

**SCOTTISH FIRE AND RESCUE SERVICE**  
**The Board of Scottish Fire and Rescue Service**



**Report No: B/SPPC/05-20**

**Agenda Item: 20**

<b>Report to:</b>	<b>THE BOARD OF SCOTTISH FIRE AND RESCUE SERVICE</b>						
<b>Meeting Date:</b>	<b>30 APRIL 2020</b>						
<b>Report Title:</b>	<b>BUSINESS INTELLIGENCE REVIEW</b>						
<b>Report Classification:</b>	<b>For Noting</b>	<b>Board/Committee Meetings ONLY For Reports to be held in Private Specify rationale below referring to <u>Board Standing Order 9</u></b>					
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
<b>1</b>	<b>Purpose</b>						
1.1	The primary purpose of this report is to allow the Board to orientate their thinking in order to provide feedback at this time and for the Executive to highlight the current position, developments and suggested improvements in the use and development of Business Intelligence within the Scottish Fire and Rescue Service (SFRS).						
<b>2</b>	<b>Background</b>						
2.1	The Business Intelligence (BI) Review was requested by the Director of SPPC in April 2019 and was carried out by the Head of Corporate Governance. In part, this was in response to findings within the SFRS Staff Survey that saw staff wanting to see an improvement in the information reported and available across the Service to support innovation and enhance current practice.						
2.2	There are examples of developing areas of good practice in relation to the management and innovation of data and intelligence in Scotland. It is incumbent on the SFRS to review its own abilities and suggest areas of improvement in line with the Service values and stated aims of embedding an approach to continuous improvement.						
2.3	The final report was put before SFRS Strategic Leadership Team (SLT) in January 2020 for approval. The report and its findings were accepted. As a result, and following further discussion at the Digital Steering Group, a Business Intelligence Group will be formed as a sub-group of the Digital Steering Group.						
<b>3</b>	<b>Main Report/Detail</b>						
3.1	Business Intelligence (BI) is the strategies, processes, applications, data, products, technologies and technical architectures used to support the collection, analysis, presentation and dissemination of business information to support improved organisational decision making.						
3.2	This review on Business Intelligence has focused on key principles of understanding the Service's current capacity and requirements and suggesting recommendations for improvement that focus on a bottom up model to ensure that an improved and more strategic approach to BI is successfully embedded in the Service.						

3.3	<p>The BI review focuses on the as is position for SFRS in its approach to management of Business Intelligence and suggests potential improvements for the service over the years ahead. Broadly these are:</p> <ul style="list-style-type: none"> <li>• That SFRS modernises its approach to Business Intelligence</li> <li>• That SFRS form a dedicated BI sub-group to drive work forward</li> <li>• That SFRS develops a Business Intelligence and Insights Strategy</li> <li>• That SFRS creates a data dictionary</li> <li>• That SFRS demonstrates Full Spectrum Analysis ability by 2024</li> <li>• That SFRS broadens its approach to data sharing and research</li> <li>• That SFRS actively increases partnerships to drive increased innovation</li> <li>• That capacity within DSPT and ICT be enhanced to support this work</li> </ul>
3.4	<p>SFRS will now move forward to implement the recommendations contained within the report through the Business Intelligence Group, chaired by the Head of Corporate Governance.</p>
<b>4</b>	<b>Recommendation</b>
4.1	<p>That the SFRS Board are invited to note and comment on the contents of the review.</p>
<b>5</b>	<b>Key Strategic Implications</b>
5.1	<b>Financial</b>
5.1.1	<p>None highlighted specifically in the report but investment into new technologies, partnerships, research and approaches would most likely be required to achieve the reports' strategic recommendations over time.</p>
5.2	<b>Environmental &amp; Sustainability</b>
5.2.1	<p>None highlighted specifically but an improved approach to BI with improved research and innovation activity will be required to enhance and support the SFRS commitments towards sustainability and net-zero emissions.</p>
5.3	<b>Workforce</b>
5.3.1	<p>None highlighted specifically but improvements in SFRS BI would benefit all parts of the Service.</p>
5.4	<b>Health &amp; Safety</b>
5.4.1	<p>None highlighted specifically but improvements in SFRS BI would benefit all parts of the Service.</p>
5.5	<b>Training</b>
5.5.1	<p>None highlighted specifically in the report but investment in training and development of staff and focus on innovation would most likely be required to achieve the reports' strategic recommendations over time.</p>
5.6	<b>Timing</b>
5.6.1	<p>Longer term indicative timings provided within the body of the report suggest that work to achieve implementation of Full Spectrum Analysis should begin in 2020 and take between three and four years to complete.</p>
5.7	<b>Performance</b>
5.7.1	<p>Improvements in an overall approach to BI would be expected to bring about additional analytical capacity across the service. This would include use of additional tools and techniques to review and report on existing performance data whilst improving SFRS predicative and planning abilities.</p>

5.8	<b>Communications &amp; Engagement</b>	
5.8.1	Publication of the report and its findings is required to meet the actions within the staff survey action plan.	
5.9	<b>Legal</b>	
5.9.1	None specifically at this time.	
5.10	<b>Information Governance</b>	
5.10.1	DPIA completed No. This is a strategic review and whilst Information Governance will be central to realising the ambition outlined within the review there is no requirement to complete a DPIA at this time.	
5.11	<b>Risk</b> (suggested)	
5.11.1	Failure to make full use of new technologies and approaches to improve innovation, analysis, partnerships and research activity. Failure to be an evidence informed emergency service. Link to strategic risk register and provision of performance information.	
5.12	<b>Equalities</b>	
5.12.1	EIA completed No. Not required for this strategic review.	
<b>6</b>	<b>Core Brief</b>	
6.1	The Business Intelligence Review marks the start of a concerted approach to further enhance SFRS capacity and capabilities in analysis, insight and evidence led decision making in order to bring about benefit and improvements across the service and ultimately to the people and communities of Scotland.	
<b>7</b>	<b>Appendices/Further Reading</b>	
7.1	Appendix A - Business Intelligence Review Report	
<b>Prepared by:</b>	Richard Whetton, Head of Corporate Governance	
<b>Sponsored by:</b>	Mark McAteer, Director of Strategic Planning, Performance and Communications	
<b>Presented by:</b>	Mark McAteer, Director of Strategic Planning, Performance and Communications	
<b>Links to Strategy and Corporate Values</b>		
Strategy Outcomes 1,2,3 and 4 Corporate Values - Innovation		
<b>Governance Route for Report</b>	<b>Meeting Date</b>	<b>Report Classification/ Comments</b>
<i>Information Governance Group</i>	<i>24 October 2019</i>	<i>Preliminary Findings</i>
<i>Strategic Leadership Team</i>	<i>18 December 2019</i>	<i>Approved</i>
<i>SFRS Board</i>	<i>30 April 2020</i>	<i>For Noting</i>

# Business Intelligence

Improvement Review for Scottish Fire  
and Rescue Service.

An internal review to highlight the current  
position, developments and  
suggested improvements in support of  
Business Intelligence and Insights within the  
Scottish Fire and Rescue Service

## 1. Introduction

- 1.1 The primary purpose of this report is to highlight the current position, developments, and suggested improvements in the use and development of Business Intelligence within the Scottish Fire and Rescue Service (SFRS). This is an improvement exercise and the information within the report will be used by the Scottish Fire and Rescue Service to identify possible areas for development and improvement. The work was commissioned in response to Action 2 of the SFRS Staff Survey Action Plan<sup>1</sup>. The information presented here, of the current position and any suggested improvements, has been gathered through interviews with SFRS staff and through material gathered from across the service.
- 1.2 Members of the Strategic Leadership Team (SLT) and Senior Management Team (SMT) along with members of staff from SFRS Data Services and Performance Team (DSPT), Information, Communication and Technology (ICT) and Service Delivery were interviewed for this review. Benchmarking and discussions were also undertaken with external partners including West Midlands Fire Service, NHS Information Services Division and Napier University.
- 1.3 Business Intelligence (BI) is the strategies, processes, applications, data, products, technologies and technical architectures used to support the collection, analysis, presentation and dissemination of business information to support improved organisational decision making.
- 1.4 BI also includes developing a strategic approach to the alignment of systems and collection of data to enable better analysis that will provide improved insights and evidence on which to plan for the future, deploy limited resources and potentially benchmark organisational performance and activity against other organisations. Some of the expected benefits of developing a more effective approach to BI can include any or all of the following:
- Improved decision-making
  - Improved prioritisation
  - Better strategic planning
  - Better risk management
  - Engaging use and presentation of data
  - Identifying potential efficiency gains
  - Improved understanding of performance information
  - Improved insights into customer and staff satisfaction
  - Overall improvement in insights and relevant research
- 1.5 For the SFRS this means building on the Service's existing approach and capacity to improve analysis of operational, corporate and broader strategic data to better understand the impacts of issues affecting the service. This will provide staff, managers, board members and stakeholders with a range of analytical outputs which supports and enhances SFRS decision making.
- 1.6 This review on Business Intelligence has focused on key principles of understanding the Service's current capacity and requirements and suggesting recommendations for improvement that focus on a bottom up model to ensure that an improved and more strategic approach to BI is successfully embedded in the Service.

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<sup>1</sup> [SFRS Staff Survey Action Plan](#)

2. **Key Lines of Enquiry**

- 2.1 To assess the Scottish Fire and Rescue Services current approach to Business Intelligence through interviews with staff from across the service, through benchmarking with other agencies.
- 2.2 To suggest areas for improvement for the Scottish Fire and Rescue Service in its approach to producing and using Business Intelligence.

3. **Current assessment of Business Intelligence within the Scottish Fire and Rescue Service**

- 3.1 The SFRS currently produces a variety of Business Intelligence (BI) across operational and Directorate areas of the Service. The majority of this can be broadly categorised as information taken from data contained in one or more systems to inform on individual business areas activity through descriptive analysis. At a tactical level, simple examples include finance information from Tech-One, Human Resources information taken from iTrent and operational information from the Incident Recording System. Also at a tactical level, the SFRS DSPT produce a Quarterly Performance Report<sup>2</sup> which monitors activity against a range of key performance indicators. This report is presented to the SFRS Service Delivery Committee and (a summary taken to) the SFRS Board. This report is used as a key product to demonstrate SFRS progress as an organisation and adherence to national frameworks. Further analytical products (up to 80), mainly tactical and thematic, are produced on request by the DSPT for different business areas for a range of purposes which are intended to inform on current practice or highlight areas that require improvement or intervention.
- 3.2 The Service focus on BI, up to this point, has been on developing its approach to performance management, this in part is driven by the Fire and Rescue Framework for Scotland, and in the main this is largely descriptive in nature. The key BI output in this regard is the Quarterly Performance Report (QPR) which demonstrates service activity against a broad number of key performance indicators. The QPR provides some analysis and commentary to explain the performance information presented and this is scrutinised by the Senior Leadership Team, the Service Delivery Committee and the SFRS Board. Performance Management is a key part of a holistic approach to BI and the Service is currently developing the In-Phase platform in an attempt to bring further improvements to the monitoring of performance information. In-Phase will bring about significant improvements in the collection and ability to track performance information but it is not, in itself, a single all-encompassing BI product. Rather, In-Phase should be part of and assist in the provision of further insight and analysis.
- 3.3 The SFRS Digital Strategy 2018-21<sup>3</sup> recognised the need to better identify and map systems across the Service that contain data. The Digital Strategy also set out an ambition to better integrate those systems and provide better access to the data they contain. The SFRS Transformation Programme has a dedicated programme of work which is seeking to create specific pieces of strategic analysis that will form a risk model for the Service. This is based on analysis of internal and external data to form a GIS based risk mapping tool to aid in the Service's long-term planning

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<sup>2</sup> [SFRS Performance Reports](#)

<sup>3</sup> [SFRS Digital Strategy 2018-21](#)

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and resource allocation. Despite this, the SFRS does not have a coherent strategy designed to improve BI nor has it fully developed its governance of data management or analysis. Those interviewed from DSPT and ICT thought that there was potential for improvements in this area.

- 3.4 The SFRS is developing new approaches and implementing new systems that will provide additional data and the SFRS has an opportunity to be innovative and proactive in developing a new approach to BI in support of its ambitions and strategic objectives. Furthermore, there is considerable interest and emerging practice in the area of BI and data analysis across Scotland. For example, Information Services Division<sup>4</sup> of the NHS in Scotland (soon to be part of Public Health Scotland), the University of Edinburgh Data-Lab Innovation Centre<sup>5</sup>, the Edinburgh Futures Institute<sup>6</sup> and Scotland Futures Forum<sup>7</sup> all provide the Service with the opportunity to make better use of partnerships and collaboration to support improvements in the development of BI.
- 3.5 Those interviewed expressed a variety of views on the current approach within the Service but there was clear consensus that improvements to our approach to BI could and should be made. It was also clear that this issue has been on the minds of different people across the Service for some time and indeed there was evidence of previous attempts to address this.
- 3.6 Both DSPT and ICT colleagues reported a disconnect at times between the two functions. The most commonly cited matters were, communication issues, differing priorities and differential needs in accessing data. However, all were clear of the need to improve, review and invest in developing our approach to BI, as corporately we are not making enough of the data we have to provide better analysis in support of decision making, business planning and good governance.
- 3.7 At a strategic level, colleagues from across the Service who took part in this review all suggested that SFRS would benefit from a more strategic and sophisticated approach to how we analyse and use data. At senior management and Board level there have been general requests for the improvement in the type of analysis over current performance information but also to develop more analytical products that provide insights to enhance decision making and scrutiny.
- 3.8 Directorates and business areas throughout the Service have developed a range of BI products to service their requirements. Largely, although not exclusively, these are performance products and systems that measure activity and outputs. Some of this work is clearly required and is supported by a mixture of ICT and DSPT activity, mainly in the design, implementation and analysis of the data.
- 3.9 The SFRS current reporting to 'external' customers, would indicate that meaningful data is in a good place. There is a focus to report operational efficiency and our ability to serve the public. This requires data on operational attendance and information on crewing.
- 3.10 A number of tools exist to support the Service's ability to gather/review data such as Qlikview (for incidents) and Gartan/Rappel (for RDS crewing). DSPT also provide Excel based reporting tools (QPR and monthly performance reports) that are generated within an agreed timeframe.

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<sup>4</sup> [NHS Information Services Division](#)

<sup>5</sup> [Edinburgh Data Lab](#)

<sup>6</sup> [Edinburgh Futures Institute](#)

<sup>7</sup> [Scotland Futures Forum](#)

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These are all used to communicate Service effectiveness along with a summarised P&P CSET system that also takes into account more local P&P based initiatives (PDIRs & HFSV). Supporting narratives are gathered locally through P&P managers. There are issues relating to variability in the presentation of reporting that leads to more administrative based staff manipulating the aforementioned reports to present them in a fashion that may be unique to a single LSO or LSO Area. Almost all LSOs that were interviewed as part of this review commented on the variation required by local area scrutiny groups and how that can affect the presentation and interpretation of Service data. The most significant BI challenge within Service Delivery seems to focus on the reports provided to scrutiny and interrogation of data using the Qlikview tool. There is a high degree of local interpretation required from local staff and whilst it is not a wholly negative picture at all, views were consistent in asking for improved analysis or business insights that would enhance effective decision making and local scrutiny.

3.11 Within the West SDA there appears to be a more consistent approach for all LSOs on gathering of 'additional data' with SharePoint utilised as the repository for all data captured uniquely by stations/watches. However, such an approach highlights an issue of SFRS analytical approach being mainly reactive and inconsistent and also that the architects of the system do not provide updates to the data capture processes and that any that do occur are not implemented in sync across the whole SDA. Examples of what data gathered include;

- *week cycle station report – Excel file set up to gather data on each watch at every station and review progress towards weekly targets on 1) Community safety initiatives 2) Training 3) Operational Preparedness 4) Other station admin*
- *Care Home Recording Toolkit – Following on from the Rosepark care home fire in 2004, the Care Inspectorate, HSE and Fire Service adopted a new protocol for regular checking of the fire risks associated with all care homes. There are no systems in place within SFRS that allow stations to readily manage and review the work they do with care homes in their areas which has led to the development of another spreadsheet which is updated by the relevant watch each time they attend any care home in their 'administrative' boundary (station areas no longer exist due to dynamic mobilising but P&P maintained administrative boundaries to assist with community safety initiatives).*
- *Multi-storey inspection recording – This spreadsheet exists for the same reason as the 'Care Home' file. Following on from Grenfell more onus lies with the Service to ensure regular visits with relevant premises and appropriate risks assessments are carried out. Locally they have no other means of reviewing/reporting other than to capture themselves.*
- *UFAS Engagement Toolkit – Used to record premises that require operational attendance to what this reported as an 'Unwanted Fire Alarm Signal'. This allows local enforcement of repeat occurrences that may lead to pre-determined attendance (PDA) being reduced.*
- *UFAS Risk Reduction Toolkit – Results on particular premises recoded in the 'Engagement toolkit' are stored here. This may indicate changes in PDA and links to letters sent to the relevant premise owner/occupier.*
- *Smoke detector stock – A spreadsheet is used by each station to record and report the installation of any smoke alarm at any premises by the crews. They have no other system to manage stock of smoke detectors.*
- *Wholetime staff skills matrix – A spreadsheet is used by stations to keep a monthly record of all crew current skills set as they cannot readily receive via TED reports.*

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- *Tactical Assessment toolkit - This is an example of the data used for external reporting where operational is pulled from the tools currently made available and mutated to form an alternative.*
  - *Open Hydrants – With the on-going dispute with Scottish Water regards maintenance and responsibility of water hydrants. In the West there is intention to create a spreadsheet for all crews to record existence of (and potentially use of) any water hydrants exist in their administrative boundaries*
  - *Hose pipe maintenance – Damage to and repair of hose pipes was historically reported on paper in each station. Following on from a directorate review this practice is to cease. Some staff/areas have concern over this given the potential harm to crews using potentially faulty equipment. As things stand the instruction, where a fault/damage occurs to a hose, is to wrap with a cable tie and tag with information relating to damage sustained (date etc.). In the West they will require crews to capture this information on another spreadsheet for reporting.*
- 3.12 In terms of other data that the LSOs require, examples were given where some LSOs are manually trawling through information such as the Daily Incident Briefing Report (DIBR) to look for key incidents should they be questioned about them, and even gathering daily activity from the Control systems to be able to identify occurrences of things like ‘controlled burning’. This is done because on many occasions operational demands mean they need information quicker than it is currently made available. The responsibility of these tasks varied from the LSO themselves to admin staff.
- 3.13 Some other data is provided to the LSOs for management of their areas from internal sources. Specifically, this data will come directly from Service teams in other parts of the organisation rather than through a coordinated approach to data management as part of an overall approach to BI. Comments made by many in relation to data of this sort was that as soon as it was provided it was out of date and that having access to the systems that control this data would be most appropriate on the grounds that they may have a more real-time view. However, more sensibly a BI function should be able to provide what it is required without the need for operational staff to access and analyse data. It is apparent that (in some instances) the Service is creating a range of business intelligence through individual members of staff and not through a coordinated approach.
- 3.14 It is also unclear how SFRS currently assesses its performance in relation to the commitments contained within the thirty-two Local Outcome Improvement Plans, local Community Justice plans and local contributions to important agendas such as Corporate Parenting. Furthermore, whilst the SFRS does provide information to partners, it does not currently analyse progress against the 32 Local Fire Plans nor has the service developed any business intelligence specific to this area of work. One example of improvement in relations to this can be found in the work currently underway as part of the Service Delivery Model Programme, specifically in developing a broader and revised approach to community risk has positive implications for improvement.
- 3.15 The SFRS Digital Strategy 2018-2021<sup>8</sup> had made a specific commitment and progress to improve the Service’s understanding and use of digital information. The digital strategy makes specific reference to systems of record, systems of differentiation and systems of innovation in use across the Service. Under the auspices of the Digital Steering Group, work is on-going in an attempt to

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<sup>8</sup> [SFRS Digital Strategy 2018-21](#)

better map these systems. In carrying out this work, colleagues from across the Service are attempting to better understand how these systems are used, to better understand user requirements and to plan for the future (as system licenses and agreements come to an end). This work has identified the different record and vendor supplied systems in use to record a variety of activity data, these include finance and asset management systems; Tranman, Tech Forge, Tech 1 and iTrent. People and Learning Systems; Rappel, Kronos, Gartan, LCMS and PDRpro. As well as these recording systems, systems of innovation created by users across the Service include Share-Point sites, Excel databases and eForms alongside systems of differentiation which include our Incident Recording Systems (IRS), website, intranet, FOI recording, UFAS and Hydrants recording amongst others that have been created by the service, mostly by ICT colleagues to meet a particular requirement. (It is also recognised in this work that there may well be a number of other systems in the form of databases which are not yet captured). Should the service move forward with a concerted approach to improve Business Intelligence, it's connection to this work is clear.

- 3.16 The Digital Strategy 2018-2021<sup>9</sup> also aspires to create an integration platform to enable greater access and availability to the data contained within those systems. Work is on-going in the development of this platform but should this work prove successful it should improve SFRS analytical cadre access to data. However, improvement can be made in the strategic planning of this work to support improved BI as the solution itself (whilst welcome) will not improve the provision of BI and insight by itself.
- 3.17 Despite the work on-going under the auspices for the Digital Strategy the SFRS does not have a specific strategy that sets out any ambition or objectives for its use of BI. As such, whilst there is range of data across the Service and a variety of products produced it is not coherent nor is it part of coherent suite of regularly produced analytical products. ICT colleagues talked about the need to work better, collectively, to define requirements and good practice. One potential area of innovation would be to investigate a flexible 'varied vendor marketplace approach to providing more system and tool availability.
- 3.18 The DSPT produce the majority of performance, statistical and analytical reports across the Service. The team consists of ten members of staff, including a team manager, team lead, a senior analyst, senior statistician, four further analysts, a quality assurance supervisor and quality assurance assistant. In general terms the work of DSPT can be categorised into Scheduled and Ad-Hoc requirements. For scheduled work, the team produces approximately eighty periodic reports for a range of purposes and clients. These include;
- Quarterly Performance Report (QPR)
  - Performance reports for LSO areas (produced quarterly and monthly that form the basis for LSO reporting to local scrutiny)
  - Service Delivery Area reports (that breakdown into to LSO areas covering service delivery, P&P, Health and Safety and HR information)
  - Monthly Health and Safety Incident Reports
  - ADF Severity reports
  - RDS Availability Reports and Maps
  - Data Visualisations
  - P&P performance reports

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<sup>9</sup> [SFRS Digital Strategy 2018-21](#)

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- Thematic Action Plan Statistics
  - White Goods Fires Report
- 3.19 For Ad-Hoc requests for new reports or analytical products the DSPT accepts requests from across the Service. Ad-Hoc work is understandably varied and may lead to additional scheduled work depending on the usefulness of the ad-hoc work produced. In addition, the DSPT also produce or contribute to a range of external reporting work with partners. The majority of the work produced is essentially reactive reporting of activity which would seem to be welcomed and well received by those who use and request it. However, members of the DSPT and others did express a view that product development could be enhanced and ideally part of that work should focus on the development of greater insights and predictive analysis. This is a key differentiation between performance data and BI and while we will always need performance reporting we want to enhance our BI capability to gain the potential insights to drive improvement in service delivery it can offer.
- 3.20 The SFRS (through the DSPT) currently publish two statistical series – one on incident statistics, one on fire safety and organisation statistics. These are currently published on an annual basis. The Service is currently undertaking a user consultation with external stakeholders and statistical users which is seeking view on changing a small number of specific issues including potential change to the frequency of statistical publications. The value of these statistics is that they are compliant with national Code of Practice for statistics and are published externally. This provides equal access to statistics and highlights areas of interest and potential analysis. This could be analysis by the Service or by external bodies based on our published data.
- 3.21 SFRS is not currently a recognised legal provider of official statistics but the Official Statistics Amendment Order has now been approved by members of parliament. Once signed by the minister this will come into force on the 21<sup>st</sup> December 2019. This amendment to current legislation will see SFRS become producers of Official Statistics at the end of 2019 or early in 2020. From that point SFRS will be able to apply an Official Statistics badge to our published statistics to state that they are produced in compliance with the code of practice for statistics; trustworthy and independent of political interference, produced using appropriate methods and with the goal of improved public value and transparency.
- 3.22 The immediate benefit of the badge is that SFRS can use the 'Official Statistics' brand and will have improved integration with the statistical system (good for collaboration etc.) The badge is a sign of credibility, recognised and respected nationally and it will serve SFRS well both internally and externally. However, the Service will be required to uphold the code of practice and behave transparently and resource incremental improvements to our publishing. It would require suitable organisational infrastructure for statistical support in addition to the obvious methodology stuff, user engagement etc.
- 3.23 The creation of a BI strategy and BI group to support the development of the SFRS approach, will ensure suitable resourcing and skills and assure the pillars of the statistical code of practice in external publishing will be adhered to. Whilst the Service awaits this development and as part of the work to further the development of business intelligence SFRS should work towards the principle of even greater transparency of both statistical and analytical products with the accompanying data. The benefit of such an approach which seeks to supply good quality content and data

will only enhance the Service reputation (both professionally and politically) and encourage innovation through research.

- 3.24 Data Visualisation is an extremely important facet of an effective BI function in providing both clarity and a means to help people better understand the significance of the data presented by transforming that data into a visual medium. Data such as statistical analysis, patterns, correlations, and trends that hold information that might be less distinct in text-based formats can be made more manifest and easily recognisable in visual form. Within the SFRS the use of data visualisation is at an early stage. The DSPT has been making increased use of visualisation in the products it provides but it is currently limited. This is in part due to capacity but also due to the tools available. For example, DSPT staff use the public (and open) version of Tableau. Whilst this review is not making a case for any particular product, Tableau is recognised as a market leading product (and is used by NHS ISD) and SFRS should have a more strategic view of the tools required for the production of improved BI and visualisation.
- 3.25 The DSPT do not have full access to all data contained within the systems that SFRS currently has. This must change. There is no agreed policy or process for how this access should occur nor an agreed governance process concerning requests for access to data. Currently the DSPT make requests to ICT who then arrange access to data. Colleagues in ICT are attempting to improve the process and the Integrated solution (3.18) will help but both ICT and DPT colleagues reported that the current approach is inefficient. The use of data should be driven by clear requirements driven by an agreed strategic intent. The current arrangements need improvement.

#### 4. Further Considerations

- 4.1 The SFRS Research, Development and Innovation function (RDI) works across the service and is focused predominately on technical solutions, for example appliances and equipment. The SFRS RDI function has not been directed nor has it been in a position to broaden the scope of its work into data and analysis at this time. However, the connections with the National Fire Chiefs Council (NFCC) Research and Development Unit has highlighted this as an area of interest from across the UK. As the service develops its new research strategy it would be useful to include a broader view of research and specifically in support of the development of business intelligence.
- 4.2 The *'Performance Management Information Systems in the Scottish Fire and Rescue Service: A review of the systems the SFRS uses to collect and report data relating to its performance'* (HMFSI 2015) made a specific recommendation for the SFRS to consolidate its performance system. SFRS has now procured a single performance system through the In-Phase solution which is due to come on-line in 2020. Progress has been slow and there have clearly been some difficulties (even recently) in all parts of the service working collaboratively to provide the appropriate level of urgency to deliver this solution.
- 4.3 In 2016, SFRS conducted a review of Performance Management. This review made a number of recommendations that were accepted by the service and specifically recommended that SFRS develop its approach to Business Intelligence. This included recommending the creation of longer term strategic analytical products, enhancing the capacity of DSPT and reviewing the range of current products produced.

4.4 The NFCC Digital and Data Programme has just finished a discovery phase in which it sought to identify and better understand what digital and data problems Fire and Rescue services are dealing with across the UK. From this it has identified a number of projects that could be considered as part of a programme of work. These projects include:

- National data standards and centralised access
- Organisational learning (advance of NOL)
- Professional recognition for data analysts within FRS
- App development guidance
- National procurement of data sets
- Single online home for public facing content
- Platform for ongoing web development for NFCC products

## 5. Considerations and Suggested Improvements

5.1 It is recommended that SFRS to modernise its approach to Business Intelligence. The production of intelligence and insights that assists and supports decision making at the strategic and tactical level is a corporate endeavour and should not be left to one department or team as a problem to solve. To ensure a consistent and corporate approach to the development of BI the SFRS should establish an internal BI Sub-Group aligned to Digital Steering Group to lead on the formation and creation of the BI Strategy.

5.2 The SFRS should develop a Business Intelligence and Insights Strategy. The strategy should set an aspiration for the Service to strengthen our basis as an evidence led organisation, recognised for innovation and best practice in the use of BI. Furthermore, the strategy should set out a road map that details how the Service will build on existing attempts to improve the collection, integration, quality and awareness of the data. The strategy should also include how the Service will develop and improve on its current capacity for data exploration, visualisation and production of intelligence. Once the strategy is in place this BI Board will work to ensure its delivery. This internal BI Board should be led by SPPC supported and in collaboration with the ICT function and representatives from Service Delivery and other Directorates.

5.3 It should be noted that should the Service choose to enact the recommendations within this review, benchmarking with partner organisations indicated that change and improvements, driven by strategic intent could take between 3 and 5 years to fully implement. An indicative timeline and high-level objectives are highlighted in the table below;

Year	Intended Outcome	Objectives
2020/21	Decision to change	Create BI Sub-Group and Bi Strategy Influence Digital and Research Strategies Focussing on service requirements. Improving and enhancing automated gathering of a variety of data from multiple sources to support analytics. Agree as part of strategy analytical tool strategy/ specification Continue to develop approach to visualisation Increase in adoption new tools, enabling ease of access to

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		new data sources.
2021/22	Future Focused Analysis and Intelligence	Established production of engaging an innovative analysis with a strong emphasis on visualisation and innovation. Efficiencies are evident through more effective use of data management and analytical resources across Scotland Accelerate move to prescriptive analytics and deliver new reports and tools
2022/23	Transformational and Predictive Analysis	Established approach to exploiting data science to improve understanding of the wider risk within our communities. Leading in the deployment of predictive, prescriptive and innovative informatics to drive improvements. Recognised as best practice for publication of analysis and open data.
2023/24	Full Spectrum Analysis	Working across sectors in communities to drive outcomes locally and nationally. Exploiting emerging technologies to remain at the fore-front of technological innovation in data access and mining.

- 5.4 SFRS should take every opportunity to support greater sharing of data, develop an approach to open data and broaden its commitment and approach to Innovation, Research and Development to include innovation and a focus on data quality, data security, business intelligence techniques, product design and use of artificial intelligence.
- 5.5 As part of developing an SFRS BI (and Insights) strategy the Service should increase its partnership and collaborative working in this area with academic, public and where appropriate private sector organisations. For example, the SFRS should develop its relationships with academic partners (such as the Edinburgh University Futures Institute, University of Strathclyde Fraser of Allander Institute, The Scottish Data Lab) to drive innovation and to encourage student placement within the service.
- 5.6 SFRS current capacity, through the work of DSPT and ICT should be enhanced. There will likely be new skills required as the Service develops its approach (for example the development and increased use of data visualisation will be required through tools such as R and Tableau). However, a key component of SFRS BI development will be its ability to partner and collaborate with others. For example, Information Services Division<sup>10</sup>, currently part of NHS National Services Scotland, is a centre of excellence for the provision of health information, health intelligence, statistical services and advice that support the NHS in progressing quality improvement in health and care and facilitates robust planning and decision making. Moreover, ISD have developed considerable expertise and innovation in the development and delivery on their services and are active in offering both partnership support, collaborative opportunity and service provision that will be beneficial for SFRS. For example, ISD are already providing services to other public-sector providers including data visualisation and they are developing innovative tools which could be very useful to the SFRS.
- 5.7 SFRS, as part of its strategic approach to business intelligence, continue its involvement in the NFCC Data and Digital Programme<sup>11</sup>.

<sup>10</sup> [NHS Information Services Division](#)

<sup>11</sup> [NFCC Data and Digital Programme](#)

- 5.8 SFRS Data Services and Performance Team should be reviewed with the intention to create a Business Intelligence and Insights function, in line with a future strategy. This function will need to develop the capacity to deliver the range of reports and products required. Such a team will require full access to data across the service, produce the range of regular and bespoke analytical products required. The Business Intelligence and Insights team should continue to develop expertise and skills and encouraged to both innovate and collaborate with others.
- 5.9 SFRS should review and refresh the analytical products that are produced on a regular basis throughout the year to service the strategic and tactical requirements of both operational and corporate areas of business. The SFRS BI sub-group, will have oversight of all analytical product design. This should include a review and rationalisation of the current range of products and reports. In addition, SFRS should, as part of on-going digital strategy work and a renewed focus on business intelligence, investigate Multi-Vendors Marketplace solutions that will add further functionality and encourage a flexible approach to innovation in analysis.
- 5.10 SFRS should develop a longer term Strategic Assessment for the service to support long term planning. This should include continuing and perfecting the current service wide operational strategic assessment. The introduction of a corporate strategic assessment and the introduction of local strategic assessments. For the local strategic assessments, the optimum model would see joint assessments carried out with or as part of the community planning process, however, it is recognised that this is not always possible given the legislative requirement within the Police and Fire Reform Act to produce Local Fire Plans in isolation from other partners.