SCRAG/23 WP/9
14/11/22

SADIS COST RECOVERY ADMINISTRATIVE GROUP

TWENTY-THIRD MEETING

(Virtual Meeting, 30 November 2022)

ESTIMATED SADIS COSTS : 2 to 5 YEARS

(Presented by the United Kingdom)

REFERENCES

SADIS Agreement
SCRAG Reports 1-21
METP WG-MOG/3 Report
METP WG-MOG/4 Report
METP WG-MOG/6 Report
METP WG-MOG/10 Report
METP WG-MOG/13 Report
METP WG-MOG/15 Report
METP WG-MOG/18 Report

1. INTRODUCTION

1.1 The medium term (two to five years) forecast of the expected costs of operating the SADIS Services are provided in this Working Paper. Resource requirements will vary due to changing demand and these have been anticipated where possible and identified in the tables presented. Where the METP WG-MOG has identified potential changes to the SADIS inventory, these will be reflected as appropriate.

2. DISCUSSION

2.1 The attached Table 1 and 2 identifies expected budgets for the years 2023 to 2026 based on expected trends for expenditure by the Met Office and NATS. 2021 actual costs and 2022 forecast costs are provided for comparison, as requested by the SCRAG/12 meeting.

2.2 Staff day-rates are expected to increase during the coming years so increases have been included for years 2023 onwards.

2.3 Costs attributable to the development of a next generation SADIS system (expected to come into operation by November 2023) are not included in these projections as they are being covered by the SADIS provider state, but operating cost projections are included.

2.4 It should be noted that the existing SADIS FTP system is not, and cannot be made to be SWIM compliant, something that is a fundamental requirement of the ICAO Global Air Navigation Plan (GANP) in its Aviation System Block Upgrades, in particular AMET-B2/4 and AMET-B3/4. These require meteorological information to be fully integrated into the SWIM environment by supporting request/reply or publish/subscribe access mechanisms.

2.5 It should be noted that even if it was possible to simply add the new, much larger WAFC gridded data sets to the current FTP, there would be a large increase in its annual operating costs, of similar magnitude to the new SADIS API system.

2.6 There will of course be a period of dual running with the old and new systems, and it is expected that costs for operating the SADIS FTP will decrease through 2024 and 2025 as users migrate to use the SADIS API.

2.7 The following notes should be read in conjunction with Table 1 which is contained in the Appendix to this WP, and relates to Met Office costs.

a. Message Switch

These charges relate to the routing of WAFS gridded data and OPMET data through into SADIS FTP.

b. AWS server running costs for SADIS FTP

The cost of operating SADIS FTP using Amazon Web Services (AWS) cloud computing reflects all the individual elements that make up SADIS.

The cost is expected to increase in 2023 as work to make the system more robust, and to remove the need for manual monthly patching has been completed, and this will enable the SADIS FTP to continue to operate until its planned November 2028 retirement date.

Operating costs are expected to decrease through 2024 and 2025 as users migrate to use the newer SADIS API.

AWS Server Operating costs – this is proportional to the amount of data held on the servers and the specification of server chosen, and has been optimised to minimise costs
AWS data egress charges - this cost is directly proportional to the volume of data being downloaded by the SADIS users
AWS Cloud operations expertise = This cost enables SADIS to benefit from the provision of AWS cloud operations experts who are able to provide oversight and guidance in the operation of SADIS

c. AWS operating costs for SADIS API

The new SADIS SWIM compliant API system is expected to become operational in November 2023 for the provision of WAFS gridded data and for products like METAR, TAF, SIGMET, Advisories in both traditional alphanumeric and IWXXM format. The WAFS SIGWX API is expected to follow in June or July 2024. The figures shown in the cost projections are preliminary estimates. User numbers are expected

to increase rapidly during 2024 and then increase more gradually through 2025 and 2026.

d. First Line Support Costs

This includes 24x7 incident handling functions (call and e-mail) provided by the Met Office Service Desk. The basic for 2021 is shown in the table below, and the figure increased slightly in future years to account for increasing staffing costs. The exact cost each year will depend on the actual number of incidents handled.

Description	Value 4,800 GBP
Incident Handling (initial call, follow up etc), 62 incidents per year	950
Incident Handling training – 2 hours per FTE year	1,850
Service Management – 8 hours per year	2,000

e. Second Line Support

This includes 24x7 system monitoring and incident handling functions to ensure the timely resolution of any SADIS operating problems. For each year the initial estimate is as shown in the table below, but the exact figure will relate to the number of incidents handled.

Second line support in 2023 has been reduced as the need to manually patch the system will disappear.

f. Third and Fourth Line Support

This includes incident investigation and resolution provide by the development team that supports SADIS. For each year the initial estimate is as shown in the table below, but the exact figure will relate to the number of incidents handled. Support costs are increased in 2024 and 2025 when the SADIS API system begins operating in tandem with the existing SADIS FTP.

g. Administration support staff cost

Support is primarily provided by the SADIS Manager in the day to day operation of SADIS, management of user accounts, liaison with users, invoicing and planning and development work within the remit of the METP-WG/MOG (SADIS). Procurement and Finance support is required to implement the SADIS Cost Recovery process (SCRAG).

h. Travel Costs

Travel and subsistence costs for Met Office staff to attend appropriate Meteorological Panel Working Groups (Meteorological Operations Group, WG-MOG, in relation to SADIS) and SCRAG meetings are included here. The MOG meeting in 2023 is expected to be held in Kansas city, and it is possible that future meetings could also be held away from the United Kingdom.

i. Cost of Capital

Cost of capital for future years has been estimated using the revised methodology applied in 2008 and described in SCRAG/10 WP/13.

j. Administrative costs (bank charges, couriered invoices etc)

Following SCRAG Conclusion 14/7, this item includes costs relating to the processing of invoices (usually when administration charges reduce the amount actually received by the SADIS Provider by a small amount), or the cost of couriered invoices where normal surface mail is unreliable.

2.8 Notes on SADIS Gateway costs.

k. NATS gateway costs

The NATS SADIS Gateway Costs are as described in SCRAG19-WP/16 and were simplified for future NATS gateways costs.

l. Travel Costs

Travel and subsistence costs for NATS staff to attend appropriate Meteorological Panel Working Groups (Meteorological Operations Group, WG-MOG, in relation to SADIS) and SCRAG meetings are included here.

2.6 Notes on CAA and ICAO costs

m. CAA Administration costs

This encompasses Met Authority Regulatory oversight and travel costs that relate to the WG-MOG SADIS and SCRAG meetings.

n. ICAO Administration costs are detailed in WP/8

3. CONCLUSIONS

3.1 Operating costs from the Met Office are expected to increase slightly in 2023. The introduction of the new SADIS API system in November 2023 will bring increased AWS operating costs but this will modernise the SADIS provision making it SWIM compliant and will future proofing SADIS provision for many years to come. The upgrade is also necessary in order to have a system that can deliver the new much larger WAFS data sets that are being introduced. Further information is available here: https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-2023 .

3.2 It should be noted that 15 years ago the annual SADIS operating cost (when there was a satellite based SADIS and also the first SADIS FTP) reached a peak of GBP 680,000 per year, and operating costs have been decreasing ever since. Introduction of the new SADIS API system will increase the operating costs once more, but will also allow a much, much larger data WAFS gridded set to be made available to users, while giving them the ability to sub-set the data so that it suits their needs better, and will be SWIM compliant.

4. ACTION

4.1 The SCRAG/22 is requested to note these provisional figures for the SADIS Costs.

TABLE 1: UKMO Cost and manpower resource projections until year 2026 (at 2022 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2021	FOO 2022	Est 2023	Est 2024	Est 2025	Est 2026
UK MET OFFICE COSTS								
1. Equipment								
Principally procured for SADIS			2,528	0	0	0	0	0
comms link SADIS Gateway & Met Office								
Not procured principally for SADIS								
message switch	a		3,000	3,000	4,500	4,500	4,500	4,500
AWS Server running costs for SADIS FTP	b		42,318	44,000	53,000	50,000	35,000	28,000
		Equipment sub total	**47,846**	**47,000**	**57,500**	**54,500**	**39,500**	**32,500**
2. Next Generation SADIS service provision								
SADIS API	c	AWS Operating costs for new SADIS API	n/a	n/a	6,000	80,000	120,000	150,000
		API sub total	**0**	**0**	**6,000**	**80,000**	**120,000**	**150,000**
3. Annual Staff Requirements								
Operating Support								
	d	First Line Support	4,602	5,100	5,000	5,000	5,500	5,500
	e	Second Line Support	14,760	7,500	12,000	15,000	15,000	15,000
	f	Third and Fourth Line Support	3,294	3,400	15,000	20,000	20,000	20,000
Additional Support								
Administrator	g	Executive Officer	65,930	66,400	67,000	67,000	68,000	68,000
International Aviation Management	g	Aviation Manager	8,112	8,200	8,500	8,500	9,000	9,000
Contract Procurement and Management	g	Senior Procurement Officer	1,642	1,660	1,700	1,800	1,800	1,900
Invoice Administration	g	Finance Officer & Business Acct	12,754	12,900	13,500	14,000	14,000	15,000
Travel Costs	h	METP-WG/MOG meetings & SCRAG	0	0	3,000	1,200	1,200	1,200
		Staff Requirement and travel sub total	**111,094**	**105,160**	**125,700**	**132,500**	**134,500**	**135,600**
Administrative costs	i	Cost of Capital	15,111	16,000	17,000	17,000	17,000	17,000
	j	Admin charges	180	140	400	400	400	400
		Total UKMO Costs	**174,231**	**168,300**	**206,600**	**284,400**	**311,400**	**335,500**

TABLE 2: NATS and other SADIS Cost Projections until 2025 (at 2022 prices)								
INVENTORY REF:	Note	DESCRIPTION	Actual 2021	FOO 2022	Est 2023	Est 2024	Est 2025	Est 2026
NATS Gateway Costs								
Staff Costs								
Operational Staff	k	Air Traffic Services Asst.	225,000	235,000	256,525	273,006	285,681	293,522
Engineering Staff	k	Maintenance Engineer	7,000	7,300	8,669	9,335	9,649	9,919
Administration Staff	k	Administration Officer	27,800	29,300	35,260	37,883	38,742	39,471
		Staff Costs sub total	**259,800**	**271,600**	**300,454**	**320,224**	**334,072**	**342,912**
	k	Maintenance	9,700	9,700	10,209	10,581	10,737	10,871
	l	T&RE	0	300	3,500	1,745	1,775	1,800
		Total NATS Gateway Costs	**269,500**	**281,600**	**314,163**	**332,550**	**346,584**	**355,583**
CAA Administration Costs	m		**980**	**980**	**1,000**	**1,000**	**1,000**	**1,000**
ICAO Administration Costs	n		**26,368**	**30,000**	**32,500**	**33,000**	**33,500**	**34,000**
		TOTAL SADIS COSTS	**471,079**	**480,880**	**554,263**	**650,950**	**692,484**	**726,083**