NORWEGIAN DEFENCE
MATERIEL AGENCY

REQUEST FOR INFORMATION

P2588
Spatial Disorientation Simulator

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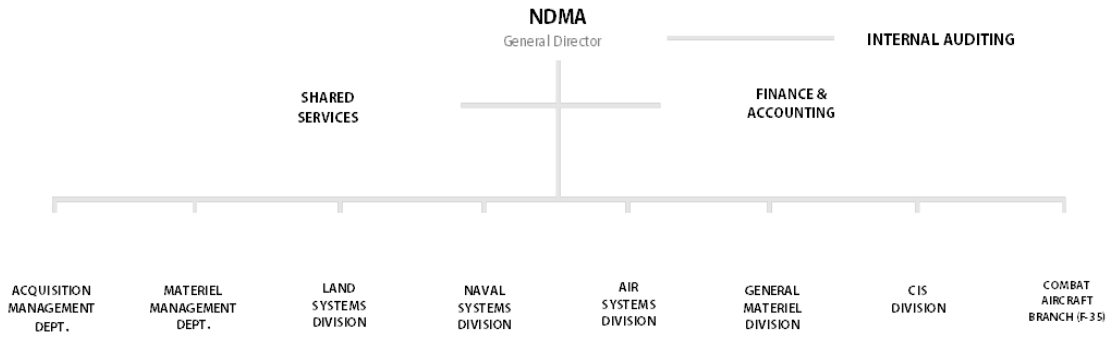
1 Introduction

1.1 The Norwegian Defence Materiel Agency

This Request for Information is carried out by the Norwegian Defence Materiel Agency (NDMA).

NDMA is an agency in the Norwegian Defence Sector and is directly subordinate to the Norwegian Ministry of Defence (MoD). NDMA shall ensure that the Norwegian Armed Forces and other undertakings in the defence sector shall gain access to cost-efficient, safe materiel in accordance with adopted long-term plans. NDMA's main tasks are planning, acquisition, management and disposal of materiel for the Norwegian Armed Forces (Armed Forces) and other MoD agencies. NDMA is the technical competent authority in certain areas and provides the Ministry of Defence, the Armed Forces and other parts of the sector with advice and expertise within the agency's area of responsibility. NDMA also follow up international partnerships relating to materiel and assist the Ministry of Defence to promote Norwegian industry. NDMA has approximately 1,450 employees, 60% of whom are civil employees and the rest military.



This procurement will be executed by the Land Systems Division, which is responsible for acquiring and ensuring the delivery of needed ground combat and support equipment for the Norwegian Armed Forces.

Further information is available on the following website: www.forsvarsmateriell.com.

The Norwegian Defence Materiel Agency will in the following be referred to as NDMA or 'the Purchaser'.

1.2 Purpose

NDMA is looking to acquire a simulator which shall train aircrew in spatial disorientation (SD) in a suitable physical fidelity environment.

The purpose of this Request for Information (RFI) is to provide the Norwegian Defence Materiel Agency with a more in-depth knowledge of the market with respect to potential suppliers, technical performance, price, and lead-time for delivery. The gathered information will be used to determine the project feasibility as well as to define the projects technical and functional requirements, budget and time frame.

NDMA released a Request for Information (RFI) in 2015: Request for Information Nr 100623 "P2588 Spatial Disorientation Simulator". Following the RFI there has been a halt in the project. It is assumed that there may have been a development in technology and change in prices after the 2015 RFI. Also, NDMA now has drawings which were not available in 2015. Hence NDMA is releasing an updated RFI.

1.3 Background

1.3.1 General

Simulation training is relevant for all types of military branches and units, from individual training all the way up to higher staffs. It is important that simulator investments and operational cost are contributing to more cost-efficient ways of training.

The Norwegian Defence, Institute of Aviation Medicine (FMI) has been using the Spatial Disorientation Simulator (SDS) GYRO-1 for training Norwegian aircrew since 1997. The SDS is today located at the University of Oslo (UiO) in Oslo, Norway.

The use of Spatial Disorientation simulator in Norway is in accordance with national regulations and NATO STANAG 3114. The SDS has been a vital training facility for the quality of the education and training of aircrew spatial disorientation.

1.3.2 Description of Spatial Disorientation Simulator

"The term spatial disorientation (SD) is used to describe a variety of incidents occurring in flight where the pilot fails to sense correctly the position, motion, or attitude of the aircraft or of himself within the fixed coordinate system provided by the surface of the Earth and the gravitational vertical.

In addition, errors in perception by the pilot of his position, motion, or attitude with respect to his aircraft, or of his own aircraft relative to other aircraft, can also be embraced within a broader definition of spatial disorientation in flight." (Definition by AGARD Working Group Report No. 625)

Spatial Disorientation (SD) is still a major factor in aircraft accidents. To demonstrate spatial disorientation in a wide variety of situations, both vestibular and visual illusions, are therefore of huge importance to enhance the awareness of the SD-risks, and to support flight safety.

Spatial Disorientation simulation needs to be based on sophisticated motion and visual cueing algorithms to provide realistic Spatial Disorientation training, aerospace orientation perception and to avoid unintended simulator sickness.

1.4 Tentative Project schedule

RFI	March 2024
RFI reply/deadline	25 April 2024
Prequalification	September 2024
Prequalification reply/deadline	October 2024
Invitation to Tender	January 2025
Offer Evaluation/Negotiation period	January 2026

Contract Award	March 2026
Delivery	TBD

2 The Request for Information

2.1 Company information

Please provide NDMA with the following information concerning your company:

- Company name, legal form, address and contact persons.
- Information whether your company intends to engage/has a Norwegian firm or contact person as your representative in Norway.
- If the company relies on other enterprises to meet requirements for economic and financial capacity and/or technical and professional qualifications.

2.1.1 Past performance

Please provide NDMA with documentation/descriptions of similar systems that your company has delivered, how many has been delivered, when and if possible, to whom.

2.2 Use case

In this RFI there will not be any preliminary technical requirements. Instead, the desired solution is defined by a **Use case** containing a selection of scenarios that are desirable to be carried out in a Spatial Disorientation Simulator. The Use case is found in **Annex A.**

The materiel/concept should meet the Use case scenarios stated in Annex A as close as possible, but a 100% compliance is not necessary in order to form a reply.

2.2.1 Respondent's Use case reply

The Respondent shall take a copy of Annex A and reply in the copied document. For each Use case scenario specified, the Respondent is requested to state whether the scenario can be fully, partly or not fulfilled. In case of fulfilment there should be a description of the solution.

NDMA would like to minimize the amount of work to be done at this stage, and the intention is not to require considerable new material to be prepared solely for this purpose. The Respondent may therefore answer by referring to enclosed information such as brochures, fact sheets, etc.

2.3 Technical information

A description shall be given for the described materiel/concept, and should, if possible, include information on the subjects listed below. Any characteristics considered as special features or advantages of the materiel/concept should be emphasised.

2.3.1 Physical characteristics

Please give a description based on the following main issues:

- Drawings or pictures of the materiel/concept
- Overall dimensions, hereunder detailed measurements of the equipment
- Requirements to the facilities, hereunder required room with measurement

- Total operational weight.

2.3.2 Building

The Norwegian Defence Estates Agency will be in charge of all parts linked to the needed building and infrastructure.

A new building is planned in which the system will be installed. The drawings with an explanatory text are located in **Annex B**, and shows the measurements and maximum available room in the new building. If the limitations in space require other solutions for the system than a standard "off the shelf" solution and this entails increased costs, this must be specified.

The Respondent shall propose building recommendations and solutions for installation, hereunder if special measures need to be taken in regards to installation, e.g. removal of walls before installation, rebuilding of walls after installation etc.

Special requirement for foundations, walls, roof and floor (hidden cables) etc. for the SDS must be specified.

If the limited space affects any performance of Contractor Logistic Support (CLS) or if the Respondent has any specific requirements or sees any challenges in relation to the building or infrastructure related to CLS this should be stated.

If the Respondent finds that the simulator they may offer not in any way will fit in the described new building, the Respondent is requested to give information about space required for the simulator. This could be a 3D drawing of the simulator with measurements based on the drawings in Annex B.

2.3.3 Infrastructure

Please provide information regarding power requirements, data network, noise, cooling/heating systems, etc.

2.3.4 Maintenance and Operation

Please describe alternative maintenance and logistic support concepts to define the Contractor Logistics Support (CLS).

The CLS shall include service, support, spare parts, training and maintenance on all hardware, software and manuals for the Spatial Disorientation Simulator at UiO, Oslo.

NDMA and FMI envision two CLS alternatives (operator days and hours needed is an estimation):

1. The CLS covers all services mentioned above including a contractor operator 4hrs 4days a week.

2. The CLS covers all services mentioned above including an option for a contractor operator in case the FMI operator is unavailable.

Identification of items with a relatively speaking high failure rate or critical parts with a significant consumption of resources with regard to logistic support shall be mentioned.

Duration of such a CLS agreement shall be based on **Annex C**, "Profile of operation", and a product life expectancy of 20 years.

2.3.5 Maturity of design

Please give a description of the maturity of the design based on the following main issues:

- Status of development (Technical Readiness Level – TRL)
- Have the national military authorities qualified the material?
- Are operator and maintenance manuals available?

2.3.6 Conformity to standards

Please list the relevant International Electrotechnical Commission (IEC), Conformité Européenne (CE), International Organization for Standardization (ISO), US Food and Drug Administration (FDA) and any other relevant standard for which your product, production and company is certified. Please note that not all listed agencies may be relevant for your marketing of the Spatial Disorientation simulator.

2.4 Commercial information

2.4.1 Price information

Kindly state your budgetary prices for the following quantities:

Description	**Qty**
Spatial Disorientation Simulator Investment Cost	1
Contractor Logistic Support (CLS) for 5 years and options for additional 5+5+5 years	1

The NDMA is in need of information regarding costs, both cost of acquisition and operation, in order to work out a realistic project framework. The NDMA is aware of the difficulties in preparing price information based on information given in this RFI. Nevertheless, the Respondent is requested to submit price information in accordance with the instructions given below as far as possible.

Rough order of magnitude (ROM) estimates are sufficient at this stage. ROM estimate means that the estimated figure falls within a reasonable range of values. Price estimates should be given as a three-point estimate (optimistic, most likely, pessimistic). Please state the prices in real value.

The basis for the prices such as currency, advance payment, delivery terms etc. should be stated.

Please inform NDMA if any of our functional and commercial requirements or conditions have a considerable impact on costs/prices. The same applies if the Respondent has seen it necessary to make major assumptions in order to prepare the price information.

The respondent is asked to fill in these price estimates in a relevant (OCR) format, e.g., MS Office 2010 Excel-sheet or a PDF table.

2.4.1.1 Cost of Maintenance and Operation

The NDMA requests the Respondent to indicate yearly cost of maintenance, based on the attached Annex C – Profile of operation and the alternatives in article 2.3.4. Please indicate necessary upgrading costs on hardware/software and other necessary components based on a 20-years operational period, in accordance with article 2.4.1.

We also request budgetary prices for items with a relatively high failure rate and/or critical parts with a significant consumption of resources with regard to logistic support.

2.4.2 Time of delivery

Please give a description based on the following main issues:

- Lead-time, from contract award until delivery.

- Schedules for delivery of the materiel and quantity as mentioned above.

2.4.3 Other commercial information

Please give a description based on the following main issues:

- Quality Assurance level in the AQAP and/or ISO system.
- Your standard warranty terms for this kind of material.
- If export of equipment or associated information is subject to special regulations, this must be stated. If for the same reason any requested information is being withheld from the Norwegian Defence Materiel Agency / Land Systems, this must also be stated.
- Please submit a reference list of your customers.
- Please submit your latest available annual report.

3 Questions to the tender

Any questions to the tender shall be submitted by e-mail to the Commercial Point of Contact by EOB 29 March 2024.

Answer to the questions will be given simultaneously to all potential respondents.

4 Request for Information Reply

4.1 Structure of RFI reply

The reply should be structured as follows:

Marking	Document name	Article reference
1	Company information	2.1 Company information
2	Use case scenarios reply	Annex A
3	Technical information, structured according to sub articles	2.3 Technical information
4	Price matrix	2.4.1 Price information
5	Delivery schedule	2.4.2 Time of delivery
6	Other commercial information	2.4.3 Other commercial information
7	Other relevant information, if any	
8	Redacted version of the RFI reply, if relevant	5.1 Public disclosure and duty of confidentiality

4.2 Address

Reply shall be submitted electronically through the Mercell-portal. In order to simplify the review of the information, the Purchaser requests that:

- The files are submitted in readable (OCR) PDF format or Microsoft Office compatible format.
- The files are identified to reflect the content of the file.

4.3 Request for Information reply – due date

The requested information shall be at the Norwegian Defence Materiel Agency/ Land Systems disposal no later than EOB 25 April 2024.

5 Administrative Regulations

5.1 Public disclosure and duty of confidentiality

The Freedom of Information Act applies to public access to documents relating to a public procurement. The Purchaser and its employees have a duty to prevent others from gaining access to and knowledge of information about technical installations and procedures or operational and business matters that should be kept secret for competitive reasons, cf. FOA §§ 7-3 and 7-4, cf. the Public Administration Act § 13.

The company may submit a version in which information that should be kept secret for competitive reasons is redacted. Examples of such classified information can be personal data, reference descriptions, information about partners, unit prices, hourly rates etc.

This notwithstanding, the Purchaser shall, if access is requested, consider whether the information is of a nature that means the Purchaser is obliged to grant access.

The respondents shall protect confidential information that is made available to them in connection with the Request for Information.

5.2 Use of information

The requested information will only be used for internal purposes in NDMA and the Norwegian Armed Forces.

NDMA does not intend to make any procurement based on this RFI or to pay for any of the information provided.

5.3 Planed procurement procedure

Any future procurement is planned to be in accordance with the Regulations for Defence and Security Acquisitions (FOSA) and based on the open competitive tender procedure pursuant to FOSA § 5-1 (1). In an open procedure, all interested contractors have an opportunity to submit tenders.

5.4 Point of contact

All communication shall be addressed to:

- Commercial Point of Contact: Ellen Deverill-Mathisen
  Phone: +47 95 06 35 37
  E-mail: edeverillmath@mil.no

- Project Manager: Dag Mevold
  Phone: +47 934 80 621
  E-mail: dmevold@mil.no

- Technical Point of Contact: Jan Solnørdal
  Phone: +47 905 50 677
  E-mail: jsolnordal@mil.no

All written communication shall be in either the Norwegian or English language.