that all deliverables and all services furnished under this Contract conform to the requirements and are free of any defect in code or workmanship for a period of one year starting at final system acceptance.

[SOW-466] The Contractor shall integrate the provision of corrective maintenance within its warranty services.

[SOW-467] When, at any time before the end of the warranty period, the Contractor becomes aware that a defect exists in any of the deliverables or services furnished under this Contract, the Contractor shall coordinate with the Purchaser and promptly correct the defect in accordance with the warranty provisions.

[SOW-468] The Contractor shall correct all defects and deliver a corrective baseline release at the end of each quarter throughout the warranty period.

[SOW-469] At the end of the warranty period, the Contractor shall deliver a final baseline release including the fixes for all the remaining defects.

[SOW-470] In case of a critical defect, the Contractor shall deliver analysis of the defect to the Purchaser and deliver a workaround within maximum eight (8) business hours, and the fixed solution by means of a patch release within four (4) business days after the Contractor has become aware of the defect.

[SOW-471] The Contractor shall integrate the provision of on-site service support within its warranty services to be provided off-site from the Contractor's facilities, or on-site at the Purchaser facilities as required in case the issue cannot be resolved remotely or to support warranty releases and deployment and hand-over thereof. In case on-site support provision at the Purchaser facilities is required, the Contractor's response time at Purchaser site shall be within two business days from the moment of Purchaser notification.

[SOW-472] The Contractor shall warrant all third-party software and components used during the warranty period. If required, the Contractor shall renew/extend the third-party software and component licences to cover the full warranty period.

[SOW-473] The Contractor shall monitor the availability of third-party software and component upgrades and patches in accordance with the requirements stipulated in Section 3.7.

[SOW-474] When the agreed by the Purchaser, the Contractor shall introduce and integrate upgrades and patches of all third-party software and components in accordance with the requirements stipulated in Section 3.7.

[SOW-475] The Contractor shall ensure that the warranty conditions remain valid even if the software is relocated/redeployed to an equivalent platform while under warranty.

[SOW-476] The Contractor shall conduct testing and perform the configuration and change management processes for each patch and maintenance baseline release

[SOW-477] The Contractor shall support the change request process for each patch and corrective baseline release.

[SOW-478] The Contractor shall support the independent verification and validation testing in accordance with Section 4.3.3.3.

[SOW-479] The Contractor shall support the BMD Programme in assessing the impact of issues, defects and identification and proposing workarounds and a fixed solution.

[SOW-480] The Contractor shall detail all the warranty requirements in its in-service support plan, including the roles and responsibilities.

[SOW-481] The Contractor shall provide a specific point of contact for all warranty and support requests.

5 Work Package 3: Optional Maintenance and Support

[208] This optional work package describes the requirements for the continued annual Contractor furnished maintenance and support services to be exercises for up to five years post the final system acceptance.

[209] The Purchasers reserves the right to unilateral exercise this option at any time from Contract Award until before the end of the Contract.

[SOW-482] On exercising this optional work package, the Contractor shall provide one year of second and third level support and third and fourth level maintenance services (see Section 4.9.3) off-site from the Contractor's facilities where this support includes:

(1) Support to NCI Agency's second and third level support process with identification of the root cause of the issue (i.e. problem identification and analysis);
(2) Correct all defects discovered and deliver a corrective maintenance baseline release every six months (corrective maintenance);
(3) In case of a critical defect, the Contractor shall deliver analysis of the defect to the Purchaser and deliver a workaround within maximum eight (8) business hours, and the fixed solution by means of a patch release within four (4) business days after the Contractor has become aware of the defect;
(4) At the end of the period of performance of the work package, deliver a final baseline including the fixes for all the remaining defects and agreed product backlog items;
(5) Provide modification of the software to keep it usable in a changed or changing environment (adaptive maintenance). This includes moving from one hardware platform to another, updating infrastructure software, insertion of other software components developed by third-parties and maintain interoperability with latest version and latest interface control documents of the external capabilities and services integrated or interfacing with the TOPFAS Application Suite;
(6) Detect latent faults, analysing patterns and discover potential vulnerable areas in the software and provide preventive fixes (preventive maintenance);
(7) Apply modification on software and improve performance or maintainability in an agreement with the Purchaser (perfective maintenance). This includes studies, enhancement, technology assessment and insertion, experimentation and data adaptation;
(8) Implement engineering change proposals and change requests, effort not used for adaptive and perfective maintenance shall be used to implement change proposals and change requests;
(9) Support to system integration testing in accordance with Section 4.3.3.1
(10) Support the user acceptance testing in accordance with Section 4.3.3.2.
(11) Support the BMD Programme in accordance with Section 4.8 and assessing the impact of issues, defects and identification and proposing workarounds and a fixed solution. The effort shall exclude the BMD Scope Implementation Monitoring (Section 4.8.5);

(12) Conduct testing and perform the configuration and change management processes for each patch and maintenance baseline release;
(13) Support the change request (CRQ) process for each patch and maintenance baseline release in accordance with Section 4.3.3.3;
(14) Support the independent verification and testing in accordance with Section 4.3.3.3;
(15) Support the release and transition process for each patch and maintenance baseline release.

[SOW-483] The Contractor shall integrate the provision of on-site service support within its maintenance services to be provided off-site from the Contractor's facilities, or on-site at the Purchaser facilities as required in case the issue cannot be resolved remotely or to support warranty releases and deployment and hand-over thereof. In case on-site support provision at the Purchaser facilities is required, the Contractor’s response time at Purchaser site shall be within two business days from the moment of Purchaser notification.

[SOW-484] To enable the interfacing between TOPFAS and other capabilities and services, the Contractor shall provide support to Purchaser or its contractors responsible for implementing such interfaces with TOPFAS.

[SOW-485] The Contractor shall maintain and deliver renewed/extended licenses of the third-party software and components in accordance with Section 3.7 and ensure that these licenses cover the full period of performance.

[SOW-486] The Contractor shall monitor the availability of third-party software and component upgrades and patches in accordance with the requirements stipulated in Section 3.7.

[SOW-487] When the agreed by the Purchaser, the Contractor shall introduce and integrate upgrades and patches of all third-party software and components in accordance with the requirements stipulated in Section 3.7.

6 Documentation Artefacts

[210] This section covers the requirements for documentation artefacts to be delivered.

[SOW-488] For documentation artefacts that have not been specified in further detail under this Contract, the Contractor shall deliver a template with outline of the relevant documentation artefact for Purchaser review and agreement prior to developing the documentation artefact.

[211] In case the Contractor deems necessary, and supported with proper justification, the Contractor may propose amendments to the outline and contents of documentation artefacts for Purchaser agreement.

6.1 Distribution

[SOW-489] The Contractor shall deliver all documentation artefacts in an electronic format, unless otherwise instructed, as follows:
(1) Documentation artefacts intended for review by the Purchaser shall be delivered in an editable (i.e. Microsoft Office) format;
(2) Final versions of documentation artefacts shall be delivered in Adobe PDF format with OCR (Object Character Recognition) capability, together with the editable source file.

[SOW-490] The Contractor shall distribute all documentation artefacts, unless otherwise instructed, as follows:
(1) All documentation artefacts: to the Purchaser's project manager;
(2) In case of technical documentation artefacts, i.e. design documentation, user stories, manuals, etc.: to the Purchaser's technical lead;
(3) In case of contract documentation artefacts, including invoices, change requests, etc.: to the Purchaser's contracting officer, and if required by the Purchaser's contracting officer, an additional printed copy.

[SOW-491] The Contractor shall not include any statements limiting the rights to use or reproduce the documentation artefact delivered under this Contract. The Purchaser reserves the right to make additional copies of any documentation artefact delivered.

[SOW-492] The Contractor shall ensure that the Purchaser always has access to the latest version of any documentation artefact from the moment the documentation artefact comes into existence, i.e. use the NATO Software Factory for production and configuration management platform.

[SOW-493] The Contractor shall maintain the documentation artefacts and keep them current throughout the period of performance of the Contract.

[SOW-494] The Contractor shall place the documentation artefacts under configuration control throughout the period of performance of the Contract.

6.2 Review and Updates

[212] The Purchaser will, when reviewing documentation artefacts, provide comments and suggest changes to the Contractor within two weeks of receipt of the documentation

artefact. When the Purchaser requires more time to complete its review, the Purchaser will inform the Contractor.

[213] The Purchaser will reserve the right to return without further review a documentation artefact that shows significant deficiencies.

[SOW-495] All documentation artefacts shall be subject to Purchaser review and acceptance.

[SOW-496] The Contractor shall not rely on the Purchaser review to fill in deficiencies or obtain missing Purchaser information.

[SOW-497] In case the Contractor considers that the Purchaser's comments and suggestions require further clarification, the Contractor shall arrange for a meeting to the address the items of concern.

[SOW-498] The Contractor shall submit revisions of documentation artefacts for review, addressing the Purchaser's comments and suggestions within two weeks after receipt of the Purchaser's feedback.

[SOW-499] The Contractor shall submit revision documentation artefacts for review with each modification identified through the "track changes" feature or otherwise being marked as change.

[SOW-500] In case there is a change to an already delivered artefact, the Contractor shall be responsible for updating all documentation artefacts pertaining to the specific delivered artefact where the documentation artefacts are affected by the change.

6.3 Standards and Conventions

[SOW-501] The Contractor shall deliver all documentation artefacts compliant with the standards and conventions of the sections below. Third-party software and component documentation artefacts, such as a vendor-supplied user manual, are exempt from these requirements and shall be delivered in the original, unaltered, format.

6.3.1 File Format

[214] The Purchaser's default software packages for managing documentation artefacts are:
(a) Microsoft Office Professional 2016 or later;
(b) Microsoft Project 2010;
(c) Microsoft DocFX;
(d) Adobe PDF Reader;
(e) Microsoft Windows compatible Zip compression and packaging format.

[SOW-502] Documentation artefacts shall be delivered in a file format that is compatible with the Purchaser's default software packages.

[SOW-503] Documentation artefacts shall be delivered in a file format that is best suited for review and maintenance by the Purchaser. In general, the following guidelines apply:
(1) Microsoft Word shall be used for text documents;
(2) Microsoft Excel shall be used for tabular or matrix data;
(3) Microsoft Project shall be used for schedule;
(4) Microsoft PowerPoint shall be used for briefings and presentations.

[SOW-504] Documentation artefacts shall adhere to the following filename convention [NU|NR]_[Name]_[vX.Y|].[filename extension] and the elements used in the filename convention shall be as follows:

(1) [NU|NR] is the classification of the file: NATO UNCLASSIFIED or NATO RΞSTRICTED. Note: Classified files shall not be stored within the NATO Software Factory;
(2) [Name] is the Contractor proposed, Purchaser agreed designation of the documentation artefact;
(3) [vX.Y] is the version number in the range (v0.1, v0.2,…, v0.9, v0.10, v0.11,…) for drafts submitted to the customer, and with vX.0 only for the final deliverables;
(4) [filename extension] is the standard filename extension. Note: large files or large file sets may be compressed using a standard zip-compatible format. In these cases, the ".zip" filename extension shall be used to indicate a compressed file format.

[SOW-505] The source files of documentation artefacts shall be stored and managed without version number in the filename. Only submitted and final versions shall have a version number and shall be stored separately from their source files.

6.3.2 Language, Style and Formatting Conventions

[SOW-506] Documentation artefacts shall be written in the UK English language.

[SOW-507] Documentation artefacts shall be written using standard UK English abbreviations only and the use of non-common English acronyms shall be avoided.

[SOW-508] The use of capitalization of words/terms within documentation artefacts beyond English spelling and grammar rules, shall be avoided.

[SOW-509] Documentation artefacts shall be written using the following number, date and time conventions:

(1) The convention to be used for numbers is for a comma to be the thousands separator and a period to be the decimal separator (e.g. 1,365,276.24);
(2) The convention to be used for dates (e.g. quoting dates of meetings) is in the order of day-month-year and not month-day-year;
(3) The convention to be used for times shall be 24-hour clock format.

[SOW-510] Documentation artefacts shall be based on style templates, which shall be proposed by the Contractor and agreed by the Purchaser.

[SOW-511] Documentation artefacts shall adhere to the same presentation style (cover pages, headers, footers, headings and paragraphs, font types and sizes, etc.).

[SOW-512] The layout and make-up of documentation artefacts shall be suitable for electronic reading in PDF format.

[SOW-513] The documentation artefact cover page (or equivalent cover slide or cover sheet) shall identify:

(1) The document title, contract title, contract number, and originator;
(2) Configuration management information, version number, issue date and NCAGE, if applicable;
(3) The name and version number of the software it refers to, if applicable;

(4) Classification within headers and footers with the highest classification of information contained in the entire document.

[SOW-514] Documentation artefacts shall contain a table of contents. It shall be noted that depending on the type of artefact, a table of contents might not be required. The exclusion of a table of contents shall be agreed by the Purchaser prior to developing the documentation artefact.

[SOW-515] Documentation artefacts shall use sans-serif fonts (e.g. Calibri, Arial, Helvetica, etc.), and obey the following principles:

(1) Headings shall be numbered and use bold font styles of sizes higher than the body text (the higher the heading in the document hierarchy, the larger the font size);
(2) No document shall use headings below level 6 (i.e. 1.1.1.2.3.1 Heading Text);
(3) Body text (under the headings) shall not use font sizes smaller than Calibri 12 pt. (or equivalent size if another font is selected);
(4) Any graphic material produced, including network diagrams, shall not use font sizes smaller than Calibri 10 (or equivalent size if another font is selected).
(5) Larger font sizes than those specified above shall be selected if the corresponding text or drawing is to be reduced in size when embedded in the document, in order to guarantee that the PDF output keeps the font size as specified.

[SOW-516] Documentation artefacts developed in Microsoft Word shall be printable, if required, and therefore the page format shall be A4, printable in loose-leaf form.

[SOW-517] Where documentation artefacts contain many complex specialized or strongly domain oriented terminologies, these shall be defined in a glossary.

6.4 Project Management Plan

[SOW-518] The Project Management Plan (PMP) shall describe the project organization and identify key personnel in the project organization, their qualifications, and their responsibilities.

[SOW-519] The Project Management Plan shall describe all aspects of the project implementation, including the Contractor’s project management approach, project control processes, used standards, and external relationships necessary to provide the deliverables.

[SOW-520] The Project Management Plan shall describe personnel assignments with specification of the personnel target capacity required at Effective Date of Contract. Note: Target capacity is to be understood as full-time equivalent (FTE) by role/function, for example x FTE full-stack software developer; it is not needed to identify Contractor personnel by name, except for key personnel.

[SOW-521] The Project Management Plan shall describe the Contractors’ approach for the “ramp-up” period, meaning the time from Contract Award to Effective Date of Contract, required by the Contractor for starting up the project, e.g. establishing the project organization, bringing the project team at target capacity, and conduct knowledge build-up and preparations. The approach shall include justifications

and identify assumptions and constraints in order for the Purchaser to assess the feasibility of the approach within the proposed “ramp-up” period duration.

[SOW-522] The Project Management Plan shall include an annex with the specifications and dimensions of the number of NATO Software Factory user accounts, the Microsoft Azure Cloud Services and additional products and services that are required by the Contractor throughout the period of performance of the Contract (see Section 3.6).

[SOW-523] The Project Management Plan shall identify all major Contractor operating entities and any Subcontractors involved in the work and describe the portion of the overall effort and deliverables allocated to them.

[SOW-524] The Project Management Plan shall describe how the various project management processes (quality management, configuration management, risk management, issue management, etc.) are integrated, either via a tool set and/or internal project management practices.

[SOW-525] The Project Management Plan shall describe the Contractor’s and Subcontractors’ approach to security management, including personnel and facility security.

[SOW-526] The Project Management Plan shall identify assumptions and constraints.

[SOW-527] The Project Management Plan shall describe methodology used for cost and schedule estimation.

[SOW-528] The Project Management Plan shall include a product breakdown structure (PBS) identifying all services and deliverables, with reference to the CLINs for traceability.

[SOW-529] The Project Management Plan shall include a Project Master Schedule (see 6.4.1) as an annex.

[SOW-530] The Project Management Plan shall define all major milestones and major activities, all expected Purchaser involvements and all expected purchaser furnished property and services and associated timelines.

[SOW-531] The Project Management Plan shall be sufficiently detailed to ensure that the Purchaser is able to assess the Contractor plans, capabilities, and ability to satisfactorily implement the entire scope in conformance with the requirements of the Contract.

[SOW-532] Each revision of the Project Management Plan shall be accompanied by a summary of the changes together with impact statement for Purchaser assessment.

6.4.1 Project Master Schedule

[SOW-533] The Project Master Schedule shall define all major milestones and major activities, with reference to the element of the product breakdown structure, the breakdown and durations of each activity, and the Contract end date.

[SOW-534] The Project Master Schedule shall specify a level-of-effort (LOE) in number of person-days for each of the activities/deliverables.

[SOW-535] The Project Master Schedule shall identify the “ramp-up” period, meaning the time from Contract Award to Effective Date of Contract, required by the Contractor for starting up the project.

[SOW-536] The Project Master Schedule shall include a Gantt chart where the start and finish dates of the work packages and phases are depicted, and it shall from this schedule be possible to identify the timeframe when a specific deliverable is planned to be delivered.

[SOW-537] The Project Master Schedule shall include all major milestones, phases and activities within a work package, including:
(1) Contract Award and EDC;
(2) Phase start and finish dates;
(3) All contract milestones, including product or sub-product delivery timelines ;
(4) All major milestones and activities;
(5) Other milestones and activities that requiring Purchaser and/or user involvement;
(6) All sprints, including planning and review meetings;
(7) All BMD Programme System of System validation activities.

[SOW-538] The Project Master Schedule shall depict the sequence, start and finish dates, durations, and relationships among milestones and activities.

6.5 Risks, Actions, Issues, Decisions Register

[SOW-539] The risks, actions, issues, decisions (RAID) register shall be used to record and track all project risks, action items, issues and decisions.

[SOW-540] The RAID register shall be exportable to Microsoft Excel.

6.5.1 Risk Register

[SOW-541] The Risk Register within the RAID register shall list all project risks and for each risk indicate the following information (but not limited to):
(1) Risk identifier: unique code to allow grouping of all information on this risk;
(2) Risk category (e.g. management, technical, schedule, quality and cost risks);
(3) Description: brief description of the risk pointing on the uncertain event (risk), and its cause or causes;
(4) Impact: description of the effect on the project if this risk were to occur;
(5) Impact assessment: estimate the impact of the risk using five (5) level scale
(6) Probability: estimate of the likelihood of the risk occurring using five (5) level scale;
(7) Risk rating (High, Medium, Low);
(8) Proximity: how close in time is the risk likely to occur;
(9) Response strategy: avoidance, mitigation, acceptance, transference
(10) Response plan(s): what actions have been taken/will be taken to counter this risk;
(11) Owner: who has been appointed to keep an eye on this risk;
(12) Status: e.g. closed, reducing, increasing, no change;
(13) Date of last update: when was the status of this risk last reviewed;
(14) Originator: who submitted the risk;

(15) Date identified: when was the risk first identified.

6.5.2 Action Register

[SOW-542] The Action Register within the RAID register shall list all action items, and for each action item indicate the following information (but not limited to):
(1) Action identifier: unique identifier of the action item;
(2) Description: brief description of the action item;
(3) Owner: who is responsible for the action item;
(4) Date identified: when was the action item was raised;
(5) Due date: when the action item is expected to be completed;
(6) Status: e.g. open, closed, obsolete;
(7) Date status update: when the action item's status changed.

6.5.3 Issue Register

[SOW-543] The Issue Register within the RAID register shall list all issues that require formal management by the project and for each issue indicate the following information (but not limited to):
(1) Issue identifier: unique identifier of the issue;
(2) Issue type (request for change, project issue, problem or concern);
(3) Description: brief description of the issue and its impact;
(4) Severity: Statement of the severity of the issue;
(5) Owner: who is responsible to deal with the issue;
(6) Date raised: when was the issue first raised/encountered;
(7) Originator: who identified the issue;
(8) Status: e.g. closed, reducing, increasing, no change;
(9) Date status update: when the issue's status changed.

6.5.4 Decision Register

[SOW-544] The Decision Register with in the RAID register shall list all taken decisions and for each decision indicate the following information (but not limited to):
(1) Decision identifier: unique identifier of the decision;
(2) Description: brief description of the decision;
(3) Date approved: when was the decision taken approved;
(4) Approved by: reference to the Purchaser's approver.

[SOW-545] All decisions entered on the register shall be submitted for Purchaser approval and the status shown on the register.

6.6 Configuration Management Plan

[SOW-546] The Configuration Management Plan (CMP) shall comply with the requirements and the format defined within [ACMP-2009-SRD-41].

[SOW-547] The Contractor shall analyse the Purchaser's configuration management procedures and tools, and incorporate those in the software configuration management process.

[SOW-548] The CMP shall define software configuration management process of the functional and physical characteristics of the configuration items, including interfaces and configuration identification documentation.

[SOW-549] In preparing the CMP the Contractor shall:
(1) Ensure that all required elements of configuration management are documented in such a manner as to provide a comprehensive configuration management program;
(2) Identify the means by which continuity of effort and understanding is achieved between the Contractor (prime) and its Subcontractors, if any, and between the project manager and the configuration manager, and internally within the organization, for the allocated configuration items, integrating, interfacing or otherwise related configuration items, supplier organizations, test and evaluation activities, and managers; and
(3) Establish his internal configuration management requirements for the Contract.

[SOW-550] The CMP shall identify explicitly any format and content requirements in [ACMP-2009-SRD-41] deemed by the Contractor to be not applicable for the Contract. The relevant sections shall be marked not applicable (N/A) followed by a short justification why the requirement is considered not applicable. Note: Requirements in [ACMP-2009-SRD-41] that are readily expected to be declared N/A for a software acquisition are found in:
(1) Paragraph 3.2.1 - Hardware Configuration Item Identification;
(2) Paragraph 3.7 - Drawing library;
(3) Paragraph 5.1.3 - Interface Control Working Group.

[SOW-551] The CMP shall define the configuration management organization including the configuration manager role and any other supporting configuration management personnel.

[SOW-552] The CMP shall be tailored, specifically addressing how configuration management shall be performed using an incremental delivery approach and iterative development process and integrate with NATO Software Factory.

[SOW-553] The CMP shall identify the alternative means and tools proposed by the Purchaser beyond the Azure DevOps tools furnished by the NATO Software Factory in order to meet the configuration management requirements.

[SOW-554] The CMP shall identify and define all top-level configuration items to be delivered under this Contract and where these top-level configuration items are traced to deliverables as defined in the product breakdown structure and Schedule of Supplies and Services.

[SOW-555] Per requirements specified in Section 3.10, the CPM shall include the definitions of:
(1) The types of configuration baselines, and
(2) Configuration Status Accounting (CSA), Functional and Physical Configuration Audits, by specifying the inputs, outputs, timing and the resources.

[SOW-556] The CMP shall define the template for engineering change proposals (ECP), which as a minimum shall include the elements specified by the template in Annex D.1.

[SOW-557] The CMP shall define the template for request for deviation (RFD)/request for waiver (RFW), which as a minimum shall include the elements specified by the template in Annex D.2.

6.7 Quality Plan

[SOW-558] The Quality Plan shall specify how the quality related contract requirements will be met, and shall comply with the requirements as defined by [AQAP 2110] and [AQAP 2210].

[SOW-559] The Quality Plan (QP) shall be compliant with [AQAP-2105] as specified in this section.

[SOW-560] The Quality Plan shall be kept reviewed and updated at least on a yearly basis. Initial and follow-on revisions shall be subject to Purchaser approval.

[SOW-561] The Quality Plan shall include or refer to all applicable contractual processes and procedures within the Contractor's Quality Management System.

[SOW-562] The scope of the Quality Management System shall be documented in the Quality Plan as it applies to the Contract.

[SOW-563] The Quality Plan shall refer to and/or include all procedures, plans and other documents applicable to the Contract.

[SOW-564] The Quality Plan shall specify the activities (managerial and technical) to be implemented, either directly or by reference to procedures and documents.

[SOW-565] The Quality Plan shall include how processes are identified along with their application, sequence and interaction.

[SOW-566] Criteria and methods to ensure that processes are effective shall be included, as well as resources to support and monitor their implementation. Emphasis shall be put on processes that are complex or involving significant levels of risk as well as new processes.

[SOW-567] The Quality Plan shall include how the Contractor will control externally provided products, processes and activities, including the avoidance, detection, mitigation and disposition of counterfeit materiel.

[SOW-568] The Quality Plan shall include how processes are monitored, measured, analysed and continually improved. Appropriate performance indicators shall be determined.

[SOW-569] The Quality Plan shall describe how documentation requirements, including quality policy, quality objectives, scope of quality management system, procedures, records and other documents are maintained and controlled, including retention periods. A document status list shall be available at all times, and shall be formalized during transitions between phases and/or product baselines e.g. prior to design reviews.

[SOW-570] The Quality Plan shall include a Contract specific description of the organizational structure and identify those responsible for ensuring that the required activities are carried out. The responsibilities and authorities of responsible personnel related to quality, including the Management Representative, shall be described. The independence of personnel designated for contract related quality

responsibilities shall be clearly documented. The inter-relationships between those responsible personnel shall be explained.

[SOW-571] The Quality Plan shall describe the Contract specific activities for Risk Management and/or give reference to the required Risk Management Plan.

[SOW-572] The Quality Plan shall describe the Contractor's software corrective action system.

[SOW-573] The provision of resources, human resources, infrastructure and work environment needed to implement the Contract requirements shall be specified in the Quality Plan.

[SOW-574] The Quality Plan shall describe the processes used to ensure that measurement processes and measuring equipment meet requirements. The measurement management system shall be described; including the metrological function, measurement processes and the metrological confirmation process. The control of monitoring and measuring tools in order to provide evidence of product conformity to Contract requirements shall be described.

[SOW-575] The Quality Plan shall describe the activities related to how the planning process for product realization/operation will be carried out. This shall include, or be referenced to the Deliverable Requirements Traceability Matrix. It shall describe how the matrix is maintained and controlled.

[SOW-576] The Quality Plan shall describe how the Contract specific activities for identification, management, traceability, review and validation of requirements is planned. Giving reference to related processes, documents (i.e.: software requirements specifications) and test procedures.

[SOW-577] The Quality Plan shall describe the Contract specific activities for Configuration Management and/or give reference to the required Configuration Management Plan.

[SOW-578] The Quality Plan shall describe the arrangements for communication with the Purchaser.

[SOW-579] The Quality Plan shall identify and describe the activities associated with determining and reviewing requirements.

[SOW-580] The Quality Plan shall describe how design and development of products are performed, including processes for design and development planning, inputs, controls, reviews, evaluation, acceptance criteria, verification, validation, outputs and changes.

[SOW-581] The Quality Plan shall describe how externally provided products are controlled through the supply chain. This shall include the flow down of requirements, the acquisition process, ensuring product conformity, Supplier evaluation and selection, quality auditing and other activities associated with externally provided products through the supply chain. Specific risks related to the supply chain products shall be identified and managed as part of Contractor's Risk Management.

[SOW-582] The Quality Plan shall describe how the Contractor will ensure that only acceptable products intended for delivery are released to the Purchaser. The Contractor QA organization shall verify that all tests are adequately planned,

designed and executed in accordance with the approved Contractor's Master Test Plan.

[SOW-583] The Quality Plan shall refer to the Contract specific arrangements for release authority, which may include the use of a Certificate of Conformity.

[SOW-584] The Quality Plan shall describe how the Contract specific requirements for identification and control of non-conforming products will be carried out.

[SOW-585] The Quality Plan shall identify the processes/procedures that are required for product/service improvement.

[SOW-586] The Quality Plan shall describe how continual improvement and corrective actions will be carried out.

[SOW-587] The Quality Plan shall describe how the Contractor monitors, measures and improves customer satisfaction.

[SOW-588] The Quality Plan shall describe the analysis of data used in order to demonstrate the suitability and effectiveness of planned activities that lead to improvements.

[SOW-589] The Quality Plan shall describe how internal audits will be performed in order to determine whether the Quality Plan conforms to the requirements and is effectively implemented and maintained.

6.8 Integrated Product Support Plan

[215] The integrated product support plan (IPSP) shall specify how integrated product support will be designed, managed, procured and delivered, and how it intends to meet the Integrated product support requirements of the Contract.

[216] The IPSP shall in general comply with the requirements and the format defined within the template in the Annex-E of [ALP-10].

[SOW-590] The IPSP shall to meet the following requirements. Any requirements deemed by the Contractor to be not applicable for the Contract shall be marked not applicable (N/A) followed by a short justification why the requirement is deemed not applicable.

(1) **Introduction -** The IPSP shall provide general information on the purpose and scope of the IPSP and top-level supportability issues such as software description, management organization, milestone schedule, and indicate any applicable documents.

(2) **Supportability -** The IPSP shall describe the strategies for attaining IPS objectives within the context of the Contract. A description of the operational requirements and supportability objectives will provide essential information to ensure that supportability is thoroughly planned.

(3) **Operational and supportability requirements -** The IPSP shall briefly describe the mission scenarios and requirements, operational environment, security requirements, transportability requirements and employment.

(4) **Acquisition strategy -** The IPSP shall describe the anticipated third-party software and components (COTS and FOSS) acquisition approach.

(5) **Personnel requirements -** The IPSP shall describe actions to limit the requirements for a high degree of skill to support and maintain the software.

(6) **IPS element plans -** Provide details on plans for the IPS element (i.e. the TOPFAS Application Suite with its documentation and training materiel).

(a) Maintenance planning

[SOW-590(i)] Describe the maintenance concept for the software including all levels of maintenance. Identify trade-offs to be performed and maintenance considerations peculiar to the software.

[SOW-590(ii)] Identify maintenance tasks required to sustain the end item at a defined level of readiness, include all critical and high driver tasks.

[SOW-590(iii)] Describe maintenance environment.

- Describe the maintenance environment, limitations, constraints, and requirements projected for the deployment timeframes.
- State the nature and extent of maintenance to be performed by each level of maintenance.
- Identify the organizational and logistic support structure that will be responsible for providing direct and general supply support and maintenance support.

(b) Personnel

[SOW-590(i)] Describe the operation and maintenance personnel requirements.

[SOW-590(ii)] Describe skill requirements for personnel necessary to operate, maintain, and support the end item. Consider the following:

- Present skills that may be used with little or no retraining.
- New skills required (skill evaluation and justification).
- Assigned duties.
- Task, skill, behaviour, and user interface analyses.

[SOW-590(iii)] Identify safety and human factors constraints to help minimize problems with the user interface during operation, maintenance, and transport.

(c) Training

[SOW-590(i)] Describe how training requirements will be met and who is responsible for meeting those requirements in reference to the Training Plan (Section 4.5.3).

[SOW-590(ii)] Describe training requirements and plans unique to operation and maintenance of software.

(d) Packaging, handling, storage, and transportation (PHS&T)

[SOW-590(i)] Describe requirements, management responsibilities, and procedures used to ensure that PHS&T requirements are identified and met in a timely manner.

[SOW-590(ii)] Describe anticipated PHS&T modes and constraints.

[SOW-590(iii)] Describe PHS&T assets required and those expected to be available/in-place.

(e) Supportability in fielding and operational life

[SOW-590(i)] Initial fielding - Briefly describe planning for initial fielding and achieving initial operational capability. Summarize the procedure and schedule for preparation of all materiel fielding documentation. Provide information on how fielding will be implemented.

[SOW-590(ii)] Transition - If applicable, provide a description of how and when the Integrated product support will be transferred from the Contractor to the Purchaser. Show how components usage, skills, training, procedures, technical data, and so forth will be obtained and used. Provide sufficient detail to assure that all necessary data is provided in time to adequately provision, train, and maintain the software after transition.

6.8.1 In-Service Support Plan

[SOW-591] The In-Service Support Plan (ISSP) is an annex to the IPSP and shall cover the following as a minimum:

(1) The Contractor's support organization, roles, responsibilities, processes and procedures (from the first baseline release till final system acceptance, during warranty and during the optional maintenance and support post the warranty period);
(2) Description of the capability of interest in scope of integrated support;
(3) Description of the integrated support concept, including the maintenance concept, warranty concept, support concept, service management & control concept, including but not limited to the incident, problem management, release and deployment management;
(4) Description of the parties involved, their responsibilities for the various levels of support (with indication of start and end dates), interfaces, response times and points of contact;
(5) Description and allocation of operation, service management & control and corrective, preventive, adaptive and perfective maintenance tasks required to operate and maintain the capability;
(6) Procedures to follow in case of failures; Contractor response times for analyses and resolution.

6.9 Solution Design Specification

[217] The purpose of the solution design specification (SDS) provided by the Contractor is to describe the solution design and design decisions to a level of detail that will enable the Purchaser to assess the solution's feasibility and ability to fulfil the requirements of the Contract.

[SOW-592] The solution design specification shall describe the proposed software application design, design consideration and design decisions to a level of detail that enables the Purchaser to understand and assess how the capabilities will fulfil the requirements and how they will be implemented.

[SOW-593] The solution design specification shall include an analysis of the requirements where this analysis shall:

(1) Identify potential issues with the requirements;
(2) Propose changes to the requirements definitions to resolve inconsistencies or ambiguities, or to suggest no-cost improvements.

[SOW-594] The solution design specification shall also include:

(1) The proposed application design (diagrams), identifying key components and services and how they relate to each other;
(2) Description of purpose of each of the identified components and services;
(3) Description of business logic and algorithms;
(4) Identification of key technologies and frameworks to be used;
(5) Identification of all third-party software and components to be used, including licensing information.
(6) Assessment of the proposed solution against the non-functional requirements as defined in the statement of requirements.

[SOW-595] The resulting design shall be suitable to support any identified use case scenarios and provide flexibility to optimize the human-machine interface and usability, and minimize the impacts of future modifications.

[SOW-596] In the case of newly proposed third-party software and components, the software design description shall specify the third-party product, version, its vendor, licence type, a summary of the main capabilities, full lifecycle cost specification (licence/subscription fee), and any constraints that may apply to the product.

[SOW-597] The solution design specification shall record all fundamental solution decisions. Each such decision shall include:

(1) An issue or problem statement paragraph that describes the issue/problem, the motivation for change, and a reference to requirements of statement of requirements, if applicable;
(2) An assumption paragraph, that provides background information on (external) context, expected future situations, etc.;
(3) A recommended solution paragraph that describes the proposed solution, its implications and justification.

6.10 Deliverable Requirements Traceability Matrix

[SOW-598] The deliverable requirements traceability matrix (DRTM) shall be established to track the status of deliverables and SRS requirements throughout the development lifecycle and prove that requirements have been fulfilled, verified and validated.

[SOW-599] The DRTM shall allow for traceability of all TOPFAS BMD ARS[2] requirements to SRS requirements, to work packages. The Purchaser will provide an SRS matrix with the initial traceability.

[SOW-600] The DRTM shall allow tracing of SRS requirements, to sprints, to design artefacts, to product backlog items, to test cases, to deliverables, and back.

[SOW-601] The DRTM shall trace SRS requirements to ECPs, RfDs and RfWs.

[SOW-602] The DRTM shall for each SRS requirement include the agreed work package allocation and MoSCoW prioritization category, i.e. “must have”, “should have” and “could have”.

[SOW-603] Full traceability shall be enabled and maintained within the NATO Software Factory. The DRTM shall be kept consistent with the NATO Software Factory.

[SOW-604] The DRTM shall identify the Value Items as per BMD Scope Implementation Monitoring methodology (Section 3.9.9) and shall include the agreed progress

[2] ARS stands for Architectural Requirements Specifications, the high-level BMD requirements.

measurement baseline and the Value Items' value points, validation and verification status, progress and BSIM metrics.

[SOW-605] The DRTM shall include a Verification Cross Reference Matrix (VCRM) identifying the method(s) for verifying the requirements and trace requirement with test cases. The verification methods are defined in Table 6.1 - Verification Methods.

[SOW-606] The DRTM shall track the verification and validation status (e.g. Verified, Not Verified…) of all requirements.

[SOW-607] The DRTM shall track the verification and validation results of all requirements against test cases and test/verification/validation execution, with identification of the deliverable and baseline release, and include references to objective evidence supporting the assessment of each entry[3].

[SOW-608] The DRTM shall provide the status and results[4] of requirement level verification and validation aggregated at ARS-level.

[SOW-609] The DRTM shall for each requirement that has been invoiced by the Contractor, record the Contractor's invoice number and the invoice date.

[SOW-610] The DRTM shall be delivered as an Excel spreadsheet where the information is organized and can be pivoted, filtered and sorted by column values.

[SOW-611] The DRTM Excel spreadsheet shall include a view that is importable in the BMD DOORS application.

[3] The data provided should include, at minimum, details about the event including the event title, dates conducted, software version identifier, database version identifier, configuration files and references of the final test report and of the baselined versions of the relevant SRS and test cases used.
[4] ARS-level verification results are determined based on verification results of the related SRS requirements.

Table 6.1 - Verification Methods

Method	Description
Analysis	The processing of accumulated data obtained from other qualification methods. Examples are reduction, interpretation, or extrapolation of test results; analysing the performance of design by running simulations. This method can be used if a test scenario cannot be created at the test environment.
Test	The operation of the software element or component, using instrumentation or other special test equipment to collect data for later analysis. Controlled condition, configurations, and inputs are used in order to observe the response. Results are quantified and analysed. This method can be used where user interaction is involved and when computations with input data are necessary.
Demonstration	The operation of the software element or component, that relies on observable functional operation not requiring the use of instrumentation, special test equipment, or subsequent analysis. This method is used to prove a capability meets a requirement.
Inspection	The visual examination of software code, documentation, etc. This method can be used where testing is not possible (e.g. the maximum number of items used as a limitation inside the code).
Special Case	Any special qualification methods for the software element, such as special tools, techniques, procedures, facilities, and acceptance limits.

6.11 Software Design Description

[218] The software design description (SDD) is a representation of a software application's design that is to be used for documenting design information: explaining the structure, components, interfaces; and other design features to a level of detail that will enable the stakeholders to effectively maintain and support the new baseline and develop future baselines.

[219] The software design description shall in general be consistent with the standard IEEE 1016-2009 (IEEE Standard for Software Design Descriptions).

[SOW-612] The software design description will be evolved from the current TOPFAS Application Suite baseline software design description [TOPFAS-SDD] encompassing the enhancements and the new features developed in the course of the Contract, and staying consistent with the content, format and the style of the [TOPFAS-SDD].

[SOW-613] The software design description shall describe the baseline's design, design consideration and design decisions to a level of detail that enables the Purchaser to understand and assess how the capabilities fulfil the requirements and how they are implemented.

[SOW-614] The software design description shall include:
(1) The application design, identifying key components and services and how they relate to each other;
(2) Description of purpose of each of the identified components and services;

(3) Description of business logic and algorithms;
(4) Graphical design standards, including look-and-feel design features, colour scheme, font type and size, etc.;
(5) Identification of key technologies and frameworks;
(6) Identification of all third-party software and components used, including licensing information.

[SOW-615] The software design description shall include detailed user stories provide traceability to requirements and document the user interface specifications, designs, interactions and workflows from the user's point of view as an annex.

[SOW-616] The software design description shall include a database schema and documented data model as an annex.

6.12 Interface Control Document

[SOW-617] The interface control document (ICD) shall document the service interfaces provisioned by the baseline (existing, updated or new), as well as the external service interfaces that the capabilities interact with. Service interfaces also include file-based exchange services.

[SOW-618] The interface control document includes machine-readable interface files, in a standardized format/representation, i.e. OpenAPI for describing RESTful services, etc.

[SOW-619] The interface control document shall include service specifications to document the services so that software developers implementing functionality that consumes the service will have sufficient information to build functionality that can successfully interact with the service.

[SOW-620] The service specifications shall, when applicable, include documentation of, or reference to, a conceptual information model.

[SOW-621] The service specifications shall include documentation of the business logic and business rules implemented by the service.

[SOW-622] The service specification shall include documentation on the service non-functional/ performance characteristics (e.g. response times).

6.13 Programmer's Manual

[SOW-623] The Programmer's Manual (or system build manual) shall define specific information regarding the set-up and configuration of the personal and central development, build and release environment, and shall include the programmer's rulebook and coding best-practices.

[SOW-624] The Contractor shall update the Purchaser's latest Programmer's Manual with necessary modifications prior to the kick-off meeting.

6.14 Installation and Configuration Manual

[SOW-625] The installation and configuration manual shall describe the procedures to install, configure and activate the applications and shall cover the following topics at minimum:

(1) General introduction and description of the capabilities and of functional components and interfaces, with appropriate drawings;
(2) Prerequisites:
    (a) Platform requirements, including storage space;
    (b) Access rights to perform the installation;
    (c) Required interfaces to external services, i.e. CoreGIS;
    (d) Accounts and settings, i.e. ports, to operate and to maintain.
(3) Configuration of the platform and third-party software and components required to operate the capabilities;
(4) Configuration file information (location, content, available settings and purpose);
(5) Recovery procedures;
(6) Migration and update procedures as far as these are not covered by the automatic installation routines;
(7) Installation and configuration tasks, detailed step by step with screenshots of the feedback, displayed after each action;
(8) Backup, restore and maintenance procedures to be enabled;
(9) Activation checklist to verify correct installation and configuration;
(10) Troubleshoot information and techniques to solve installation and configuration problems.

[SOW-626] For third-party products, maximum advantage shall be taken of the vendor-supplied third-party software and component documentation artefacts, however specific settings and procedures pertaining to the baseline delivered shall be covered by this manual, and in case there is no vendor-supplied documentation, this manual shall include all possible information needed to configure, manage and maintain the third-party product.

6.15 Maintenance and Administration Manual

[SOW-627] The maintenance and administration manual shall describe the procedures to perform the maintenance tasks as defined in the maintenance concept, and shall cover the following topics at minimum:
(1) General introduction and description of the capabilities and of functional components and interfaces, with appropriate drawings;
(2) A full product breakdown of configuration items, including third-party software and components;
(3) Scheduled (preventive, adaptive and perfective) and unscheduled (corrective) maintenance procedures defining step-by-step how to perform the first, second and third level maintenance tasks and service management and control (SM&C) tasks for the configuration items;
(4) Usage of third-party applications or tools (if any) needed to configure, manage and maintain the capabilities;
(5) Configuration, use and the locations of the log files;
(6) Disaster recovery procedures, including backup and restore procedures;
(7) Database maintenance plan, including executable scripts;
(8) Troubleshoot information and techniques to check for and solve a full range of (potential) problems or to enable workarounds.

[SOW-628] Each procedure described within the maintenance and administration manual shall incorporate the results of the operations and maintenance task analysis (OMTA) and include the following topics at minimum:
(1) The support level to be assigned;
(2) Location/facility involved (if the operation is performed remotely, it has to be specified);
(3) Task duration and frequency, reusing MTBF and MTTR data available (if applicable);
(4) Personnel skills required;
(5) Labour required;
(6) Tools required (if any);
(7) The steps to perform the procedure.

[SOW-629] The task described within the maintenance and administration manual shall make reference to the different Purchaser operations and maintenance roles and identify where the interfacing between Contractor and Purchaser takes place.

[SOW-630] For third-party products, maximum advantage shall be taken of the vendor-supplied third-party software and component documentation artefacts, however specific settings and procedures pertaining to the baseline delivered shall be covered by this manual, and in case there is no vendor-supplied documentation, this manual shall include all possible information needed to configure, manage and maintain the third-party product.

[SOW-631] The maintenance and administration manual shall be integrated within the TOPFAS Help Centre.

6.16 Online Help

[SOW-632] The online help shall describe the complete software application by explanation of functional blocks and each function in a structured manner as well as interrelationships between them.

[SOW-633] The online help shall document and explain the purpose and usage of each entry field and provide reference information with further details regarding the usage, for example as input for algorithms and status indicators.

[SOW-634] The online help shall explain the algorithms that are being used in the processing and visualization information.

[SOW-635] The online help shall include a glossary providing definitions of all terms and acronyms used.

[SOW-636] The online help shall have a style similar to the Microsoft Office online help.

[SOW-637] The online help shall include screenshots of views and dialog boxes where they add to the comprehension. The screenshots shall be provided in a suitable lightweight, but quality format (i.e. JPG, PNG).

[SOW-638] The online help shall be integrated within each application of the TOPFAS Application Suite.

[SOW-639] The online help shall be integrated within the TOPFAS Help Centre.

6.17 Standard Operating Procedures Manual

[SOW-640] The standard operating procedures manual shall document the standard operating procedures (SOP), which describe the use of the software consisting of sets of written guidelines and systematic, step by step, instructions for the completion of common tasks by the different user roles.

[SOW-641] The standard operating procedures manual shall include screenshots of views and dialog boxes where they add to the comprehension of the instructions and activities. The screenshots shall be provided in a suitable lightweight, but quality format (i.e. JPG, PNG).

[SOW-642] The standard operating procedures manual shall be integrated within the TOPFAS Help Centre.

6.18 Release Notes

[SOW-643] The release notes shall summarise the changes and the new features provided with the release and shall cover the following at minimum:

(1) Identification of the release, its media, and its associated artefacts;
(2) Overview;
(3) Intended audience;
(4) What's changed in this release
    (a) List of new features (with reference work item);
    (b) List of enhancements (with reference work item);
    (c) List of fixes (with reference to work item);
    (d) List of updates to used third-party components which impact functionality;
    (e) List of other changes (with reference work item).
(5) Installation
    (a) Summary of new installation procedures;
    (b) Summary of upgrade installation procedures;
(6) Security caveats;
(7) Known issues and workarounds.

7 References

[220] These reference documents are providing contextual information that is relevant to this project. They shall be used by the Contractor to support his activity.

Table 7.1 - References

[ACMP-2009-SRD-41]	Examples of Configuration Management Plan Requirements, Ed.A V1, Mar 2017
[ACMP-2100]	The Core Set of Configuration Management Contractual Requirements, Ed.A V.2, Mar 2017
[ALP-10]	NATO Guidance on Integrated Logistics Support for Multinational Armament Programs, Ed.C V1, 2017
[AQAP-2110]	NATO Quality Assurance Requirements for Design, Development and Production, Ed.D V1, Jun 2016
[AQAP-2105]	NATO Requirements for Quality Plans, Ed.C V1, Jan 2019
[AQAP-2210]	NATO Supplementary SQA Requirements to AQAP-2110 or AQAP-2310, Ed.A V2, Sep 2015
[ASD-SX000i]	International Specification for Integrated Product Support (IPS), Issue No.3.0, Apr 2021
[ASD-S3000L]	International Procedure Specification for Logistic Support Analysis (LSA), Issue No.2.0, Apr 2021
[ASOP-07.01.25]	NCI Academy Standard Operating Procedure - Grading and Assessment, May 2020
[BMD-ARS]	[NR] TOPFAS BMD Architecture Requirements Specification (ARS) V2.1, Sep 2021
[C-M(2002)49-G]	Enclosure G to C-M(2002)49, Classified Project and Industrial Security, Amdt. 12, Sep 2015
[IEEE-1016-2009]	IEEE Standard for Software Design Descriptions, Jul 2009
[ISO/IEC/IEEE-29119]	International Standard for Software Testing, 2013-2015
[NATO-Bi-SC-DIR-075-007]	NATO Bi-SC Education and Individual Training Directive (E&ITD) 075-007, Sep 2015
[NCIA-AD-06.00.16]	NCIA - Agency Directive 06.00.16, Configuration Management, Feb 2020
[NCIA-AD-07.01.01]	NCIA - Agency Directive 07.01.01, Education and Training, Apr 2017
[NCIA-AI-23.02]	NCIA - Agency Instruction 23.02, Deployment Management Planning, Oct 2019
[NCIA-AI-TECH-06.03.01]	NCIA - Agency Instruction 06.03.01, Identification of Software Assets, Jun 2016
[NCIA-SOP-06.03.05]	NCIA – Agency Standard Operating Procedure 06.03.05, Software Patch Management, Oct 2020
[NCIA-SOP-23.01]	NCIA – Agency Standard Operating Procedure 23.01, Enterprise IT Change Management, Mar 2020
[SOA-IdM-ICD]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, Interface Control Document (ICD) V15.0, Jun 2021

[SOA-IdM-SDS]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System Design Specification (SDS) V9.3, May 2021
[SOA-IdM-SUM]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System User and Operation Manual V8.0, Feb 2021
[TBCDM]	BMD Programme Tranche-Based Capability Delivery Methodology Guide, NCIA/AMDC2/2019/01195, Dec 2019
[TOPFAS-SDD]	TOPFAS Software Design Description Documents

[221] All documents are unclassified or NATO Unclassified, unless indicated otherwise.

Annex A Software Requirements Specifications

[222] The software requirements specifications will be provided separately, and consists of two parts, the software requirements specifications document and a requirements matrix.

Annex B TOPFAS Application Suite

B.1 Introduction

[223] TOPFAS is NATO's modern suite of software applications, consisting of desktop applications, server-hosted or web applications for the management, analysis, planning, execution, and assessment of operations.

[224] The first version of TOPFAS contained the Operations Planning Tool, ORBAT Management Tool and TOPFAS Web Portal. Over the years and several increments later, TOPFAS has grown substantially into a full-featured and unified application suite with closer and tighter integration between applications and many shared features.

[225] The TOPFAS Application Suite currently comprises a collection of desktop applications (TOPFAS Desktop), a collection of web applications (TOPFAS Online), Microsoft Office utilities, and system administrator applications for data, user and configuration management, and service monitoring.

[226] The TOPFAS Application Suite has been put in use across the NATO Command Structure, supporting the NATO Crisis Management Process from strategic to operational level, and down to component level. These processes are not executed in isolation and TOPFAS needs to support the seamless and timely flow of information from/to other functional mission areas, which are supported by other COI specific functional services. Data exchanges exist and are maintained for the following applications services: AirC2IS, INTEL-FS, JTS, LC2IS, LOGFAS and NCOP.

B.1.1 TOPFAS Application Domain

[227] The TOPFAS Application Suite has been designed using the high-level of abstraction applicable within the NATO Crisis Management Process domain. The NATO Crisis Management Process is a six-phase consultation and decision-making process that can be adapted to any crisis situation [NATO Crisis Response System Manual 2019]. It allows the relevant staff and NATO Committees to coordinate their work and to submit comprehensive advice to the North Atlantic Council (NAC) in a timely and compelling way.

[228] Within the NATO Crisis Response Process domain, the TOPFAS Application Suite is serving multiple, distinct communities of interest. Each application or app within the TOPFAS Application Suite serves a distinct purpose and offers specific capabilities.

[229] This includes the following six application areas, each supported by one or more TOPFAS applications (Figure B.1). The applications are complemented with general purpose or common applications, and configuration and management applications.

Figure B.1 - TOPFAS Application Domain

B.1.2 Operations Planning

[230] The Operations Planning application area consists of applications providing an integrated environment to represent and model the engagement space, to plan potential response options, to develop and implement adequate operational strategies and solutions, and to assess their progress over time. These applications directly support the Allied Command Operations (ACO) Comprehensive Operations Planning Directive (COPD). They offer a collaborative platform linking multiple headquarters of different operational levels of command to support their planning processes from situational awareness and assessment of the crisis through plan development integrated with force management and generation, to the conduct of operations assessment.

B.1.3 Force Generation and Activation

[231] The Force Generation process is initiated once the operations planning process has defined its operational requirements expressed through the Combined Joint Statement of Requirements (CJSOR). The process continues for the whole duration of the operation and consists of generating and managing the capabilities for follow-on rotations. The Force Generation and Activation application area is supported by one web app.

B.1.4 Force and Readiness Management

[232] The Force and Readiness Management application area is supported by two applications, one web app facilitating the NATO's readiness reporting process and another application for general ORBAT management.

B.1.5 Crisis Response Measure Management

[233] The Crisis Response Measure Management application area has a specific focus on managing and tracking the declaration (implementation and cancellation) of NATO Counter Surprise and Counter Aggression components, and NATO Crisis Response Measures.

B.1.6 Force Evaluation

[234] The Operational Capability Concept (OCC) Evaluation & Feedback Programme is established to improve and evaluate the levels of interoperability and operational capabilities of NATO partner nations' units, particularly those contributing to NATO-led operations. With the introduction of Level-2 evaluations, the OCC E&F Programme supports the full range of NATO force evaluations in accordance with the ACE Force Standards, and the application is used by both NATO nations/command and partner nations.

B.1.7 Request for Information Management

[235] The need for information is constant. All Blue/Allied and Green/Neutral Requests for Information (RFIs) need to managed effectively through their complete lifecycle in order to provide timely responses.

B.2 TOPFAS Desktop

[236] TOPFAS Desktop provides a collection of full-featured Microsoft Window Applications mainly focusing on the operations planning and force management applications domains. TOPFAS Desktop comprises the following applications:

- **TOPFAS Systems Analysis Tool (SAT):** for Comprehensive Preparation of the Operational Environment as a system of systems with their relationships and interactions. It includes modelling and analytical tools which, combined with the visualization capabilities, help in identifying the key system elements that can be acted upon to achieve the desired state changes.
- **TOPFAS Operations Planning Tool (OPT):** for collaborative development of planning frameworks and elaborate planning products such as SACEUR Strategic Assessment, SACEUR Strategic Planning Directive as well as the participating commands' CONOPS, OPLAN and SUPLAN. OPT includes a broad and impressive range of functionality to cover the operations planning main activities including the development of military response options, courses of action and provides geo-spatial and temporal tools for optimal synchronization.
- **TOPFAS Campaign Assessment Tool (CAT):** for planning, collection, storage, and processing of data for operations assessment. It covers the assessment of

progress towards achieving the desired end-states at all operational levels, the performance assessment of key actions and trend analysis in support of the planning and decision-making process.

- **TOPFAS ORBAT Management Tool (OMT):** for managing the composition and organization of friendly, neutral, and opposing forces with their personnel and equipment. The application is fully integrated with the Defence Planning Capability Code Catalogue for classifying forces according to their capabilities, and the LOGFAS Reportable Item Code for categorising equipment and personnel. OMT enables the definition of generic and real ORBATs for all actors which can be subsequently used in the OPT to provide a force pool for operations planning.
- **TOPFAS OCC Evaluation and Feedback Tool (OCC E&F Tool):** originally developed to support the Operational Capability Concept (OCC) Evaluation & Feedback Programme, which is to improve and evaluate the levels of interoperability and operational capabilities of NATO partner nations' units, particularly those contributing to NATO-led operations. With the introduction of Level-2 evaluations, the application supports the full range of NATO force evaluations as well. The OCC E&F Tool's database gives access to declared partner units and their achievements. The tool is the core enabler to prepare and conduct evaluations, and a documentation of all evaluation results of units and their history.
- **TOPFAS Lite:** consists of straightforward Document, Spreadsheet and Drawing applications permitting the development of rich text content, tables and drawings that can easily be integrated within existing TOPFAS planning products. The TOPFAS Lite environment is ideal for developing CONOPS and OPLAN annexes and appendices, and for collecting the inputs of remote contributors.

B.3 TOPFAS Online

[237] TOPFAS Online provides a collection of server-hosted or web apps covering the full application domain. These applications are complemented with a collection of collaboration apps and services.

B.3.1 Operations Planning

[238] The operations planning domain comprises the following apps:

- **TOPFAS Systems Analysis Tool (SAT):** web app offering key features and functionality of the TOPFAS SAT desktop application.
- **TOPFAS Operations Planning Tool (OPT):** web app offering key features and functionality of the TOPFAS OPT desktop application.
- **TOPFAS Campaign Assessment Tool (CAT):** web app offering key features and functionality of the TOPFAS CAT desktop application.

B.3.2 Force Generation and Activation

[239] The force generation and activation domain comprises the following app:

- **TOPFAS enhanced Force Generation Management Tool (eFGMT):** supports NATO's force generation process. It includes managing the operational requirements defined during the operation planning process as well as managing the national force offers and contributions to satisfy those requirements. It provides tools to conduct effective force sensing and balancing of force packages as well as force rotation planning, managing the national contributions and their associated caveats. The Force Generation process is conducted at SHAPE and involves coordination between NATO nations, partner nations and other involved parties providing nation resources to NATO in order to fulfil capability requirements for ongoing and/or new missions.

B.3.3 Force and Readiness Management

[240] The force and readiness management domain comprises the following apps:

- **TOPFAS ORBAT Management Tool (OMT):** web app offering key features and functionality of the TOPFAS OMT desktop application.
- **TOPFAS Readiness Reporting Tool (RRT):** supports the readiness reporting process and assessment of mission readiness based on units and capabilities assigned. During the reporting phase of the process, nations and force providers report on the various readiness characteristics of their NRF/NRI contributions. Readiness characteristics include notice to move, manning, equipment level, sustainability, training and projection. The reporting phase is followed by an assessment phase during which HQs and commands provide their assessment on the mission readiness of their assigned NRF/NRI force elements. The readiness information and assessments are being tracked through dashboards. The Readiness Reporting Tool also supports the development of the commanders' assessment based on available readiness information.

B.3.4 Request for Information Management

[241] The request for information management domain comprises the following app:

- **TOPFAS RFI:** a specialised app for the effective management of all Blue/Allied and Green/Neutral Requests for Information (RFIs) through their complete life cycle. Although being a separate app part of **TOPFAS Online**, the TOPFAS RFI app integrates with the TOPFAS Desktop applications so that RFIs can be viewed and created directly from these desktop applications. Furthermore, the application permits the visualization of Red/OPFOR RFIs under the management of the Intelligence community.

B.3.5 Crisis Response Measure Management

[242] The crisis response measure management domain comprises the following app:

- **TOPFAS NATO Crisis Response System Apps (NCRS):** supports tracking the declaration and implementation of counter aggression, counter surprise and crisis response measures needed to respond to crises. The NCRS concept aims to provide the Alliance with a comprehensive set of options and measures to

manage and respond to crises including sudden shifts in the security environment, by taking full advantage of the tools and capabilities available to NATO. The purpose of the NCRS is to provide for required preparedness and support for crisis and conflict prevention and for crisis management across the range of Article 5 and Non-Article 5 operations. The NCRS as a whole is the overarching system for Crisis Management (CM) against which all planning processes should be designed.

B.3.6 TOPFAS Collaboration Apps and Services

[243] The TOPFAS collaboration apps and services comprise the following:

- **Task Planner** app allows users to create boards where they can create and manage tasks. These tasks can be grouped in categories: not-started, in-progress, completed, have a status: to do, doing, completed, a due date, and can be assigned to someone The task planner offers a schedule view, charting capabilities and excel import / export options.
- **Video** app allows users to set up a video channel where they can upload and organize their videos. The channel and videos can be shared with others and can be visualised in the browser.
- **Business Intelligence** app allows users to create and manage dashboards for TOPFAS planning objects such as actions, effects, data boxes, MOEs and MOPs. The dashboards have a data source, advanced charting capabilities, import / export functionality, and several other configurable options.
- **Assessment** is an app where users can see Action/MOPs and Effect/MOEs in a table format inside a web page. Users can select different lines of operation, a time period, a region, can inspect all relevant details and can download the data in excel format.
- **Documents** app allows users to manage and read plan documents in a web page. Users can select the plan and the workspace, can search or browse documents lists, can open and edit documents through the WebDAV interface, apply various filters and upload their own documents. Once uploaded these documents will be in the TOPFAS database and visible form the Web and Desktop applications.
- **Calendar** app offers a scheduler for tasks/appointments in a plan. Calendars can be developed and consulted from the TOPFAS Desktop applications as well as from the TOPFAS Online apps and they are easy to use. Users can create appointments and display them at different levels of granularity: day, working week, full week and month. This module also offers a new auto-generated timeline view, making the timelines developed in the OPT application directly accessible via a browser. Once developed and maintained, users can quickly get visibility of their team schedule.
- **Wiki** app offers a modern way of managing attachments with an enhanced rich-text editor easing the creation and edition of pages. With appropriate roles and permission, the Wiki gives access to the planning products developed using the TOPFAS operations planning applications.
- **Collaboration Space** app is a sketch collaboration tool, which allows drawing, chatting, adding TOPFAS objects in real time.

B.3.7 TOPFAS Help Centre

- **TOPFAS Help Centre** offers a single support hub for accessing the latest documentation, on-line help, presentations, videos and tutorials for the entire TOPFAS Application Suite. The Help Centre is accessible via a browser and acts a central point to access all TOPFAS user documentation, guides, training material, videos and useful references. The Help Centre is not only accessible via the global Help Centre, but also directly via the Help functions offered within the TOPFAS applications and apps.

B.4 TOPFAS Office Add-in and Slides Management

[244] The TOPFAS Application Suite comes with the following add-ins and utilities for dynamic integration and management of TOPFAS content within Microsoft PowerPoint.

- TOPFAS Briefing Tool (TBT): a Microsoft PowerPoint Add-in allowing the dynamic integration of TOPFAS entities and diagrams into presentations. The TBT provides access to the TOPFAS operations planning repository from Microsoft PowerPoint and allows the user to choose the plan or engagement space from which to include content on a slide. For the maps, it is even possible to add individual presentation slides. Content can be synchronised and updated according to the latest version within the repository.
- TOPFAS Slides Management: offers a slide creation and slide management capability within the TOPFAS Application Suite.

B.5 Service Configuration and Management

[245] The TOPFAS Application Suite includes the following applications and apps to manage, monitor and configure the TOPFAS Application Suite.

- TOPFAS Data Management Tool (DMT): an administrator application for configuring lookup tables and custom-made planning objects, for performing core maintenance tasks and for constructing training databases. This is a Microsoft Windows Desktop application.
- TOPFAS User Management Tool (UMT): an administrator application for managing users, groups and organizations with their preferences, roles, and privileges. It also includes functionalities for systems and endpoints configuration, and service monitoring. This is a Microsoft Windows Desktop application.
- TOPFAS Service Monitor: a web app offering service monitoring to TOPFAS system administrators and support engineers.

Annex C Software Acceptance Criteria

[246] Software Acceptance Criteria derived from the [BMD-ARS] will be provided separately in an MS Excel Workbook.

Annex D Templates

D.1 Engineering Change Proposal Template

[247] The ECP template will be provided separately.

D.2 Request for Deviation / Request for Waiver Template

[248] The RFD/RFW template will be provided separately.

IFB-CO-115498-TOFPAS-BMD

BOOK II-PART-IV-SOW-ANNEX-A-SRS

SOFTWARE REQUIREMENTS SPECIFICATIONS

Version 2.0

13/02/2023

TABLE OF CONTENTS

INDEX OF TABLES

Document Revision History

Date	Version	Changes
24 Feb 2023	3.0	Inserted paragraphs [041i] and [054i]; Modified requirement [REQ-4070]
13 Feb 2023	2.0	Insert of “Document Revision History” section; Table 1.1 Inserted TCLM reference; Editorial change paragraph [009] (b); Editorial change title section 2.1; Modified title section 2.1.1; Modified section 2.1.1; Modified requirement [REQ-0010]; Inserted requirements [REQ-0011] to [REQ-0018] instead of paragraphs [011]-[018]; Inserted requirements [REQ-0030] to [REQ-0090]; Swapped sections 2.1.2 and 2.1.3, resulting in modified requirements numbering; Modified section 2.1.2 and 2.1.3 and changed requirements in both sections accordingly; Section 2.1.4: due to changes in section 2.1.2 and 2.2.3, the requirements numbering from section 2.1.4 has been off-set to [REQ-0360], similar for paragraph numbering. Editorial change title section 2.1.5 and 2.4.14; Modified paragraph [048] and changed paragraph number to [045]; Inserted paragraphs [045(i)], [045(ii)], [046(i)] Modified requirement [REQ-5940] and changed number to [REQ-5901]; Inserted requirement [REQ-5920]; Inserted requirement [REQ-7111]; Modified requirement [REQ-7980] and changed number to [REQ-7960]; Modified requirement [REQ-8110] and changed number to [REQ-8090]; Modified requirement [REQ-8260] and changed number to [REQ-8240];
08 Dec 2022	1.0	IFB package release version

1 Introduction

1.1 Purpose and Aim

[001] This document describes the functional and non-functional requirements for implementation of the TOPFAS BMD Increment-1&2 scope with the TOPFAS Application Suite (TOPFAS in short).

[002] The aim is to develop and deliver a comprehensive capabilities and enhancement of the TOPFAS Application Suite with the required functionalities to support BMD specific functions.

1.2 Conventions and Common Terminology

[003] The headings in this document are for ease of reference only and shall not affect its interpretation.

[004] In this document, unless the context otherwise requires:

(a) A number in brackets “[*number*]” precedes each informational or context paragraph;

(b) A unique identifier, consisting of a prefix and number “[REQ-*number*]”, precedes each requirement;

(c) Requirements are formulated using the form “shall” and contractually binding. Context information supporting the requirements definition is provided using the form “will” and implies the intent or aim on the part of the Purchaser; the context forms one part with the requirements;

(d) Any phrase introduced by the words "including", "includes", "in particular", "for example" or similar, shall be construed as illustrative and without limitation to the generality of the related general words;

(e) Any reference made to a section or paragraph encompasses the referenced section or paragraph including all subordinate sections and paragraphs;

(f) The convention used for dates (e.g. quoting dates of meetings) is “day-month-year” and not “month-day-year”;

(g) With respect to data manipulation requirements, the term “manage” is used to cover all CRUD (Create, Read, Update and Delete) operations.

1.3 Structure

[005] This document is structured as follows:

- Chapter 1: The introduction to this document;
- Chapter 2: Specification of general functional requirements;
- Chapter 3: Specification of the module specific functional requirements;
- Chapter 4: The mapping of the specific functional requirements to applications;
- Chapter 5: Specification of the non-functional requirements.

1.4 References

[006] The references listed below provide further amplifications and contextual information related to the requirements.

Table 1-1 References

[AC-322-D0048-REV3]	Technical and Implementation Directive on CIS Security, Nov 2019
[AC-322-N(2011)130]	Guidance on the Marking of NATO Information, Jun 2011
[AC-324-D(2014)0008]	Directive on the Preservation of NATO Digital Information of Permanent Value, Jul 2014
[AC-35-D-2004-REV3]	Primary Directive on CIS Security, Nov 2013
[ADatP-4774]	(STANAG 4774) Confidentiality Metadata Label Syntax, Ed.A V1, Dec 2017
[ADatP-4778]	(STANAG 4778) Metadata Binding Mechanism, Ed.1, Oct 2018
[APP-11]	NATO Standard APP-11, NATO Message Catalogue, Ed.D V1, Nov 2015
[BMD-ARS]	[NR] TOPFAS BMD Architecture Requirements Specification (ARS) V2.1. Sep 2021
[BMD-IDD]	[NR] Ballistic Missile Defence Programme Interface Design Description (IDD) V4.0. May 2021
[NIMA-TR8350.2]	World Geodetic System-84, NIMA TR8350.2, Ed.3, Amdt.1, Jan 2020
[OWASP]	Open Web Application Security Project (OWASP), https://www.owasp.org/index.php/Main_Page
[SOA-IdM-ICD]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, Interface Control Document (ICD), V15.0, Jun 2021
[SOA-IdM-SDS]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System Design Specification (SDS), V9.3, May 2021
[SOA-IdM-SUM]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System User and Operation Manual, V8.0, Feb 2021
[SonarQube]	SonarQube, https://www.sonarqube.org/
[STANAG-5500]	(ADatP-03) NATO Message Text Formatting System (FORMETS) – Concept of FORMETS, Ed.A V3, Nov 2019
[TCLM]	NATO Trusted container lifecycle management v1.4, 2022

1.5 Background – Envisioned Capability

[007] With the TOPFAS BMD, NATO will acquire a set of user applications for a full BMD capability within the TOPFAS Application Suite in support of the NATO Ballistic Missile Defence (BMD) community.

[008] The final, enhanced TOPFAS Application Suite will provide all current existing TOPFAS functionality plus: support for the BMD Pol-Mil consultation process,

between the strategic commands, the North Atlantic Council (NAC) and Military Committee (MC); integration with other functional services to provide greater focus on passive defence (CBRN-FS), support for Education, Training, Exercises and Evaluation (ETEE-FS), utilization of OPFOR information (INTEL-FS) and defence designs (AirC2IS); integration with the NATO platform and core services.

[009] The technical solution of TOPFAS application suite is envisioned to encompass the following user applications:

(a) TOPFAS Desktop - Windows applications: Systems Analysis Tool (SAT), Operations Planning Tool (OPT), Campaign Assessment Tool (CAT), ORBAT Management Tool (OMT), TOPFAS Lite, TOPFAS OCC E&F (Operational Capabilities Concept Evaluation & Feedback) Tool.

(b) TOPFAS Online - server-hosted or web apps: web apps of SAT, OPT, CAT and OMT, TOPFAS eFGMT (Enhanced Force Generation Management Tool), TOPFAS RRT (Readiness Reporting Tool), TOPFAS RFI (Request For Information), TOPFAS NCRS (NATO Crisis Response System), TOPFAS TEM (Training and Exercise Management), TOPFAS Help Centre, TOPFAS Collaboration Apps and Services (Task Planner, Video, Business Intelligence, Assessment, Documents with WebDAV support, Calendar, Wiki, Collaboration Space).

(c) TOPFAS Office Add-in and Slides Management: TOPFAS Briefing Tool (TBT), TOPFAS Slides Management.

(d) Service Configuration and Management: User Management, Application and Service Configuration Management, Data Management Tool (DMT), TOPFAS Catalogue Management, TOPFAS Service Monitoring.