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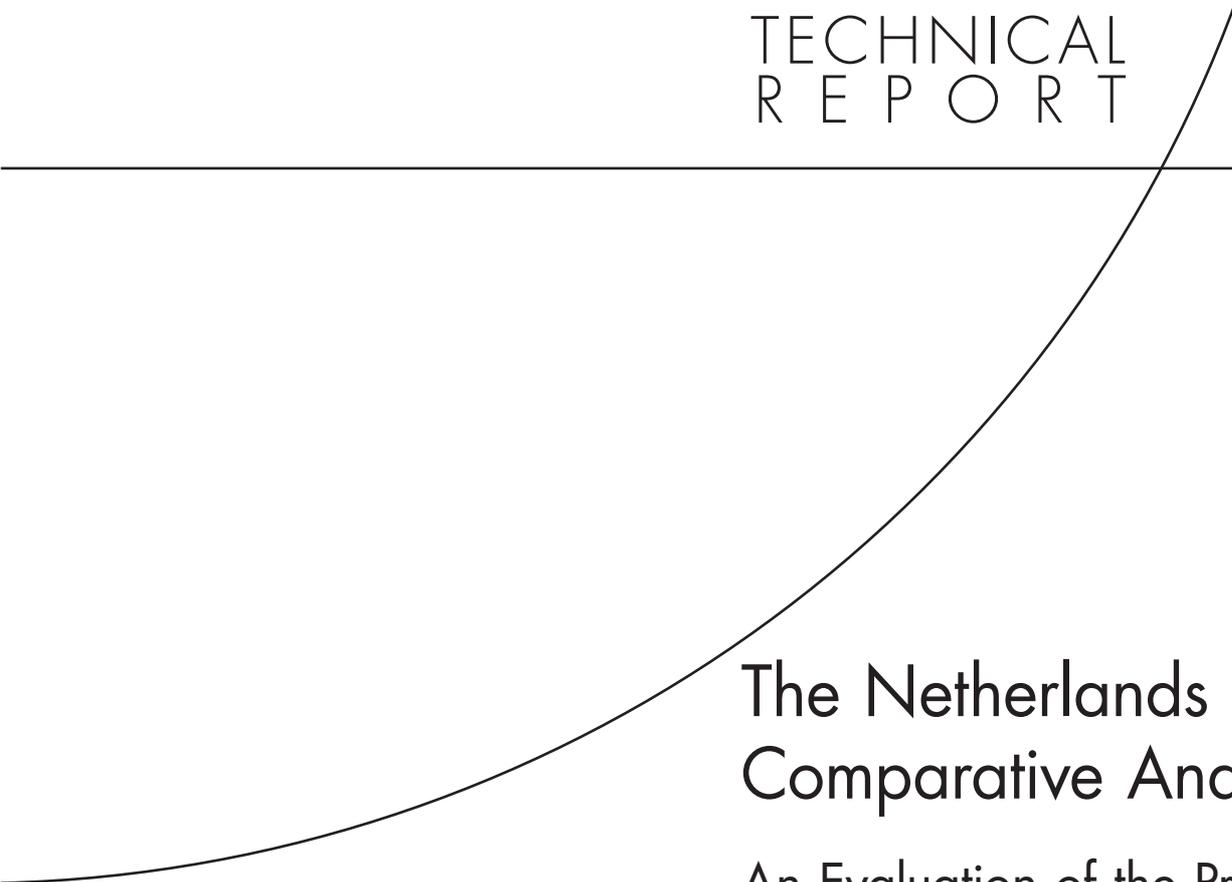
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TECHNICAL
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The Netherlands F-16 Comparative Analysis

An Evaluation of the Process

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Prepared for the Netherlands Ministry of Defence

The research described in this report was prepared for the Netherlands Ministry of Defence.

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Summary

This document, prepared for the Netherlands Ministry of Defence (NL MoD), presents a summary from RAND Europe on its key findings from the evaluation of the Netherlands F-16 replacement comparative analysis (CA) process.

Study Context

The NL MoD currently operates a fleet of 105 F-16 combat aircraft. The aircraft, which entered service in 1979, were initially intended to be in service until about 2000. However, the F-16 has been regularly updated to extend its operational lifetime. The current replacement strategy aims to begin the replacement of the F-16 Mid-Life Update (MLU) fleet in the next decade and the Netherlands government intends to take a definite decision on the replacement no later than 2010. To inform this decision the NL MoD has recently conducted a CA of three potential F-16 replacement candidates, namely:

- Advanced F-16 (Lockheed Martin);
- F-35 (Lockheed Martin)¹;
- Gripen NG (SAAB).

The objective of the CA conducted by the MoD was to rank candidates against three main aspects, namely:

- quality;
- life cycle costs;
- delivery timeline.

Scope of RAND Study

RAND Europe was commissioned to provide an independent, overall evaluation of the CA process. In particular, RAND Europe was asked to evaluate the transparency and objectivity of the CA process. In order to maintain our independence and objectivity throughout the engagement with the CA process, the RAND project team did not contribute to the scoring of the candidates under consideration. The RAND study was

¹ Throughout this report we use the nomenclature *F-35* rather than *Joint Strike Fighter* or *JSF*

conducted in addition to a separate evaluation that was conducted by the Audit Services of the MoD (ADD) and the Audit Services of the Ministry of Economic Affairs (ADEZ).

RAND's Methodology

The RAND project team was asked to assess whether or not the CA was *sufficiently objective* and *sufficiently transparent* in both design and execution. Throughout the evaluation study, our benchmark for reaching an overall judgement was whether or not the design and execution of the CA was:

- *sufficiently transparent* to enable an external observer (such as RAND) to understand the provenance of the criteria used in the candidate ranking (quality, life cycle cost and delivery timeline) and whether candidate ranking was based on a logical utilisation of the information provided by Lockheed Martin and SAAB;
- *sufficiently objective* for the NL MoD to reach a ranking of candidates based solely on an unbiased comparison against the criteria of quality, life cycle cost (LCC) and delivery timeline.

The purpose of our evaluation was to determine whether or not the CA met these overarching criteria, rather than to grade the CA. Consequently, through this document we use the terms *satisfactory* and *sufficient* to indicate whether the CA has met (or exceeded) the required standards. The study approach is described in more detail in Chapter 3. To deliver our study objectives, we undertook three main phases:

- **Development of a set of evaluation criteria.** During the first phase of the study, the RAND project team developed a set of evaluation criteria. To do this, we surveyed the literature concerning good practice in large public procurement programmes. We then developed a structured framework for our evaluation that was based on the Successful Delivery Toolkit from the UK Office of Government Commerce (OGC).
- **Evaluation of the design of the comparative analysis methodology.** The second phase of the study focused on evaluating the design of the CA methodology. During this phase, we reviewed the methodology that had been documented by the Defence Materiel Organisation (DMO) regarding its approach to the comparison of candidates.
- **Evaluation of the execution of the comparative analysis methodology.** The third phase of the study focused on evaluating whether or not the CA process was objective and transparent in its execution. During this phase the RAND project team monitored the CA process executed by the MoD. We reviewed relevant documentation, attended the key meetings and scoring sessions that formed the assessment of candidates and also reviewed the final MoD reports on the ranking of candidates.

The RAND team provided an ongoing evaluation during the CA and provided feedback to the CA team at regular intervals throughout the process in order that the CA team could incorporate recommendations during the process.

RAND's Findings

Our overall evaluation of the transparency and objectivity of the CA was based on whether or not there was sufficient evidence in its design and execution to satisfy the evaluation criteria we had developed. To do this, we reviewed documents produced through the CA process and observed assessment meetings in which the CA team scored and ranked candidate aircraft. In addition, we applied our professional experience from other major procurement projects in our evaluation. We have divided our main findings into the following categories:

Overall Evaluation of Supplier Engagement and Internal Management

The RAND project team has reviewed the key documentation and interviewed key members of the CA team regarding their approach to supplier engagement (i.e. the NL MoD's engagement with Lockheed Martin and with SAAB). Our overall evaluation is that supplier engagement and internal management during the CA was sufficiently transparent for the RAND project team to confirm that manufacturers received appropriate formal communication at relevant stages in the process. Furthermore, when compared with good practice described by the OGC, we concluded that supplier engagement and internal management during the CA were sufficiently objective to enable candidates to be compared on a relatively level playing field.

Overall Evaluation of the Comparative Analysis Design and Execution

The CA followed an approach that had been finalised by the NL MoD in August 2008. The RAND project team reviewed the CA methodology against our experience of other public procurement assessments and against the OGC's Successful Delivery Toolkit. The CA methodology, which was documented in August 2008, was finalised by the MoD prior to beginning their assessment of candidates. The methodology was well structured and described all of the key stages in the process prior to execution of the CA. Our overall evaluation is that the design of the CA methodology was satisfactory.

The RAND project team reviewed the key documentation and observed relevant meetings relating to the comparison of candidates on the main aspects of quality, LCC and delivery timeline. The execution of the CA followed the methodology that had been reviewed earlier on. Our overall evaluation is that the execution of the CA process for these main aspects was satisfactory.

Overall Evaluation of Transparency

Our overall evaluation is that the CA for the main aspects of quality, LCC and delivery timeline was sufficiently transparent for the RAND project team to confirm the provenance of the criteria used in candidate ranking. The RAND project team has reviewed the summary of results prepared by the DMO which presents a clear and balanced set of conclusions and reflects the assessments made during the CA process.

For the aspect of LCC, there were some imperfections regarding transparency; but the CA team made sufficient efforts to ensure that the conclusions in the final report were

transparent. The RAND project team was able to confirm the origin of most of the data used in the CA, although not all sources were fully referenced and some assumptions were not made completely explicit. The final report for LCC recognises the inherent challenges of validating and assessing the uncertainty of cost data, and that not all risks have been quantitatively assessed. Consequently, the relatively conservative uncertainty bandwidths presented for LCC do not fully reflect the total uncertainty.

For the aspects of quality and delivery timeline we were able to confirm the correlation of information used in the assessment with that provided by manufacturers. The analysis of operational effectiveness and delivery timeline was directly traceable to Netherlands political ambition. The input documents were well prepared and traceable to the source documents, which RAND has also reviewed.

Overall Evaluation of Objectivity

Our overall evaluation is that the CA for the main aspects of quality, LCC and delivery timeline was sufficiently objective to produce an unbiased ranking order. No evidence of bias was found. Assessment of each candidate was performed primarily on the basis of information provided by manufacturers, and the expert scoring panels made efforts to be consistent across candidates. Efforts were also made to validate cost data with respective manufacturers and through governmental agencies. The RAND project team has reviewed the final reports prepared by the MoD and has concluded that the reports provided an accurate reflection of the assessments conducted and are generally objective in tone.