Office of the
Police and Crime
Commissioner
Gloucestershire

Originator: ACC Moss	Decision number: D15-2018

Submitted to: Martin Surl, Police & Crime Commissioner for Gloucestershire

Subject: Performance Dashboards – Progress Update

Executive summary:
Purpose
The purpose of this report is explain the decision to develop performance dashboards using SAS technology rather than 'Qlik Sense' (QS); and provides an assessment of this decision. It will then explain how the Constabulary is embedding the use of dashboards into its performance framework.

Recommendation:
It is recommended that the use of SAS for the future development of performance dashboards is endorsed by senior leaders and the OPCC.

Outcome/approval by:

Date: 24 April 2018

Signature:

[Title of Decision Paper]

Public access to information

Information in this form and associated reports is subject to the Freedom of Information Act 2000 and the Elected Local Policing Bodies (Specified Information) Order 2011. Where it has been indicated that this is a decision of significant public interest, all of this form except Part Two will be made available on the website of the OPCC.

Any information that should not be automatically available on request should not be included in Part One but instead on a separate Part Two form.

Is this a decision of significant public interest? *This includes a decision with any impact on the community, expenditure in excess of £50,000, or any decision that would be of obvious interest to the media or the general public*	
Is there a Part Two form? *This section should only include information that, if published:* a) *would, in the view of the chief officer of the police, be against the interests of national security;* b) *might, in the view of the chief officer of police, jeopardise the safety of any person;* c) *might, in the view of the chief officer of police, prejudice the prevention or detection of crime, the apprehension or prosecution of offenders, or the administration of justice; or* d) *is prohibited by any enactment.* e) *breaches commercial sensitivity*	

Originator checklist (must be completed)	**Comments including who has approved the report if applicable**
Has legal advice been sought on this submission if required?	
Has the Chief Finance Officer been consulted, if required?	
Have equality, diversity and human rights implications been considered, as appropriate?	

[Title of Decision Paper]

How is the recommendation consistent with the objectives of the Police and Crime Plan?	
Has consultation been undertaken with people or agencies likely to be affected by the recommendation?	
Has communications advice been sought on areas of likely media, community, staff or partner interest and how they might be managed?	
Have all relevant implications and risks been considered?	

Part One – For publication

Background

It has been recognised for some time that the monitoring of performance required updating. Performance has always been monitored – however the methods used until recently were heavily reliant upon pre-programmed and limited search tools (e.g. MIS), manual intervention and manipulation of data; all of which were considered unsustainable in the modern age of automation.

The business requirement going forward was for automated performance data published in 'dashboards' capable of displaying multiple data sets as near to real time as possible. There was a requirement for an overview which could be drilled into to reveal the detail, to allow scrutiny, comparison and informed decision making.

The strategic drivers for this included the increasingly detailed data requirements of HMICFRS, including the Force Management Statement, the focus on managing and reducing demand and access to products that can provide up to the minute data using systems generated automation.

Qlik Sense (QS) v SAS – decision and rationale

Between September and December 2017 the Continuous Improvement (CI) and Information Technology (IT) teams jointly researched the market to find the best system with which to develop automated performance dashboards to the high standards required. They looked at what Avon and Somerset Police had produced using Qlik Sense (QS) and what SAS Visual Analytics (SAS VA) offered which promised to provide a similar standard of dashboards. They then used 11 criteria to decide which offered the best solution from Gloucestershire. These were:

- The tool for providing dashboards
- Extra functionality
- Dashboard compatibility externally
- System compatibility internally
- System compatibility externally
- Training implications
- Utilisation of assets
- Cost
- User access
- Customer Support
- Service provision

The result was that SAS met all the criteria except compatibility with external forces IT, which was anticipated. Qlik Sense met only three of the criteria.

Please see Appendix A for a full explanation of the criteria and results

A major deciding factor was cost. SAS is already owned by the Constabulary, so there is no extra licence cost for viewing dashboards. QS requires extra licences to view the dashboards created. Two quotes showed that for all Inspector ranks and above (**107 users**) these would cost **£98,361 per annum**. For sergeants to be included (**315 users**) it rose to **£250,303 per annum**. *This excluded all constables and police staff, which would inevitably cost more*. This compares with the current annual cost of **£20,000** for SAS licences for all staff

Please see Appendix B for full details.

[Title of Decision Paper]

As a result of this information, the decision was made to develop dashboards using SAS, with a caveat that the decision would be reviewed after 3 months.

Progress since December 2017
Since December 2017 the following has been achieved:
- A secure operating platform has been developed to support the performance dashboards
- A variety of dashboards have been produced including:
  - Stop Search
  - Hate Crime
  - Crime overview and hotspots
  - CMIS data
  - Domestic Abuse
  - Child Protection
- Automated alerts and trends have been developed as part of the crime overview dashboard to indicate when normal variations are exceeded. This enables managers to review the possible causes without generating 'knee jerk' reactions
- Several of the key Constabulary monthly / weekly reports have been automated. This allows systems to email reports to staff automatically. The reports available in this way are listed in this link: automated reports. This has created capacity and enabled the creation of further dashboards

How the dashboards are used
The production of dashboards that show relevant data is not the end game. The performance team are always asking the question 'so what' - how are the dashboards being used to improve performance or service delivery. This question is taken up in the Performance Improvement Meeting (PIM), which is being used to encourage the use of performance dashboards. It also reviews the 'alerts' and 'trends' generated to ask questions about the causes and possible actions necessary.

Data about 'dashboard usage' is captured and reviewed by the ACC Performance. Managers are challenged to use the dashboards to help them solve local issues and some good examples have been showcased and shared as best practice. The first part of PIM is used to review the 'alerts' and 'trends' that are part of the crime overview dashboard.

It is recognised that the use of dashboards has to be supported and the senior performance officer is arranging training and guidance for all staff, from Inspectors to PCSOs, which will be delivered using training days, staff meetings or other opportunities such as masterclasses which are part of the planned supportive leadership programme. This will enable the Constabulary to benefit from the data available.

Was the decision the right one?
The criteria used to make the decision to use SAS instead of QS are explained above and in Appendix A. In addition to this the Constabulary's development and use of performance dashboards was independently assessed by Simon Guilfoyle, a police Inspector in the West Midlands Police and author of the book 'Intelligent Policing'.

[Title of Decision Paper]

His feedback included the following:

- *I was genuinely impressed with the massive strides you have taken since my previous visit and hope everything continues to progress well.*
- *Really good range of measures in the current dashboard and opportunities for greater overlay / cross-referencing in the updated SAS.*
- *There is a big training / education commitment – it is great to have a user-friendly platform that communicates meaningful measures in legitimate formats, but users also need to know how to understand and interpret the data.*

Apart from this endorsement, the CI and IT teams both believe the right decision was made to use SAS rather than QS because:

- The same level of performance dashboards has been possible
- The extra cost of licences has been avoided
- Expertise is being acquired by using SAS new dashboards are delivering improved data and displays
- It has been possible to include automated alerts and trends in the crime overview dashboard, as well as 'trend lines', both valuable additions for analysts

Finally, Matt Stiff, Intelligence head of analysis and research, has commented:
I can confirm that the (performance) Dashboards are proving helpful to my team and are a great step forward for the Constabulary. Any move to change suppliers now would be extremely detrimental.

Next Steps

The planned 'next steps' for performance monitoring are:

- Maintaining a 'Performance and Research Centre' that provides all the Constabulary's data and research requirement to enable it to make informed decisions about all aspects of the business in one central location
- Further performance dashboards focussed on key areas of Constabulary business and which, together with research and community intelligence, assist managers in making informed decision
- To replace individually managed data spreadsheets with performance monitoring dashboards using 'Oracle Application Express' (OAE).
- The removal of dashboards that have no value and cannot be used to improve performance
- Further development of toolkits to offer guidance and advice about performance and research

HMICFRS

HMICFRS has recently required forces to produce a Force Management Statement (FMS). The Constabulary will need to consider forecasting, with a reliable tool as well as staff with the right skills to use it effectively. SAS 'Visual Statistics' can be used for forecasting and is already part of the SAS bundle.

Further Opportunities

Since being established in 1976 SAS has been worldwide leader in Business Analytics Software and Services, which are used across many industry sectors including Government, Defence & Security, Manufacturing, Health Services, Banking, Utilities and many others.
Please see [SAS Analytics](#) for a full list.

[Title of Decision Paper]

Although our Constabulary is the only police force (at this time) to engage with them to develop dashboards, they have been very supportive. They have offered the following support through their Customer Loyalty Scheme:

- SAS will provide support through its customer loyalty scheme
- a 'case study' which highlights the work the Constabulary are doing has been circulated to the SAS community

SAS 'Viya' SAS Viya could potentially be obtained at 'no cost' (other than installation) and increase the Constabulary's capability in areas other than forecasting

It is believed that maintaining and developing the relationship with SAS will benefit the Constabulary considerably and place it in a strong position going forward.

Appendix A – Qlik Sense v SAS comparison criteria

Issue	Qlik Sense	SAS VA	Comment
Providing a tool for developing interactive dashboards	Positive	Positive	Qlik may have a slightly better look, but that is purely down to the amount of investment
Extra functionality – can the application provide other benefits	Negative	Positive	The existing SAS installation not only provides dashboards of an equal standard to Qlik but other functionality utilised by the MIS system. This provides the option of mail-outs of regular predefined reports, parameter driven self-service reporting and analytical tools used by the analysts
Product compatibility with partner Constabulary dashboards – can they be shared / combined	Positive	Positive	A & S use Qlik Sense, but both applications purely display data taken from systems. In both cases, as long as the data has to be configured in the same way they would be compatible
Compatibility with Constabulary IT – what other assets and products need to be taken into account	Negative	Positive	The Constabulary already has a significant investment in a data warehouse and products including SAS, iBase, Esri GIS and bespoke applications such as GCIS. This is not the case for other forces, e.g. A & S has does not have a data warehouse and uses Qlik to provide that functionality
Compatibility with external forces IT – are the core systems inter-operable	Positive	Negative	The Constabulary's core IT systems are different to other forces, or if the same we have to configure ours differently to fit with other applications. Therefore we do not have the capability to plug in and play other forces dashboards. For example we use UNIFI and A & S use Niche, and although we both use STORM we use it and store data from it in a completely different way
Training – what are the implications for staff	Negative	Positive	ICT developers, Qlik administrators, analysts and users would all need re-training in another product
Utilisation of assets – will the system provide 'best value'	Negative	Positive	ICT, analysts and users are currently not making the best use of existing software due to lack of investment in training – adding another product just exacerbates this issue
Licence cost – what are the	Negative	Positive	Qlik licences are expensive compared to

[Title of Decision Paper]

annual costs			SAS
User access – how many staff will be able to access the data	Negative	Positive	Everyone in the Constabulary can view SAS reports without any extra licence fees
Customer Support – what quality of support will be provided to support future aspirations	Negative	Positive	SAS is a world leader in data analytics and statistics, with over 40 years' experience, which will allow access to developing forecasting and resourcing models with the help of SAS experts
Duplication of service provision	Negative	Positive	Even if Qlik was introduced for dashboards, the Constabulary would still need SAS to provide other functionality

Appendix B – Full details of the Qlik Sense licence quotes

Option 1 Chief Constable to Inspector			Option 2 Chief Constable to Seargant	
Named User Token Requirement	107		Named User Token Requirement	315
Infrequent User Token Requirement	2		Infequent User Token Requirement	2
Total	109		Total	317
List Price	£102,460		List Price	£297,980
List Price ASM	£20,492		List Price ASM	£59,596
Total Year 1 Investment	£122,952		Total Year 1 Investment	£357,576
Option 1a (cost per unit £846)			Option 2a (cost per unit £752)	
Post Jan License Price 10% discount applie	£92,214		Post Jan License Price 20% discount applie	£238,384
Post Jan ASM (20% license fee)	£18,442.80		Post Jan ASM (20% license fee)	£47,677
Total Year 1 Investment	£110,657		Total Year 1	£286,061
Total Saving from List Price	£12,295		Total Saving from List Price	£71,515
Option 1b (cost per unit £752)			Option 2b (cost per unit £658)	
Dec License Price 20% discount applied	£81,968		Dec License Price 30% discount applied	£208,586
December ASM (20% license fee)	£16,394		December ASM (20% license fee)	£41,717
Total Year 1 Investment	£98,361.60		Total Year 1	£250,303
Total Saving from List Price	£24,590.40		Total Saving from List Price	£107,273

Report jointly prepared by:
Bob Keeble – Continuous Improvement Manager
Anthony Robinson – IT Application Development Manager

Originator approval

Name:

Job title:

Signature: **Date:**

Chief Executive approval

I am satisfied that relevant advice has been taken into account in the preparation of the report and that this is an appropriate request to be submitted to the PCC.

Signature: **Date: 19 April 2018**

[Title of Decision Paper]