

Business Intelligence Strategy

2021-2024



SCOTTISH
FIRE AND RESCUE SERVICE

Working together for a safer Scotland

Introduction

This strategy document aims to set a direction of travel for development and advancement of the Scottish Fire and Rescue Service's (SFRS) approach to Business Intelligence (BI), Data and Statistical Analysis.

The implementation of this strategy is expected to have a positive impact across the Service and bring about improvements for all areas of service delivery in conjunction with the development of the SFRS Digital Strategy.

In addition, the work taken forward under the auspices of this strategy will involve many stakeholders including our staff associations, the public, Scottish Government, Community Planning partner and local Community Planning priorities, academic partners and the private sector.



The Strategic Context

Expectations of public services are changing and continue to be challenging. The demand for the provision of good quality services and ability to demonstrate best value for public finance has never been more important.

In addition, the Service continues to evolve providing ever more complex responses to increased challenges such as climate change whilst ensuring that the Service provides excellent core services and is an active Community Planning partner.

The Service must ensure that its data and evidence base is being used in the best possible way to provide insight and analysis to support strategic and operational decision making. Key to this is the development of our use of BI, both in terms of how the Service collects, manages, integrates and presents information to inform decisions, and how the SFRS gets the best possible value the data we use.

At time of writing the full impact of Coronavirus is still to be determined, public-sector finances were already under some pressure for the years ahead. Annual spending reviews are likely to continue and the effect of sustained reductions in Government funding across the public sector is anticipated.

SFRS continues to see changing demand for its services and must be able to deliver existing models of service delivery and meet new challenges whilst remaining affordable, sustainable and relevant to the people of Scotland. Key to our success will be the information and insight that the SFRS uses to make decisions about services.

Fundamentally, the SFRS is driving itself to provide more advanced intelligence to move beyond the knowledge of 'what happened' to understand and answer more difficult questions of 'why did it happen' and 'how can we predict and prevent it happening again'.

For a Service with prevention at the core of how it works, this shift is both wanted and required.

Furthermore, how the SFRS continues to play an active role in local communities and in delivering local Community Planning priorities across the whole of Scotland for issues such as Placemaking, economic development, health and wellbeing and issues such as community safety, will require shared intelligence with partners for the targeting of action and interventions.

Innovation is one of the SFRS values and, like all organisations, the SFRS is always looking to improve and meet any new or increasing need for Service redesign. Scotland is a country rich with innovative approaches to data and the use of technology to analyse that data.

Approaches, tools and techniques are being revolutionised through the development of data science, predictive analytics, data mining and processes such as machine learning and artificial intelligence (AI). In developing the Service's use of these techniques offers significant opportunities for SFRS.

Evolution of data maturity model



RESISTANT we are actively resisting data	AWARE we are data-curious	GUIDED we begin to use data in some processes	SAVVY we are using data in most processes	DRIVEN we are finally becoming data-first
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Our Vision

The SFRS will become an exemplar of BI for Fire and Rescue Services by 2024. The Service will build expertise in information management, analysis and data science while applying a shift from transactional data activity to high value analysis and intelligence which will bring about improvements in the way the SFRS works.

The change in approach is best described as following an accepted BI maturity model (e.g. Gartner's). The majority of the BI maturity models provide a five stage, or step scale to use as a guide. The diagram above shows the SFRS approach and highlights where the Service currently assesses its capability. This assessment was taken from the SFRS Business Intelligence Review 2020 and as part of the Strategic Review also carried out in 2020.

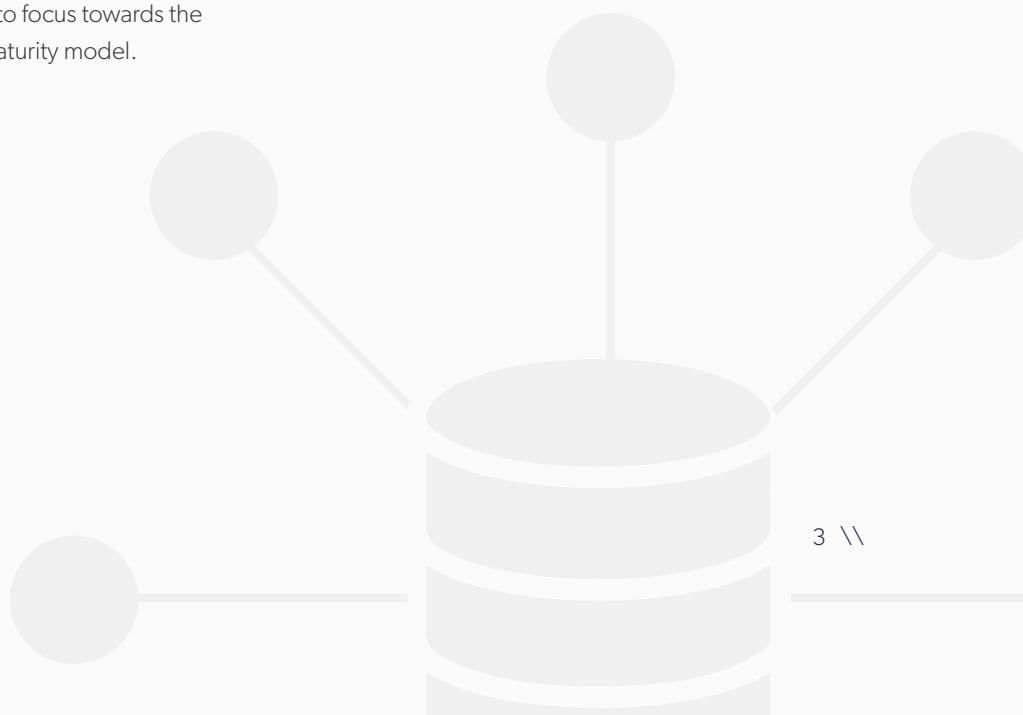
Currently, the majority of SFRS work is in the areas described as data aware or data guided areas of BI. This can be categorised as the production of multiple descriptive analytics where activity and events are recorded and published. In addition, not all activity and analysis is produced or quality assured through one place, often described as the single point of truth. In simple terms this leads to duplication and inaccuracy. In addition, the Service needs to do more to discover and map the data sources it has. The aim of this strategy will be to shift the Service's approach and develop more resources to focus towards the data savvy and data driven end of the maturity model.

This change will underpin many of the strategic objectives and operation improvements that the SFRS wishes to take over the next three years.

Innovation, research, design and development to support the aims of this strategy will be supported by investment, where required, over the three-year period and it is recognised through the SFRS Business Intelligence Review 2020 that an internal culture shift is needed to support the wider sharing of information and data; specifically, through establishing an information and intelligence culture where all Service areas are involved in the design of analytical requirements.

At the end of this 3-year strategy, SFRS will deliver high value analytics, intelligence and insights across the Service through visualisation, automation, descriptive analytics with an improved focus on predictive and prescriptive analytical reports.

The Service will also demonstrate improved collaboration and innovation with partners alongside use of machine learning.



Our Approach

BI 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 public sector 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

Improved public safety

Improved organisational reputation

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

Reduced stressors on staff

Through analysis of this data and the wider sources of data that are available, SFRS will seek to manage efficient services as part of our Performance Management Framework based on:

- Our understanding of **Service demand and performance**
- Planning services to meet requirements and understanding **future needs**
- Learning from **our experience**
- Improving or transforming **future service delivery**

Our Principles

A Single Version of the Truth

Data will be brought together and viewed through a single, trusted processes for BI and analysis. We seek to improve our data to provide an accurate and consistent view to develop the trustworthiness of SFRS BI.

Using accepted and transparent analytical processes, good management and trusted BI products, we will develop the professional capability of our analysts and maintain a culture of honesty and integrity in our approach to BI.

Customer Focused Business Intelligence

Customer focused BI will be shaped and designed around outcomes for our customers, this including the different parts of the SFRS, our partners and the Scottish public. BI will be timely and accessible with analytical and performance products designed and presented to meet the needs of decision makers.

We aim to provide the right information, in the right way at the right time. Our analysis will be interpreted and assured to a consistent standard to support proactive decision making, anticipating the needs of our leaders and stakeholders.

Good Design and Sound Methods

Structured data and sound methods will be underpinned by good design choices in the way that we organise and present our data. We will transform the way that the SFRS keep repositories of data and provide an integrated data pipeline, linked to all data repositories across the Service.

The SFRS analytical methods on top of our data will enable the development of dashboards and bring consistency to our data and our BI architecture.

Data as an Asset

Data gathered and held by SFRS will be used as an enabler for our services. It will be managed as an asset - so that the development of BI can help meet our multiple Service needs and strategic objectives.

The value of data, intelligence and analysis will be respected when storing, sharing and disposing of it. New data sources will be developed to maximise the use and reuse of the data with assured quality by design.



BUSINESS INTELLIGENCE

Priorities 2021-2024

Demonstrate **Innovation** and **Collaboration**



One of the values of the SFRS is innovation. Perusing and encouraging innovation is central to the success of this strategy and for the future vision of the SFRS. Innovation and innovation in collaboration with others is the primary driver for the development of the Service's approach to BI and analytics. Throughout the lifetime of this strategy the SFRS will take appropriate risks, explore new projects and increase

our engagement with the academic community. So demonstrating innovation which will lead to improvements in service delivery. Furthermore, SFRS will continue to support student placements and, throughout the lifetime of this strategy, the Service will publish the research that is carried out and be an active supporter of collaboration with the academic sector.

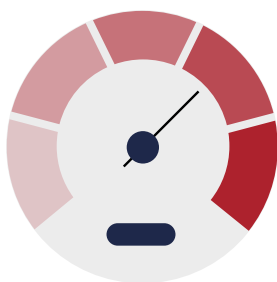
Deliver Collaborative **Product Design**, **Development** and **Assurance**



SFRS BI and Data Services, will work closely with all Service Directorates and functions to design bespoke analytical and performance reporting products that meet exact requirements. The strategic intention of this work is to provide a trusted centre for all analysis, providing high standard

reporting across the Service. It is the intention that, once designed and in place, much of this reporting will become automated releasing capacity for further development, innovation and specialist analysis.

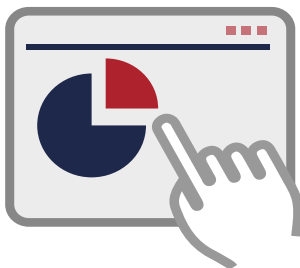
Develop and Use New **Analytical Tools** and **Techniques**



SFRS will continue to explore future analytical options and to assess areas of potential investment and development in the way the Service carries out analysis. In the first year of this strategy the Service will decide on its preferred BI platform and while the use of open tools such as Python and R will continue, we also expect to make more use of SQL Server Reporting, Integration and Analysis Services.

Over the lifetime of this strategy the Service will look to develop and make use of new tools. AI and Machine Learning, Natural Language Processing (NLP), the Internet of Things (IoT) will support our overall movement to translational intelligence. In doing so, the Service will engage and innovate with partners to share best practice and jointly develop analytical approaches and tools.

Focus on **Data Discovery**



In the first year of the strategy, SFRS will focus on data discovery, identifying, mapping and visualising data and data flows across the organisation.

Locating and classifying our data will provide an important foundation for all the work to come. In addition, SFRS will look to explore and use new sources of data.

Make best use of **Data Visualisation**



SFRS will continue to make use of and look to increase the use of visualisation in all reporting. It is intended that the use of visualisation will support colleagues across the Service in their decision making.

Throughout the lifetime of this strategy SFRS will produce a range of products with visualisation playing a key part in the communication of BIBI and analysis.

Develop and Deliver **Predictive Analysis**



SFRS will develop its approach to predictive analysis, throughout the lifetime of this strategy.

The Service will improve predictive analytical techniques and identify projects where predictive or prescriptive analytics can be applied.

Demonstrate the use of **Machine Learning** and **Artificial Intelligence**



“SFRS will continue to develop techniques, tools and approaches that make use of machine learning and artificial intelligence.

There are already examples of this work being applied by Fire and Rescue Services across the world and during the lifetime of this strategy the service will develop projects that make use of machine learning and artificial intelligence.

Commitment to **Open Data**

Throughout the lifetime of this strategy SFRS will work on an open data plan. The intention of this will be for SFRS to meet the Scottish Government standards for publishing all open data.

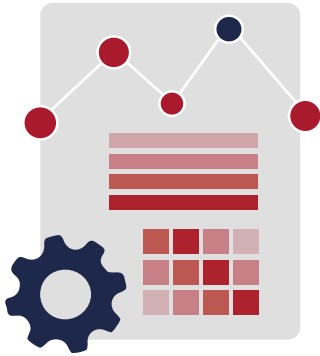


Develop our **People** and **Skills**



SFRS will continue to invest in the skills and development required in Data Science and Analytics. The BI and Data Services team, working closely with ICT will form a hub that will embed the expertise and knowledge in the approaches and advanced techniques required to deliver the aims of this strategy.

Continue to Develop our **approach to Statistics**



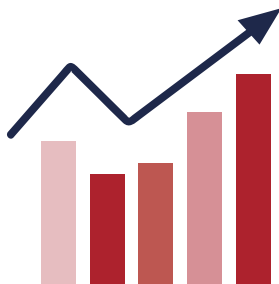
SFRS became producers of Official Statistics at the end of 2019. From that point SFRS have applied an Official Statistics badge to our published statistics to state that they are produced in compliance with the code of practice for statistics; trustworthy and independent of political interference, produced using appropriate methods and with the goal of improved public value and transparency.

The SFRS currently publish two statistical series – one on operational statistics, one on fire safety and organisation statistics. The value of these statistics is that they are compliant with National Code of Practice

for Statistics and are published externally. The immediate benefit of the badge is that SFRS can use the 'Official Statistics' brand and will have improved integration with the statistical system, which strengthens the role we can play in collaborations with partners.

The badge is a sign of credibility, recognised and respected nationally and it will serve SFRS well both internally and externally. The Service will uphold the code of practice, and behave transparently and, through the lifetime of this strategy, will make incremental improvements to our publishing of statistics.

Demonstrate detailed understanding of **Performance**



SFRS will continue to develop its performance framework, increasing the level of complexity and understanding of performance across the organisation and within each Service area.

The automation and successful presentation of performance information and the performance framework will form a key part of the Services BI and insight.

Demonstrate **Good Governance**



SFRS will establish, following the approval of this Strategy, an Executive Board to oversee the implementation of this strategy.

This will include all areas of BI and Data development activity with representation from across the Service. This Board will report on progress and activity to the Strategic Leadership Team and to the SFRS Board.



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