UKSAR2G Phase One Monitoring and Evaluation: Monitoring and Evaluation Framework and Baseline Study

Baseline Report

A report submitted by ICF Consulting Services Limited

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List of acronyms

Abbreviation	Meaning
ARCC	Aeronautical Rescue Coordination Centre
ASV	Aerial Surveillance and Verification
BHL	Bristow Helicopters Limited
DfT	Department for Transport
EEZ	Exclusive Economic Zone
ESG	Environmental, Social and Corporate Governance
HMCG	His Majesty's Coastguard
KPI	Key Performance Indicator
M&E	Monitoring and Evaluation
MCA	Maritime and Coastguard Agency
MMO	Marine Management Organisation
MOD	Ministry of Defence
RAF	Royal Air Force
RNLI	Royal National Lifeboat Institution
SAF	Sustainable Aviation Fuel
SAR	Search and Rescue
SAR2G	Search and Rescue Second Generation
SARH	United Kingdom Search and Rescue Helicopter
TOC	Theory of Change
FM	Value for Money
UAV	Unmanned Aerial Vehicle

Executive summary

The Maritime and Coastguard Agency (MCA) is an Executive Agency of the Department for Transport (DfT) and provides a 24-hour search and rescue (SAR) emergency coordination and response service for the United Kingdom, as required by international law.[1] United Kingdom Search and Rescue Second Generation service (SAR2G) will replace the current United Kingdom Search and Rescue Helicopter (SARH) and Aerial Surveillance and Verification (ASV) contracts and will be phased into transition between 2024 and 2026. ICF have been commissioned by the MCA to develop a monitoring and evaluation framework for the SAR2G programme. As part of this study, a baseline has been developed, focusing on the years 2018-2022 and presented in this paper, capturing the performance and functioning of the current SAR service (through the delivery of the SARH and ASV contracts) to use as a point of comparison, prior to the launch of the new service.

Methodology

The development of the baseline has consisted of the following key steps:

- Development and agreement of the baseline methodology and research plan with the MCA.
- Review of the baseline monitoring indicators and available data, including validation of the relevant data owners / sources.
- Gaining access to the iSAR and Aeronautical Rescue Coordination Centre (ARCC) databases. Relevant ARCC datasets were shared with ICF, along with iSAR for ASV. Access was granted to iSAR for SARH, and relevant data was extracted manually by the evaluation team.
- 37 key stakeholders were interviewed.
- Additional focussed desk research was undertaken where gaps were identified in the above research methods.
- Following this report, a presentation summarising the key findings will be developed and presented to key MCA stakeholders.

The quantitative review of iSAR and ARCC data and stakeholder consultations were instrumental to the development of the baseline. Often, more emphasis has been placed on findings from the stakeholder consultations due to a lack of availability of quantitative data. The interview programme was conducted with MCA staff involved in the design and management and / or the monitoring and oversight of the current contract and ARCC and His Majesty's Coastguard (HMCG) staff with oversight of tasking coordination, monitoring and supplier performance and / or supplier staff management teams with oversight of contract obligations and overall performance. External stakeholders who have been involved in the service, including lawyers, consultants and ex-MCA staff who have been heavily involved in running the current service were also interviewed.

In addition to the baseline, this paper also presents early findings for the SAR2G programme. These revolve around the procurement process and lessons learned. Such findings were gathered as part of this research primarily due to the time the stakeholder consultation was carried out, as it closely followed the signing of the SAR2G contract. Data collection recommendations for the future service are also presented in this paper and are based on the information which was missing during the formation of this baseline, and the monitoring and evaluation framework.

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[1] Maritime & Coastguard Agency, About us, https://www.gov.uk/government/organisations/maritime-and-coastguard-agency/about last accessed 5 August 2024

Key findings

There is evidence that the current UK SAR service is **reliable and effective** for its core purpose and that it is **a service which provides benefits beyond SAR**, accepting taskings from the police and ambulance services (among others).

The key aim initially for SARH was to ensure that there was no degradation in service following the transition away from the previous delivery. At the start, the service closely reflected the previous service with a key focus to maintain the high level of SAR delivered. Over the lifetime of the contract the demands for SAR have altered and the service delivered has reflected this, through the Caesar amendment[2] and addition of the ASV contract. These additions to SAR specifically sought to increase the search capability of the overall service.

For both SARH and ASV contracts, there was engagement with the market during the procurement process which was perceived to run quickly and efficiently. Although there were limited changes between the SARH contract and the one which preceded it, **training was provided and effective in ensuring that there was a smooth transition**. Moreover, throughout the service, training was a key method through which relationships were established and maintained.

The current service is **perceived highly and as reliable and flexible** by stakeholders with **sufficient resources available for taskings**. There was effective collaboration with other government departments and the addition of the fixed-wing assets was also seen as hugely advantageous, specifically for the search element of SAR. **Contract management was effective and transparent for both SARH and ASV contracts**, from both the supplier and contractor perspectives. In terms of the monitoring of the service, the ARCC dataset and iSAR platform were the two main monitoring and evaluation systems which operated well; however, areas for improvement were identified.

Internationally, the UK is highly perceived in terms of its SAR provision. However, it was thought that the general UK public do not have high levels of awareness for maritime risks and / or the activities of UK SAR teams.

Technological innovation was not intrinsic to the service, however the addition of unmanned aerial vehicles (UAVs) towards the end of the baseline period showed promise of how new and emerging technology can improve the efficiency and effectiveness of SAR. Moreover, when looking at innovation more broadly, i.e., changes to improve efficiency overall, it has been incorporated throughout the service.

Key findings from the early process research on the SAR2G programme revolve around **the expected greater changes between the current service and SAR2G** (in comparison to changes which came with the current service compared to its predecessor). The procurement process was perceived as effective, and a lot of market research was conducted to determine user needs. There was increased data analysis, compared to the previous procurement, and the use of a 3D modelling tool during the procurement exercise gave increased confidence to the MCA and prospective bidders.

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[2] The Caesar amendment introduced fixed-wing assets at the Lydd base in response to increased migration across the English Channel

1 Introduction

The coordination of the UK search and rescue (SAR) service, and its associated policies, in the UK is overseen by the Department for Transport (DfT) through its Aviation Airspace Division (AAD), Aeronautical Rescue Coordination Centre (ARCC) and the Maritime and Coastguard Agency (MCA), working alongside other key stakeholder groups including His Majesty's Coastguard (HMCG) and relevant emergency and voluntary services (e.g., ambulance services, the police and the Royal National Lifeboat Institution i.e., RNLI, among others). The MCA, as an Executive Agency of the DfT, provides a 24-hour SAR emergency coordination and response service for the United Kingdom, as required by international law.[3] The Second-Generation UK Search and Rescue Aviation (SAR2G) programme will replace the current UK Search and Rescue Helicopter (SARH) and Aerial Surveillance and Verification (ASV) contracts and will be phased into transition between 2024 and 2026.

1.1 Background and context of the study

1.1.1 Purpose of the study

The MCA has committed to commissioning a comprehensive evaluation of SAR2G which will be delivered in three Phases:

- Phase 1: The development of an M&E framework and associated baseline study.
- Phase 2: The delivery of the process evaluation of SAR2G.
- Phase 3: The delivery of imapct and economic evaluations of SAR2G.

Phase 1 of the evaluation of SAR2G has been delivered through two work packages conducted by ICF. First, we developed a monitoring and evaluation (M&E) framework for the future process, impact and economic evaluations of SAR2G. The second work package, following the approval of the M&E framework, focuses on the formation of a baseline. As part of this, we prepared a baseline methodology paper, approved in July 2023, and have conducted research to present the baseline in this paper as the final element of Phase 1 of the MCA's comprehensive evaluation plan.

The key aim of the baseline, as presented in this paper, is to establish a point of reference from which to identify, and as far as possible measure, the change occurring following programme implementation. This work will play a fundamental role in Phases 2 and 3 of the MCA's comprehensive evaluation plan, developing context for the process, impact and economic evaluation phases and helping to inform the development of future policy and initiatives.

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[3] Maritime & Coastguard Agency, About us, https://www.gov.uk/government/organisations/maritime-and-coastguard-agency/about last accessed 5 August 2024

1.1.2 Background to UK SAR

The UK has a statutory responsibility to provide a comprehensive SAR service, having agreed to several international conventions.[4] To this end, SAR2G entered a mobilisation period in 2022, after which the service will be phased into transition between 2024 and 2026.[5] The programme is expected to run for ten years, ending in 2036. It will replace two contracts which currently fulfil SAR aviation service requirements in the UK:

- UK Search and Rescue - Helicopter (SARH): this has been delivered by Bristow Helicopters Limited (BHL) since 2015-2017 and currently provides 20 SAR helicopters, operating from 10 strategically located bases across the UK.[6]
- Aerial Surveillance and Verification (ASV): this is a 5-year contract which was awarded by HMCG to 2Excel Aviation Limited. It provides two novel fixed wing aircraft based at Humberside, previously based at the Doncaster airport until its closure in 2022. These aircrafts service a range of ocean-based requirements, including SAR activities, law enforcement and pollution detection.

1.2 Methodology

1.2.1 Theory based approach

During the development of the M&E framework, approved in May 2022, we explored different methodological approaches which could be used for the future process, impact and economic evaluations. The framework elements were updated in the baseline method report following the conclusion of the SAR2G procurement process and contract award; however, the proposed methodological approaches were not reviewed as they were independent of the proposed solution.

Different research methods were discussed throughout the M&E framework in detail regarding the process, impact and economic evaluation. The chosen methods and reasoning behind them are summarised in Table 1.1, with a brief overview of any other methods which were considered but not proposed (primarily for the impact evaluation). Since the formation of the baseline was based upon the M&E framework, this thus shaped the baseline methodology.

Table 1.1   Research methods proposed per evaluation type

Evaluation	Research methods proposed
Process evaluation	Given the wide range of stakeholders involved in the delivery of SAR2G, the process evaluation should draw upon a wide array of perspectives. It was recommended that the process evaluation gather and triangulate data through a range of methods within the following key steps:

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[4] Examples of international conventions to which the UK has agreed to adhere include the 1979 Maritime Search and Rescue Convention the International Convention on Civil Aviation, as set out in the tender documents

[5] Department for Transport (2020), UK Second-Generation Aviation Search and Rescue (UKSAR2G) Programme Outline Business Case

[6] The number of bases reduced throughout the contract from 12 to 10

Evaluation	Research methods proposed
	■ An extensive desk-based review of relevant documentation, including performance data, delivery of KPIs and other measures to track how processes are being delivered against plan. ■ Primary qualitative data collection, including in-depth research with stakeholders involved in delivery and with an oversight role.
Impact evaluation	It was recommended that a theory-based evaluation approach is applied. Contribution analysis should be used as an overarching framework for the evaluation, complemented by base-level case studies analysed through the use of process tracing. The theory-based evaluation approach may be complemented by an additional quasi-experimental approach – Interrupted Time Series. However, as this is heavily dependent on the availability of data and subject to several risks, its use should be explored at the time by the evaluator. The main advantages of the theory-based approach are that it seeks to: ■ Address all the evaluation questions set out in the framework. ■ Address the complexity of the environment. ■ Generate rich learning. ■ Develop plausible, evidenced lines of reasoning and causal links. ■ Generate evidence of longer-term impacts and the extent to which it is expected these would materialise. Contribution analysis and process tracing were specifically recommended for the theory-based approach. These methods were preferred because: ■ Contribution analysis is a proportionate yet comprehensive approach that would enable the theory-based evaluation to achieve all the aims set out above - assessing relevant causal links set out in the theory of change and all evaluation questions. Of the methods appraised, it is better able to deal with complexity whilst still considering relevant contextual or external factors that may affect outcomes positively or negatively. ■ Process tracing is a more focussed, case-based method. Whereas it may not be appropriate for addressing all evaluation questions, it could provide evidence on specific routes to impact. In this context, it could be helpfully applied in analysing outcomes generated at each of the SAR2G bases, and whether, or how these vary relative to the SARH / ASV service. Evidence generated from this analysis would feed into the overarching contribution analysis approach with important insights regarding, for example, the future contractors' ability to maintain the same search quality

Evaluation	Research methods proposed
	across all bases as well as whether specific local contextual factors influence outcomes.
Economic evaluation	It was recommended that the economic evaluation adopt a standard Cost-Benefit Analysis approach to be supplemented by additional qualitative analysis to compare SAR2G with SARH / ASV in terms of benefits which are more challenging to monetise.

As the main proposed research methods for the future process and impact evaluations were theory-based, we followed this approach in the formation of the baseline. This will allow the baseline to serve as a point of comparison in the future. Due to data availability issues around the economic evaluation indicators, the baseline provides the supplementary qualitative analysis on the costs and benefits which are more challenging to monetise; however, data available to conduct a full cost-benefit analysis were missing.

1.2.2 Specific methodology for the baseline formation

The specific methodology used to form the baseline revolved around the tasks set out in Table 1.2.

Table 1.2   Overview of the baseline method

Task	Description
Develop and agree the baseline methodology and research plan	A baseline method paper was developed by ICF and approved by the MCA in July 2023. This set out our proposed methodology and its limitations, alongside an updated M&E framework.
Review of the baseline monitoring indicators and available data	A series of meetings were held with the MCA to validate the relevant data owners and sources for the proposed baseline monitoring indicators. During these discussions, the feasibility of gathering proposed indicators was established. Annex 1 presents each of the baseline indicators proposed, the data collection method used and any indicators for which information was not available and therefore had to be excluded from the baseline. Most notably, there was a lack of quantitative data for many economic indicators.
Confirmation of the baseline time period and scope	Following the submission of the baseline paper and a meeting with the MCA, it was confirmed that the baseline would focus on the years 2018-2022, looking at the SARH and ASV contracts. The Caesar amendment to the SARH contract was also viewed as in scope and saw 2Excel operating fixed-wing assets out of the Lydd base. The years 2018-2022 were selected due to the closure of the Portland base in 2017 causing a lack of temporal analysis across all bases earlier than 2018.
Request to share relevant ARCC	Following the establishment of available data and relevant data sources, we requested access to ARCC

Task	Description
datasets and for access to the iSAR platform	databases for the baseline period (2018-2022) as well as access to the iSAR platform.
Stakeholder consultation	A delivery of bespoke research to gather qualitative indicators as well as quantitative indicators for which there was not available or feasible data. We delivered 27 semi-structured interviews via Microsoft Teams with: ■ MCA staff involved in the design and management of the SARH / ASV contract, and / or the monitoring / oversight of its performance. ■ ARCC / HMCG staff with an oversight of tasking coordination / monitoring and supplier performance. ■ BHL / 2Excel staff from management teams with an oversight of contract obligations and overall performance. ■ External stakeholders who have been involved in the service, including lawyers, consultants and ex-MCA staff who had been heavily involved in running the service. The final list of interviewees was determined by the MCA, following conversations around the purpose of the interview programme and the information which was wanted out of each interview with the evaluation team. A summary of the stakeholder engagement can be found in Annex 2.
Quantitative analysis of the requested data	Once the MCA shared the ARCC datasets and granted access to the iSAR platform,[7] time was initially spent cleaning and compiling the data, establishing metrics which had been consistently measured across the period. Meetings were also conducted with data owners, specifically for the ARCC database, to ensure complete and accurate understanding of all the data. Quantitative analysis of the available data was conducted around the relevant baseline indicators. Further analysis was done on publicly available SAR data,[8] where relevant, to gain a deeper understanding of any potential margins of error which existed. Further information on issues presented by the datasets and how these were overcome is available in Sections 1.3 and 2.4.
Supplementary desk research	Where gaps emerged within the baseline indicators following the stakeholder consultation and quantitative data analysis, additional desk research was

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[7] Access to iSAR was granted for the SARH service, for ASV the relevant data were extracted by the MCA and shared with ICF

[8] Publicly available SAR data was extracted from https://www.gov.uk/government/collections/search-and-rescue-helicopter-statistics on 22 January 2024

Task	Description
	conducted. This task was not as extensive as the stakeholder consultation and quantitative analysis elements due to the high level of desk research carried out for the M&E framework.

1.3   Limitations

This section discusses risks and limitations to this baseline study, alongside steps which were taken to mitigate these and potential implications these could have for the future evaluation.

The main risk comes from the high reliance on qualitative data, gathered through interviews, which may be affected by recall error and / or positivity bias, and gaps may have been created through reluctance to disclose information and / or lack of available staff. Additionally, getting interviewees to focus their answers on a four-year period may result in blurring of the baseline period into the years before / after, especially when discussing trends over time. To mitigate this, information was gathered from a range of sources, challenging responses to test for bias and accuracy, corroborating interview findings alongside quantitative indicators of performance and documentation. Additionally, interviews were conducted with key MCA stakeholders, even if they had left the Agency, where relevant and the individuals were willing to participate. Findings should be interpreted with care and consideration of possible biases or errors when evaluating SAR2G based on the high level of interview data used in this report.

High levels of qualitative data were partly relied upon due to challenges associated with the lack of accessibility of data. Throughout the data collection for the baseline, gaps were identified and filled, were possible, with alternative data sources. Any gaps in the baseline may mean that the baseline will not fully align with the SAR2G Theory of Change (Annex 2) or monitoring framework (Annex 3). Additionally, due to the lack of availability of quantitative data, a qualitative value for money (vamp) analysis has been conducted for the baseline, as opposed to an economic evaluation baseline.

The quantitative data used, may be skewed by external factors occurring at specific points in time, such as Brexit, Covid-19 and the refugee and migrant crisis. Any potential skews should be visible given the 4-year period chosen for the baseline. Specifically, the closure of the Portland base (in 2017) was noted qualitatively to have long-term impacts, spilling into the baseline period and therefore has been included, when appropriate. Moreover, as the baseline period is towards the end of the service, data may be influenced by the forthcoming transition. The use of averages for the indicators across the baseline years have been used to mitigate this.

Where quantitative data has been analysed, two main data sources have been used: the Aeronautical Rescue Coordination Centre (ARCC) and iSAR datasets. Where differences exist between them, qualitative evidence from those using or analysing the data was gathered to explain why any differences may have occurred. Additionally, the data was sense checked, and if there appeared to be errors in one dataset, the other was used if possible. Conversations were held with the MCA also to ensure comparability

with the datasets within themselves over time and between contracts. The ARCC dataset, for example, covers both the SARH and ASV contracts, as well as helicopter flights outside of these contracts. To determine taskings within scope with this dataset, ICF requested a list of aircrafts included in both contracts and filtered the data so only these taskings were included. There are limitations to this, however, for example, where other states have had to be called upon to assist with a tasking, this is not captured in the scope of the ARCC filtering process. With iSAR there are different databases for the two contracts, however extractable information is consistent between them and therefore iSAR datasets for the two services have been combined for the purposes of analysis. One difference between the two iSAR datasets is that for the SARH contract the data is collected per base, whereas for the ASV contract it is collected per asset. This is flagged throughout where necessary. Data accuracy and comparability should be carefully considered when drawing on baseline findings.

Caution should be applied when interpreting data analysis on the time taken for the taskings, specifically in Section 2.2.1. Due to the format of the data, analysis has not been conducted where a tasking crosses past midnight meaning that the data may be skewed towards early morning and daytime activities. Analysis should be viewed alongside that of time on scene to contextualise the data further.

1.4 Structure of the report

Section 2 presents the baseline, focusing on three evaluation-related approaches: process, impact and economic (VFS). Although the baseline focuses on the years 2018-2022, the procurement of SARH (which commenced operation in 2013) is also included. Section 0 of the paper outlines early findings relevant for the future SAR2G process evaluation (Phase 2 of the MCA's comprehensive evaluation plan).

Specifically, the remaining structure of the paper is as follows:

- Section 2: Assessment of the baseline.
  - Section 2.1: Baseline assessment for process evaluation questions.
  - Section 2.2: Baseline assessment for the impact evaluation questions.
  - Section 2.3: Qualitative VfM analysis.
  - Section 2.4: Data collection suggestions for SAR2G.
- Section 3: Early findings for the future SAR2G process evaluation.
  - Section 3.1: Changes between the current and future service.
  - Section 3.2: The development of SAR2G.
  - Section 3.3: Procurement process.
  - Section 3.4: Bid appraisal and negotiation process.
  - Section 3.5: Transition and mobilisation plans.

2   Assessment of the baseline position

The below provides an assessment of the baseline position between 2018-
2022. This includes analysis of the performance of the current service,
through the SARH and ASV contracts, in terms of its processes, impact and
VfM. Although the delivery of UK SAR is conducted through these two
separate contracts, where possible analysis is done for the whole of UK SAR.
This is to allow for greater comparison with the SAR2G service where there
will be only one contract combining the rotary and fixed-wing elements.

As part of the monitoring and evaluation framework, ICF developed research
questions and listed indicators which would be relevant to track and can be
seen in Annex 3. Based on this, the indicators which were relevant to track
for the baseline were listed and extracted to analyse for the performance of
the current service i.e., the indicators are for the performance of the current
contract, however these map and stem from the indicators as laid out in the
monitoring and evaluation framework. This was so that this analysis can be
used as a reference point, from which to track progress in those areas that
will be assessed as part of the evaluation.

2.1   Baseline assessment for process evaluation questions

This section presents the baseline findings for the process evaluation, as
based on the process evaluation questions and related indicators outlined in
the M&E framework. Due to the separate procurement processes, the SARH
and ASV contracts may be analysed separately to ensure key information
and lessons learned are not missed.

2.1.1   The development of SARH and ASV

2.1.1.1   Background: the predecessor to the SARH service

Prior to the procurement of SARH, UK SAR was run jointly by the MCA,
through HM Coastguard, and the Ministry of Defence (MOD) through the
Royal Air Force (RAF) and Navy. The service comprised of 12 bases, 8 of
which were operated by the MOD and the other 4 were operated by the
MCA.[9] A joint procurement between the MCA and MOD was announced in
2006, with the plan to undertake a phased introduction from 2012 and a
preferred bidder – the Soteria consortium – was announced.[10] However, the
contract was suspended in June 2010 following a value for money review of
all of government spending review projects.

An announcement on proceeding with the project was expected in December
2010, however the Department for Transport (DfT) announced that the deal
was delayed in order to clarify an issue that had been raised by Soteria. Two
months later the government confirmed that irregularities had been identified
and that it would not be appropriate to proceed with neither the preferred
bidder nor the procurement process.

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[9] Although there were 12 bases at the start of the SARH contract, during the baseline period, 10 were in operation
for the whole of UK SAR.

[10] House of Commons, Military Search and Rescue to end in 2016, 25 April 2013,
https://researchbriefings.files.parliament.uk/documents/SN06617/SN06617.pdf last accessed 27 July 2024

On November 28, 2011, the government announced that a new civilian-led
UK-wide search and rescue capability would be established and that military
involvement would cease once the capability is fully operational. This
procurement resulted in the current SARH contract, signed with Bristow
Helicopters Ltd (BHL) in March 2013, with service transition beginning in
2015. An interim procurement process, called Gap-SAR, was run to secure
the four MCA operated bases (Stornoway, Shetland, Portland and Lee on
Solent) until 2017 when these were also transitioned into the UKSAR
contract.

2.1.1.2 Research and market/user engagement activities as part of SARH procurement

Market testing had begun during the previous, failed, procurement and was
continued for the UK SAR procurement. A key focus of the engagement was
around the previous procurement, with the MCA seeking to understand why
bidders had withdrawn from the process.

From the market testing, it was determined that going from a 25-year military
Private Finance Initiative (PFI) resulted in risk being pushed back onto the
government in terms of pensions, inflation, wages, etc., and that the market
wanted more certainty to re-risk. Moreover, bidders in this sector were used
to bidding for oil and gas market contracts and therefore wanted to know
what the SAR space looked like in terms of KPIs, length, etc. As a result of
engagement with the industry, it was determined that an 8–10-year contract
struck the best balance with ensuring value for money, whilst providing
sufficient surety to the industry in order to allow them to gain the necessary
financial backing.

Wider stakeholder engagement was also undertaken for the SARH contract,
with stakeholders noting communications with the Australian Coastguard and
other similar organisations offering a similar capability. This further helped
the MCA develop an understanding as to what was possible to be delivered
within the SAR space.

Although market research was done for the SARH contract, interviewees
noted that there was little data from the military side of the previous contract
and little learning in general. Specific elements which were noted in this
regard include:

■ Due to the speed with which a replacement SAR helicopter service was
  needed, and the need to reassure the public that the change to a fully
  civilian service wouldn't result in a degradation of service, bases for the
  new contract were located in rough proximity to existing military base
  locations as it was acknowledged that these had provided a satisfactory
  level of service to date.
■ The previous service being run by three providers (RAF, Navy, MCA)
  meant that there was no uniform body of data resulting in difficulties in
  demand analysis.

2.1.1.3 Research and market/user engagement activities as part of ASV procurement

Interviewees noted that an emergent need for additional maritime
surveillance was the driving force behind the procurement of the ASV

contract. In the early stages of the development of ASV, MCA staff spoke to colleagues involved in the SARH procurement, identifying any lessons learned and ensuring they were embedded into the ASV procurement.

For this contract, the MCA developed a set of requirements moving towards a more 'output-based' approach (compared to SARH) and underwent a stakeholder review, involving stakeholders with various maritime interests including aerial monitoring groups, the Met Office and the Environment Agency, among others. As ASV was only a short contract (5-years) and towards the end of the procurement the MCA had moved to think about SAR2G, some elements (i.e., allowing for increased innovation) were kept as lessons learned for the SAR2G contract, as opposed to being integrated into the ASV procurement / contract.

Under ASV, with hindsight, it has been noted that demand was underestimated during the procurement of the contract. This may, in part, stem from the building of the service and understanding of the requirements, where the MCA had little engagement from other government departments (despite efforts to engage them) leading to a lack of anticipation in the use of the service across the different government departments. Additionally, significant unforeseen events such as the COVID-19 pandemic and migrant crisis across the English Channel have fundamentally changed the uses of the ASV service.

2.1.2 The SAR procurement process

For the SARH contract, interviewees described the procurement process as one which was undertaken at pace, with the focus being on ensuring that there was no degradation of service. The time pressure seen throughout the procurement (as aforementioned) demanded the process to be efficient and, overall, it was seen to be a competitive procurement.

For the ASV contract, the process again was described as quick and efficient by interviewees. The process here, however, differed from SARH as the MCA were given legal advice that, because one bidder fully met the requirement and had such a significantly greater score than the other bidders in the competition, the MCA could invoke its right to award a contract after the first stage of the procurement. There were a limited number of bids which came through for ASV, however this is not surprising given that it was the first fixed-wing contract let through the MCA.

Additionally, for both the SARH and ASV contracts, interviewees highlighted that the aviation sector (for SAR) is niche with only a few entities able to compete in the space. For SARH there were three bidders who got far in the ITT process, whereas with ASV the different rounds of the process did not occur due to the selected supplier being the clear option for the contract. However, the fact that across both contracts there was at least one serious bidder who was motivated to win and had the capability to implement the service implies that the contractual terms offered in both contracts were attractive to the market.

2.1.3 Bid appraisal and negotiation process

When looking at the current SAR service, it was thought that the procurement process and negotiations were fair and that the outcome was appropriate.

Under SARH, interviewees noted that some entities bid initially to gain access to information. For example, manufacturers bid so that they could get as much information as they could and utilise this in conversations with bidders about their manufacturing needs. In the end, there were three bidders who were involved in the ITT process for SARH, showing that there was viable competition throughout the procurement process. Negotiations, whilst planned, did not form part of the ASV procurement due to the fact that one bidder was awarded the contract prior to the negotiation phase following legal advice, although there were some clarifications discussed over one day.

Two issues or inefficiencies were noted by the MCA with regards to the bid appraisal and negotiation process, specifically for the SARH contract:

- The MCA noted that a constraint in the bid appraisal and negotiation process for SARH came from the fact that they had not previously let the contract and it was therefore a new environment.
- During the SARH negotiation process, when the MCA were asked a question that required agreement between multiple areas represented in the negotiation team, the meeting would be stopped while a response was internally agreed upon before sharing. This lengthened the negotiation process, whereas if they had known the questions which were going to be asked in advance, the process could have been more efficient.

2.1.4   Transition and mobilisation process

2.1.4.1   Changes from the pre-existing service

During the transition to the SARH service there was not a reduction in service, compared to the MOD and MCA joint operations. Internal MCA interviewees commented that the transition revolved around the MCA focusing heavily on ensuring the service was no worse than that offered under the MoD rather than seeking to innovate or change how things were done.

A key change which was noted by interviewees with the commencement of SARH was around the changes to relationships with operational stakeholders. Previously, the relationship with the coastguard partially determined the effectiveness of the service and had therefore been developed throughout the lifetime of the joint MOD / MCA service. The transition to SARH was effective at maintaining these relationships through the provision of training, moving to a model of service delivery which was more consistent, effective and less reliant on individual relationships. Moreover, interviewees noted that, with regards to the training, some modules required base visits and practical training which, although was logistically challenging, was viewed as positive for maintaining the relationships built in the previous service. The SAR service has also developed across its lifetime, for example:

- The introduction of new technologies such as radar and high-definition cameras, however, this has created a challenge with how data is shared and used during a tasking.
- The requirement to have paramedic capability (in addition to medical capability which was always a part of the contract) was seen as a very positive addition.

- The service reduced from 12 to 10 bases across its lifetime, with the second base closing in 2017. Some of the longer-term implications of this are discussed in Section 2.2.1.3.
- The introduction of the ASV contract to UK SAR brought in fixed-wing assets, which are seen by the MCA as more efficient at search only taskings due to the greater range, speed, endurance and fuel efficiency when compared to rotary assets.

The addition of ASV did not fundamentally change the core service offered by the SARH contract, however there were more assets available to assist with taskings. Moreover, it was noted that with the introduction of this contract and the additional assets, the workload for MCA internal staff increased with no increase in staffing levels. Therefore, the introduction of the contract has resulted in increased workload for certain staff members, specifically technical commanders. There was a change for the members of the ARCC (as the tasking authority) as they were used to tasking rotary-wing assets, and fixed-wing assets have different benefits and can be valuable in different situations.

2.1.4.2 Transition phase

On the first day of the SARH contract, only half of the airframes were available due to supply chain issues with Leonardo – the manufacturer of the AW189 airframes to be used in half of the SARH bases. This was described by the MCA as having the potential to be a huge problem as the service was run for a month with half the capacity intended. Although there were issues stemming from the supply chain, a contingency plan had been built into the contract which was perceived by interviewees to be sufficient. The change in aircrafts showed a move away from helicopters towards the end of their life expectancy, with the new helicopters (Sikorsky S92 and Leonardo AW189) being 'bigger, faster and more powerful' than the Sea Kings which they replaced.[11]

The transition to SARH was natural for most people who did not take long to adjust, however stakeholders and those with an historical interest in the service naturally felt the impact of the transition more. One interviewee believed that the coastguard as a whole does not always manage change optimally and that there could have been increased communication with the operations / contracts team. Another two interviewees commented that there was an issue around stakeholder management as the provider was too specific about the information on the aircraft. Specifically, it was noted that there was different training for the specific helicopter types and a total of four different types of training. This gave the impression that the training was specification led, as opposed to led by needs. Further information on training can be found in Section 2.1.4.3.

With the induction of ASV to UK SAR, there was another fundamental change which also had to go through a transition period. There was a slight modification with regards to the transition in that the contract had to be started earlier than usual because of Brexit and demand from the border

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[11] ITV News, New helicopter to replace Sea King, 17 January 2015, https://www.itv.com/news/border/story/2015-01-17/new-helicopter-to-replace-sea-king/ last accessed 20 May 2024

force. The contract was started with airframes which were not part of the solution and interviewees noted that there were some delays in modifying the airframes at the time. Moreover, some interviewees noted that it could be argued that the transition is still ongoing as 2Excel have not got all the technology and assets which were initially promised. For example, there were delays with Osprey radar pods and, although the service provides a fixed-wing component, there are many technical issues which have been experienced throughout the lifetime of the contract (which are discussed further in Section 2.2).

2.1.4.3 Training

For the transition to SARH, the MCA were trained by the RAF, for the first few months. The basic training was reported to be in-depth, with operational colleagues going up to Scotland to work with the RAF. The training was seen by interviewees as very comprehensive. However, some noted that it was perhaps too comprehensive and covered things that they have not used, and knew at the time they would not use, such as yacht master theory.

It was noted that the training to integrate the ASV contract into UK SAR was not as sufficient as that for SARH. There was a little training done at the start of the contract, however this did not last for long. As this was the first fixed-wing contract let by the MCA, the tasking and use of assets is fundamentally different to that of rotary-wing. Although training was done around awareness sessions with the ARCC, it was noted that this did not necessarily translate into changes in the way taskings were done.

2.1.5 Overall delivery against expectations

In terms of the overall delivery of UK SAR, both contracts were seen as operating as anticipated. It was often reiterated throughout the interviews that the primary role of the service is to save lives, and in this respect, the service is extremely effective. This fundamental function of searching and rescuing has not changed throughout the course of the contract. However, the demand for SAR services has developed across the years and whether the service meets the additional demand, especially the fixed-wing aspect, was more debated by interviewees. For example, two interviewees noted that if, for ASV, the intention was to have a fixed-wing SAR capability then it met the criteria, however, technical issues have affected the delivery of additional aspects which were promised at the contract signature.

2.1.5.1 Sufficient resources

For the SARH contract, it was noted by interviewees that sufficient resources were available for all taskings, and that the equipment under the contract was a huge improvement through greater endurance from that used in the MOD contract. If a tasking were to be declined, it would not have been due to insufficient resources. Qualitative analysis suggests that weather, crew sickness / fatigue, technical reasons or if the task is unachievable (for example, if the range is too far) would be the reasoning for a task to be declined. Further analysis on declined tasks is provided in 2.2.1.2 and supports these qualitative reasonings with almost no tasks declined due to insufficient resources. However, the definition of insufficient resources is an

important one which requires delicacy. For the purposes of this baseline, it has been judged based on the reasons why a task was declined as per the ARCC database. However, it may be argued, for example, that if a task has been declined due to the weather making the conditions unsafe, where another asset outside of the contract exists and would have been able to complete the tasking, that the asset which could not be used was insufficient as a resource.

There have been amendments made to resources throughout the contract's lifetime, such as the Caesar addition which introduced fixed-wing assets at the Lydd base in response to the increased migration across the English Channel.

The supplier was perceived by interviewees to have been open and honest throughout the contract, and ensured any issues related to resourcing were dealt with prior to any impact on the operational delivery of the service. Throughout the baseline period there have been high levels of availability, although qualitatively trends beyond the baseline period were highlighted of lowering availability primarily due to supply chain issues. Further analysis on the availability of assets and bases is available in Section 2.2.1.2.

One potential area which qualitatively was highlighted as an area of concern was the lack of base coverage on the east coast. Figure 2.1 shows the distribution of bases. One interviewee specifically commented that if there were issues at the Humberside base, for example technical issues with aircrafts or the assets have been tasked, then an incident would have to rely on aircrafts from Prestwick, Caernarfon or Lydd. Moreover, another interviewee agreed with this sentiment, arguing that an extra base or aircraft on the east coast may have improved the service. Based on publicly available data, taskings in the east[12] were sent assets from Humberside two thirds of the time (66%), followed by Lydd (25%) and Prestwick (5%).[13]

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[12] Categorised as East Midlands, East of England and North East

[13] ICF analysis based on Search and rescue helicopter statistics, available at
https://www.gov.uk/government/collections/search-and-rescue-helicopter-statistics last accessed 20 May 2024

Figure 2.1 Distribution of UK SARH bases

Source: QinetiQ (2019) UK Search and Rescue Helicopters Post-Implementation Review

In terms of the monitoring and evaluation systems used, iSAR was viewed as a primary source, alongside the ARCC database. The ARCC database is manually complied which meant there was a risk of inaccuracy, with occasional inaccurate or exaggerated hours, especially on days where there was high demand for the service. However, at least one interviewee did note that this database was effective in its use and was of high quality, despite being a manual process which could be improved upon. Often, the iSAR and ARCC databases were used in conjunction to verify the data across the two, alongside email exchanges on any discrepencies. Such a qualitative element was also seen as essential as iSAR similarly has potential for bias as it is

based on the information that the supplier uploads (as opposed to the information that the ARCC enters into the ARCC database).

One key issue noted by the ICF evaluation team with the ARCC dataset is the changes in some data collection between the years, meaning temporal analysis on certain aspects was difficult. Additionally, the separate iSAR databases for the SARH and ASV contracts meant that elements of analysis were not possible across the whole service but separated into the two services. Further analysis on data gaps and practical issues in analysing the databases can be found in Section 2.4.

2.1.5.2 Contract management

The management of the SARH contract was described as straightforward and professional. Specifically, from the MCA's side, it was reported that they received all the information they required in a clear manner through a simple performance management machine and applied any monthly deductions if needed. There was good transparency and communication, facilitated by iSAR, resulting in the MCA having awareness of the activities conducted by all aircrafts across the bases. In terms of the monthly deductions, the process through which these were applied was detailed and data were double checked, so they were not solely based on the data provided by the supplier.

However, it was commented that for the management of the contracts, the MCA have a preference to speak primarily with the main supplier. Therefore, with the Caesar amendment, all communications went through BHL, and it was noted that some technical differences between fixed-wing and rotary assets could be lost in translation. This is an area where the management could have been improved.

The management of the ASV contract was seen as effective with regular meetings held between the supplier and the MCA. However, there were a few challenges noted which were not observed in the management of the SARH contract. One key reason for this is because the MCA were advised legally to attach KPIs to all 51 requirements in the contract. Some of these were subjective or qualitative meaning gaining evidence was a challenge and 51 KPIs were seen by interviewees as too many for a single contract.

2.2 Baseline assessment for impact evaluation questions

This section presents the baseline findings for the impact evaluation as based on the impact evaluation questions and related indicators outlined in the M&E framework.

For the quantitative data, where the Doncaster / Humberside base is referenced, this indicates information relating to the ASV contract, as opposed to SARH. The ASV assets were held at the Doncaster airport until its closure in November 2022, when the assets were moved to the Humberside base. It is important to note that the main purpose of ASV taskings is to search, and not rescue, and that the vast majority of ASV taskings were pre-planned (92%)[14] throughout the baseline period. For this

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[14] ICF analysis based on the ARCC database

reason, the two contracts are presented separately, where relevant, to ensure that these fundamental differences do not skew the data.

2.2.1 SAR, surveillance and reconnaissance outcomes

2.2.1.1 Key performance indicators

Key performance indicator (KPI) measures were seen as excellent for both services, with penalisation because of missed KPIs happening every other month for SARH with maybe one or two bases. The two main KPI measures noted by interviewees were the requirement of at least 98% availability[15] and the requirement to be airborne within 15 minutes of the tasking in the day and 45 minutes at night.

Penalisations for missed KPIs were built into the cost of the contract overall. The cost of the contract is split into two main elements: the fixed cost and the variable costs (which includes missed KPI fees). The standing charge (fixed cost) is a fixed monthly payment for aircraft leasing, SAR staff, the base, etc. The MCA also wanted to ensure that the operator had an incentive to deliver the contract and meet the KPIs. In the contract, a lot of care was taken to ensure the right balance between having incentive for delivering the contract and making sure that the financial punishment was not too high that it drives up the cost resulting in bad value for money (VfM) and the cost of failure being too high.

Penalisations were more common for ASV because of the supply chain issues which were noted to have had a bigger impact on fixed-wing assets. This was further exaggerated towards the end of the baseline period as in November 2022 when the Doncaster airport closed, 2Excel moved the fixed-wing base to Humberside which caused a lot of disruption.

However, looking at the services together there were very few KPI penalisations, estimated by interviewees to be applied to 1-3 bases per month on average, although this fluctuated. Qualitative reasons for drops in availability tended to be consistent across the contracts and related to the crew (crew illness or family emergency) or technical faults. For both contracts it was noted that the KPIs acted as incentives to the suppliers to give a reliable and good service, and quantitative evidence supports this highlighting that the service is available the vast majority of the time.

Moreover, although the KPIs are based on the 98% availability and 15 / 45 minute response time, the MCA did comment that they were more interested in the reasoning behind the drop in availability, and would penalise based on this reasoning, as opposed to the statistics. Additionally, it was noted that during any period of time where unavailability has been higher, a more micro-management approach has been taken to assess and address the issue(s) behind the unavailability. For example, supply chain issues which began during the Covid-19 pandemic have been outsourced to suppliers where possible.

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[15] The King Air 3 and Panther assets do not have availability requirements in their contracts

2.2.1.2 Service reliability

Across 2018-2022, less than 1% of tasks per year were declined.[16] Of the missions which were declined, almost two thirds (63%) were declined due to the weather. Other reasons include the environment (12%), other means capable (9%) and crew fatigue (6%). Slightly more missions were reported as deferred across the baseline period, however these ranged from 3% of all missions in 2018 and 6% in 2021. Of these, the primary reason for deferral was that no immediate aircraft tasking was required (28%), followed (again) by the weather (21%) and that there were other means capable to respond to the incident (19%). Qualitative evidence confirmed that tasks were primarily declined if it was unsafe as seen in Section 2.1.5.1.

Figure 2.2 presents the number of persons rescued and assisted per year across the baseline period, mapped against the number of missions per year. It shows that there has been a drastic increase in persons assisted in 2021 and 2022. From this data it can be calculated that between 0.5 and 0.63 persons were rescued per mission, between 0.07 and 0.17 were assisted, and between 0.02 and 0.03 were recovered.

Figure 2.2 Number of persons rescued, assisted and recovered per year mapped against the number of taskings[17]
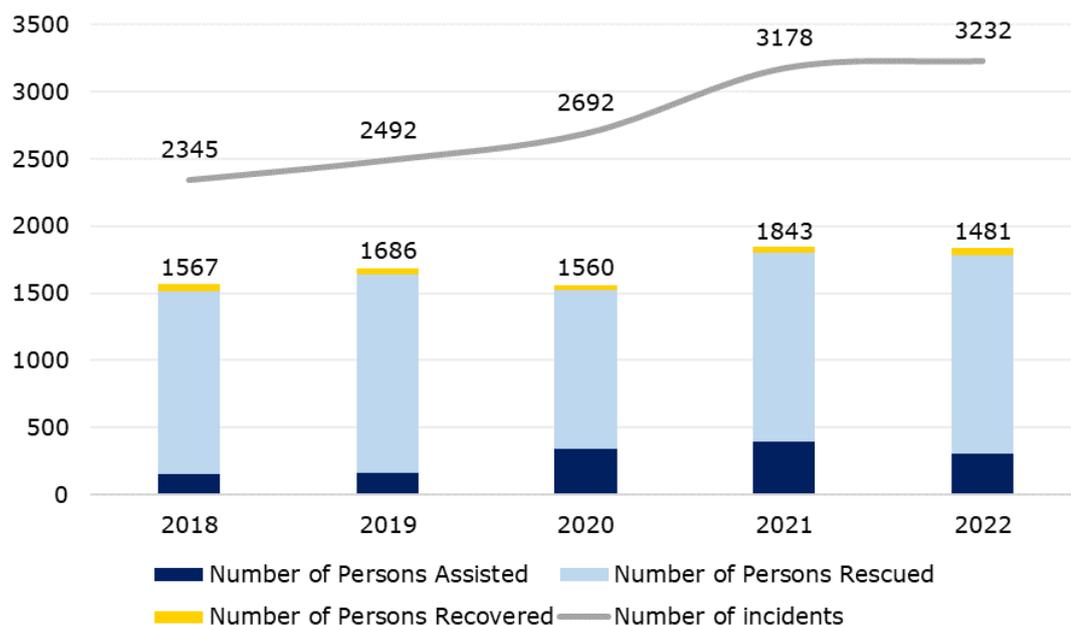
Source: ICF analysis based on ARCC data

Figure 2.3 shows that Prestwick was the base which assisted, rescued and recovered the most people during the baseline period, followed by Newquay and Caernarfon. As the purpose of the ASV contract is primarily to search, the low number of persons assisted for the Doncaster / Humberside base should not be viewed as unusual or as a cause for concern.

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[16] ICF analysis based on the ARCC database

[17] ICF analysis based on ARCC database

Figure 2.3 Number of persons rescued, assisted and recovered per base[18]
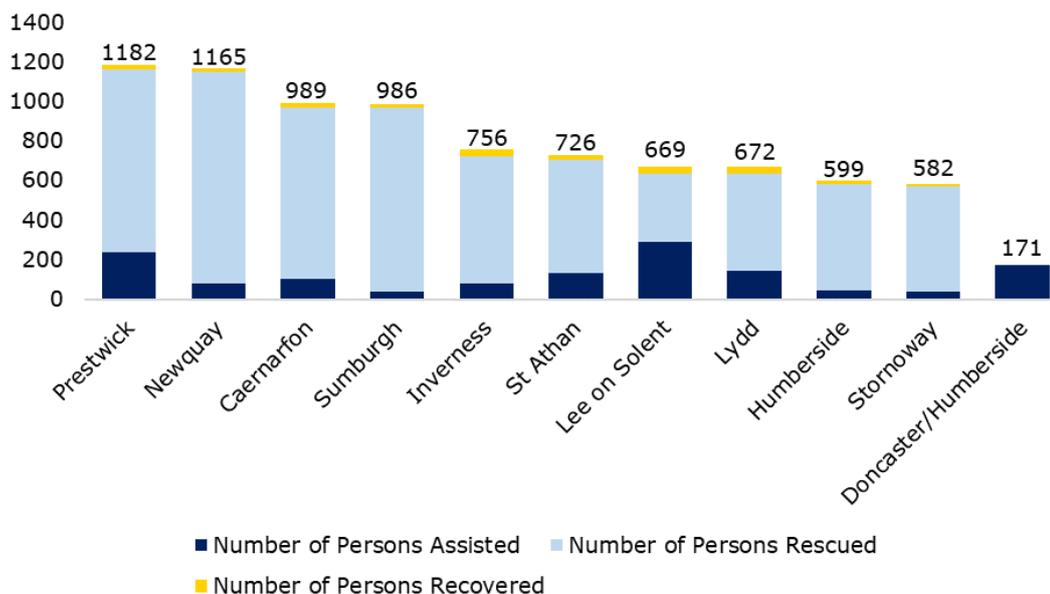
Source: ICF analysis based on the ARCC data

In terms of the availability of the bases, slightly over three quarters of the time (76%) between 2018-2022, the bases in the SARH and ASV contracts had an availability of between 99-100%. Availability was only below 98% for a tenth of the time across the baseline period.[19] Moreover, Figure 2.4 and Figure 2.5 below show the percentage of months where all missions were airborne within the 15 / 45 minutes of alert time for the SARH contract. Figure 2.4 specifically shows that there was a decrease in the percentage of tasks responded to within the 15 / 45 minute alert time between 2018 and 2019, before it stabilised. Figure 2.5 alternatively shows the analysis per base, demonstrating that Lydd responded to over 90% of its missions within the 15 / 45 minute alert time across the baseline period, followed closely by Stornoway (87%) and Caernarfon (87%).

For the ASV contract, as most of the missions are pre-planned, only 37% of taskings were airborne within the 15 / 45 minutes from contact commencement in 2019 to 2022. Although the King Air 3 had responded within 15 / 45 minutes almost nine tenths of the time (87%), Panther and King Air's percentages were much lower at 31% and 18% respectively.[20] Additionally, availability of the assets was lower during the baseline period.

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[18] ICF analysis based on the ARCC database

[19] ICF analysis based on iSAR data

[20] The King Air 3 and Panther assets do not have availability requirements in their contracts

Figure 2.4 Percentage of months per year where all missions were airborne within the 15 / 45 minute alert time (SARH)
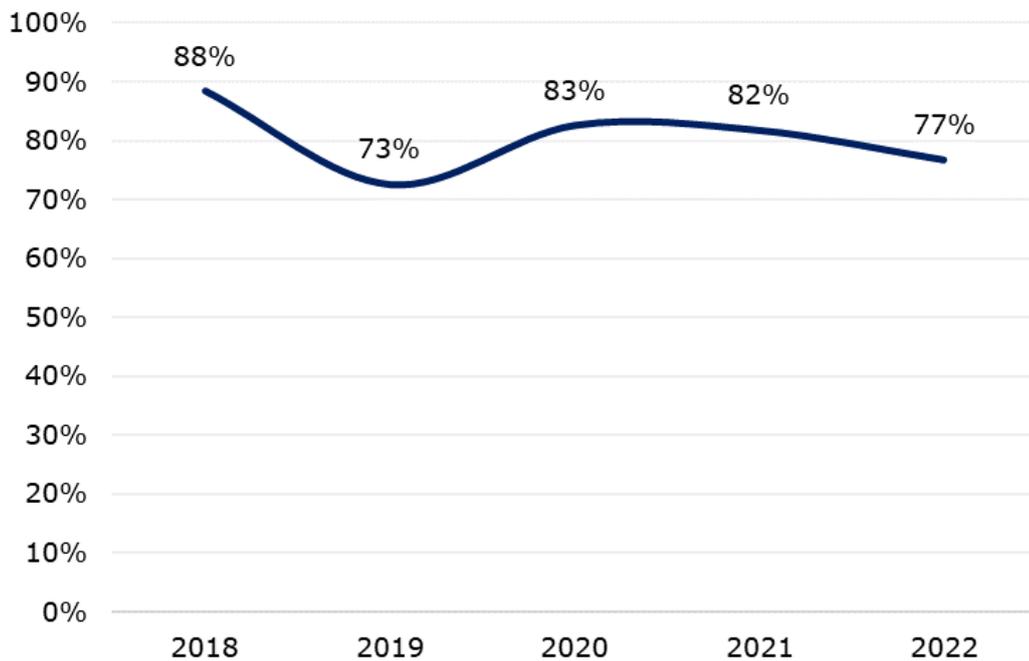
ICF analysis based on iSAR data

Figure 2.5 Percentage of months per base where all missions were airborne within the 15 / 45 minute alert time (SARH)
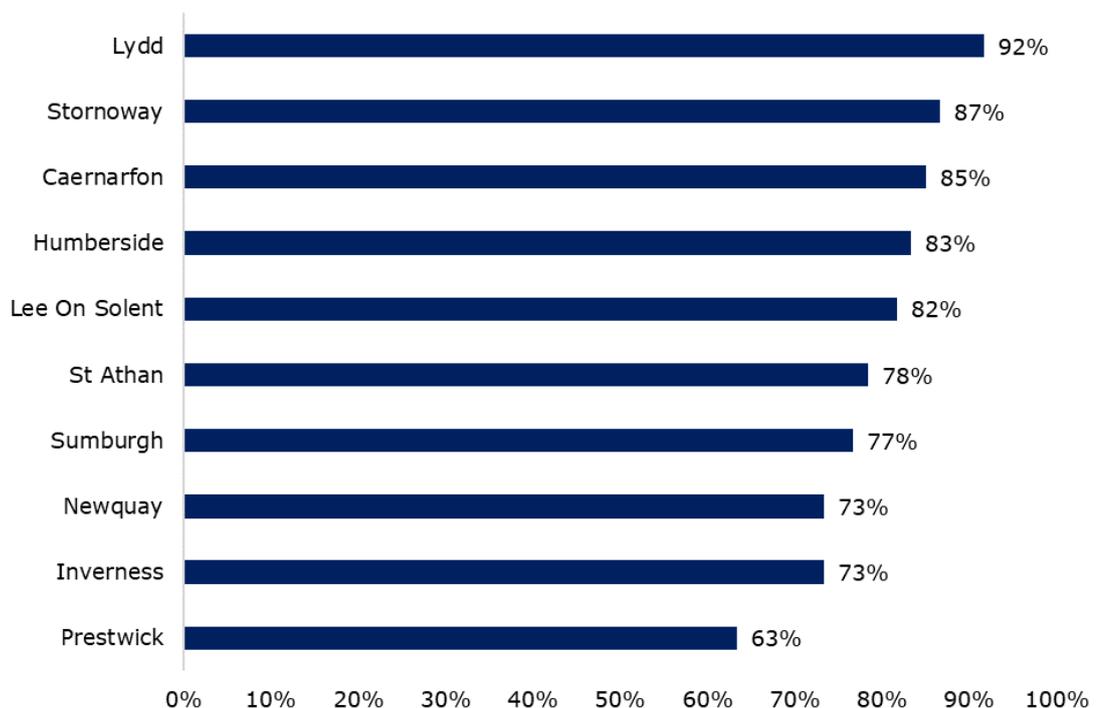
ICF analysis based on iSAR data

Data on availability across both SAR contracts emphasised the high levels of availability across the contract per year and per base. Annually, availability

across all bases was between 98%-99%.[21] Across all SARH bases, availability was 99%. For ASV assets, King Air 3 had 100% availability, King Air had 98% and Panther had 95%.[22]

Figure 2.6 below shows that the vast majority of taskings per base spent less than 30 minutes proceeding to the task. The Doncaster / Humberside base (representing ASV assets) time is likely highly skewed by the focus on search for this contract, and the high number of surveillance missions in the Channel.

Figure 2.6 Number of taskings and their time taken to proceed to a tasking per base[23]
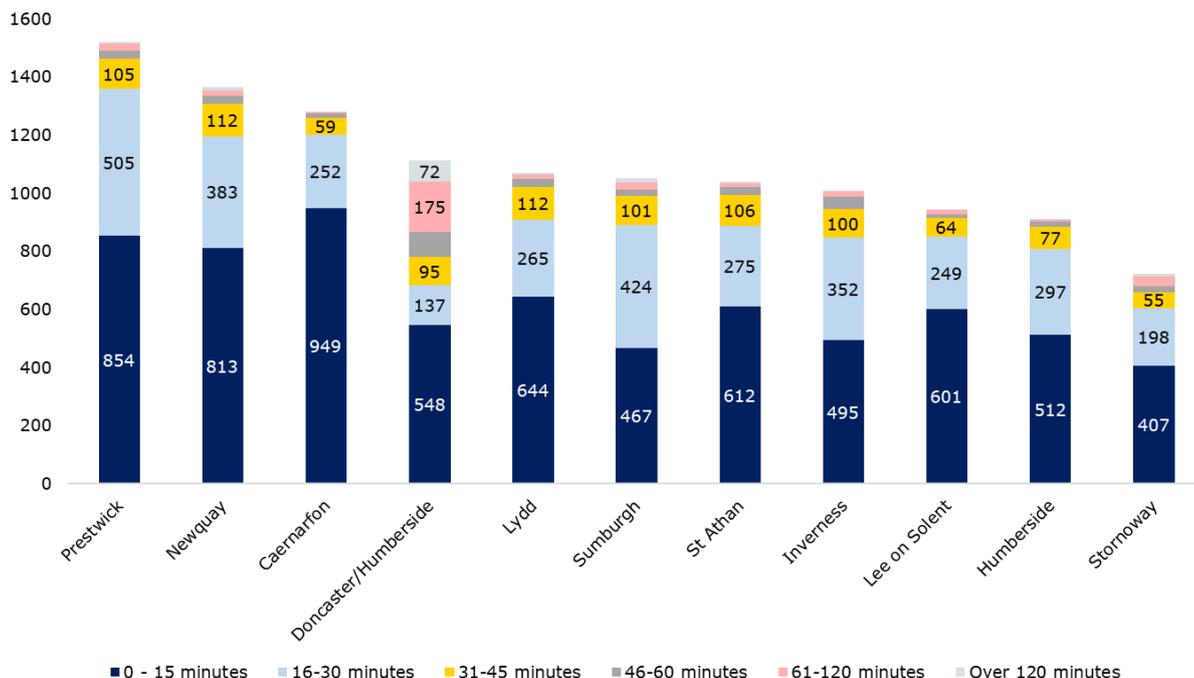
Source: ICF analysis based on ARCC data

The below graph (Figure 2.7) shows the time taken between receiving the task and the asset arriving on scene. As seen in the graph, there are great differences between the bases, however occasions where bases arrived on scene over an hour and a half after the tasking were in the minority. Again, the ASV data (represented in the Doncaster / Humberside base) will be skewed by the high proportion of pre-planned search taskings undergone by the service.

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[21] ICF analysis based on iSAR extraction

[22] ICF analysis based on iSAR extraction. The King Air 3 and Panther assets do not have availability requirements in their contracts

[23] This analysis excludes taskings overnight due to calculation issues and therefore may be skewed

Figure 2.7 Number of taskings and their time taken from tasking to arriving on scene per base
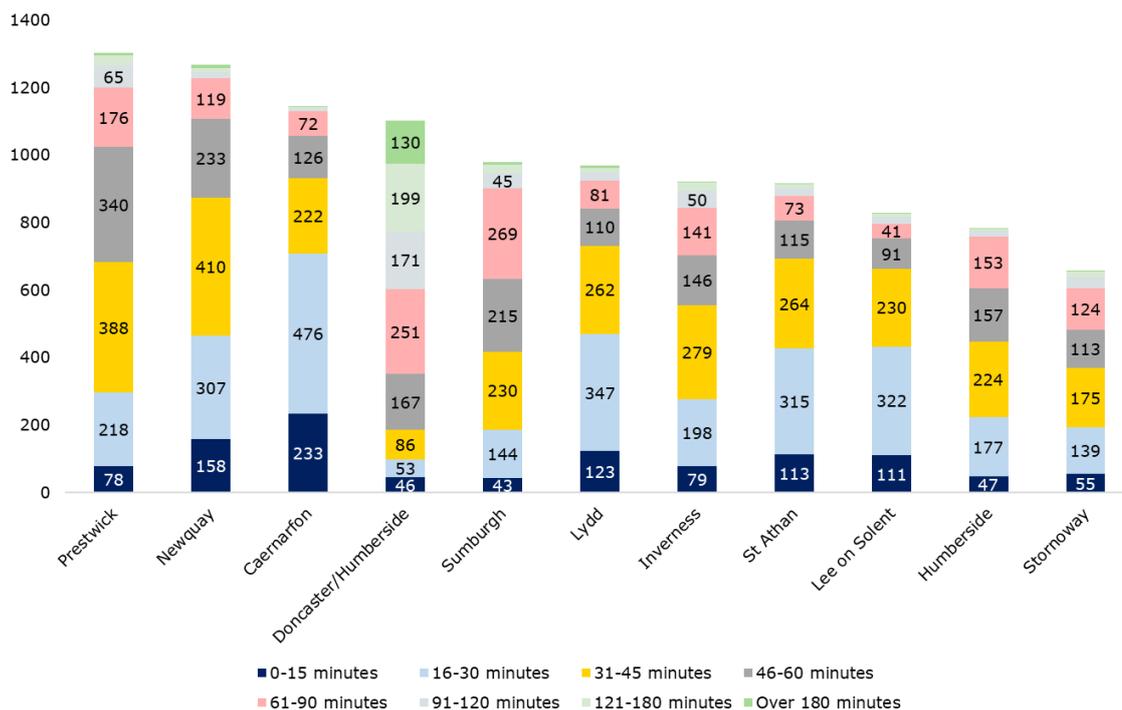
Source: ICF analysis based on ARCC data[24]

In terms of time taken for each task, Figure 2.8 shows the time taken from tasking to being released, per base. Again, time for the task to be completed fully varies drastically per base, however, were much more likely to go over four hours for the fixed-wing element of the service.

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[24] This analysis excludes taskings overnight due to calculation issues and therefore may be skewed

Figure 2.8 Number of taskings and their time taken from tasking to asset release per base
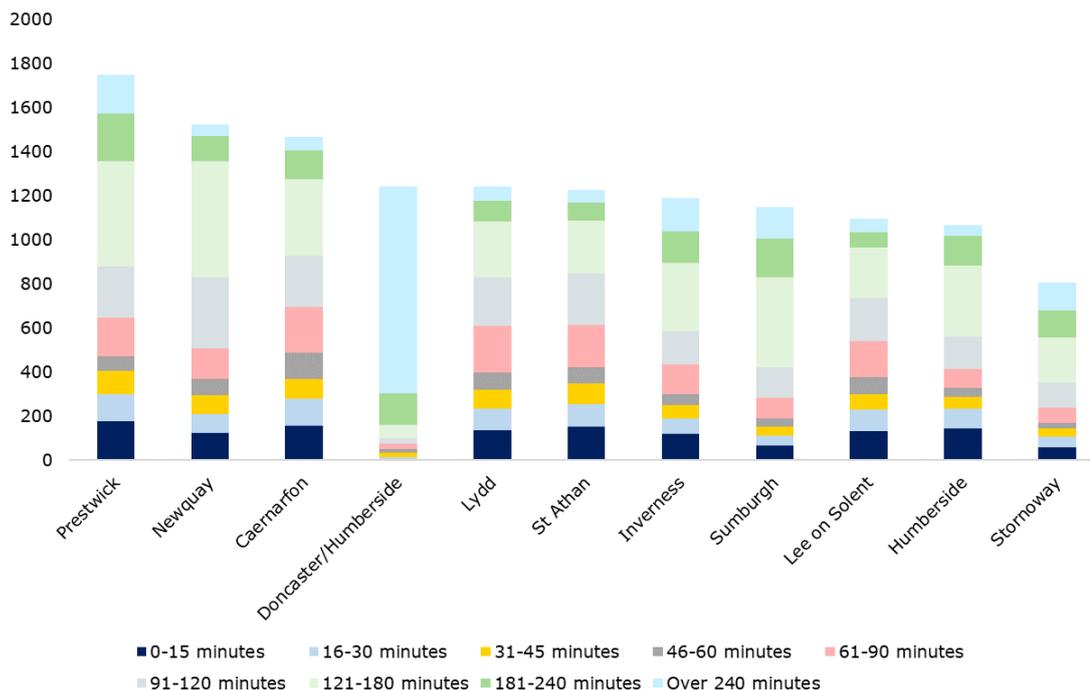
Source: ICF analysis based on ARCC data[25]

Figure 2.9 shows that tasks at each base varied greatly in the amount of time spent on scene. For each SARH base, the most common amount of time to spend on scene was between 2 and 3 hours, whereas ASV assets were most likely to spend over 4 hours on scene.

Figure 2.9 Number of taskings and their time on scene per base

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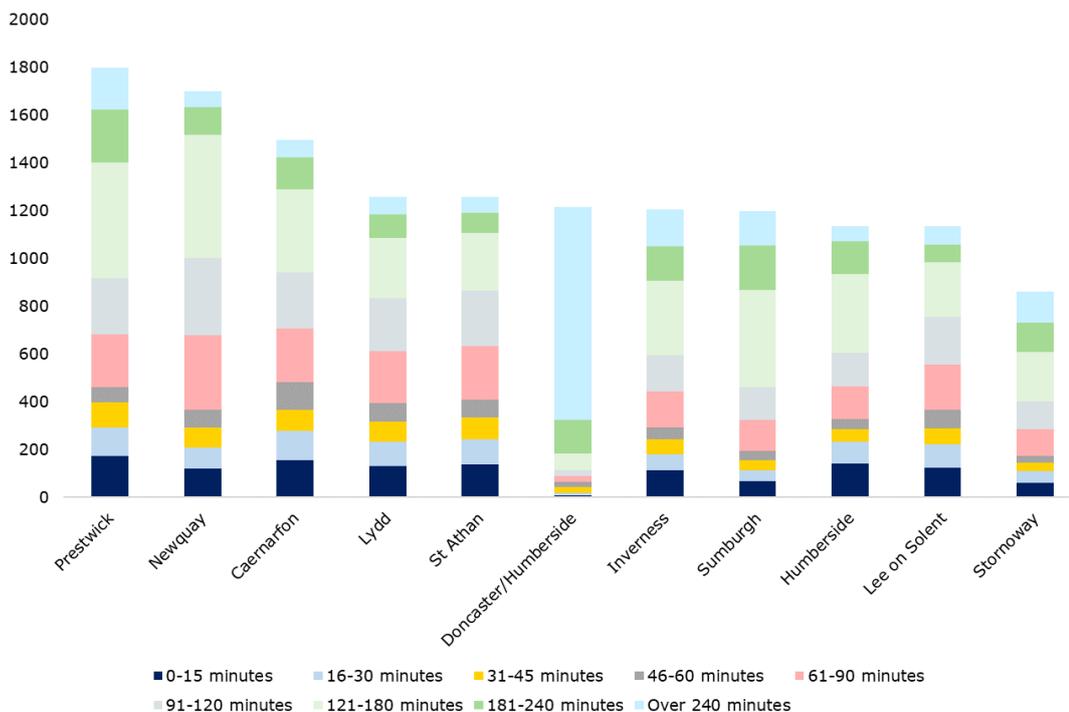
[25] This analysis excludes taskings overnight due to calculation issues and therefore may be skewed

Source: ICF analysis based on ARCC data

2.2.1.3 Stakeholder perception

During the baseline period, collaborative relationships worked well from both sides, with specifically good relationships noted with the English Mountain Rescue, the RNLI and the ambulance service. Overall, the service was seen positively by interviewees as it is a core level of response across the UK and is the primary SAR tool.

For the rotary-wing aspect of the service there were a few issues with delivery partners around training. For example, interviewees noted that there were some disagreements with stakeholders around training in general, where the military went out to train stakeholders as opposed to the MCA who, when they took over, wanted to ensure that any training had a mutual benefit and was not just one-way. Specifically, it was noted that the mountain rescue in Scotland previously worked closely with the military and received training at their own request and the changes in training had a negative impact on their relationship with the MCA. For all stakeholders, this was a bridge which had to be built under the current contract to maintain these relationships, however perceptions that there was more frequent and potentially better training under the previous service remain. For the fixed-wing element of SAR, this was a new aspect so there was nothing to compare it to previously in terms of stakeholder perception.

Furthermore, there was a perception qualitatively that the military would do any tasking, as the MOD could get more exemptions in the event of an emergency. However, with this element, it was beneficial for the MCA that, during the transition phase and into full-service delivery, they maintained the military staff and the crew, reassuring stakeholders about the change in service.

There were some further inefficiencies and areas for improvement, within the stakeholder perception of the service:

■ One interviewee noted that there has been an emerging perception that, because the service is run by the MCA, there is a focus on the coastal element of the service, as opposed to in-land activities.

■ It was highlighted that the fixed-wing assets were brought into SAR to assist primarily with search taskings, however, after many years of running a rotary-wing only service, the helicopters consistently get tasked first, regardless of what asset is best for the mission.

■ The closure of the Portland base in 2017 has had an ongoing impact on the perception of the service by stakeholders. Interviewees noted that, although this occurred before the baseline period, the long-term effects of the closure are still felt in the community today. Moreover, although the base was closed based on data analysis, it was perceived by some to have been a 'cold' approach from the MCA and that more could have been done to maintain relationships, especially as many staff from the Portland base moved to other SAR bases and continued to work with the service. It is important to note, however, that the closure was felt so strongly across the community because of how integrated it was and how well respected the operations were.

2.2.2 Collaboration

Figure 2.10 shows the different requesting agencies for taskings. As the figure shows, the majority of the tasks are done for His Majesty's Coastguard (HMCG), followed by the ambulance and the police.

Figure 2.10   Number of tasks per requesting agency per year
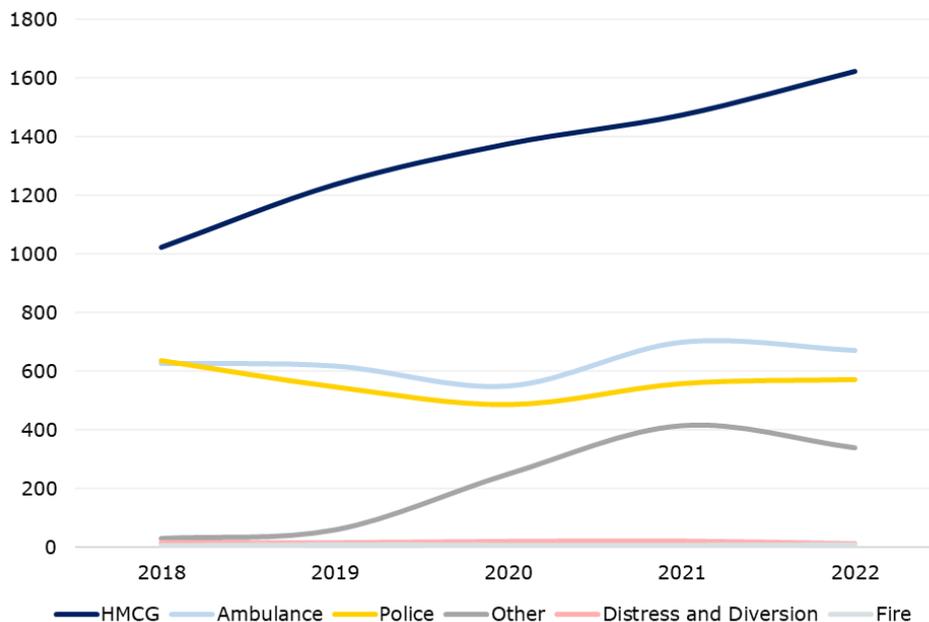
Source: ICF analysis based on ARCC data

Figure 2.11 further shows that there is great fluctuation across bases on the requesting agency. The Doncaster / Humberside base reflects the ASV assets and therefore it is unsurprising that most of the 'other' taskings occur there, as opposed to the bases under SARH.

Figure 2.11   Number of tasks per requesting agency per base
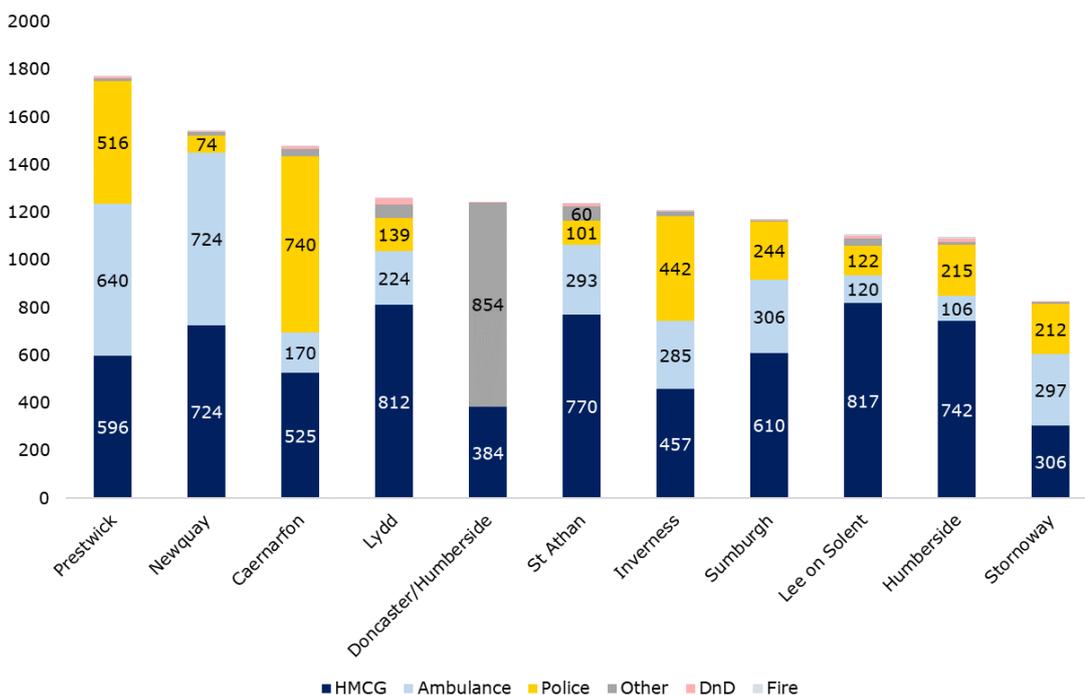
Source: ICF analysis based on ARCC data

Moreover, taskings which involved a hospital or drop-off at the end of the task can be viewed in Figure 2.12. For 2018 and 2019, these comprised of 54% of all taskings, and although this dropped for the remaining baseline years, it remained at above two fifths of all taskings (between 41-44%).

Figure 2.12　　Number of tasks in total per year, compared to number of tasks which have involved a hospital or drop off
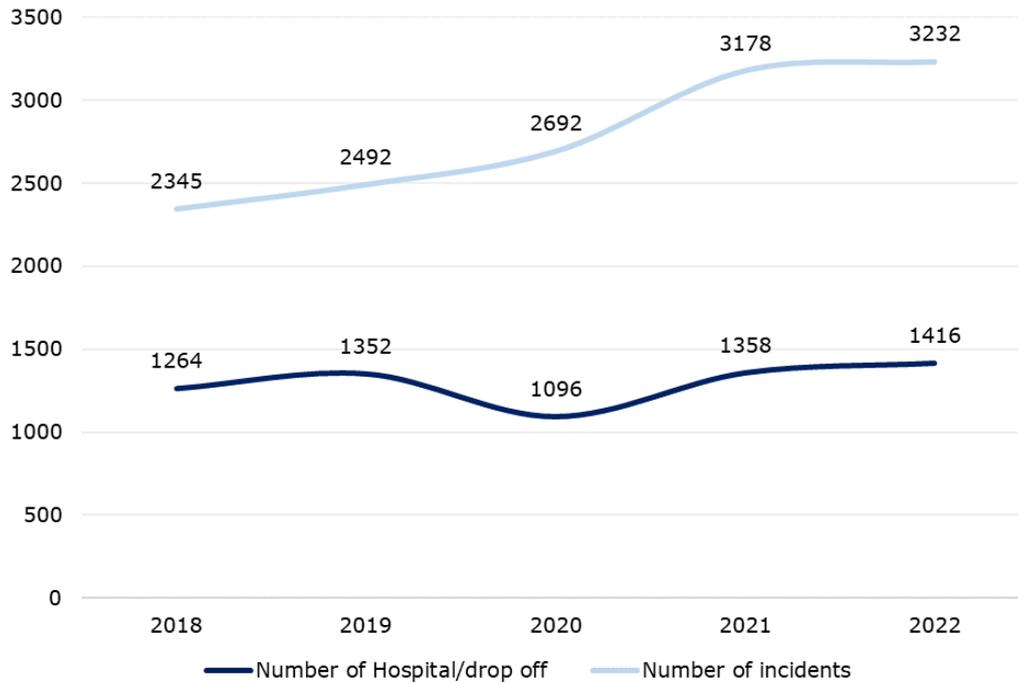
Source: ICF analysis of ARCC data

Figure 2.13 shows (again) that there is variation across the bases in how many tasks result in hospital or drop offs, varying by 37 percentage points between Sumburgh (69%) and Lee on Solent (32%).

Figure 2.13   Percentage of tasks per base which involved a hospital or drop off
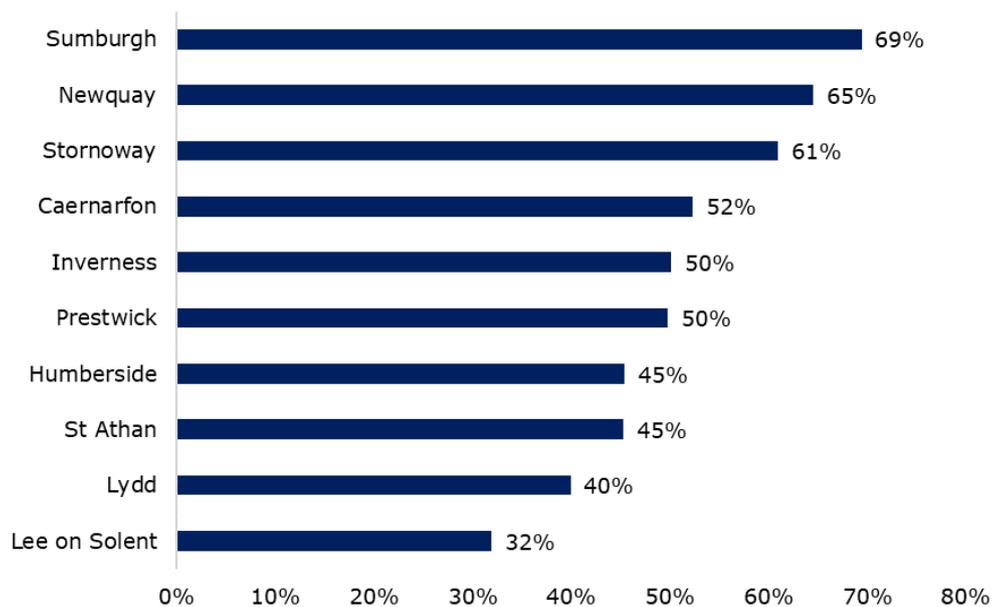
Source: ICF analysis on ARCC data[26]

Qualitative analysis also shows that there is a lot of collaboration with other stakeholders, for example, counter pollution, border enforcement, neighbouring coastguards, hospitals, the police and mountain rescue. However, it was unclear whether this collaboration differed between stakeholders.

2.2.2.2 Training

Training was seen as a key method by interviewees through which there was collaboration with other stakeholders, as regular training activities were conducted. There is a lot of outside interest in the training, with regular inquiries reported from coastguards who want their officers to do the training. Although this is positive for the reputation of the MCA and UK SAR as a valuable product is being delivered, care needs to be taken in what is being offered as everything has to tie in with government priorities, as it is a government service. There has also been an essential balance between the training need versus the actual need because there is a perception that stakeholders have to train with the SAR crews but the need for this is relatively low in reality – at the end of the day it is a finite asset and not everybody can utilise it for training.

The training element can be viewed as having an element of legacy from the previous contract, and something which has changed during the transition to the current service and throughout its lifetime. The MOD did a lot of engagement which the MCA scaled back when they took over the contract, and getting people to accept this has had challenges. Specific impacts of training on the stakeholder perception of the service were explored further in Section 2.2.1.3.

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[26] ASV has been excluded from this chart as there were no reported hospital or drop offs

The core role of the service is SAR, and this is always the priority. Because of this, the MCA have a lot of information about managing expectations and telling people what they can or cannot support. An example of when they have had to tell a stakeholder that they cannot assist is informing the NHS that they cannot assist with a hospital transfer while the aircraft is being used. Often it will have to be explained that the aircraft needs to complete a task, refuel or allow crew to rest before assisting with such events. Additionally, often an aircraft cannot be tasked while in flight. For example, if an aircraft is being used for training and has two crew members on board, it could not then be tasked mid-flight for an incident which requires them to have three crew members on board.

Figure 2.14   Number of training missions per year
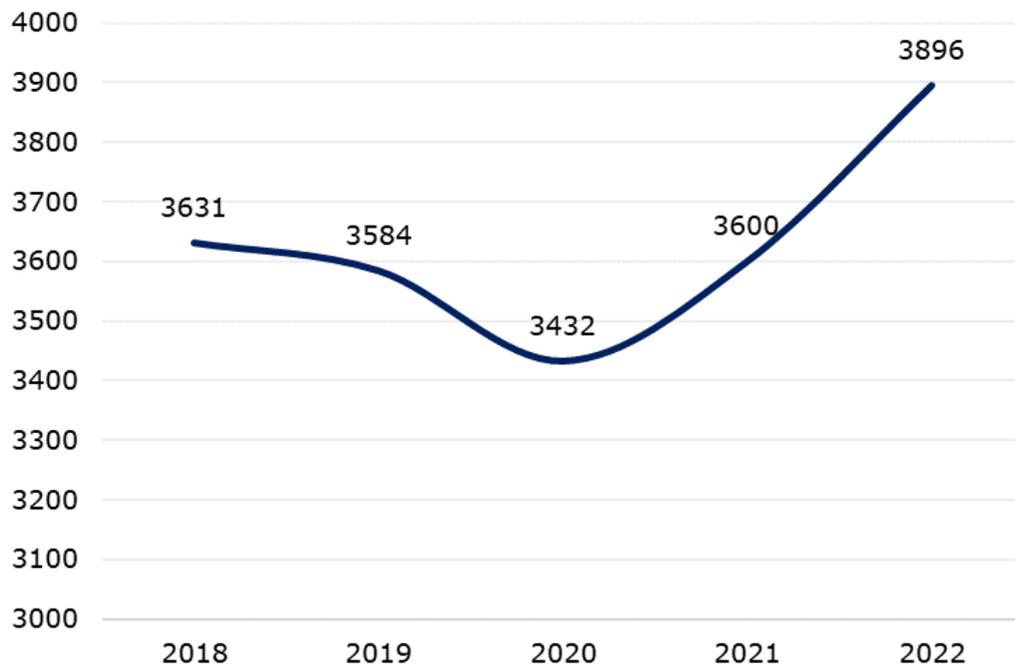
Source: ICF analysis based on iSAR data[27]

Figure 2.15   Number of taskings (missions, non-revenue, ops training and training) per base
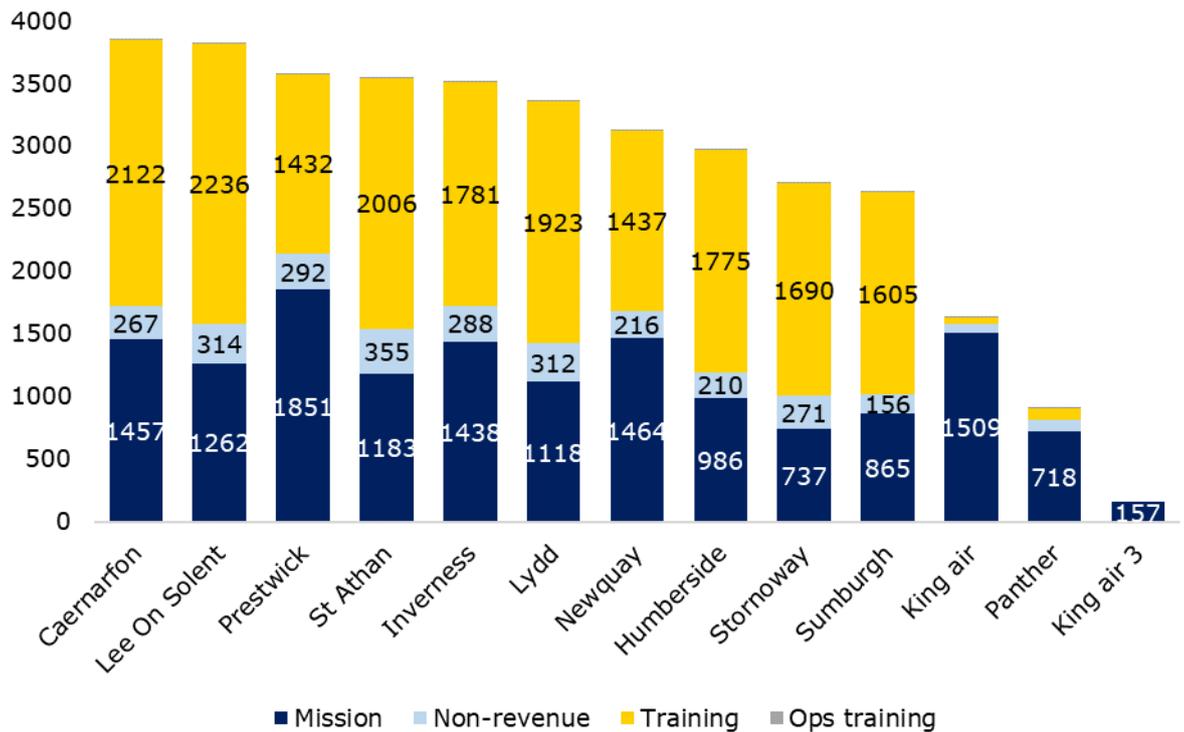
Source: ICF analysis based on iSAR data

2.2.2.3   Collaboration with other government departments

Collaboration with other government departments proved to be a challenge at times during the baseline period, specifically relating to the fixed-wing assets. This stems from the lack of cooperation received during the planning for the contract, where few government departments estimated their demand for the service. Only the Marine Management Organisation (MMO), at the time of scoping in 2017, indicated that they would be interested in using the assets, however, due to the growth of tasks in the Channel, the demand for the service has altered fundamentally. Moreover, it was reported that some government departments found that the fact that SAR is the priority for the service meant that it was not always best suited to their needs; however, as this is key to the operations it can cause tensions.

Collaboration with neighbouring states was rare however did happen and was effective when required. Calling on other states' SAR services occurred when the UK service had run out of aeronautical assets and / or the other state was the closest to the incident. One example where another SAR service might be best placed to respond is if there is an incident at the very north of the UK SAR border, Norway has a few helicopters based on a rig near the border and there are locations where if an incident happens then the Norwegian SAR service will be able to get to the scene much faster. Moreover, for incidents outside the range of a rotary asset, a fixed wing can be tasked and commercial vessels can be diverted to provide assistance (as

per IAMSAR)[28]. Additionally, the MCA have the ability to call on the MOD and military assets to assist if needed as there are places, e.g., the middle of the Atlantic, where military assets can reach which the current UK SAR assets cannot.

Throughout the operation of UK SAR an aeronautical asset may not be best placed for the tasking, and this is one of the key reasons that collaboration with other stakeholders is essential. Specifically, the relationship with the coastguard is seen as very effective and important, however it was noted that they (among most other stakeholders) wanted to be able to use the service more.

Secondary landing sites were not used very often, estimated qualitatively to be three or four times a year with there being specific occasions where they were required. This is not only because of the weather causing the asset to land, but also if there has been a technical fault or an asset has come close to running out of fuel. If the MCA do lose an asset in this way, it can take a few hours to organise getting it back up and running again. For example, if the aircraft is grounded because it is low on fuel, transportation of the fuel to where the aircraft has landed needs to be arranged.

2.2.3 Smart, flexible and fit-for-purpose service

2.2.3.1 Resource waste, utilisation of equipment and excess capacity

The equipment used in the current service was viewed as being sufficient, but it was noted that a want for more equipment will always exist. The utilisation of equipment was slightly different for the SARH and ASV contracts, as the ASV contract came later and was built more to be able to adapt to customer needs.

Qualitative data suggests that there was some excess capacity under the current contracts. There are an equal number of AW-189s and S-92 aircrafts in the SARH contract, with the S-92 being more resilient to changing weather conditions, but both assets being capable and reliable. However, all bases having the same assets does not account for differences in conditions and demand across the country meaning that the existing capacity may not have been essential at every base. Moreover, having a one-size-fits-all approach of two helicopters at every base at times has seemed illogical, but it is a capacity it has been recognised that can be utilised. This approach was driven by the availability KPI which required there to be a taskable asset per base for at least 98% of the time. Therefore, if there was only one asset per base then the supplier would risk being penalised for having their only asset on a task.

The potential overcapacity seen within the SAR service was viewed to be a legacy from the MOD contract, as there was a keenness to not change the service too much primarily due to public nervousness about the outsourcing of the SAR provision. However, over the course of the contract, this has caused a complication as there has become a reliance on the service to do things which it was not intended to do, and this can create a conflict between

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[28] International Maritime Organisation, IAMSAR Manual, available at
https://www.imo.org/en/OurWork/Safety/Pages/IAMSARManual.aspx last accessed 14 June 2024

SAR and the desire from other areas which is not its primary purpose. However, this does suggest that the service has been flexible in operation as it has not let the excess capacity go to waste (flexibility is assessed further in Section 2.2.3.2).

In general, it is thought by the MCA that, asset-wise, fixed-wing assets are the most efficient for search tasks, rotary-wing assets are most effective for rescue tasks, and unmanned aerial vehicles (UAVs) can be introduced to help deal with pilot fatigue and assist with search elements (when an aerial asset is required). In terms of the changing demand over the baseline period, it could be argued that there was not a sufficient amount fixed-wing assets to deal with the increasing demand. UAVs were piloted towards the end of the baseline period and were viewed as highly effective in working alongside fixed-wing assets specifically for the search element of the service.

In terms of resource waste, it was thought that the service could have been delivered with fewer airframes and personnel. However, as mentioned earlier, the introduction of ASV without the addition of more staff, caused increased workloads for certain individuals (see Section 2.1.4.1).

2.2.3.2 Flexibility

Some barriers to flexibility were noted as asset maintenance, flight hours and crew restrictions. It was also noted that it could be difficult to balance the primary SAR role of the service within itself and with other types of tasking, for example, maritime and coastal SAR needed balancing with land SAR, and then the SAR service overall needed to be balanced with counter pollution, border patrols etc. Coordination, however, does help mitigate these issues and helps keep the service balanced.

When the contract was written, much care was taken around the KPIs to ensure that they motivated the supplier to provide a high quality and effective service without having such a high financial penalty for missing KPIs that the cost of the contract became too high. It was noted that, theoretically, the KPIs could be seen to go against flexibility of the service as they had to have an asset ready to go 98% of the time meaning that often the supplier may not be inclined to use the asset if it would have counted against the KPI. However, in the delivery of the service this risk did not often materialise, especially as the MCA were more interested in why availability dropped below 98% as opposed to punishing without discussion. (For more information on KPIs see Section 2.2.1.1).

It was further noted that there was a built-in inefficiency within this as every base has a second aircraft which operates primarily to ensure availability while the other asset is tasked. However, it is important to note that the UK SAR service is about lifesaving, and the readiness state is there for this reason.

A clear example of when the service could be seen to be flexible was during the G7 Summit held in Cornwall where additional cover was provided due to the large number of people gathered in one place.

2.2.3.3 Innovation

When discussing innovation within the SAR space, it is important to consider the aeronautical assets and technical elements of the service alongside overall changes of any size which have been made to improve effectiveness and efficiency.

In terms of the technical side of innovation, several barriers to this were highlighted. Primarily, there was (and remains) very little funding for innovation and the way in which the contracts were written (especially the SARH contract) did not lend itself to support innovation. There were also government constraints, procurement rules and consultations as well as litigation and political risks. Time elements are also important to consider, as in addition to going through the approvals and securing funding, there is additionally the process to fit the technology and get it operating.

For the delivery of the service, it was reported that there was little to no innovation, although there have been some improvements in understanding the equipment involved and how to use it.

In 2021 and 2022, UAVs were piloted within UK SAR, and they were (and remain) envisaged to be a big change in how SAR is carried out. During this trial the UAVs were seen to be effective in working alongside helicopters, as the two assets complimented each other, proving the benefits of having mixed assets. UAVs, thus far, have only been used in certain airspaces as other assets have to be protected from them while they have been used for surveillance of small boats crossing the Channel. There is, however, a caveat noted with this asset in that they can take time to get airborne at night which may be approximately the same amount of time as a helicopter to get airborne, which may be the better asset to use.

With the Caesar addition to the contract there have been bolt-ons to the contract. However, it was commented that these were seen to be reactions to changes as opposed to being proactive. For example, there are radar pods where activity in the English Channel can be seen, yet it is debated how often this technology is used. There were also debates around the legality of some of the changes (or proposed changes) For example, there was a 4G data transfer element which came in with the Caesar amendment, however, this is subject to ongoing discussions with Ofcom.

Aside from the technical side of things, it was commented that processes and procedures are reviewed regularly, and that debriefs after missions are essential to consistent learning.

2.2.4 Longer term outcomes and impacts

2.2.4.1 Skills gaps

There were no skills gaps reported from the supplier's side and nothing was highlighted as being of major concern resulting in the MCA being confident that they have the right people for the job. Interviewees could not think of an example in which the suppliers were unable to provide a service and deliver.

One gap which was highlighted was that it would be helpful to have someone with medical knowledge or training to assist with the prioritisation of tasking. Often, for example, where medical transfers are required, there could be a

lack of information and there had to be trust placed in the doctors behind the decision declaring that the asset is required, however the MCA and the tasking authority had no authority or medical knowledge to potentially argue against sending the asset if there were multiple taskings and a requirement for an order of prioritisation, and there were instances where an asset had been sent when it was not essential.

Finally, there was a perceived skills gap within the MCA in terms of knowledge on fixed-wing assets. When an asset is tasked, both fixed and rotary-wing are done in the same way, however they operate differently. Moreover, there was a perception that the rotary-wing assets were often tasked first out of habit (as the SARH contract commenced operations years before the ASV contract), whereas a fixed-wing asset may have been more appropriate but not considered until later.

2.2.4.2 Succession plans

Within the MCA, from a commercial and programmes perspective, there was a constant balancing act having the right succession plan in place to fill gaps where needed. However, this happens in any team regardless. Similarly, the suppliers had similar succession plans to ensure that there are no gaps in knowledge.

2.2.4.3 Public awareness

One interviewee commented that there was a slight improvement in awareness of maritime risk and the activities of the UK SAR teams in comparison with the MOD, who reportedly did not highlight the 'good news' stories as and when they came about. In saying this, there is still a lot of room for improvement.

With regards to maritime risk, it was perceived that there was not a lot of awareness outside of those who regularly go out and use the water. However, a lot of work has been done to increase public awareness for safety on beaches specifically and there was similarly a lot of work done in land.

In general, it was thought that the public have little care who rescues them and that this can come with issues such as a lack of understanding about what the different aircrafts bring. This could be viewed as a media and educational issue. For example, if a helicopter is required for a road traffic accident in rural Scotland, as an ambulance would take too long to get there, or if the coastguard is called to a fire on a yacht as the fire brigade would not have a method of getting to the fire. This can lead to inefficiencies within the taskings, i.e., during a 999 call, individuals may request the wrong service. However, it is important to note that there is some responsibility which resides with the public to have knowledge on different risks, and with emergency services to ensure that the correct service has been assigned to the incident.

General knowledge and awareness can be seen as low, with three stakeholders giving the examples of the public wishing to go to the beach during storms to see waves or wanting to be the 'hero' when someone is stuck on a cliff even if they are unaware of how to help best. There has been increased awareness with the branded red and white helicopters from the

coastguard which has increased awareness from a public awareness point of view, however it is difficult to measure the impacts of this.

It was noted that the increase in the number of incidents since the COVID-19 pandemic may indicate that there is less awareness of risk. Alternatively, however, the economic downturn following the COVID-19 pandemic has seen more people going on holiday in the UK / the rise in 'staycations' which has increased the volume of incidents (independently of public awareness of maritime risks). Moreover, some stakeholders believed there to be a reasonable amount of public awareness based on media campaigns and tv programmes raising awareness. There were joint media campaigns which were done with the RNLI which have reached nearly 40 million people, and community safety initiatives that the RNLI have undertaken which have been supported by the MCA.

2.2.4.4 International perceptions

UK SAR is seen as highly regarded and respected for the operations and the way in which they work, and there is a lot of liaison and cooperation with good practice and sharing.

They have an excellent reputation internationally which stems from history as the UK SAR service has consistently been on the forefront across the world when looking at other coastguards. There are international norms of which the UK is seen within the MCA as being the 'gold standard' in general.

One interviewee additionally noted that through this service, the UK has had a 'soft point of entry' through which relationships can be built. For example, the service is working with the Japan and Philippines coastguards (individually) and building bi-lateral relations from this. Moreover, there are mutual aid agreements where they are called upon to support each other, for example, there is a plan with the French and Belgian coastguards which contains mutual aid support.

UK SAR is very highly thought of in the SAR community worldwide, and communication with less mature SAR states helps maintain this opinion. Additionally, the introduction of the UAVs into the service has increased curiosity from other states, with at least three different countries asked for advice on how to integrate this technology into their service.

2.2.4.5 Environmental, Social and Corporate Governance (ESG)

There is no avoiding that aircrafts burn fuel which has a negative impact on the environment. Substitutes for the fuel in terms of sustainable aviation fuel (SAF) have been looked at but were considered too expensive for the current contract as they are around four times the cost of the fuel currently used.

As this is a government contract, there are requirements to provide the government with certain statistics on carbon emissions. Additionally, the government has targets and have announced a fuel replacement programme in 2026 where assets will need to operate with mixed fuels, so the service will see this coming in. Specifically,[29] the SAF mandate from 2025 will require at

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[29] The mandate was announced after the interview

least 10% of all UK aviation fuel to be from sustainable sources by 2030.[30] It was noted that tests have been done on the rotary-wing assets to ensure that they will still be able to operate with the change of fuel.

In the SARH contract, efforts have been made in terms of using SMEs where possible, having solar panels fitted to sites used, brown water tanks, monitoring of gas usage etc. With regards to social values, efforts were similarly made through contributions to local charities, holding STEM events in schools, etc.

For the ASV contracts, efforts made towards ESG were less clear, however, it was commented that there is more focus on this going into the SAR2G contract which is much longer.

2.2.4.6 Other ASV benefits

The fixed-wing assets have been effective in fishery patrols and making sure that everyone is wearing lifejackets. There has been a positive impact from a safety perspective.

2.3 Qualitative value for money analysis

This section presents the qualitative VfM analysis. For the baseline indicators related to economic evaluation questions, much of the data was unavailable resulting in this section being primarily based on the stakeholder consultation activity. It is important to note that the evaluation team has not independently audited expenditure, and, for now, these results are based on interviews with the MCA. Full detail on the data sources for this section can be seen in Annex 1.

2.3.1 Costs

Overall, interviewees commented that there were seen to be no excessive costs under the current contracts. However, one area for improvement was identified within the use of the airframes, which could have been done in a more cost-effective way, discussed further in Section 2.3.3.

The main variable with regards to costs throughout the contract was observed to be fuel. Aviation fuel was not viewed to have fluctuated drastically during the baseline period, however there are contractual measures to protect the MCA and the supplier should there be large fluctuations. If the cost reaches an upper limit, then the taxpayer covers additional costs, however this has never been activated / used. Additionally, there have been instances of underspend in terms of fuel when there has been less aircraft usage (for example, under COVID-19). In these instances, there are various different things which can happen with the excess money, including the reallocation (within the MCA or the wider DfT) or the rolling over of the funds.

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[30] Department for Transport, Supporting the transition to Jet Zero: creating the UK SAF mandate, https://assets.publishing.service.gov.uk/media/662938db3b0122a378a7e722/creating-the-UK-saf-mandate-consultation-response.pdf, last accessed 1 July 2024

2.3.2 Benefits

Interviewees noted that the benefits of the contract were seen to outweigh the costs with the service rescuing thousands of lives per year (supported by quantitative data analysis as seen in Section 2.2.1.2). Additionally, interviewees highlighted the comparison with charitable SAR services, and how the MCA service is essential to the UK and more beneficial than the other services. Specifically, charitable SAR services set their own goals and have huge variability in how the tasking is done, however the MCA service is always there and available, with fixed protocol in terms of tasking and the work that it does.

Additionally, one interviewee noted that there was a benefit to the taxpayer in that they pay for a SAR service, however because the actual service does more than the initial SAR provision.

2.3.3 Efficiency

Overall, interviewees from the MCA perceived that the service was delivered efficiently with no obvious misspends or wasted money. The MCA specifically noted that they had what was needed for the service and that there were no issues resourcing. Such comments were applied to the SARH and ASV contracts as well as the Caesar amendment. With this amendment, the MCA interviewees perceived that it was funded properly with the appropriate checks and balances applied to ensure everything was costed correctly.

With regards to the ASV contract specifically, a slight inefficiency was highlighted by interviewees which emerged through hindsight and stemmed from the initial business model. At the start of the ASV contract, the idea was to purchase older aircrafts and fit them with modern technology (e.g., sensors). However, in reality, the advanced technology meant that any required repairs were time consuming and expensive. Looking back, there were inefficiencies which came from the purchasing of the older airframes, however, the main reason issues emerged with this was because of changes in the supply chain during the pandemic. For example, the newest airframe under ASV, the King Air, is a newer model which is fitted with up-to-date equipment which is easier to update and maintain and there is, overall, a higher level of reliability.

Some interviewees also highlighted inefficiencies which also came out of the work done with the NHS where a tasking required sometimes did not make sense. For example, it was sometimes requested that a SAR aircraft be sent to tail the NHS one for support or backup. If used effectively in this example, the SAR aircraft should be solely used. If there is uncertainty about the NHS asset or a lack of confidence in it, then it should not be sent. Although this contradicts the point above about additional taskings being an added benefit to the taxpayer, these instances appear to be less than the overall support offered to other government agencies / other taskings.

2.4 Data collection suggestions for SAR2G

Data collection suggestions for the future service are built upon the monitoring and evaluation framework. This is combined with the data analysed during this baseline study. We have identified any gaps or issues

when analysing this data. This section contains sub-sections on the data sources used for the baseline (discussing data available and any issues in analysis) and suggestions of what should be gathered in the future service (and how this should be done).

2.4.1   ARCC dataset

The primary source of data was the ARCC dataset.

Information which was consistent over the four-year period evaluated:

Indicator	Areas for improvement / comments
Date incident created	No comments
Response	Changes in 2022 have caused confusion
Reason to defer/decline	No comments
Not Appropriate / Achievable / Compliant	No comments
Deferred / Declined by Whom	No comments
Whom	No comments
Reason supported from QMP	No comments
Incident category	No comments
Final response	No comments
Resolution	No comments
Domain	No comments
Location type	Different between the publicly available data
Agency	No comments
Other units responded	No comments
Call sign	No comments
Tail number	No comments
Tasked from	Issues in calculations when a tasking overnight – recommendation to have an additional column calculating this live to avoid issues with analysis
Time tasked	Issues in calculations when a tasking overnight – recommendation to have an additional column calculating this live to avoid issues with analysis
Time proceeding	Issues in calculations when a tasking overnight – recommendation to have an additional column calculating this live to avoid issues with analysis
Time on scene	Issues in calculations when a tasking overnight – recommendation to have an additional column calculating this live to avoid issues with analysis
Released time	Issues in calculations when a tasking overnight – recommendation to have an additional column calculating this live to avoid issues with analysis

Indicator	Areas for improvement / comments
Released to	No comments
Time on incident	The format documented is in hours and minutes, but is the same format used to document the time of day which can appear confusing
Assisted	No comments
Rescued	No comments
Recovered	No comments
Hospital/drop off	May be helpful to have wider location and then specific
HLS	No comments
Base	Often typing errors in base names (only available from 2019)
Service	No comments

Issues experienced in data analysis:

- Changing column titles between years.
- Spread quarterly across databases per year (for the latter years).
- When taskings ran overnight, calculations of time spent became more difficult.
- Addition of the extra category of response (supported but delayed), this was also raised as a point of confusion for those in the ARCC.
- Not all taskings were included as the scope was determined by assets included in the contracts, so when other assets / states were called upon, this was not captured.

2.4.2 iSAR dataset

This dataset supplemented the quantitative analysis done for the baseline report, and was used to sense check the information from the ARCC dataset.

Extractable information in the dataset:

Indicator	Areas for improvement / comments
Base / aircraft type[31]	No comments
Date	No comments
Duty aircraft	No comments
Event	No comments
Flight detail	No comments
Training hours / mission hours / ops hours / non-revenue hours / aircraft not available	No comments
Incentive score (note A)	No comments

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[31] iSAR for SARH is split per base, whereas iSAR for ASV is split per aircraft

Indicator	Areas for improvement / comments
Mission number	No comments
Location and summary	No comments
Time alerted	No comments
Time to take off	No comments
Alert to airborne	No comments
Delay	No comments
Persons rescued	Analysis for this was done based on the ARCC dataset due to numerous outliers
Persons assisted	Analysis for this was done based on the ARCC dataset due to numerous
Total available hours (per month)	No comments
Toal hours 'on state' (per month)	No comments
Availability (percentage)	No comments
Total number of missions (per month)	No comments
Missions airborne within 15/45 minutes of alert	No comments
Percentage of missions airborne within 15/45 minutes of alert	No comments

Issues experienced in data analysis:

■ Extracting the data initially was a time-consuming activity as it was only possible per base per month.
■ Although ASV and SARH both use iSAR, SARH was differentiated per base whereas ASV was differentiated per asset.

2.4.3 Data collection suggestions

The below table presents the data collection suggestions, an idea on how this data should be gathered (i.e., quantitatively, automated), and who the data owner would be. Please note that this does not include the adaptation recommendations to data currently collected outlined above or any data which is currently collected / monitored through the ARCC dataset or iSAR.

One element which would support some of the data collection elements below would be for the supplier to submit quarterly reports to the MCA, in order to gather certain additional information which likely would not be captured in the daily monitoring of the contract, such as jobs created, emissions released, etc.

Indicator	How data should be gathered / how often / tracked
Number of documented risks to service transition	Data currently gathered, but record should be kept of the risks which were realised per base transition and mitigation measures which were enforced
Number of training and engagement activities conducted with the SAR2G suppliers to support service transition	Log of training or engagement activity conducted to support the transition per base Post-transition survey to capture the success of the training and engagement per base
Number and type of assets at each base, by coverage and area	One data source with the information of all assets, where they are kept and their coverage. To be updated when assets are changed / added / removed throughout the service
Number and type of assets available to respond to incidents by base and coverage area	One data source with the information of all assets, where they are kept and their coverage. To be updated when assets are changed / added / removed throughout the service
Number of times redundancy bases are used	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR, ARCC)
Proportion of missions that accurately identify relevant targets	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR, ARCC)
Time and number of missions where there is a handover to other emergency services	Continuous monitoring - could be incorporated into pre-existing monitoring systems (ARCC)
Training hours delivered with other stakeholders and the purpose / intent of the training	Continuous monitoring
Training hours delivered with SAR2G delivery staff	Continuous monitoring
Synthetic and live training hours delivered, and carbon emissions produced by training activities	Continuous monitoring and quarterly reports from the supplier (on the carbon emissions from training)
Cost of training deliver per hour and training type	Continuous monitoring, summarised in quarterly reports
Number of joint planning, coordination or relationship development activities	Continuous monitoring
Number of redundancy assets and bases available, how	Continuous monitoring Combination of a dataset which holds the constant informaiton alongside

Indicator	How data should be gathered / how often / tracked
often they are drawn upon and why	incorporation of how often they are drawn upon (and reasons why) into the pre-existing monitoring systems
Time taken for the asset to recover between incidents	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR, ARCC)
Number of times in which recommended flight time limits / fatigue were approached / exceeded	Continuous monitoring per base
Number of innovation projects proposed, supported and completed	Log of innovation proposals, categorised, and tracked with reasons given for why a proposal was supported and completed, or rejected and the cost associated (for both supported and rejected innovation proposals)
Number of innovations developed by the contractors that were diffused into other businesses/sectors	Log of innovation proposals, categorised, and tracked with reasons given for why a proposal was supported and completed, or rejected and the cost associated (for both supported and rejected innovation proposals)
Cost of innovation activities	Log of innovation proposals, categorised, and tracked with reasons given for why a proposal was supported and completed, or rejected and the cost associated (for both supported and rejected innovation proposals)
Net jobs created	Quarterly reports from the supplier
Number of full-time employed staff employed in the delivery of SAR2G	Quarterly reports from the supplier
Number of subcontractors and SMEs commissioned by the suppliers to support the service delivery	Quarterly reports from the supplier
Level of attrition for SAR2G delivery staff	Quarterly reports from the supplier
Total cost of the service and programme funding	Continuous monitoring of activities and the costs associated with them Summarised in quarterly internal reports
Total number and cost of aviation assets and other capital investments	Continuous monitoring of any changes, and logging them and costs associated

Indicator	How data should be gathered / how often / tracked
purchased, modified and / or upgraded	
Number and cost of onboard medical equipment (including drugs)	Continuous monitoring of any changes, and logging them and costs associated
Total volume of fuel used and fuel type per asset	Continuous monitoring and quarterly reports from the supplier aggregating the data
Cost of the data and management information systems	Quarterly reports from the supplier
Cost of operating the ARCC with adequate facilities	Quarterly internal reports
Total GHG emissions produced	Continuous monitoring summarised in quarterly reports from the supplier
Number and type of staff by location and organisation	Quarterly internal reports
Cost of operating the tasking authority (ARCC) for all supplier bases and assets	Quarterly internal reports
Number and cost of data management systems	Quarterly internal reports
Number and cost of aviation assets	Quarterly reports from the supplier
Number and cost of equipment	Quarterly reports from the supplier
Cost of fuel	Continuous monitoring, alongside efforts made for tracking GHG emissions
Cost of bases	Quarterly reports from the supplier
Number of safety information events or activites, and any associated costs	Quarterly internal reports
Number of missions handed over to other emergency service providers	Continuous monitoring – could be incorporated into pre-existing monitoring systems (ARCC)
Amount of time taken to hand over to other emergency services	Continuous monitoring – could be incorporated into pre-existing monitoring systems (ARCC)
Number of staff members recruited, and levels of attrition	Quarterly internal reports and quarterly reports from the supplier
Number of relationship development activities conducted	Quarterly internal reports and quarterly reports from the supplier

Indicator	How data should be gathered / how often / tracked
Number of missions which accurately detect or identify relevant incidents	Continuous monitoring - could be incorporated into pre-existing monitoring systems (ARCC)
Number of and value of penalties charged	Quarterly internal reports
Number of times the fatigue risk management threshold is above appetite	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR)
Number of times the flight time limits are breached	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR)
Time taken for assets to recover between incidents	Continuous monitoring - could be incorporated into pre-existing monitoring systems (iSAR)
Number of crime and pollution taskings conducted	Continuous monitoring - could be incorporated into pre-existing monitoring systems (ARCC)
Number of supply chain providers engaged	Quarterly reports from the suppliers

3 Early findings for the future SAR2G process evaluation

The following section lays out the early findings which were gathered for the future SAR2G process evaluation. Due to the timing of the interviews, there were some indicators (from the M&E framework), specifically around the process, which were collected as part of this phase. This should further help mitigate risks in the future evaluation which were met in forming the baseline, including relying on memories of staff and ensuring that the right members of staff were spoken to (due to changing roles and some people leaving the Agency over time).

3.1 Changes between the current and future service

There are several changes between the current service and how it has operated during the baseline period above, and how the future service will operate. The main planned changes between the current service and SAR2G, as per BHL's proposed solution, are as follows:

- Increased capacity to respond to an increased number of tasks and can save additional lives (as shown in the 3D model).
- 12 rotary bases, of which two are seasonal, operating from April to September, compared with 10 permanent bases.
- 3 rotary-wing bases, increased from 1.
- Nine technical crew (decreased from 10), 9 pilots and 10 engineers.
- 70% of current heavy helicopter capability will be replaced with medium helicopter capability.
- SAR2G bases will operate through a Hub and Spoke model which will allow BHL and partners to reduce the number of assets at each base while increasing the number of bases.
- King Air aircraft will be fully integrated into existing SAR bases at Prestwick and Newquay.
- Reduction in cost by £117 million versus Lot 1, Lot 2 and Lot 3 combined cost and £673 million below the Lot 4 Affordability Cap.
- Capacity and flexibility will be increased within the asset pool. Aircraft will be compliant across multiple Lots.
- Service resilience will improve due to the availability of a greater mix of helicopter types and the geographic distribution of bases, which provides overlapping coverage.
- An innovation strategy will be established alongside the MCA to set out processes/systems for enabling through-life contract improvements.[32]
- BHL, 2Excel and Nova Partnership will operate together under the BHL-led umbrella. There will be common operating procedures across all entities. There will be a single point of contact for the Authority.
- Operational SAR HQ may be relocated closer to the ARCC in Fareham and the MCA's HQ in Southampton. 2Excel's operational HQ will remain co-located at Humberside alongside its fixed-wing operating hub.

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[32] Innovation proposals can be submitted at any time during the life of the contract either into the Partners' Continuous Improvement Teams or into the IPO directly

- Sustainable aviation fuel (SAF) technology will be used for SAR2G when available.[33]
- There will be a reduction of the amount of waste produced by each SAR base.
- There will be a reduction in the amount of Electricity, Gas & Water usage per base and a review of hazardous product usage & better supply chain management.
- BHL will build a dedicated SAR Training Centre alongside an existing SAR base at Lee-on-Solent which will house a state-of-the-art synthetic training capability.[34]
- The Mission and Integration Management System (MIMS) will give the ARCC and other co-ordinating authorities full access to a web-based mission environment.
- All lessons learned from the UK SAR process will be embedded using Prince2 project methodologies.
- A Bristow-led dedicated Project Management Office team will manage the Transition.
- It is proposed that all current aircraft will be used during the Transition. BHL does not propose to acquire interim aircraft for the SAR2G transition.
- The Transition Team shall be trained and ready at least four months ahead of the Service Commencement Date at each base (2024-2027). The Transition Team members are already part of BHL staff. No recruitment is required for the BHL Transition process for SAR2G.

One additional key element which was highlighted in the interviews, is the difference in the readiness state for Sumburgh base which serves the Shetland and Orkney Islands. Under the contract, as it is written at the time this research (May 2024), the readiness state of this base would increase from 15 to 60 minutes.[35] However, this has not been included because the MCA are undertaking a review of recent incident data and considering whether there will be a change in position in Sumburgh.

3.2   The development of SAR2G

3.2.1   Industry and market engagement

Industry engagement was seen as key and very successful for the SAR2G contract. The MCA spoke directly with the industry and was challenged on the requirements proposed in the contract. Many virtual industry days and events were held to ensure enough information had been gathered to enable health competition. There was a lot of market engagement, data analysis and desk research conducted, leaving no perceived data gaps in terms of the research for the service by the MCA.

When initial market engagement was conducted, the MCA placed no limitations on what they could do with the future service and made no

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[33] Bristow are committed to lead the way on SAF implementation in the UK and are actively working with UKSAR helicopter manufacturers towards the application of SAF

[34] This will provide synthetic training for technical crew, medical and Helicopter underwater Escape and Survival Training.

[35] The Orradian, Proposals to quadruple coastguard helicopter response times queried, 6 October 2023, available at https://orcadian.co.uk/proposals-to-quadruple-coastguard-helicopter-response-times-queried/ last accessed 8 May 2024

assumptions around what was possible. Although they could not allow the market to do exactly what it wanted with the contract, it was essential for the MCA to remove any barriers to entry.

In terms of gathering user needs for the service internally, the team devoted to this was perceived to be small in terms of the number of staff dedicated to this task. However, it was noted that increased human resources devoted to this would not necessarily have resulted in a better outcome. Moreover, although the core team dedicated to gathering user needs was perceived to be small, external assistance was sought from advisers, lawyers and technical advisors, among others, providing complementary strength to the process of gathering needs.

With regards to the requirements for the SAR2G service, there were lessons learned taken from the ASV contract. For example, the ASV the requirements were viewed to be immature, however were interpreted as a prototype service which allowed SAR2G to be more well-defined in its technical requirements.

3.2.2 Development of requirements

3.2.2.1 Post-implementation review

The post-implementation review was prepared in 2019[36] and allowed the MCA to gain a better understanding of what UK SAR looks like. This was fundamental in the development of SAR2G. The review made various recommendations and looked at availability, what the service could be used for and how different configurations could be adapted. This ultimately resulted in the MCA coming up with the hub and spoke element of the SAR2G contract.

However, the situation changed between the start and end of the procurement. When this review was conducted the aviation industry had not experienced the shocks from the COVID-19 pandemic which caused ongoing issues with the supply chain. It is uncertain whether the procurement process would have been updated if these conditions had been taken into account, however it is something which has had a continuing impact on the industry which has not been built into SAR2G.

Moreover, COVID-19 changed the way in which people behaved and some of the assumptions which were made pre-COVID-19 fundamentally altered, for example, the increase in 'staycations' is something which was not considered pre-COVID-19. Additionally, the 'small boats crisis' emerged / developed during the pandemic as there was less freight going through the Channel Tunnel. These aspects have increased the difficulty in predicting the future demand of SAR.

3.2.2.2 Availability and use of data

One element which was missing from the procurement of the SARH process was the availability of data (see Section 2.1.1). For the SAR2G programme,

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[36] Qinetiq (2019) UK Search and Rescue Helicopters Post-Implementation Review, https://assets.publishing.service.gov.uk/media/5d371fb7e5274a400af813e1/S_39_-_ANNEX_B_UK_SARH_PIR_FINAL.pdf

data was essential in driving the savings in the contract moving forward. The MCA were able to model data so that the market could test solutions itself. Through this, the 3D modelling tool was developed which allowed bidders to test their solutions before submitting them. If a bidder were to fail the 3D model, then they were not able to submit their bid (see more in Section 3.3.1).

This is not to say that there were no gaps in the data gathered for this process, with one interviewee highlighting that the importance of data is only truly realised when it is needed to work for something specifically. The point at which the MCA started to access data to support the modelling which was done the service had been operating for between 4 and 6 years so there was not a long legacy which created some limitations. For example, the data was different for different stakeholders and there was a challenge standardising it and ensuring it was consistent and not giving any biases.

3.2.2.3 Exit provisions

The importance of exit provisions was an element which was highlighted to be missing in SARH during the procurement of SAR2G. Such provisions, which were included in SAR2G were around the information on the assets, and the right of the MCA to purchase the assets used under the contract. This was essential for the procurement of SAR2G for other bidders were able to have access on information as to what assets were currently used in the service. Ultimately, with the consent of BHL, information was shared with bidders on the current service including: the bases, what the lease terms are, whether they are transferable, what the bills are like, etc. There were, naturally, some aspects of the current service where the information could not be shared giving the incumbent a slight advantage when it comes to pricing, however as much as possible was done to mitigate potential unfair advantages.

3.2.2.4 Refinement of requirements

An area for improvement with regards to the requirements was identified through the process of internal refinement, with one interviewee highlighting that there could have been wider buy-in from the wider MCA in terms of reviewing and refining the SAR2G requirements. There was a perceived lack of understanding around the importance of reviewing the requirements, with people seeing the reviewing process as something added on to their day job, as opposed to something of key importance. With regards to other government departments, a lot of effort was made, however it was difficult to set expectations and for the MCA to be clear on what the operational delivery of the new service would look like. The focus, as always, has been on meeting the UK requirements, as set out in the United Nations, with anything additional which does not fall under this legislation / regulation not being a priority. Communication with other stakeholders around this has been consistent, however there has been a lot of information disseminated and, within this, there is naturally space for misinterpretation.

3.3   Procurement process

SAR2G took longer to procure than SARH (and ASV), measured as the time elapsed between tender launch and contract, however this was deliberate. There was an awareness of when the SARH / ASV contracts would run out and when SAR2G had to be signed by. This allowed the procurement to be run in order to give bidders enough time to suggest innovative solutions (as opposed to copying the current service). This also allowed for more time for preparation of the tender documents.

In terms of staffing, there was one individual who was in charge of the procurement process with a team of three members and it was reported that increasing the staff would have been helpful and increased efficiency. When other members of staff did step in to help the process, it was reported that they did not usually have procurement experience which caused some inefficiencies.

Difficulties were experienced in building the tender onto the procurement system as the team were very specific in how they wanted it set up, however it would have been good to have wider support for the team to brainstorm ideas of how best to do this. Overall, the procurement process was always going to be difficult with the complexity of the Lot system and they were using a new procurement system (which was new to the MCA and wider DfT).

3.3.1   3D Modelling tool

One key aspect of the SAR2G bidding process was the introduction of the 3D modelling tool. The model was a pass / fail model based on historical data, and the solution proposed had to pass the model in order to bid. This gave the MCA (and the bidder) confidence that the solution proposed was going to achieve what it said it would and that it would meet the requirements outlined by the MCA as bidders were not allowed to bid if they failed the simulation. One key element of this was that they did not put a limit on how many times the bidders could run the simulation and the MCA could see the metrics which were coming back from this. There was also positive industry feedback on this tool as it meant that they did not have the pressure of finding a 'one-shot' solution. This further had wider benefits for the MCA as it allowed them to get more refined solutions.

Not all interviewees, however, were fully convinced by the 3D model, and its use within the SAR2G procurement. This partly stems from a lack of confidence in understanding its aims and the changes which were made throughout its development. For example, one interviewee noted that it started out as very ambitious, but it was pared back throughout the process and the end result was not in line with the initial intention.

Finally, the potential change in the response times on the Sumburgh base, which is under review, some suggest the 3D model to be responsible for. The point about the increased response times was raised after the contract negotiation and interviewees noted that it had not been spotted until this time. Although work is being done now to evaluate and assess the readiness states in SAR2G, it could be seen as a lesson learned for using this tool (or something similar), in that if there are aspects of the service that the MCA does not wish to change, to not allow bidders to alter them in the tool. Moreover, this further suggests that the reliance and confidence that the tool

gave the MCA should not have been as strong, as further checks on the solution may have been conducted sooner, and this issue could have been resolved during the negotiation phase, as opposed to potential amendments post-signature contract.

3.4 Bid appraisal and negotiation process

There was agreement across interviewees that the right bidder won the SAR2G bid as it was the best technical solution for the lowest price and BHL were the forerunner in terms of the quality of service offered.

There were a sufficient number of bidders for SAR2G, there was a selection questionnaire which assessed previous experience and historical finance and performance which was used to shortlist bidders. Following this process, four bidders remained, all of which the MCA had confidence would be able to deliver the contract. Some of those who were not selected formed consortiums to continue the process, and this was something which was anticipated and encouraged. It was noted that more bidders than anticipated dropped out before the ITT phase so there were fewer bidders than at previous stages, however there are several different reasons this could have happened given the size of the contract. In general, bidders dropped out throughout the process for various reasons including the long-term impact of COVID-19.

3.4.1 Contractual terms and negotiations

There were two bidders which made it to the end of the process, compared to three in SARH. There was very little between the two bidders who made it to the final stage, and the MCA reported that they did make it clear that the second bidder was able to close the gap and could thus win the contract, however they dropped out towards end.

The MCA noted that they went into the negotiations well prepared. During the negotiation process, bidders were asked for questions in advance and negotiation points were pre-agreed. This allowed for efficiency in that when entering conversations and negotiations with the supplier, the MCA knew what questions would be asked and had a prepared response. This development stemmed from the lesson learned from the SARH procurement where there were inefficiencies in the negotiation conversations (see Section 2.1.3). The contractual terms were viewed as robust and the MCA had a lot of training from the legal support around negotiation which was noted to be a process which worked really well.

There were some challenges, mostly around a lack of clarity in answers and difficulty in understanding the heart of the solution. The one major challenge which was highlighted was around one bidder who raised aspects they thought were unfair. This was around how clarification questions were asked. As there was so much to evaluate and often the bidder had attached the wrong attachment across different sections, the MCA could not keep asking for clarifications as it would have given the opportunity to re-write answers which would have been unfair to the other bidders.

In terms of the final contractual terms, there is an ongoing issue and concern around the readiness state on the island bases, which is a highly politicised issue, however, it was noted that it was difficult to see what the team could

have done differently. Additionally, there is an option for this to be amended at a later date, with BHL agreeing to amend the readiness state for an increased fee.

One downside of the SAR2G process highlighted by the supplier is that there are some requirements which are almost impossible to deliver. This was explained to the MCA during the negotiation phase, however, on this side hands were tied by government processes and technical requirements were unable to be changed as it could imply favouring one bidder over another. Although this is positive in terms of the fairness of the negotiations, especially between incumbent and new bidders, it has resulted in a contract where some elements are not possible. For example, there is a requirement on counter pollution for the service to sample emissions from ships to see if they are omitting certain gasses at certain levels throughout the entire exclusive economic zone (EEZ) which is 'technically impossible', according to the supplier.

Moreover, this consequence in terms of the requirements may stem from a need for wider research and market engagement when drafting the requirements. It was highlighted (in Section 3.2.2) that the requirement refinement process could have been helped from increased contributions from wider MCA staff, and here the example shows a potential need to have had further conversations with more technical members of staff to ensure that all the requirements are achievable.

3.4.2 Cost on bidders

The procurement process was reported to be a very expensive process for all those involved, and sometimes this could be viewed as prohibitively expensive, but this was more to do with the time it can take to complete a government tender and is therefore outside of the MCA's control. It is not cheap to go through a government tender and can cost between six and seven million pounds to go the whole way through. Organisations have to maintain bid teams throughout the process which can be very expensive. For SAR2G, the incumbent bidder was reportedly very motivated to win the contract which was beneficial for the overall process.

3.5 Transition and mobilisation plans

The current contract was extended to allow for sufficient time to procure and transition to the new contract. This was seen to work well as it was essential to ensure there was a fair competition for SAR2G, with no bias to the incumbent. The transition to SAR2G is spread over two years (October 2024 – January 2027)[37], rolling out one base at a time. It was vital for the approach to be established so that the transition would occur in the same way regardless of whether the incumbent supplier won the SAR2G contract.

Market research played a part in the transition plan to SAR2G, as it was reported to the MCA that 18 months would be needed for the transition, with the MCA opting to increase this to 24 months, allowing for greater contingency. Moreover, there is seen as less risk with this transition,

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[37] Excluding seasonal bases; Bristow Search and Rescue, Annex 6 Transition and Acceptance plan

compared to the transition to SARH, as there is an incumbent supplier and there are only six new airframes (as opposed to 11 with SARH).

There is a transition and acceptance group working with the supplier to establish a timeline and a structured process, without this, bases cannot go live. Within this, a contingency has been built in, in that BHL will continue to provide the service as it is now. When the base is ready to transition, there will be an official exchange of letters to make sure that the MCA are not paying twice for the service.

3.5.1 Risks

For each requirement, a working group conducted impact assessments in terms of complexity of any changes which will occur with the service, and they are going through and updating policy and its draft.

The main concern which was raised around the transition to the SAR2G service was around the use of the OneLink system which is proposed. The MCA have been given a rough prototype of this which was not complete (at the time of this research in May 2024), and the version that they were given arrived late (due at the end of 2023, interviewees indicated that they saw this first version in Spring 2024). One of the key benefits to this system was intended to be electronic tasking for the whole mission, however the MCA (specifically the ARCC) will have to have a clear idea on how this will work in advance. Although this should not create any big operational challenges as the team can continue tasking how they are now, it is something which is at risk for the transition to the new service. Additionally, the fact that the MCA have not seen a finalised version of this tool means that no policies or procedures around it have been written / shared internally. Also, there has been no checks from the MCA side that it does what the supplier has said that it will.

With regards to the issues on the response times for the Scottish Island bases, it is thought that there is enough time to enact a proposed solution before the specific bases in question transition. Such bases are not due to transition to the new service until 2026 and there is a possibility for the supplier to adjust the response times prior to the base transition. This should allow for enough time for the MCA to evaluate current demand and negotiate with government, if necessary, around any potential changes to the contract. It was not possible to mitigate this earlier as it was identified once the negotiation phase of the procurement was over.

There is a risk with the ongoing supply-chain issues seen in the current contracts, that this could have a lasting impact and run into the SAR2G contract.

Finally, it was noted that stakeholder engagement post-contract award could have been improved, although lines of communication were never closed, it is an area where communications dipped. There have been some issues with stakeholders following the contract award, primarily around the changes of response times at certain bases and different aircrafts and KPIs being used, however, until decisions are made and finalised then there is not much more information worth sharing from the MCA's point of view.

4 Conclusions and next steps

4.1 Conclusions

The MCA, through the SARH and ASV contracts, provides a 24-hour SAR emergency coordination and response service for the UK. SAR2G will replace the two current contracts and will be phased into transition between 2024 and 2026. This paper has presented the baseline of the current service, focussing on the years 2018-2022. It can be used as a point of comparison, prior to the launch of the new service.

The UK SAR service is reliable and effective, providing benefits beyond its core purpose. Initially, SARH aimed to maintain service levels post-transition and adapted over time with the Caesar amendment and ASV contract enhancing the search element of SAR. Market engagement during the procurement of SARH was efficient and training facilitated a smooth transition with strong relationships.

Overall, the service is reliable with effective collaboration. The contract management and monitoring systems are effective in the current service, although improvements have been identified. Technological developments, especially towards the end of the baseline period, showed promise for improving SAR efficiency moving forward. Internationally, the UK is highly regarded in terms of SAR.

Early process findings for the future SAR2G evaluation showed that there was industry engagement which was key and successful for the future service, and that lessons learned from the ASV contract were incorporated into the procurement process. The use of a 3D modelling tool was possible due to increased availability of data (compared to the previous service). This tool was viewed as positive by many, however areas for improvement were identified. Some risks in terms of the transition and mobilisation to the new contract were identified, alongside mitigation measures being taken to ensure a smooth transition to the new service.

4.2 Next steps

The MCA has committed to a comprehensive evaluation of SAR2G to be delivered through three phases, as outlined in Section 1.1.1. With the production of this baseline paper, Phase 1 is complete with the production of a monitoring and evaluation framework and associated baseline study. The following two phases will see the delivery of the process evaluation (Phase 2) and the delivery of impact and economic evaluations (Phase 3).

Table 4.1 below summarises the proposed plan from the M&E framework in terms of the timeline and focus of each evaluation.

Table 4.1   Future evaluation timeline

Evaluation type	Timeline	Timeline justification	Focus of the evaluation
Interim process evaluation	1st year of programme delivery	Avoid potential recall issues regarding early	Problem analysis, procurement,

Evaluation type	Timeline	Timeline justification	Focus of the evaluation
		stages of the implementation process and ensure that early learnings are fed into continuous improvement efforts	programme set up
Final process evaluation	5th or 6th year of programme delivery	Enable learnings from the later stages of the process to be used to improve the service and allow for sufficient time to gather information on the say-to-day operation of the service	Programme delivery
Interim impact evaluation	5th year of programme delivery	Allow for identification of early findings regarding the programmes outputs and outcomes to feed into service improvement	Testing the elements of the programme theory relating to how inputs and activities lead to the realisation of outputs and short-term outcomes
Final impact evaluation	9th year of programme delivery	Allow for data to have been gathered throughout the lifetime of the contract	Relating how inputs and activities lead to the realisation of outputs and outcomes, including an interrupted time series if appropriate
Interim economic evaluation	5th year of programme delivery	Minimise the burden of data collection efforts in the final economic evaluation and allow for potential exploration of more complex	Generating early evidence on costs and benefits generated by SAR2G and identifying any significant cost and benefit drivers to feed

Evaluation type	Timeline	Timeline justification	Focus of the evaluation
		benefit quantification	into continuous improvement efforts
Final economic evaluation	9th year of programme delivery	Should be conducted in parallel with, or immediately following, the impact evaluation to draw on early evidence gathered where possible	A full cost-benefit analysis, including richer findings from monitoring indicators and interviews conducted

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Annex 1   Detailed research methods per baseline indicator

Evaluation question	Baseline metric / monitoring indicator	(Updated) data collection method and source	Analytical method and output	Updates since the baseline method paper
PEQ1 How did lessons learned about the UKSARH and ASV feed into the development of SAR2G? What lessons were learned from the research and market/user engagement activities conducted and how were these integrated into SAR2G?	1) Number and quality of research / service evaluation papers drawn upon when designing UKSARH/ASV and developing its requirements 2) (Early Process Evaluation) Perceptions of the extent to which research regarding service demand, lessons learned from the UKSARH and ASV contracts and user needs fed into the design and development of SAR2G	1) Interviews – MCA/DfT design staff 2) Interviews – MCA/DfT design, management and monitoring staff	Qualitative analysis of the extent to which research regarding demand for UKSARH/ASV, user needs, and learnings from its predecessor programme was conducted, and fed into the development of the service design requirements	Indicators removed: ■ Number of FTE staff dedicated to gathering user needs when developing UKSARH/ASV ■ Number of FTE staff dedicated to developing demand analysis/modelling when developing UKSARH/ASV ■ Number of consultations conducted regarding the UKSARH/ASV design, and qualitative breadth of responses No changes to analytical method and output

| PEQ2. To what extent was the procurement process for SAR2G effective in generating a sufficient number of high-quality bids? How did the changes made relative to UKSARH and ASV affect the number and quality of bids received? | 1) Perceived efficiency / cost of the bid structure and overall procurement process

2) Perceived clarity and sufficiency of information provided to suppliers bidding for UKSARH/ASV (Early Process Evaluation: and for SAR2G, including the demand modelling tool)

3) Perceived quality of the UKSARH and ASV bids received, versus the overall costs of development and delivery of the bidding process by contract (Early Process Evaluation: incl. for SAR2G) | 1) Interviews – MCA, Bristow, 2Excel management and contractual staff

2) Interviews – Bristow, 2Excel, management and contractual staff

3) Interviews – MCA management and contractual staff | Qualitative assessment of the effectiveness and efficiency of the UKSARH and ASV procurement processes, considering key drivers of efficiency/ inefficiencies

Qualitative assessment of the overall competitiveness of the bidding process, considering the quality, variety and cost-effectiveness of bids received and the extent to which suppliers were enabled and encouraged to bid (incl. through the provision of adequate information), by contract | Indicators removed:

■ Estimated cost of development and delivery of the bidding process within the MCA/HMG, by contract (UKSARH/ASV) (Early Process Evaluation: incl. for SAR2G
■ Total number and type of bids received for UKSARH and ASV, by contract

Analytical method and outputs unavailable:

■ Cost of the bid management process, by contract
■ Number of bids received overall against the number of competitive/high-quality bids received, by contract |

| PEQ3. To what extent did the bid appraisal and negotiation process enable the MCA to select the most appropriate supplier? How could this process have been improved? | 1) Perceptions of the appropriateness of the selected offer relative to others available, by contract (Early Process Evaluation: incl. for SAR2G)

2) Perceived fairness of negotiations, by contract (Early Process Evaluation: incl. for SAR2G)

3) Perceived fairness of contractual terms agreed upon, by contract (Early Process Evaluation: incl. for SAR2G) | 1) Interviews – MCA management and contractual staff

2) Interviews – MCA, Bristow, 2Excel management and contractual staff

3) Interviews – MCA, Bristow, 2Excel management and contractual staff | Qualitative assessment of the extent to which the most appropriate bid was selected (in terms of cost and quality of offer), by contract, considering factors affecting this (e.g., fairness of contractual requirements, information provided to suppliers)

Qualitative analysis of the fairness, effectiveness and transparency of the negotiation process and the extent to which this led to fair and agreeable contractual terms | Indicators removed:

■ Cost and quality ranking of the UKSARH/ASV supplier offers, by bidding organisation and contract (Early Process Evaluation: incl. for SAR2G)

No changes to analytical method and output |

| PEQ5. To what extent was the SAR2G programme delivered as anticipated? (i.e., were sufficient resources made available to respond to all relevant incidents?) How, if at all, did the changes made to the contract and contract management processes affect delivery? | 1) Number of tasks declined, and reasons why, per year

2) Perceptions of the extent to which sufficient resources were made available to respond to all relevant incidents

3) Quality of monitoring / information management systems implemented, by owner and contract

4) Quality of monitoring/evaluation / continuous improvement activities conducted

5) Perceptions of the effectiveness of contract management (incl. supplier accountability and transparency), by contract/supplier

6) Perceptions of the extent to which the programme overall was delivered as expected | 1) Duplicated – ARCC database

2) Interviews – MCA, Bristow, 2Excel, ARCC operational and monitoring staff

3) Interviews – MCA, Bristow, 2Excel operational and monitoring staff

4) Interviews – MCA operational and management staff

5) Interviews – MCA, Bristow, 2Excel, ARCC operational and monitoring staff

6) Interviews – MCA, Bristow, 2Excel, ARCC operational, monitoring and management staff | Number of relevant incidents that the service was unable to respond to for reasons of lack of sufficient resources
Qualitative assessment of the quality of the documentation and management of resource requirements and insufficiency (where relevant)

Qualitative assessment of the sufficiency of resources for adequate service operation, considering factors that affected this (e.g., lack of specific resources, lack of collaboration), and changes over time

Number of monitoring / information management systems mapped to the number of evaluation/ continuous improvement activities conducted
Qualitative analysis of perceived supplier accountability and transparency | No changes to indicators on analytical method and outputs |

			Qualitative analysis of the effectiveness of contract management, including the extent to which monitoring/ information management systems were effectively implemented to conduct continuous monitoring and service improvement activities considering changes over time Qualitative assessment of the extent to which the service was delivered as expected, and to what extent service changes were/ were not effectively operationalised, considering whether external/contextual factors affected programme activities/delivery	

PEQ6. Which elements of programme delivery worked well or less well, and why? What are the key learnings from the delivery methods employed?	Perceptions of the barriers and enablers to effective programme delivery, by contract	Interviews – MCA, Bristow, 2Excel operational staff	Qualitative analysis on barriers and enables to the effective delivery of the SARH and ASV programmes, considering factors that affected this	No changes to indicators on analytical method and outputs

| IEQ1. How, if at all, did the service's ability to achieve key SAR, surveillance, and reconnaissance outcomes (and other outcomes as relevant) change, relative to the UKSARH/ ASV contract? | 1) Number and proportion of incidents per base, and month where the asset capacity was insufficient

2) Number and proportion of taskings received and responded to per month, base, service user and response type (accepted/declined)

3) Number (and proportion) of accepted missions completed per month, base, type of task (incl. planned/unplanned), service user

4) Number of casualties rescued, assisted and recovered per base, month, task type

5) Perception of number and value of penalties for not meeting KPI requirements, by month and KPI number

6) Perceived quality and reliability of the service (in terms of receiving and responding to tasks, | 1) ARCC database

2) ARCC database

3)ARCC database

4) ARCC database

5) Interviews – MCA, Bristow and 2Excel management staff

6) Interviews – MCA operational, monitoring and management staff | Qualitative analysis of the service's ability to make required assets available (and factors affecting this), any redundancies, and changes in service availability over time/ season, by type of asset and bases

Number of taskings received mapped against the number (and proportion) of taskings responded to and the number of missions accepted/ completed/ declined (and reasons for any declined missions e.g., FTL limitations, staff shortage etc.)
Number of tasks accepted/ declined against KPI 2 system cover targets (ability to accept tasks 24/7)

Qualitative analysis of demand for the service and its ability to meet demand/ system coverage by accepting tasks (and factors affecting this), | Indicators removed:

▪ Number and type of assets at each base, by coverage area and year
▪ Number and type of assets available to respond to incidents per base, coverage area and month
▪ Number of base outages (times in which bases were unavailable and / or redundancy bases were used) per year and per base
▪ Proportion of missions that accurately identify relevant targets per base, month, task type (incl. planned/ unplanned), asset type, and service user
▪ Average time taken to deploy the asset (released time) for accepted tasks, per base, month, task |

			considering changes over time/ season, bases, by type of task and service user	type (incl. planned/ unplanned), asset type, and service user
availability of assets to respond to incidents, proportion of incidents where asset capacity was insufficient, proportion that accurately identify relevant targets etc.)			Number (and proportion) of accepted missions completed, mapped against task completion KPI 3 targets (95) and times these were not met (and where relevant, why tasks were not completed) Number of casualties rescued, recovered and assisted mapped against the number of relevant tasks received, by task type (i.e., assessment of alignment of number of casualties rescued/recovered/assisted where this was the task requirement/expectation) Qualitative assessment of the service's ability to meet demand by completing tasks effectively/ as required (and factors affecting this), considering changes over time/ season, base, type of task	Analytical method and outputs removed: ■ Number and type of assets at each base and their coverage area in the UKSARR, mapped against any areas of overlap ■ Number of those assets that are available to respond to incidents mapped against availability targets (97%), KPI 4 national coverage targets (100%, 24/7) and times that: targets were not met, base outages occurred and proportion of times where availability was insufficient to respond to an incident (and why)

			(including planned/ unplanned tasks), service user	

| IEQ2. How, if at all, has improved collaboration with other stakeholders/services users through the delivery of a System approach/ 360-degree partnership model, affected the extent to which service allocation is effects-based and why (e.g. is this related to improved communication, understanding of SAR etc.)? | 1) Perceptions of the efficiency of the handover processes, per contract

2) Perceptions on the number of missions that made use of secondary landing sites, by month, aircraft, incident

3) Perceptions on the training conducted, its efficiency and how it changed over time

4) Number of missions received, accepted/declined and completed on behalf of other services/ external stakeholders, by month, base, task and stakeholder type

5) Average time taken to alert, take-off and be airborne by month, base, task and stakeholder type

6) Perceptions of collaboration with other services/ external stakeholders including the extent to which joint: training, planning/relationship development, and missions are conducted and the | 1) Interviews – MCA, Bristow and 2Excel operational, monitoring and management staff

2) Interviews – MCA operational staff

3) Interviews – MCA, Bristow, 2Excel operational and management staff

4) ARCC database

5) ARCC database

6) Interviews – MCA, Bristow, 2Excel operational and management staff. Additional interviews with external stakeholders RNLI, mountain rescue, police? | Number of missions handed over to emergency service providers per month
Number of missions that made use of secondary landing sites
Number of missions handed over to emergency services mapped against total missions completed

Qualitative analysis of the extent, effectiveness and efficiency of coordination with emergency services (and factors affecting this), considering changes over time, base, type of task, aircraft and provider

Number of activities per year mapped against stakeholder type

Qualitative analysis of the extent to which activities affected understanding of SAR2G, integration and coordination, considering changes over time and by type of activity and stakeholder | Indicators removed:

■ Average time taken for handover to other emergency service providers across bases and per month, type of provider, aircraft, incident
■ Training hours delivered with other stakeholders, per year and stakeholder type (e.g. RNLI, NPAS etc). training type
■ Number of joint planning, coordination or relationship development activities conducted per year and by type of activity, stakeholder
■ Number of missions where a person or persons have been handed over to other emergency service providers across |

| | quality/success of these interactions (e.g., time taken for handover to other emergency services) | | Number of missions received, accepted, allocated and completed and average time taken to accept tasks mapped against the number completed and average times taken for other services / external stakeholders

Number of missions on behalf of other services that were declined, and why

Qualitative assessments, considering changes over time and by base, task and stakeholder type, of:
■ The routes through which tasks are requested by external stakeholders
■ The service's ability to meet demand from other services/ stakeholders whilst still prioritising SAR, surveillance and reconnaissance activities / allocating assets in an effects-based manner | bases and per month, type of provider, aircraft, incident type

Analytical methods and outputs removed:
■ Training hours delivered per year mapped against stakeholder type
■ Qualitative analysis of the extent to which training affected understanding of SAR2G, integration and coordination, considering changes over time and by stakeholder and training type |

			The effectiveness of decision-making and coordination with other services (and factors affecting this, including the level of understanding of and integration with the service)	
			Qualitative assessment of the quality of communication/ collaborative relationships between the MCA, HMCG and SAR2G contractors with relevant stakeholders, and the degree of understanding, integration, coordination amongst them (and factors affecting this), considering changes over time and by stakeholder type	

| IEQ3. To what extent was SAR2G a smarter, more tailored, flexible and fit-for-purpose service? How did this affect the effectiveness and efficiency of the service? | 1) Number of casualties assisted per mission

2) Perceptions of the extent to which the service is tailored, flexible and fit for purpose including views on issues with resource use/waste e.g., asset recoverability time, availability of redundancy assets/bases vs no. times they are drawn upon, no/type of assets available vs no. /type/size needed; FTL / FRM restrictions

3) Number of missions declined by year, base, asset type, mission type and service user

4) Perception on the number of incidents in which aircraft / technology capacity was insufficient

5) Definitions of innovation within the contract (how was innovation conducted, what defined success in terms of innovation) | 1) ARCC database

2) Interviews – MCA, Bristow, 2Excel, ARCC operational and management staff

3) ARCC database

4) ARCC database

5) Interviews – MCA, Bristow, 2Excel operational, monitoring and management staff

6) Publicly available data

7) Interviews – MCA, Bristow, 2Excel operational, monitoring and management staff | Average time taken to receive, accept, allocate and complete tasks / searches (locating a target) mapped against the number of tasks received, accepted and completed over time.

Qualitative assessment of the effectiveness/ efficiency of decision-making / mission coordination (and factors affecting this, including e.g., mission management approach/ tooling used) considering changes over time/season, across bases and by type of task

Proportion of time in which aviation assets were utilised, mapped against the number of assets (and separately, bases) per accepted mission that would have been able to effectively (without disadvantage to the mission) respond to an accepted task | Indicators removed:

■ Number of redundancy assets/bases available per accepted mission, by month, asset type, task type

■ Number of times in which redundancy assets/ bases were drawn upon, by month, task type and asset type

■ Average time taken for the asset to recover between incidents, by year, asset and mission type

■ Number of times in which recommended FTL (flight time limits) / FRM (fatigue risk management) levels were approached and exceeded, by year and base

■ Average time taken to alert, take-off, be |

			Number of redundancy assets (and separately, bases) available per accepted mission mapped against the number of times a redundancy asset (or base) was drawn upon Number and type of assets available per base, mapped against the type of asset used per base and accepted mission (to determine if the best asset was used) Number of casualties assisted per mission mapped to the capacity of each assisting asset to determine excess capacity/size of asset and its fuel usage Qualitative assessment of resource use and/or wastage, and the extent to which the service is tailored, flexible and 'fit for purpose' in terms of the assets available (and factors affecting this), considering changes over	airborne and complete tasks by month, base, task type ■ Time taken to locate a target i.e. from the start of the search to being on scene ■ Number of innovation projects proposed, supported and completed by year and project outcome ■ Number of times a base responded to a task outside of its region, by year and base Analytical methods and outputs removed: ■ Number of times in which FTL/FRM limits were approached and/or exceeded mapped against the number of missions accepted
	6) Perceptions of the extent to which the service implemented continuous innovation			

			time, by task type and asset type	
			Number of accepted missions mapped against the number of these that were declined, and reasons for mission decline (incl. asset recoverability conflict, insufficient capacity, FLM risk)	
			Qualitative assessment of the resilience of the service (and factors affecting this), considering the extent of resource wastage and changes over time and base, by asset type, mission type and service user	
			Number of innovation projects proposed, against the number completed and the outcome of each project (e.g., innovation implemented etc.)	
			Qualitative assessment of the level of innovation within the service, and the extent to which contractors were committed to	

			continuously improving the service through innovation	

| IEQ4. To what extent did SAR2G achieve, or is likely to achieve, longer term outcomes and impacts set out in the ToC? How did this change relative to the UKSARH/ASV? IEQ5. To what extent did SAR2G achieve its intended outcomes and/or impacts, as set out in the Theory of Change? To what extent are these outcomes attributable to SAR2G specifically rather than any external/contextual factors? | 1) Level of public awareness of maritime risk, by year

2) Number of public safety information events/ activities delivered, by year

3) Perceptions of UK 'soft power' (i.e., perceived adherence to international norms/ requirements/ standards), by year

4) Perceptions of the skills gap for UKSARH/ ASV delivery staff

5) Perception of the robustness of succession plans (training, number of available candidates that have gone through selection)

6) Level of carbon emissions produced (net of any offsetting activities) by SAR, surveillance, reconnaissance and training activities per year, asset type and fuel type

7) Perceptions of commitment to ESG (in particular relating | 1) Interviews – MCA operational and management staff

2) Interviews – MCA, Bristow, 2Excel management staff

3) Interviews – MCA management and operational staff; Desk research – public perception indicators

4) Interviews – MCA, Bristow, 2Excel operational, monitoring and management

5) Interviews – MCA, Bristow, 2Excel operational and management staff

6) Interviews – Bristow management and monitoring staff

7) Interviews – MCA, Bristow, 2Excel operational, monitoring and management | Qualitative assessment of the overall level of public awareness of maritime risk (and factors affecting this) mapped against the number of public safety information events/activities conducted, considering changes over time

Qualitative assessment of the UK's soft power (i.e., perceived adherence to international norms/ requirements/ standards), and the extent to which UKSARH/ ASV activities affected this, over time

Qualitative assessment of the overall skills gap and risk to the service, considering training offer, level of attrition and succession planning activities, considering changes over time

Qualitative analysis of the environmental impact of the UKSARH/ASV contract delivery and overarching commitment to ESG, | Indicators removed:

■ UKSARH/ASV supplier revenue and/or profit levels, over time (where possible/available, including proportion related to UKSAR)

■ Net jobs created, by year

■ Number of subcontractors/SMEs commissioned by SAR/ASV contractors to support service delivery and base operation, by year and company size

■ Training hours delivered to UKSARH/ ASV delivery staff by type of training (synthetic, live), by year

■ Level of attrition for UKSARH/ ASV delivery staff, by year

■ Number of synthetic and live training hours delivered, and |

	to economic inequality, climate change and wellbeing)	8) Interviews – MCA, Bristow, 2Excel operational, management and monitoring	considering factors affecting this and changes over time	level of carbon emissions produced by training activities
	8) Perceived climate impact of SARH/ASV (including training, SAR, surveillance and reconnaissance activities) and which has the biggest climate impact	9) Interviews – MCA, Bristow, 2Excel, ARCC operational, management and monitoring	Qualitative analysis of the overarching performance of the UKSARH/ASV service and its ability to generate the outcomes and impacts that SAR2G was intended to achieve, considering factors affecting its performance and changes over time	■ Number of innovations developed by contractors / as part of the contract that were diffused into other businesses/sectors
	9) Perceptions of the overarching performance of the contract, aggregating all indicators relating to the outcomes and impacts set out in the ToC for SAR2G	10) iSAR		Analytical methods and outputs removed:
	10) Training hours delivered to UKSARH/ ASV delivery staff by year			■ Training hours delivered mapped to perceptions of the perceived appropriateness of succession plans (training) and skills gaps
				■ Qualitative assessment of the extent to which the UKSAH/ASV contracts enabled improved financial stability, and the extent to which this affected the overall sector

				performance/GVA over time, taking into account the number of firms the financial benefits of the contract spilled over into the sector (proxied by the number of firms and SMEs involved in delivery) and the extent to which innovation diffusion occurred
				■ Total annual emissions produced net of offsetting activities by activity type (SAR, surveillance, training), per asset and fuel type used to deliver each activity
				■ Average annual level of attrition mapped against the average annual length of time for recruitment
				■ Proportion of synthetic versus live training delivered, mapped against the

				emissions produced by each training activity ■ Level of gross value added (GVA) within the aerospace sector, by year

IEQ6. What were the main learnings regarding the programme's ability to generate outcomes and key barriers and enablers to this?	Perceptions of key learnings from the UKSARH/ASV programmes in terms of its ability to generate outcomes and key barriers/enablers to this	Interviews – MCA, Bristow, 2Excel operational, management and monitoring	Qualitative assessment of the main lessons learned throughout the current service in terms of its ability to generate outcomes, and key barriers and enablers to this, considering changes over time	
EEQ1. To what extent did SAR2G efficiently allocate public resources? What were the key barriers/enablers to this?	Perceptions of the extent to which public resources were allocated efficiently	Interviews – MCA, Bristow, 2Excel, ARCC management staff	Qualitative analysis of the extent to which resources were perceived to be allocated efficiently, and resource waste was limited, triangulated with baseline indicators tracking resource waste / efficiency, considering drivers for efficiencies/waste and changes over time	Indicators removed: ■ Total cost of the service per unit of output ■ Value for money analysis or, where feasible/ available, cost benefit analysis Analytical methods and outputs removed: ■ Analysis of baseline indicators gathered to answer EEQ2 and 3 to determine the total cost of delivery of the UKSARH/ASV contracts per unit of output/ benefit ■ Cost per benefit/output calculated, mapped to other values

				reported from previous assessments of the current service and previous/comparable services

| EEQ2. What were the total costs of delivering SAR2G? | 1) Perceptions of the number and value of penalties charged for missed KPI targets, per year

2) Assessment of value and relative importance of costs (in terms of aviation assets/ capital investments purchased/modified/upgraded, medical equipment, fuel, FTE staff, training, data management and information systems, innovation activities, operating ARCC/bases)

3) Non-quantifiable costs | 1) Interviews – MCA, Bristow and 2Excel management

2) Interviews – MCA, Bristow, 2Excel operational, management and monitoring

3) Interviews – MCA, Bristow, 2Excel operational, monitoring and management | Qualitative analysis of the overall costs of delivering the UKSARH/ASV contracts, considering any non-quantifiable/ monetizable costs, and key drivers as well as changes over time | Indicators removed:

■ Total number and cost of aviation assets (and other capital investments) purchased, modified and /or upgraded during SARH/ASV per year
■ Number and cost of onboard medical equipment/drugs per year
■ Total volume of fuel used per asset type, fuel type, fuel cost bracket and year
■ Number of FTE staff employed in the delivery of SARH/ASV per year, organisation and salary bracket
■ Average cost per training hour delivered, by training type, per year
■ Cost of the data and management information systems |

				per year, by system and owner
				■ Cost of delivery of innovation activities, per year and activity type (where possible)
				■ Cost of operating the ARCC with adequate facilities per year
				■ Cost of operating bases with adequate facilities per base and year
				■ Total annual GHG emissions produced net of offsetting activities, by activity type (SAR, surveillance, training)
				Analytical methods and outputs removed:
				■ Total capital costs of delivery of the UKSARH and ASV contracts (including purchase/upkeep of aviation assets, equipment, bases, data assets/ systems, fuel, base/

				ARCC operation, innovation activities), by cost driver and organisation (e.g., Bristow, 2Excel, ARCC, MCA etc.) ■ Total staff costs of delivery of the UKSARH and ASV contracts, by organisation (e.g., Bristow, 2Excel, ARCC, MCA etc.) ■ Total and per output (i.e., number of missions completed, casualties saved) costs to Bristow/2Excel of delivery of the UKSARH and ASV contracts, considering changes over time ■ Total and per output (i.e., number of missions completed, casualties saved) costs to HMG of delivery of the UKSARH and ASV contracts,

				considering changes over time
				▪ Total cost to society of delivery of the UKSARH/ASV service (proxied by the total monetised cost of emissions produced), considering changes over time, by activity type

| EEQ3. What were the total benefits stemming from the SAR2G contract? | 1) Assessment of value and relative importance of benefits (incl. impact of the service in terms of lives saved)

2) Non-quantifiable benefits | 1) Interviews – MCA, Bristow, 2Excel operational, monitoring and management

2) Interviews – MCA, Bristow, 2Excel operational, monitoring and management | Total annual value of all other benefits (from other baseline indicators) that are possible to monetise

Qualitative analysis of the overall benefits of delivering the UKSARH/ASV contracts, considering any non-quantifiable/ monetizable benefits, and key drivers as well as changes over time | Indicators removed:

■ Number of lives saved through the delivery of UKSARH/ASV, per year
■ Value of all other monetizable benefits (from other baseline indicators), per year

Analytical methods and outputs removed:

■ Total annual value of lives saved through the delivery of the UKSARH/ ASV, by service
■ Total and per output (number of missions completed, casualties saved) value of benefits generated by the UKSARH/ASV contracts, considering changes over time |

Annex 2 Detailed theory of change

Inputs

- Funding to MCA: core contract cost (min. £1.2-1.6bn, max. £1.7-2.4bn)
- Staff time from the MCA, DfT and affiliated organisations (e.g. HMCG, NMOC, ARCC), including for the 4 year mobilisation and transition phase, then service/contract management and liaison with external stakeholders
- Time from staff in third party organisations involved in SAR delivery/procurement (e.g. VCSE, devolved administrations, national crime agency, fisheries protection and home office, NHS, Police, island communities, Treasury)
- Insights data and research incl. past and future anticipated demand, evaluations, reviews
- Data management systems
- Inputs from contracted SAR service providers (incl. aviation assets, funding capital investment, staff time, operational bases, medical resources, fuel, data management systems)
- Time from aviation authorities (e.g. CAA) to provide regulatory approval for use of assets e.g. drones

Contextual factors

(1) Economic trends affecting aviation, oil and gas, renewable energy (incl. offshore windfarms), fisheries, the SAR operator market and supply chain (e.g. capital availability)

(2) Technology and regulatory developments (affecting ability to deliver SAR, tooling available for use)

(3) Political cycles (nationally/ locally e.g. in base constituencies) and policy priorities (incl. relating to COVID-19, migration issues, climate change, SAR region disputes)

(4) Environmental changes and responses to these nationally/ internationally (incl. affecting the weather, maritime activity e.g. journeys undertaken by cargo ships)

(5) Trends affecting demand for maritime/coastal leisure/commercial activities in the UK (incl. tourism, seasonal variation, increased size of vessels, migratory movements)

(6) Maritime/coastal safety awareness amongst public

(7) Population demographics (i.e. growing population)

(8) International regulation (incl. statutory requirements for SAR, maritime law, Brexit, migration management)

(9) The current service, including its perceived reliability/ flexibility (relative to other aviation services) and context of previous MOD management

(10) Complex SAR stakeholder environment/ systems (10k volunteers)

Activities

(11) Development of a Bristow-led system approach / 360 partnership with service providers and stakeholders, integrated with a data / info sharing platform/ system (incl. planning, tasking coordination, synergies)

(12) Staff & stakeholder training and development (incl. tactical planning, emergency healthcare, succession planning, tasking and balancing aircraft usage, synthetic training incl. centre)

(13) Core SAR, surveillance and reconnaissance i.e. fast, urgent, short-range SAR and response at short notice (lot 1); high endurance, long-range SAR (lot 2) and longer notice fixed-wing search-only support and surveillance (lot 3)

(14) SAR service operation incl. ensuring asset availability at a national level (e.g. through supply chain management) assigning tasks (ARCC) and coordination/ communication **across** bases)

(15) Other services identified and delivered, as needed/available (e.g. pollution detection, disaster response, maritime security, safety information provision, support to OGDs)

(16) Contract management: output-driven modelling, monitoring, evaluation and improvement of service (e.g. demand modelling; base model/ setup, purchase/ upgrade/ modification of the: asset base/ capabilities, KPI regimes, MIMS/monitoring systems e.g. iSAR, BeSAFE etc., monitoring of ESG commitments)

(17) Development and delivery of continuous service innovation, through set-up of COTE and an innovation strategy, incl. investments in UAS and SpaceTech

Outputs

(18) Improved / more consistent understanding of SAR, surveillance and reconnaissance service incl. priorities and requirements vs other services

(19) Increased staff /stakeholder integration/ coordination (incl. with third parties) and seamless, effective multi-agency communication/ response to incidents

(20) National/ international SAR obligations satisfied

(21) Staff trained, developed, recruited, retained (sustainably)

(22) 2,466 SAR, surveillance and reconnaissance incidents responded to on time (i.e. within the 'magic hour') and within KPI targets

(23) Appropriate SAR resources/ equipment exceed 97% availability and 100% coverage across the catchment area, efficiently coordinated across bases

(24) Other incidents responded to (pollution events, criminal acts); public safety / charitable events delivered

(25) Data on demand forecasting and relevant monitoring indicators gathered and efficiently shared

(26) Process/ technology innovation/ improvements supported, projects completed and operationalised (incl. through regulation change)

(27) Increased deployment of more targeted and diverse aircraft (e.g. smaller, lighter, more sustainable fuel, unmanned/ fixed wing) vs rotary wing, improved weather resilience

Outcomes

(28) Tensions resolved, enhanced collaboration and coordination with external stakeholders for effect-based, efficient allocations of assets

(29) Improved quality, timeliness of SAR service/ response and ability to handle rising/changing demand for SAR service

(30) Improved UK 'soft power' and enhanced overseas perceptions of UK / MCA (incl. as a leader in innovation)

(31) Pipeline of staff with appropriate skills recruited and retained (incl. through succession planning and fatigue/ FTL risk management)

(32) SAR, surveillance and reconnaissance outcomes (1899 lives saved, lives assisted, casualties detected and carried, dangerous or illegal activity identified)

(33) Increased revenue (and security) to service providers and spillovers to supply chain, incl. from commercialised/ operationalised innovation, no contract penalties, long-term contracts

(34) Other outcomes as appropriate (e.g. criminal activity prevented, public awareness raised, charitable funds gathered)

(35) 'Smarter' SAR service: efficiency/ VfM continuously improved (reduced resources used per incident, increased asset utilisation, recoverability, flexibility and resilience, reduced crew fatigue/ risk to crew), lessons learned built upon

(36) Improved contract management incl. through increased supplier accountability, improved monitoring/ evaluation, transparency

(37) Cost and operational efficiencies gained (incl. through a single contract, improved tooling, reduced fuel waste, management /monitoring time etc.) (cost saving of £673m vs Lot 4 affordability cap)

Impacts

(38) Reduced risks to life (incl. staff)

(39) Robust succession plans developed and implemented, skill gaps addressed

(40) Improved social outcomes (incl. criminal activity averted, pollution reduced, increased understanding of maritime risk)

(41) Public resources (esp. aviation assets) efficiently allocated (incl. through operational synergies, reduced inefficiency (incl. from political outfall), time saved from other government aviation providers and improved MCA ability to allocate resources to other priorities e.g. skills, regulatory work, decarbonisation of shipping

(42) Improved resilience of the UK aviation/ maritime sector, including recovery from the pandemic

(43) UK economic growth / recovery from the Covid-19 pandemic enabled (increased GDP/GVA, including from commercialisation of innovations developed, spillovers across sectors, SME support)

(44) Progress towards net-zero incl. through reduced environmental impact from marine/ aviation activity

Objectives:

The MCA aims to bring together the UKSARH and ASV services and build on lessons learnt from these, improving the service's ability to deliver outcomes and save lives more cost effectively by enabling improvements such as the increased use of data/modelling, collaboration with other service users and innovations in technology (i.e. reducing reliance on rotary wings) and the SAR operator market. In doing so, it would develop a more tailored, flexible and fit-for-purpose SAR solution based on improved understanding of demand, moving away from the prescriptive, military-style service of the current contract to a more outcome-based, market-led, efficient and high-quality service for SAR and for third parties, whilst driving innovations.

Rationale:

The context within which SAR services are being delivered will continue to change, with demand for services increasing. The delivery of the 'first generation' civilianised SAR service highlighted several opportunities for improvement, including around the integration among, and coordination between, the complex set of stakeholders delivering the service, data access/sharing and succession planning.
The current SAR service model is effective and reliable, however, it was not 'smart' or data-driven. The MCA now have access to detailed past and forecast future demand for SAR service in terms of volume and type of incident that enables improved understanding of the service and requirements.

Assumptions:

ToC model element	Assumption
Inputs	• Treasury will agree that SAR2G is a worthwhile investment in its current intended form, and changes in political appetite for SAR (incl. related to devolution) will not significantly affect the service • There are no significant delays in supply chain/provision of specific aircraft required for the provision of SAR • Required skills to deliver SAR will remain available throughout the contract despite the ageing demographic of SAR providers
Activities	• The MCA are able to support an effective procurement process (i.e. without legal challenge), transition to, and management of the new service, including transition to MCA management from DfT • The lot structure (and division of responsibilities) will not create significant integration risks that will impact the service • Contract variations will be developed where appropriate throughout the lifetime of SAR2G to enable the service to take on new requirements from other government departments • Third parties are willing to participate in agreements stating that the coastguard will be the sole tasking authority and that SAR services and training flights will take priority over external taskings • Structural changes within third party organisations that demand SAR aviation assets/services (e.g. NHS) will not significantly alter the volume/way in which services are demanded (e.g. reduced responses from air ambulances, changing structure of NHS towards specialised centres) • Modifications to key elements of the service (e.g., assets and/or bases) were based on the 3D model and tailored to demand
Outputs, Outcomes and Impacts	• Regulatory changes (both nationally and internationally) will be achieved to enable continuous innovations (e.g. out of line of site use of drones) • Reputational risks around innovation activities are not significant/materialised • Relationships with other aviation providers within government (e.g. NPAS) remain productive, and any tensions are discussed and resolved
Other/contextual	• Other MCA procurement projects are completed on time and successfully • The fact that other countries are currently renewing their SAR contracts will not create issues / delays in aircraft lead times • The complexity of the SAR stakeholder community and occasional challenges from stakeholders does not significantly impact activities • No significant change and/or inaccuracies in forecast demand for SAR services (e.g. due to significant events or less 'static' demand environment) • The aerospace industry and manufacturing supply chain will recover from the impact of the pandemic/Brexit/ decreasing capital value of helicopters sufficiently to enable SAR providers to meet their obligations without significant impact on the competitive environment in which this is done (e.g. financial stability of the industry/providers)

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Annex 3   Monitoring framework

Indicator no.	Indicator	Definition
Input 1	**Programme funding**	**Service spend/funding required for SAR2G**
Input 2	**Staff time**	**Number/ type of staff by location and organisation**
Input 3	**Cost of operating the tasking authority (ARCC)**	**Cost (in addition to contract costs) of operating the tasking authority (e.g. ARCC) for all supplier bases and aircraft**
Input 4	**Number/ cost of data management systems**	**Number of systems and/or cost of operating required Tasking Authority Incident Management System and supplier Data Management Systems; to collect, store, process and disseminate incident information in adherence of data privacy and protection legislation**
Input 5	**Number/cost of aviation assets**	**Number, type, capability, and cost of aviation assets commissioned**
Input 6	Number/cost of equipment	Amount/cost of onboard medical equipment and drugs for administration to casualty by on-scene paramedic
Input 7	**Cost of fuel**	**Cost of aviation turbine fuel to power the aviation assets.**
Input 8	**Number/cost of bases**	**Number/cost of aircraft hangars to house the aircraft, facilities for crew basing and aircraft take-off**
Input 9	Capital investments	Value of capital investments to the supplier in addition to MCA funding
Input 10	**Number/cost of training**	**Value of training exercises completed by staff, by type of training**
Input 11	Number/cost of safety information events/activities	Number of air shows or safety information activities delivered, by type and location

Input 12	**Number/value of innovation grants awarded/ solutions applied**	**Number and value of innovation grants/solutions awarded/applied by the MCA, by innovation type and outcome of the project**
Activities and Outputs 1	**Number and types of assets available for use**	**Number and type (e.g., rotary, fixed wing) of assets procured and available for use per base**
Activities and Outputs 2	**Number of taskings received**	**Number of taskings received by type, user (incl. OGDs, MCA, NPAS etc.) and location**
Activities and Outputs 3	**Number and outcome of missions**	**Number of missions completed and the outcome of these by type of incident/priority level (incl. planned/unplanned, SAR/surveillance/criminal prevention/pollution etc.), type of aircraft, user/tasking provider, location, conditions, time of day, number of individuals requiring assistance**
Activities and Outputs 4	**Availability of aircrafts**	**Proportion of time/hours in which aircraft are available for tasking i.e., 'system cover' and 'national cover'**
Activities and Outputs 5	Time taken for mission coordination	Time taken from call receipt for mission requests to be coordinated and allocated across bases by incident type, time of day and request owner
Activities and Outputs 6	**Time taken to deploy the asset**	**Time taken to deploy aircrafts, or 'take off time' i.e., time taken for wheels to lift off the ground by time of day, location, condition**
Activities and Outputs 7	Time taken to reach the search box	Time taken for assets to reach the search box co-ordinates provided by the tasking provider, (by time of day, location, distance from the base, condition, type of aircraft, type of incident/ priority level, user/tasking provider)

Activities and Outputs 8	Time taken to locate a target	Quality of search, or time taken for assets to send the 'on scene/starting search' notification and then the notification of when target is found, by time of day, location, condition, type of aircraft, type of incident/ priority level, user/tasking provider, whether beacon signals were used, whether a rescue was possible
Activities and Outputs 9	Time taken within the search box	Time taken to complete the required task (e.g., search, rescue, recover, deliver to a place of safety) by time of day, location, condition, type of aircraft, type of incident/ priority level, user/tasking provider
Activities and Outputs 10	Time taken for handover to other services	Time taken for SAR2G providers to transfer/hand over/deliver patients to appropriate emergency service provider by type of provider, type of incident, type of aircraft, location, condition
Activities and Outputs 11	**Number of missions handed over to other services**	**Number of missions transferred/delivered to appropriate emergency service providers, by mission type, stage of transfer, type of provider, type of incident and outcome of transfer (e.g., appropriate)**
Activities and Outputs 12	Training hours delivered	Number of (staff and helicopter) hours spent on training/training flights, by type of training and stakeholder
Activities and Outputs 13	Recruitment	Number of staff members recruited, and level of attrition
Activities and Outputs 14	**Number of incidents in which aircraft capacity was insufficient**	**Number of incidents in which the aircraft capacity was insufficient to assist all individuals that required assistance, by type of aircraft, base, type of incident/priority level, location, condition, user/tasking provider**

Activities and Outputs 15	Number of innovation projects completed	Number of innovation projects supported, by project owner and innovation type/TRL level (including regulatory aspects of innovation operationalisation) and outcome (e.g., completed, failed etc.)
Activities and Outputs 16	**Number of relationship development activities conducted**	**Number of joint planning/coordination/relationship development activities conducted/delivered by stakeholder type and activity type**
Outcomes and Impacts 1	**Number of casualties rescued**	**Number of live casualties rescued through SAR2G missions overall**
Outcomes and Impacts 2	**Number of casualties recovered**	**Number of dead casualties recovered through SAR2G missions**
Outcomes and Impacts 3	**Number of casualties assisted**	**Number of casualties not conveyed but identified and assisted through SAR2G missions**
Outcomes and Impacts 4	Probability of detection	Proportion of missions that accurately detect/identify relevant incidents, by incident type and type of system used for detection
Outcomes and Impacts 5	**Emissions produced by SAR2G**	**Level of carbon emissions produced by the operation of the SAR2G service (net of any offsetting activities)**
Outcomes and Impacts 6	Reliability of the service	Proportion of taskings in which deployment/availability targets are met i.e., an aggregation of operational KPIs

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Outcomes and Impacts 7	Number and value of penalties	Number and value of standard charges/deductions applied to suppliers for KPIs missed
Outcomes and Impacts 8	**Cost effectiveness**	**Cost per mission and/or life saved/recovered/assisted (by service type, incident type and aircraft type)**
Outcomes and Impacts 9	Number of missions avoided by third parties	Number of missions/incidents completed by SAR2G providers on the behalf of other services (by service type, incident type)
Outcomes and Impacts 10	**Cost savings**	**Value of cost savings (per mission and overall) generated by the overall contract (relative to UKSARH and ASV and target saving for SAR2G) by mission type**
Outcomes and Impacts 11	**Asset utilisation**	**Proportion of time in which aviation assets are utilised, by asset type**
Outcomes and Impacts 12	Level of risk to crew	FRM (fatigue risk management) threshold and proportion of times this is above appetite and/or number of breaches of flight time limits (and reasons for these)
Outcomes and Impacts 13	Recoverability time	Time taken of assets to recover between incidents (e.g., refuel/restock), and changes in this over time
Outcomes and Impacts 14	Number of crime / pollution taskings conducted	Number of crime / pollution taskings accepted by SAR2G assets (by type of activity incl. pollution activities)

Outcomes and Impacts 15	Level of public awareness of risk	Indicators of public perceptions of maritime/other risks and changes over time
Outcomes and Impacts 16	Public perceptions of the UK	Indicators of public perceptions of UK 'soft power' and changes over time
Outcomes and Impacts 17	Financial stability	SAR2G supplier revenue and/or profit levels and/or number of contracts secured, and changes over time
Outcomes and Impacts 18	Supply chain engagement	Number of supply chain providers engaged in/benefitting from SAR2G, by size, location, and value of project
Outcomes and Impacts 19	Staff retention	Level of staff turnover within the SAR2G supplier and/or robustness of succession plans (in terms of number of candidates available that have gone through selection, against targets)
Outcomes and Impacts 20	GVA	Level of GVA within the aerospace sector (and possibly other relevant sectors affected by the service e.g., tourism) and overall and changes over time
Outcomes and Impacts 21	**No. secondary landing sites**	**Change in the number of secondary landing sites utilised by SAR assets**

Annex 4   Summary of stakeholder engagement

The below table summarises the list of stakeholders consulted as part of the methodology. As noted, and explained further in Section 1.2, 37 interviews were delivered with relevant stakeholders involved in the management and delivery of SARH / ASV.

Table A4.1   Interviews delivered to inform this report

Organisation and role	Number of interviews
MCA - technical	4
MCA (incl. ex-MCA) - director / executive	3
MCA - contracts and procurement	3
MCA - relations and engagement (strategic / investor)	3
MCA - manager	2
MCA - finance	2
MCA - communications / commercial	2
MCA - other (incl. international, tactical and policy)	5
MCA / ARCC - aeronautical operations controller	4
HMCG	4
Mills and Reeve	1
KPMG	1
Supplier (incl. BHL and 2Excel)	3