

DATE

File reference:

PROGRAMME NAME FULL BUSINESS CASE

Investing in PROGRAMME strategic capability is essential to maintain relevance and UK political choice as detailed in the Defence Command Plan (DATE). Without an upgraded capability, REDACTED. This Business Case brings together two inextricably linked and interdependent projects – each with funding provision – into a single approval: REDACTED.

REDACTED is vital to REDACTED. REDACTED investment sustains a highly specialised, world-leading UK industry base and ensures advanced technical skills and expertise are available for the (PROGRAMME NAME) programme. Delivering REDACTED into service demonstrates REDACTED. Integrating REDACTED onto PROGRAMME ensures that it remains competitive for winning new export orders and provides a lucrative revenue stream for UK industry from retrofitting the DELIVERABLE onto current PROGRAMME REDACTED.

Issue

1. Demonstration and Manufacture (D&M) phase of the PROGRAMME DELIVERABLE, including REDACTED, to deliver Full Operating Capability (FOC).

Timing

2. Approval is required by DATE to continue REDACTED.

Subject to approval, initial contract activity in DATE will commit £XXXX.

Recommendations

3. The Approving Authority is invited to **approve**:
 - a. Commitment to deliver the D&M scope for DELIVERABLE, inclusive of REDACTED.
 - b. An Approved Budgetary Level (ABL) of **£XXXX** at 50% confidence to complete the delivery of the D&M phase and achieve FOC, taking the total ABL for the overall REDACTED and DELIVERABLE programme from £XXXX to **£XXXX** (outturn, inclusive of all non-recoverable VAT). This contains XXXX calculated using the DEM exchange rates and associated exchange rate uncertainty and comprises:
 - (1) £XXXX capital expenditure (CDEL).
 - (2) £XXXX total resource consumption (RDEL).

- c. A separate provision of £XXXX as Risk Outside Costing based on the delta between the 70%CL and 50%CL (aggregate method) of the DEM exchange rate uncertainty.
- d. Schedule for delivery of DELIVERABLE as:
 - (1) Initial Operating Capability (IOC) by DATE (50% Confidence).
 - (2) FOC by DATE (50% Confidence).
- e. IOC and FOC definitions at Annex B.
- f. Key User Requirements (KURs) at Annex C.

4. And to **note**:

- a. To date, UK investment in DELIVERABLE has matured the technology and reduced technical risk on the programme. REDACTED. In DATE, subject to approval, a X-year commitment to continue REDACTED development will be made, including trials with the prototype DELIVERABLE in DATE, hardware and software development to deliver a production DELIVERABLE system ready for integration.
- b. Concurrent with REDACTED development, a REDACTED will commence in DATE through a System Definition (SD) contract.

The SD phase will establish the design solution for a common system interface REDACTED. SD will provide the detailed requirements needed by REDACTED to enable a proposal to be delivered in DATE for integrating the REDACTED DELIVERABLE onto PROGRAMME through a DELIVERABLE Demonstration Contract. DELIVERABLE is not limited to REDACTED, but includes a broader range of capability upgrades that are required in the same timeframe as the DELIVERABLE. For the UK the Minimum Viable Programme (MVP) for DELIVERABLE includes REDACTED. The MVP also includes the introduction of REDACTED. Together this package of upgrades is sufficient to meet the KURs. Whilst the DELIVERABLE package and REDACTED will be embodied across the UK REDACTED, REDACTED DELIVERABLE will only be embodied on REDACTED.

- c. The final content of the DELIVERABLE package is subject to negotiations with PNs and is dependent on agreeing a level of cost share and priority of each nation's requested candidates; therefore the final content is likely to be greater than that required for the UK MVP (a list of UK additional candidates not included in the MVP is attached at Annex D). Securing a 100% UK-funded position for the MVP package is central to the UK's negotiation strategy to protect the REDACTED delivery timeline by removing reliance on PN funding and ensuring that essential REDACTED enabling content is included and protected within the broader DELIVERABLE package. Moreover, it is in the UK's national interest to maintain strategic control of DELIVERABLE in the

context of the competing PROGRAMME DELIVERABLE programmes, specifically with COUNTRY, in a challenging multinational environment.

- d. Supply for REDACTED (REDACTED) remains a strategic risk for the programme, with only one supplier capable of providing this essential product for REDACTED. Continued sustainment funding is essential to secure a long-term commitment with the supplier to the end of DATE, therefore an additional c£XXXX has been included in this FBC.
- e. DELIVERABLE also demands changes to the PROGRAMME Future Synthetic Training (PFST), REDACTED and deployable infrastructure to deliver IOC. Scoping assessments have been conducted with costs included within the ABL (Annex E).
- f. The FBC approval covers the totality of activity to deliver DELIVERABLE, including delivery and integration of REDACTED. Subject to approval, c£XXXX will be committed in DATE to ensure seamless continuation of REDACTED development (critical path activity to IOC), secure REDACTED (REDACTED) supply from a UK List X company and strengthen UK international control of the DELIVERABLE strategy. Thereafter, the next major commitment is late DATE for the DELIVERABLE Demonstration Contract with an expected value to the UK of £XXXX. **Ahead of that commitment a Review Note (RN) will be submitted to confirm the agreed composition of non-DELIVERABLE capabilities within the DELIVERABLE package post negotiations with PNs and re-affirm deliverability within the overall ABL.** Thereafter, c£XXXX is committed in DATE REDACTED manufacturing and assembly; c£XXXX in DATE for embodiment and development of the REDACTED to achieve the FOC standard. Information Notes will also be provided ahead of each of these major commitments. The list above excludes smaller discrete cross DLOD investments planned between DATES and which makes up the total ABL of £XXXX.
- g. PROGRAMME NAME. Maximum re-use of REDACTED technology has been assumed by the SRO and DELIVERABLE Design Authority (COMPANY) wherever appropriate in the design of the System for the PROGRAMME NAME programme. The programmatic impact of cancelling REDACTED on PROGRAMME NAME has been assessed as X years delay and at least an additional £XXXX of direct costs from the technology transfer. However, this excludes the wider cost benefit to PROGRAMME NAME derived from an REDACTED programme that develops and maintains the industrial and MOD SQEP, manufacturing, trials and evaluation, mission data capability and operational experience gained from delivering a new DELIVERABLE into service. The cost benefit for PROGRAMME NAME and therefore cost risk should REDACTED be cancelled, is estimated as c£XXXX.
- h. Delays in the current REDACTED project have impacted the forecast IOC by DATE since the last REDACTED approval in DATE, primarily driven by late approval and supplier performance.

- i. DELIVERABLE (also known as DELIVERABLE), underwent a contract amendment in DATE to prioritise REDACTED for PROGRAMME export¹ and which also removed REDACTED scope which will now be delivered as part of DELIVERABLE. DELIVERABLE dependencies have been reflected in the DELIVERABLE schedule and cost included in the overall ABL.
- j. In-Service costs (including spiral) for DELIVERABLE to a DATE Out of Service (OSD) are estimated as £XXXX (50% Confidence); these costs are excluded from the ABL but noted for completeness.
- k. A potential cost variation of £XXXX due to exchange rate volatility between the DEM rate and the CPA rate. This is to be managed centrally by DefRes for centrally approved cases.

Strategic Case

REDACTED

5. The military capability requirement for a replacement DELIVERABLE for PROGRAMME has been well-documented through successive defence reviews. REDACTED will sustain operational advantage for the UK military within the anticipated threat/operating environment until PROGRAMME's OSD and will:

- a. Recover shortfalls in existing capability, sustaining REDACTED;
- b. Enable REDACTED;
- c. REDACTED.

6. The DELIVERABLE offers a capability that will address three critical and linked **strategic justifications** for the UK.

- a. **REDACTED.** REDACTED and an open architecture that allows rapid, low cost adaptation.
- b. **UK Prosperity.** Substantial economic benefit and prosperity to the UK from sustaining PROGRAMME's credibility and demonstrating viability in export campaigns; the opportunity for retro-fit to the large, established PROGRAMMEs in-service with core and export nations and indirectly through independent sustainment of UK, high-end facilities, knowledge and workforce during the transition from PROGRAMME to PROGRAMME NAME. DELIVERABLE is vital for the maintenance of UK industrial advantage and suitably qualified and experienced personnel within the SECTOR, especially

relative to COUNTRY during the positioning and industrial consolidation associated with the various PROGRAMME NAME programmes.

(1) **Export Opportunity.** Once DELIVERABLE is formalised as a baseline product, existing PROGRAMME export customers can only maintain a capability development path by buying into the product; export customers will be compelled to join DELIVERABLE in order to secure non-discretionary R&M capabilities. The recent COUNTRY precedent demonstrates the potential of export participation to help reduce core nations costs with early contractual and commercial engagement. With no engagement the worst-case scenario would be an Industry to export nation sale of a delivered product with the benefit limited to a proportion of the 10% CEL. This means a realistic financial benefit of £XXXX to £XXXX in later years from existing export customers depending on participation and securing CEL.

c. **(PROGRAMME NAME).** DELIVERABLE will de-risk technical development and skills for the next generation of UK combat REDACTED (PROGRAMME NAME/ PROGRAMME NAME). The REDACTED will be a key component of the PROGRAMME NAME solution, with the ability to deliver REDACTED underpinning the UK's credibility in playing a leading/major role in an international PROGRAMME NAME programme. Key linkages include the following:

(1) PROGRAMME NAME is critically dependent on REDACTED to develop SQEP and mature capability across a range of development, manufacturing and test & evaluation areas that will only be tested by the introduction of an operational system. Allowing the associated industrial and military skills to atrophy will lead to a significant schedule impact to PROGRAMME NAME, with the potential for loss of capability that cannot be easily resurrected. Evidence suggests a delay in PROGRAMME NAME FOC capability of between X and X years if REDACTED is not delivered into service on PROGRAMME and flown in an operational representative environment.

(2) PROGRAMME NAME is critically dependent on REDACTED that are being developed for REDACTED. The direct additional cost pressure to PROGRAMME NAME of developing these elements in the absence of REDACTED is at least c.£XXXX and excludes costs caused by a delay to the PROGRAMME NAME programme.

(3) Although the direct hardware dependencies between REDACTED and REDACTED are limited beyond assets already developed, PROGRAMME NAME benefits from reductions in cost due to the use of similar components to REDACTED.

(4) REDACTED is fundamental, with no viable alternative, for the sustainment and maintenance of a supply chain (beyond the major stakeholders of COMPANY, COMPANY and COMPANY) to be available and viable to support the creation of an PROGRAMME NAME product in the latter half of the decade.

(5) No alternative approaches to sustain REDACTED, supplier base and develop capability mitigate the likely performance, cost and schedule impacts on a UK developed PROGRAMME NAME if REDACTED is not delivered into service.

7. Additionally, there is a cost benefit to PROGRAMME NAME from the REDACTED programme from maintaining the industrial and MOD SQEP as well as the manufacturing, trials and evaluation, mission data capability and operational experience from successfully integrating a new DELIVERABLE. One option considered later in this business case is delivering an IOC capability but then using that capability for the benefit of PROGRAMME NAME only. The cost of that option is estimated at c.£XXXX and therefore represents a potential additional cost pressure to PROGRAMME NAME should REDACTED be cancelled.

8. Classified briefings are available to provide UK senior leadership a full understanding of the innovative nature of this UK technical solution, its vital contribution to UK Defence's capability requirement and its strategic relevance and benefit to the UK.

DELIVERABLE

9. As part of the REDACTED programme, the route to deliver significant PROGRAMME capability enhancements is through extensive and protracted engagement, negotiation, and compromise. This is particularly relevant for the delivery of DELIVERABLE which will be the primary delivery vehicle for integrating REDACTED. REDACTED cannot be embodied on PROGRAMME outside a REDACTED as this provides the necessary changes to the system software and ensures the continued participation of all Partner Companies.

10. DELIVERABLE sits as a core block within the X+ year PROGRAMME development planning horizon that has been agreed by REDACTED. The plan includes the contractually committed (in DATE) REDACTED as the baseline product for DELIVERABLE development and shows the REDACTED programme following DELIVERABLE later this decade.

11. In addition to REDACTED, the UK scope for DELIVERABLE includes other time critical upgrades for the PROGRAMME REDACTED, as below. Together, this package constitutes the MVP for the UK and is sufficient to meet the KURs.

a. REDACTED

International Dynamic and Negotiations

12. Due to the critical nature of the DELIVERABLE content to the UK for the success of REDACTED, the intent from this FBC is to secure a 100% UK-funded position. This is considered the most cost-effective negotiation strategy and increases the UK authority and influence in managing the DELIVERABLE programme. The major concern and risk

is considered to be that despite apparent alignment in DATE, there remain divergent priorities and ambitions for DELIVERABLE, particularly with regards to delivery timeframes. This has primarily been driven by the COUNTRY DELIVERABLE programme, which may not deliver a full capability until at least DATE. This is being managed as part of the UK negotiation strategy, with the UK priority to deliver DELIVERABLE on a baseline as soon as practical.

13. Negotiations to agree the product strategy for DELIVERABLE are ongoing. This case does not pre-empt the final negotiated outcome, nor assume the international funding contributions and agreed down-selection of DELIVERABLE additional capability candidates. As such, the scope of this approval assumes a 100% UK-funded position to deliver a minimum viable baseline, meeting regulatory and mandatory requirements, across all DELIVERABLE variants embodied on the UK REDACTED and REDACTED embodied on all REDACTED. This will additionally maintain a common baseline across the UK REDACTED. The risk in not securing a 100% UK-funded budget is that we will have a funding reliance on PNs, for whom the time imperative is less relevant, to proceed through the contracting points,

14. As part of the negotiation with the PNs, the UK will make choices about balancing increasing DELIVERABLE scope with DELIVERABLE funding contributions from the PNs. These negotiations are unlikely to conclude until REDACTED can provide a fixed price DELIVERABLE Contract in DATE to deliver an IOC capability. Prioritisation of potential capability upgrades over and above the UK MVP is at Annex D.

Economic Case

Benchmarking REDACTED

15. Two benchmarks for REDACTED are: REDACTED vs other PROGRAMME DELIVERABLE variants; REDACTED vs similar DELIVERABLE capabilities delivered on other REDACTED.

16. UK MOD has a detailed understanding of the capability, specification, and design of the alternative PROGRAMME variants due to the UK's extensive test programme. The DELIVERABLE is obsolete, does not currently meet the KURs and is architecturally incapable of doing so. DELIVERABLE and DELIVERABLE have a comparable development and unit cost to REDACTED but with significantly less capability and, having inherited architecture and "back-end", are incapable of meeting the KURs given the hardware and architecture.

17. Whilst integrating a DELIVERABLE from one REDACTED type to another is not technically sensible or cost effective, those DELIVERABLEs do provide ideal programmatic benchmarks for cost and performance. REDACTED.

Industrial

18. The UK's share of the DELIVERABLE and REDACTED market has reduced, such that only COMPANY and COMPANY remain internationally competitive for DELIVERABLE and DELIVERABLE respectively. The volume of work without REDACTED is insufficient to sustain a viable national enterprise as well as UK SMEs across academia, Research and Development, MOD, ORGANISATION and organisations such as COMPANY.

19. Discontinuing REDACTED development would have several immediate and longer term impacts on PROGRAMME NAME and represents a risk to the UK's strategic military and industrial position. Cancellation means the short-term ceding of influence and revenue to other nations such as COUNTRIES and in the longer term represents a threat to the credibility and viability of PROGRAMME NAME.

Export

20. REDACTED is seen as a minimum acceptable capability standard for export opportunities. REDACTED, as part of an international DELIVERABLE baseline, forms a key component of a credible and capable UK PROGRAMME export to COUNTRIES. The UK will benefit from export sales of PROGRAMME through continuation of production facilities and design work in COMPANY and suppliers, improved productivity, economies of scale in capability development and support, Commercial Exploitation Levy and reduction in our costs to manage the end of manufacturing and assembly.

21. Proceeding with DELIVERABLE and REDACTED also opens up opportunities for retrofitting the upgrades on PROGRAMME REDACTED currently in service with COUNTRY and COUNTRY and achieving a common baseline across all DELIVERABLE configurations (DELIVERABLE, DELIVERABLE).

Options

22. Due to the AGREEMENT for PROGRAMME capability delivery there are no viable industrial or commercial routes to deliver the upgrades outside of the current COMPANY consortium. This enforces a common baseline and integration / clearance across all subsystems. The following options have been considered for this case:

- a. **Option 1 - Do Nothing. REDACTED. This option is not recommended.**
- b. **Option 2 – Do Minimum. Proceed with a Minimum Viable Programme (MVP) for DELIVERABLE. REDACTED. This option is recommended.**
- c. **Option 3 – Do Maximum. Proceed with the full package of UK capability upgrades in DELIVERABLE.** As per Option 2 but this option would deliver the full scope of the potential capability upgrades for DELIVERABLE listed at Annex D. The deterministic cost from Industry, excluding cost uncertainty and risk, was estimated at c.£XXXX. This option has not been taken forward for a detailed cost benefit analysis as it would be an unaffordable position for the UK. **This option is not recommended.**
- d. **Option 4a – Do Different. Complete REDACTED development but do not complete integration onto PROGRAMME. REDACTED. This option is not recommended.**
- e. **Option 4b – Do Different. REDACTED. This option is not recommended.**

Recommended Option

23. Option 2 is recommended as it delivers the minimum scope to meet the KURs and achieves the strategic benefits of the DELIVERABLE and REDACTED programme. Subject to approval, next steps include:

- a. In DATE, an immediate c£XXXX commitment to REDACTED hardware and software development, REDACTED sustainment and DELIVERABLE CONTRACT.
 - b. In late DATE, a c£XXXX commitment to the DELIVERABLE Contract.
 - c. In DATE, a c£XXXX commitment to REDACTED manufacturing and assembly.
 - d. In DATE, a £XXXX commitment to REDACTED embodiment and development of the REDACTED to achieve the FOC standard.
24. Information Notes will be provided ahead of each commitment. For the DELIVERABLE Demonstration Phase Contract in late DATE, an RN will confirm the agreed composition of non-DELIVERABLE capabilities in the final agreed DELIVERABLE package post negotiations with other PNs, and re-affirm deliverability within the overall ABL. The list above excludes smaller discrete cross DLOD investments planned between DATES.

Commercial Case

25. Contract activities will be principally delivered through AGREEMENT within the extant commercial framework². In DATE, two initial parallel commitments are required: REDACTED hardware/software development and DELIVERABLE development. The financial commitment to deliver these work packages is £XXXX.
- a. REDACTED hardware/software development. A further development contract for REDACTED hardware / software development is required to ensure continuity and maintain the critical path as the current work packages conclude in DATE. The contract length will be c.Xyrs, delivering the production standard REDACTED DELIVERABLE in readiness for integration, test, and trials. Scope includes trials of the REDACTED prototype in DATE and completion of software development by DATE to help generate an IOC capability, before integration with the system through the DELIVERABLE Contract. The proposal will be negotiated directly between UK MoD and COMPANY / COMPANY UK, seeking to maximise the benefit of long-term subsupplier contracts. This contract will include a long-term commitment to production investment and REDACTED sustainment with COMPANY to secure supply for the UK REDACTED demand.
 - b. DELIVERABLE Systems Development. A CONTRACT to deliver the remaining assessment activities for DELIVERABLE development. It includes early demonstration phase activities to maintain the critical path to IOC and provides the detailed systems requirements for Industry to generate proposals for the DELIVERABLE Demonstration Phase contract.
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26. A DELIVERABLE Demonstration Contract will then be contracted following the completion of the DELIVERABLE package outlined above. This contract will cover the test, trials, and evaluation activity to integrate REDACTED and other DELIVERABLE capability upgrades onto PROGRAMME to meet the IOC requirements. The total UK commitment to the DELIVERABLE Demonstration Phase contract is expected to be c£XXXX. Ahead of commitment to the DELIVERABLE Demonstration Contract in late DATE, a Review Note will be submitted to confirm the final agreed composition of non-DELIVERABLE capabilities to be adopted in DELIVERABLE and re-affirm deliverability within the ABL without erosion of the programme management reserve.
27. The remaining development and manufacture to meet the FOC requirements and embodiment across the full UK PROGRAMME will be contracted via the AGREEMENT CONTRACT frameworks as appropriate with commitments expected between DATES.
28. The terms and conditions of AGREEMENT Contracts allow for National Price Investigation (NPI), whereby the MODs of UK and COUNTRIES will investigate the prices quoted.

Financial Case

29. The total cost estimates for this FBC combine the investment required to deliver REDACTED (£XXXX plus £XXXX for REDACTED) and costs associated with DELIVERABLE which integrates the DELIVERABLE onto PROGRAMME, enables REDACTED KURs, and delivers a range of time critical capability upgrades and REDACTED DLOD investment to gain maximum benefit from the capability upgrade. The cost estimates have been developed collaboratively with UK industry over several years, sourced from a mix of historic fixed pricing, near neighbour and supplier estimates. The combination of cost uncertainty and risk has resulted in a management reserve of c.£XXXX within the ABL, the difference between the Deterministic estimate and 50% modelled outcome. Although PN funding is not assumed in helping the UK deliver the MVP for DELIVERABLE, the potential net cost saving arising from PN financial contribution to DELIVERABLE has been modelled as an opportunity.
30. The following table provides a cost breakdown (10/50/90% confidence), based on Option 2, for this approval (D&M phase).

Project Phase	Confidence Levels (£M)		
	10%	50%	90%
Historic Sunk	XXXX	XXXX	XXXX
Demonstration	XXXX	XXXX	XXXX
Production Investment	XXXX	XXXX	XXXX
Manufacture, Assembly and Embodiment	XXXX	XXXX	XXXX

DLODs, PSS & Synthetic Upgrades	XXXX	XXXX	XXXX
Total for D&M Phase	XXXX	XXXX	XXXX
Total ABL	XXXX	XXXX	XXXX

31. Until the industry proposals are received, a definitive position regarding Contingent Liability cannot be confirmed, however, based on previous tasks of this nature it is anticipated that a Contingent Liability will not be required.

32. The Integrated Review settlement for REDACTED provided funding of £XXXX for REDACTED. Additionally, the PROGRAMME Base Level Budget (BLB) includes provision for DELIVERABLE and other capability upgrades. The overall affordability position against the combination of the REDACTED and DELIVERABLE funding is provided at Annex G. The forecast cost (at 50% confidence) to deliver the DELIVERABLE MVP is affordable in total but with unaffordability profile challenges in yrs 1-3 of £XXX. However, when the funding provision is compared against a schedule risk adjusted profile of costs, i.e. a 50% profile that reflects the delays expected in the 50% confidence schedule, that affordability challenge is reduced to £XXX in yr 2.

Management Case

Programme Management

33. There have been delays to the REDACTED and DELIVERABLE contracts (early notification to approving authority in the DELIVERABLE / DELIVERABLE Information Note), driven by later than planned approval of RN causing a linear X month delay and supplier performance due to technical complexity. The performance of the suppliers has stabilised, and previous delays reflected in the schedule to achieve IOC/FOC.

34. Since DATE a Joint Project Office between MOD, COMPANY and COMPANY UK has been established at COMPANY to improve Management Information and provide greater MOD governance during the supplier decision making process. This has improved transparency of technical issues across the three organisations and led to early intervention. Lessons have also been learnt and applied from the DELIVERABLE programme, including the adoption of sufficient trial and software fix cycles within the planning for DELIVERABLE.

35. The programme (Annex F) can be broadly characterised as two dependent development streams, the REDACTED DELIVERABLE and DELIVERABLE REDACTED system upgrade. The REDACTED development will include prototype trials in DATE, and a declaration of design performance for the production standard REDACTED in early DATE. This development is concurrent to the DELIVERABLE REDACTED system development that will incorporate the interface and interoperability changes as well as delivering a complementary package of upgrades that form the UK MVP.

36. A detailed schedule to IOC for REDACTED has been maintained since DATE and further developed to incorporate the system development schedule. DELIVERY ORGANISATION and UK Industry have assessed the programme logic and dependencies, including areas of uncertainty and risk (Annex F). The 10/50/90%

confidence levels for IOC/FOC are detailed below. With a schedule deterministic date of DATE for IOC, the 50% modelled outcome includes X months of risk and uncertainty.

	Confidence Levels		
	10%	50%	90%
IOC	DATE	DATE	DATE
FOC	DATE	DATE	DATE

Risk Management

37. Continuity of REDACTED (REDACTED) supply through COMPANY, a UK List X supplier in LOCATION, remains an existential threat to REDACTED and a strategic industrial risk to Defence. The assumption in the RN that FMC would manage continued sustainment of COMPANY from DATE has not materialised. As such, the sustainment costs have been captured within this FBC. COMPANY UK has engaged COMPANY to establish the conditions for a long-term business agreement to reduce the risk exposure. COMPANY has indicated that a contractual commitment for REDACTED for REDACTED development and production manufacturing would “guarantee” sufficient assets to meet the UK requirement for FOC.
38. The performance and time parameters within this FBC represent the minimum capability that would be achieved when fully funded by the UK. Despite this funding position, agreement to proceed would be required by the PNs. Participation by the COMPANY, most notably COMPANY due to changes in REDACTED, is integral to the system development.
39. The programme risks are detailed at Annex H.

Governance

40. Overall PROGRAMME programme execution is managed by AGREEMENT. The UK, supplemented by the introduction of the REDACTED JPO, has direct programme management and oversight of REDACTED development, within the boundaries of the AGREEMENT contractual framework. The system development, through the DELIVERABLE and DELIVERABLE Demonstration Contracts, will remain primarily governed by AGREEMENT, with the UK and PNs as Customers.
41. REDACTED has joined the REDACTED in DATE and as such is in the process of establishing the specific governance arrangements expected to manage the programme.
42. Subject to approval of this FBC, no further FBC submissions are planned to complete the D&M phase and achieve FOC. However, a separate approval will follow in DATE for the additional in-service support costs required to sustain the upgraded PROGRAMME capability in service to the current OSD of DATE. An RN will also be submitted in late DATE, ahead of commitment to the DELIVERABLE Demonstration Contract, and further Information Notes provided on request.

Presentation and Handling

43. REDACTED will be reported as part of the REDACTED following the UK Government commitment to the project, referenced through the Integrated Review DATE. Failure to deliver REDACTED will impact UK credibility to deliver the PROGRAMME NAME programme.

44. Along with the DELIVERABLE DELIVERABLE capabilities, this programme will provide a step change in UK capability, addressing regulatory and mandatory requirements and providing significant investment for Defence Industry. The continuation of DELIVERABLE development within the UK ensures REDACTED and limits the reliance upon international partners, most notably de-risking the transition to PROGRAMME NAME.

45. DELIVERABLE would increase the likelihood of success of PROGRAMME in ongoing and prospective export campaigns in COUNTRIES as well as reinforce the MOD's relationships with REDACTED and UK Industry. Further investment in COMPANY UK demonstrates political intent to "level up" the UK.

46. Presentational challenges are anticipated if Option 2 is approved, due to the significant investment and slip against delivery forecasts (cost and schedule bridging at Annex I). REDACTED. However, if Option 1 was approved this would cause MoD reputational damage, with an estimated Constructive Loss of £XXXX. Lines to take will be generated in line with IAC decision and direction.

NAME

ROLE

Annexes:

- A – Expenditure to date
- B – IOC and FOC Definitions
- C – Key User Requirements
- D – DELIVERABLE Scope beyond REDACTED
- E – DLOD Summary
- F – DELIVERABLE Schedule
- G – Affordability Table
- H – Risks
- I – Schedule and Cost Bridge from

**Annex A to
DATE-DELIVERABLE FBC-OS
dated DATE**

Expenditure to Date

Project Phase		50%
Assessment Phase (AP) Assessment Phase (REDACTED)	IG Approval	£XXXX
DELIVERABLE 1+	Approval	£XXXX
DELIVERABLE 2	Approval	£XXXX
DELIVERABLE 3	Approval	£XXXX
MG 1	Approval	£XXXX
MG 1 RN	Approval	£XXXX
MG 1 RN	Approval	£XXXX
TOTAL	Approval	£XXXX
	Estimate to complete	£XXXX

IOC and FOC Definitions

IOC: REDACTED

FOC: REDACTED

Key User Requirements

The user has defined the following operational capability list to meet mission tasks:

REDACTED

This will be delivered by meeting the following KURs

User Requirement	WS URD UR ref	SSRD KSR ref	Justification	Measure of Effectiveness	
				Threshold	Objective
The user requires...					
The user requires...					
The user requires...					
The user requires...					

Annex D to
DATE-DELIVERABLE FBC-OS
dated
DATE

DELIVERABLE Scope beyond REDACTED

REDACTED

DLOD Summary

1. REDACTED DLOD costs were assessed previously as part of the RN in DATE. Since approval further work has been conducted to mature DLOD scope and cost, and to expand to encompass non-DELIVERABLE elements of DELIVERABLE. DLOD maturity is assessed by DELIVERY ORGANISATION as being as expected for the stage of the programme.

- a. **Training.** A REDACTED Training Needs Analysis (TNA) was completed by COMPANY in DATE covering maintenance, support, and pilot needs, but excluding synthetics. A fully developed synthetic training capability is essential due to limitations in the use of REDACTED. Workshops between MoD and Industry have scoped requirements of the DELIVERABLE synthetic solution based around the fidelity and capabilities of the REDACTED model that needs to be developed for PROGRAMME. REDACTED. Indicative costs have been provided by industry based on scaled near neighbour comparators for DELIVERABLE and non-DELIVERABLE DELIVERABLE elements and included in the ABL. There is a dependency on OTHER PROGRAMME to provide REDACTED.
- b. **Equipment.** DELIVERABLEs and support equipment will be delivered as part of the Demonstration Contract. In addition, a Hardware in the Loop (HIL) facility is required at LOCATION to allow independent service testing, including assurance of Mission Data (MD) and REDACTED software. Completion of the mission support element has been delayed; in lieu the ORGANISATION (ORGANISATION) have assessed HIL capabilities. ORGANISATION requirements have been tailored accordingly. Industry have provided cost estimates for the HIL equipment.
- c. **Personnel.** Additional MoD and contractor personnel will be required to support DELIVERABLE test and evaluation through the Demonstration Contract, with a continuing requirement once spiral development commences following IOC. REDACTED.
- d. **Information.** Several work-strands have been identified under the information DLOD. REDACTED.
- e. **Doctrine.** A REDACTED ITEAP was issued in DATE as an Annex to the main PROGRAMME ITEAP and has been reviewed by REDACTED. A DELIVERABLE In-Service Concept of Assurance defining the level of capability expected from the ORGANISATION to assure different REDACTED capabilities is in draft and under REDACTED review. Existing REDACTED resource will be used to support doctrine DLOD development to FOC, and no significant new costs are envisaged.
- f. **Organisation.** No significant costs are envisaged.

- g. **Infrastructure.** Significant new REDACTED and deployable infrastructure will be required. REDACTED.
- h. **Logistics.** Industry have provided an assessment of the costs associated with DELIVERABLE / DELIVERABLE introduction into service and annual support costs. Work is ongoing to determine REDACTED.
- i. **Security.** The main effort of the Security DLOD has been to support development of an accreditable equipment design, and to secure alignment of UK security and classification needs with the expectations of AGREEMENT partners nations and Industry. DELIVERY ORGANISATION Security SMEs have also supported development of the security aspects of the Infra and Info DLODs.
- j. **Spiral.** Spiral costs are outside of this FBC approval but noted for completeness. Spiral development is essential to field the full DELIVERABLE capability set, and to maintain capability as the threat environment changes, as well as maintaining national DELIVERABLE SQEP. Understanding of the candidate capabilities for the early years of spiral has matured but spiral resource assumptions and cost estimates per year have remained unchanged. REDACTED.
- .
- k. **Government Furnished Assets (GFX).** A joint MoD / Industry assessment of GFX has been conducted to list all expected demands for the programme. These are predominantly common assets that have been used in previous AGREEMENT contracts and have been provisioned within scope and ABL e.g. development REDACTED. Additional costed risks are included in the Management Reserve to address emergent GFX demands. Key items include REDACTED.

DLOD COSTS TABLE (DETERMINISTIC)

REDACTED

DELIVERABLE Schedule

This schedule demonstrates the concurrency across the PROGRAMME portfolio, and future choice for PNs on the PROGRAMME and PROGRAMME (outside approval scope).

L0 schedule for DELIVERABLE

REDACTED

Risk Adjusted Milestone Phasing

REDACTED

The REDACTED development has adopted an agile software development. This is evident through the detailed schedule and consists of regular maturity reviews and iterative software development that allows a flexible and iterative approach to delivery of software functions.

Affordability Table

The following table represents the forecast D&M cost (50% confidence) against CUSTOMER provision.

[illegible]

Risks

ID	Risk Description	Mitigation	Post-Mitigation			
			Prob	T	C	P
	<p>Due to limited commercial profitability for REDACTED from the COMPANY foundry, there is a risk that the REDACTED supplier (COMPANY) may choose to leave the market and no longer support the DELIVERABLE programme.</p> <p>Resulting in delays to schedule and cost to establish capabilities of an alternative FACILITY (none of which presently exist) & time to establish relationship.</p>	REDACTED		H	H	
	<p>Due to individual National interests that include generating intellectual property for PROGRAMME NAME, industrial strategy and capability, there is a risk of continued misalignment in programme priority between Nations.</p> <p>Resulting in delayed decision making and/ or change in programme direction</p>	REDACTED		VH		
	<p>Due to early PDR/CDRs and the significant time between System CDR and IOC (during which the MOD has liability for obsolescence), there is a risk of obsolescence post-CDR for REDACTED. Resulting in a need for Last Time Buy or Fit Form and Function replacement (redesign considered high cost/ schedule impact but much lower likelihood).</p>	REDACTED			VH	

ID	Risk Description	Mitigation	Post-Mitigation			
			Prob	T	C	P
	<p>Because of an inability to agree underpinning program principles, late proposal from Industry and timely nations approval, there is a risk that proposal expires/ price negotiation takes longer</p> <p>Resulting in funding continuity between DELIVERABLE and CONTRACT contracts not maintained with non-linear schedule delays.</p>	<p>Continuous engagement with COMPANY/AGREEMENT to support scoping and timely contracting.</p>		M	L	

Schedule and Cost Bridge from

The following waterfall diagram shows the drivers for deterministic schedule variance from those noted.

REDACTED