HM Fire Service Inspectorate

The Scottish Fire and Rescue Service's arrangements for the provision of Operational Risk Information

Integrity, Objectivity, and Fairness.

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Acknowledgements

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Contents

1_Introduction

The SFRS has legal obligations in relation to the provision of risk information. The Fire (Scotland) Act 2005 and associated regulations specifically require the SFRS to obtain information in respect of its principal functions – fires, road traffic accidents, rescue and CBRN incidents (chemical, biological, radiological or nuclear). More generally the Management of Health and Safety at Work Regulations 1999, require the SFRS to assess risk and provide information to employees (and others) on the assessment of risks along with measures and procedures. Additionally, the Fire and Rescue Framework for Scotland 2016 contains an expectation that accurate, up to date and reliable operational intelligence should be available to crews at incidents.

This is not an exhaustive list, there are obligations contained in other legislation regarding the provision of information to employees.

The inspection is carried out at a time when the SFRS is in the fifth year of development for introducing a new national system for the identification, collation, recording of site specific risk information (SSRI), and new hardware for the dissemination and retrieval of all types of operational risk information.

'Operational risk information' (ORI) is information, either generic or site-specific, that could be held by the SFRS for use by firefighters while attending at a fire or other type of incident. This is information that could assist the firefighters to effectively deal with the incident and in some cases may be important in respect of incident command and safe systems of work.

The SFRS uses the term 'operational intelligence' (OI) in two ways:

1. to describe its scheme for information collection in respect of SSRI; and

2. to generally describe its system for making ORI available on the incident ground.

In this report, we use the term ORI as defined above, we use the term SSRI when specifically referring to site specific information, and we use the term OI when referring to the SFRS's information system and SFRS documents.

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1.1_A summary of our findings

It is important that this following summary is not read in isolation as it is intended to present only an overview of our key findings and not all our reflections are included. The main body of this report provides important further context.

- The SFRS decided to develop a single system for OI replacing the eight legacy systems.

- The Service carried out limited benchmarking with other fire and rescue services to test the market and understand what other Operational Intelligence systems and processes were available. However, we have been unable to review a comprehensive evaluation of the benchmarking conducted which sets out the risks and benefits of each option. Some FRSs in England have OI systems that currently have a greater capability and are more advanced, than the SFRS system.

- The Service decided to have an in-house solution through use of an external software development company, after concluding that none of the 'off the shelf' solutions, which are utilised in other Fire and Rescue Services, met its needs.

- The initial project management team produced project cost estimates of £300,000 for software development and £200,000 for portable hardware with a completion date of June 2015. The Service allocated transitional funding from the Scottish Government of £300,000 in 2014 for the OI project. Following a recognition of an initial lack of robust governance of the project, a decision was taken to strengthen the project management team and carry out a revision of costs. At the time of this revision the estimate had risen to £428,000 for software and between £400,000 and £1.4m for hardware, the variation was due to no final decision on the hardware, with a completion date of March 2019.

- During the scoping exercise and during the project there is limited evidence of comprehensive end user involvement or with employee Representative Bodies. Though Representative Bodies were consulted on the location of the final hardware device within the appliance cab. This has had an impact on the priorities for the project and ultimately the end product.

- We have been provided with limited documented evidence to demonstrate good strategic control during the early stages of the project and the project definition was lacking in detail.

- Although there is a single Senior Responsible Owner (SRO) in project management terms for a number of projects in development, there is a lack of evidence of close co-ordination with other projects, in particular the Command and Control Futures Project, the OI system has been developed in isolation.

- The SFRS decision not to connect the ORI system to the mobilising systems was based on undocumented advice not to do so, due to the age and incompatibility of the existing mobilising systems. This has resulted in a lack of connectivity to SFRS mobilising systems. Current plans do not include a connection until the implementation of the ESN project, which is currently not due to be implemented until possibly 2025.

- A pilot roll out of the new system was carried out in the Stirling and Clackmannanshire, and Falkirk areas. The pilot was unstructured and there is limited documentary evidence of the outcomes from the evaluation of the system or the process following the initial pilot.

- The end user interface for the system is a portable tablet device that can be utilised on the fire ground away from the appliance. The tablet will not have any connection to the appliance once it has been removed from the cab. The tablet contains mapping and risk information for the whole of Scotland.

- The tablet contains a copy of the SFRS's Standard Operating Procedures (SOPs) and Standard Operating Procedure (SOP) summaries and has the following map overlays: hydrant locations; fire station locations; and council ward boundaries. Property risk information is also stored on the system and is attached to a premise utilising the Unique Property Reference Number (UPRN) for that premise.

- The ease of navigation around the tablet functions has been initially well received. The functionality is similar to that of a 'smart' phone and is an improvement on the Mobile Data Terminals (MDTs) which use older technology and are slower.

- The MDT in each appliance will continue to be used for mobilising purposes only. The tablet is not connected to the mobilising system. Consequently, crews will have to manually search for the premises in order to ascertain if there is any risk information on the tablet, rather than the incident location and any risk information being automatically identified.

- We have been unable to review evidence of an assessment being made by the SFRS of the potential option to refresh the existing MDTs, rather than procure a new separate unconnected device.

- The manual search function on the tablet, which has similar functionality to other address search engines, is not user friendly for crews urgently responding to incidents, when time pressures are limiting and due to the fact that the tablet contains addresses for the whole of Scotland there are likely to be a large number of potential options to choose from. Therefore, finding details of premises and risk information will take longer when utilising the new tablet than the current MDT.

- We view the lack of connection of the tablet to the mobilising system as being a risk to firefighter safety given the time constraints placed on crews during the initial stages of an incident and their ability to use any existing risk information in their early risk assessment and implementation of a safe system of work.

- The tablet has a reduced number of overlays available for crews compared to the MDTs. Whilst there was a variety of overlays across Scotland, a majority of legacy areas held a larger number of overlays than the current SFRS tablet.

- The tablet provides a reduction in capability compared to the MDTs that are utilised within the legacy service areas. There are a reduced number of functions available and crews are unable to utilise measuring tools, cordon tools or ascertain risks and hazards from road traffic incidents.

- An Learning Content Management System (LCMS) training module has been produced for OI. This is a modular system that allows the user to access only the parts of training that are relevant to their particular role. The training for the new system and tablet was evaluated at the end of the pilot using an online feedback survey. The module has been well received particularly the ability to tailor the training to individual needs.

- The tablet is supported by a web-based site for the management of OI and this allows crews to input and update information on the properties that have been identified for information gathering or for properties to be re-inspected.

- The OI database website is not user friendly and it is difficult to identify what properties are due for inspection. Locally created spreadsheets are used for managing inspection workloads on fire stations. Since the conclusion of our fieldwork a reporting tool has been developed to improve monitoring of status of records, though at this time access to the tool is limited to members of the OI team and is therefore not directly available to those local personnel responsible for managing the ORI process.

- A National Policy and Framework for OI was introduced on 16 April 2018 and is being utilised across Scotland. The aim is that all inspections carried out since that date are in the same format and provide a level of consistency across Scotland.

- The Service has decided not to include all legacy premises information, previously available on the MDTs, onto the tablet unless an inspection has been carried out utilising the new format. Until such time as the legacy premises are re-visited and information collected in the new format, we are informed that the Service will review any appropriate legacy information and transfer it onto the system in a PDF format.

- There is a small team of Operational Intelligence Officers (OIO) within the Service, some of whom are new in post. The team has limited capacity and a suitable training and development programme had not been put in place at the time of our fieldwork. Therefore, there is a risk to the Service in that the OIOs, who are likely to be responsible for carrying out or approving the most challenging information gathering, do not have the requisite skill set and experience to carry out the task adequately. Since the conclusion of our fact-finding activity we understand that development of a training plan has commenced.

- Officers within the OI team have responsibility for carrying out the final approval on content of risk information before it is published on the web application. Due to the lack of skill development within the team, some team members had concerns regarding the ability of the wider OI team to deliver all the requirements of ORI.

- Operational crews have been given a locally decided target number of inspections to carry out using a new template for gathering relevant information for each property. The new system records in greater detail, the risk information within premises. Overall, there has been no impact assessment carried out in relation to the ability of operational crews to carry out this task in relation to both the timescales involved in collecting the information, or the skills and knowledge required to accurately complete the questions on the forms, particularly around fire safety measures within buildings.

- We found that there is a culture of limited use of SSRI, particularly by incident commanders forming part of the initial attendance. Crews tended to rely on local knowledge and would only retrieve existing risk information at later stages of an incident or when they knew that a more senior officer would be attending. We therefore feel that the barriers placed on crews by the lack of connectivity of the new system will have limited impact on increasing the use of ORI.

- SSRI is most likely to be used at larger scale incidents where more senior officers attend.

- The use of operational risk information is included in the training of all officers with a command function. The assessment criteria at the training courses and events includes elements of gathering and utilising operational risk information.

- ORI gathering and usage is not specifically assessed during incident operational assurance audits.

- The tablet, with considerable further development including a connection to the mobilising system, has the potential to be part of a comprehensive system to provide risk information to operational crews.

- Our overall impression of arrangements for the development and implementation of a system for the provision of ORI in the Scottish Fire and Rescue Service is that it is fragmented and falls short of expectations at this time, and there is substantial room for improvement. The tablet device the Service has introduced has potential but requires further development.

It is important that this summary is not read in isolation as it is intended to present only an overview of our key findings and not all our reflections are included. The main body of this report provides important further context.

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2_About the inspection

Her Majesty's Fire Service Inspectorate in Scotland (HMFSI) is a body that operates within, but independently of, the Scottish Government. Inspectors have the scrutiny powers specified in section 43B of the 2005 Act. These include inquiring into the state and efficiency of the SFRS, its compliance with Best Value, and the manner in which it is carrying out its functions.

The purpose of this inspection is to examine and comment upon the Service's strategic approach to the provision of ORI in exercising its duty, and the tactical management and use of ORI within the Service, including its use in incident pre-planning. During the course of this inspection, we considered the following areas:

- the SFRS's strategic approach and management commitment to ORI, including SFRS Board Committee papers;
- how ORI sits within the SFRS's digital strategy;
- the SFRS's procedures for gathering ORI, making it available, and keeping it under review – including post-incident review;
- the links between tactical planning and Operations Control Rooms (OCR);
- the organisational culture towards the gathering and use of ORI;
- how the SFRS ensures that ORI is being accessed, used and is relevant to incidents;
- the extent to which the SFRS has been able to replace legacy service ORI arrangements with a consistent SFRS approach;
- the extent to which the SFRS co-operates with other agencies in the sharing and provision of ORI; and
- the nature and adequacy of the ORI arrangements in place.

An inquiry by the Inspectorate can be self-directed or can be subject to direction by Scottish Ministers. This inquiry into the SFRS is self-directed by the Chief Inspector. The decision to carry out this inspection was intelligence led and influenced by the findings of our previous thematic and local area inspections (LAIs). We briefly examine the collection process and the understanding of personnel on operational risk information systems as part of the LAI process. It is risk based and reflects the importance to firefighter safety of the provision and use of operational risk information.

2.1_Methodology

This inspection involved a number of different methods of evidence gathering and analysis:

- a desk top data review of documents and data supplied by the SFRS;

- a review of previous inspection reports;

- a number of face-to-face interviews with SFRS staff who are responsible for the development of policy and its implementation, including those staff responsible for the development and implementation of the new SFRS OI system;

- we visited all three SFRS Operations Control Rooms and spoke to staff and managers at each location;

- we reviewed a number of samples of risk information held by the SFRS and spoke with firefighters and incident commanders to understand their views and experience of using ORI, and how easy it is for them to recover information from systems;

- we visited Cumbria Fire and Rescue Service and Northumberland Fire and Rescue Service to understand the arrangements around SSRI and cross border working, where appliances operate over the Scotland-England border and to understand how ORI is managed in other FRSs; and

- we visited South Yorkshire Fire and Rescue Service (SYFRS) to benchmark ORI arrangements there with those in place, or being developed, by the SFRS (SYFRS has used tablets for over 10 years).

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3_Background to operational risk information

Operational Risk Information can include:

- generic information on the risks associated with different types of incident and how to mitigate these risks;

- site specific risk information (SSRI) such as the layout, contents, and access arrangements for premises, including pre-determined tactical plans – information that might affect safety; and

- site specific information that might assist an incident commander (IC) to deal with an incident – such as the environmental status of sites or the heritage value of building contents.

As outlined above the SFRS has a duty to gather risk information to support the delivery of its functions. An objective is to be able to plan and make arrangements for responding to incidents and providing ORI to its crews at or responding to an incident. ORI should also be used to assist in pre-planning for incidents through determining the appropriate application of resources and tactics to address risks.

ORI is a key component of implementing the Safe Person Concept, which is a primary focus of our inspection activity, and is a generic principle used by fire and rescue services in discharging their responsibility to ensure firefighter safety. ORI should be accurate, relevant and timely. All three criteria must be satisfied, if not achieved then the following problems may occur:

Table 1 ORI Information relevance

Relevant and Timely but **Not** Accurate	Misleading or misinformation
Relevant and Accurate but **Not** Timely	Potentially too late to be of value
Timely and Accurate but **Not** Relevant	Information overload

When firefighters are involved in the process of gathering risk information, this also has the purpose of familiarising crews with the risks associated with particular premises. Risk information should also inform and be integral to the SFRS's wider strategic and tactical planning. The creation and availability of SSRI can also provide crews with information without having previously visited the premises.

Where there is no site specific information relating to a premises it is still possible to have relevant risk information in the form of Generic Risk Information. For example, an incident may well occur in a factory building for which no information is held, however, generic standard operating procedures for Commercial and Office Buildings may still be of assistance and of relevance to an incident commander in formulating their tactical plan.

The Health and Safety Executive (HSE) carried out a health and safety inspection programme of GB fire and rescue services in 2009/10. Part of the inspection programme considered the provision of risk information.

The HSE inspection included one Scottish legacy fire and rescue service. The HSE report[1], although pre-dating the formation of the SFRS, made recommendations on what fire and rescue services should look to achieve in relation to risk information. We have included an extract from the HSE recommendations in Appendix 1, along with a set of reasonable expectations which were used to brief HSE inspectors in advance of the inspections. We reviewed these expectations and recommendations and considered them in our own inspection.

The HSE inspection found that the adequacy of policies and procedures for identifying risks varied between services, as did the effectiveness with which these policies and procedures had been implemented. A lack of information about premises and how stored information is accessed at the incident had been an issue in a number of post-incident investigations.

The legal requirements placed on the SFRS with regard to ORI are similar to those placed on the eight legacy Scottish fire and rescue services. However, the approach to ORI taken by each legacy service was different, to greater or lesser degrees. Therefore, on the formation of the SFRS in April 2013, it inherited eight systems, with technical and procedural differences, though there were some commonalities.

In November 2013 we reported[2] that operational risk information available to firefighters has not yet reached a satisfactory standard across the Service and recommended that the provision of operational risk information needs to be addressed. The use of a recognised template was encouraged and sufficient resources made available, particularly in the North Service Delivery Area (SDA), to ensure that this work is carried out.

In November 2014 we reported[3] that good use of knowledge and information was a component part of a set of characteristics which help to define good policy and practice in relation to operational command, and that the SFRS lacked comprehensive operational risk information provision to crews and oncoming commanders. We acknowledged that work was ongoing to bridge the gap in information.

In 2015 a joint statement[4] by the Chief Fire and Rescue Advisers in England and Wales, HMFSI in Scotland, and the HSE identified, amongst other things, that a lack of information about premises and how stored information was accessed at the incident, was a common theme raised during post-incident investigations where health and safety had been an issue. Further, the joint statement went on to state that each service should have effective systems in place to ensure that it has collected, and made available, sufficient information about premises that present particular risks, and should also have systems in place to maintain the currency of information held. The availability of site-specific information should be supplemented where practicable with site familiarisation visits by firefighters, and collaboration with partner services and site owners to ensure a consistent and joint approach to preparedness, response and recovery.

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1   THE MANAGEMENT OF HEALTH AND SAFETY IN THE GB FIRE AND RESCUE SERVICE CONSOLIDATED REPORT BASED ON THE 8 INSPECTIONS COMPLETED BY HSE IN 2009/10; OCTOBER 2010

2   An overview of the Scottish Fire and Rescue Service' https://www2.gov.scot/Resource/0043/00437774.pdf

3   Risk-Based operational decision-making in the Scottish Fire and Rescue Service: Training and support for incident commanders http://www.gov.scot/Resource/0046/00463134.pdf

4   Health and Safety in the Fire and Rescue Service – Embedding Lesson Learned http://www.gov.scot/Resource/0049/00493550.pdf

Between 2013 and 2018, we carried out 10 local area inspections within the SFRS. During these, we did not find uniformity in processes used to manage and update the information nor in its use by operational personnel. Some areas had well managed systems and a good culture of use of information, other areas were less well organised to an extent that we felt it represented an unacceptable risk, as highlighted in our local area report on Aberdeen City[5].

There were variations between the legacy services in the level of detail collected and held and therefore what could be displayed on the appliance MDT when interrogated. All legacy services had a risk information pro forma to record the details. The information held covered for example: approach and access information; water supply; building construction; occupancy; and site hazards. Further details on the information held on the MDTs can be seen in Table 4.

For some legacy services, SSRI was stored in the Operations Control mobilising system. The ability to do this depended on the legacy service mobilising system, for areas where there was not a premises based mobilising system, and was a street based system, premises risk data was recorded against the entire street record, and Operations Control Operators would have the option to select the information from the street record and send it to the mobilising station and appliance.

There was reliance on local knowledge. In these circumstances, personnel become aware of either a change in use of a building or perhaps construction of a new one, where they perceive it would be worthwhile carrying out a risk information visit. We have seen examples of this being done, however, it does rely on individuals having that local knowledge.

5   https://www2.gov.scot/Resource/0047/00477241.pdf

4_Operational Risk Information in the SFRS

4.1_ORI Development in the SFRS

As mentioned previously, the SFRS inherited a number of legacy systems to manage and provide ORI, these were limited in their capability and interoperability. There were three different Operational Intelligence Systems (OIS) in use which included systems supplied by Airbus and 3tc which were used by East and North SDAs and an in-house built system used in the West SDA. Each service had different processes, forms and methods of data input.

It had been recognised during the pre-reform period that the SFRS would require a common system and process for risk information, and in January 2014 a limited business case was presented to the Strategic Leadership Team (SLT) on the options available. These were:

■ procuring as new, an existing commercially available system;

■ adapting and extending an existing legacy system; or

■ developing a new bespoke solution.

The SFRS decided to develop a new bespoke system and a project team was created to deliver the system. The project had an estimated cost of £300,000 and it was expected to be complete by March 2015. The system to be delivered had two main elements, a database to hold risk information, and a device to allow personnel to view the information (in this case a portable rugged tablet).

At the time of our fieldwork the database was live, and tablets were being rolled out, though the roll out was not complete. The majority of appliances had been installed with a 'docking station' or cradle for holding the tablet, which would be installed at a later date.

We explain the project to introduce the new system in greater detail in section 4.2.

To support the new system, the Service developed an OI policy and a set of supporting documents. These eventually went live on 16 April 2018 following delays. The policy objective is to safeguard, as far as is reasonably practicable, firefighter safety at operational incidents through the provision of risk critical information accessible at the point of need. The policy also sets out a definition of OI and the role of OI in supporting Incident Commanders (ICs) during incidents. The Service states that, as far as reasonably practicable, the aim is to make OI available to the IC from the point of mobilisation and that ICs should consider OI as part of their dynamic and analytical risk assessment in organising and deploying resources at the incident. The policy defines the responsibilities of the Chief Officer, Deputy Chief Officer, Director and Deputy Directors of the SFRS's Response and Resilience Department in relation to the management of the policy and provision of OI.

The SFRS document, 'Operational Intelligence Performance Framework 2017-20.' defines site-specific OI performance standards within the Service. The Framework sets the following priorities:

■ specifying the premises types in regards to OI ensuring that accurate, relevant, up to date and reliable OI is available to crews at all times;

- establishing and embedding an effective programme of risk identification, risk data collection and regular review (revalidation); and

- ensuring the appropriate targeting and frequency for operational crews to visit local risks for familiarisation purposes.

The SFRS OI Performance Framework defines a common categorisation of premises. There are nine standard types defined; a four year ambition for OI; illustrated in table 5; which identifies that targets will be created for years two, three and four of the Framework life; and sets out the requirements for performance and monitoring.

The SFRS document 'Operational Intelligence Management Guidance' describes how OI is identified, collated, recorded, disseminated and retrieved. Risk information at this time on the new system is entirely property based and other risks, such as open water risk information, have not been included.

We have stated in the Background section that risk information can include generic information on the risks associated with different types of incident and how to mitigate these risks. The SFRS has provided its personnel with information of this generic type for a wide range of incident scenarios. For example, there are standard operating procedures (SOPs) for incidents involving acetylene cylinders, asbestos, and collapsed structures.

It is beyond the scope of our inspection to comment on the quality, quantity or relevance of this type of generic risk information. We do however, acknowledge the efforts made by the Service to enable access to the information. The material is made available to staff in a variety of ways, the SFRS intranet, and, until such time as the legacy OI systems are removed, appliance based mobile data terminal (MDT), Incident Commander's Aide Memoir booklet and the new tablet devices. The majority of this report concentrates on the arrangements around SSRI, specifically how it's collected, managed, stored and used.

4.2_The Operational Intelligence System project

The SFRS produced a Digital Strategy 2014-2017. The purpose of that document was to define the vision for how the Service would aim to use technology in future. The Strategy was designed to align itself to the Scottish Government Justice Digital Strategy. Contained within the Strategy was a commitment to deliver projects which rationalised business applications within the Service, including Operational Intelligence systems.

As part of the above Strategy a decision was taken in 2014 to develop a new, national replacement system. The Operational Intelligence Project was established to develop a single solution for ORI. The decision was influenced by concerns regarding the functionality, stability and on-going cost issues of maintaining the existing legacy systems, particularly the off-the shelf packages which incurred an annual cost to maintain. Annual savings of implementing a new in-house solution were originally estimated to be £217,000[6] per annum.

6   Service Transformation Programme Projects Dossier Operational Intelligence System Replacement 20th May 2014

A second Digital Strategy was published covering 2018-2021. This strategy reports that the OI project is partially complete and indicates that the roll out of the OIS will be completed in 2018/19. We note that under the Digital Communities section of the strategy there is a section on data sharing with partners, but no specific mention of the OI system in this regard.

An undated options appraisal and technical report paper was submitted to the Service's SLT around March 2014 outlining the potential way forward. We consider this was a limited paper which outlined three options with a focus on the potential development of an in-house system. In the paper the intention was to deliver the system using the existing MDTs, but the final delivery method was still to be identified. Within the paper there was no mention of any external benchmarking process that had been carried out and the options presented were limited. Furthermore, options such as joint venture or joint procurement of systems or equipment was not considered. During our fieldwork in England, we found evidence of collaboration in the purchase of new MDTs across a number of services. We have been unable to review evidence of an assessment being made by the SFRS of the potential to carry out a similar refresh of the existing MDTs, rather than procure a new separate unconnected device.

The Scottish Public Finance Manual[7] (SPFM) is issued by the Scottish Ministers to provide guidance on the proper handling and reporting of public funds. Although it is mostly about accountancy and financial matters some of its content is relevant to our discussion of the OI project. The SPFM defines that appraisal and evaluation are essential parts of good financial management and that the general principles should apply to any proposal. Good appraisal entails being clear about objectives, thinking about alternative ways of meeting them, estimating and presenting the costs and benefits of each potentially worthwhile option, and taking full account of risks. Since the conclusion of our fieldwork SFRS has published a business case process which should address some of our concerns regarding the early stages of the development of the ORI system or any other similar project, provided there is robust governance of the process.

We have been provided with an early version of a Project Initiation Document (PID) which excluded as part of its scope a recommendation on the front line delivery application for an operational risk information system. A decision was made not to join the OI project to the Control Futures Project despite the fact that, in our opinion, there are obvious alignments for both projects. During our fieldwork we found no evidence of regular meetings and collaboration between the two projects, though we understand that there are a number of workshops held regarding the ESN project. We formed the view that there had been silo working.

The OI project team report to a Project Board, chaired by the Director of Response and Resilience. In project management terms, the process and reporting lines have changed over the course of the project. The present Project Board is also attended by the Deputy Assistant Chief Officer for Response and Resilience (R & R), representatives from R & R, Finance, People and Organisational Development, Information and Communications Technology, Health & Safety, Fleet, Training and Employee Development. The Project Board receive updates on the project at each meeting. It has an action log and risk register which is updated on a regular basis. At the time of writing there is a designated Project Manager who submits reports to

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7   https://beta.gov.scot/publications/scottish-public-finance-manual/appraisal-and-evaluation/appraisal-and-evaluation/

the SFRS Programme Office (an SFRS department which collates information on live projects within the SFRS).

Ultimately, governance of the project is provided by a committee of the SFRS Board. The Transformation and Major Projects Committee oversees and scrutinises the delivery of change programmes and major projects within the SFRS. The Committee is supported by the Director of Strategic Planning, Performance and Communications and a Programme Manager. Projects are reported on by exception and highlight progress in terms of cost, time and quality. In addition to regular formal meetings, workshops are held to allow project leads to give more detailed presentation on their projects. Minutes of the meetings of the Committee are submitted for consideration to meetings of the SFRS Board. In February and March 2016 Committee members[8] raised their concerns regarding the governance of delivery of the project quality and availability of information, and sought assurance that the risks highlighted to them on finance and operational levels were addressed. In May 2016 assurances were given to the Committee regarding these issues.[9]

To be of greatest value the design, development and implementation of any system within SFRS should take place with input from a range of relevant staff with a variety of responsibilities. In the case of a system for operational risk information we believe it is particularly important that 'end users' – the firefighters, and those other personnel who may subsequently command and support operations – are involved. We consider the involvement of personnel, particularly in the pilot, later in the report.

In the initial development stages in 2013, we understand that project team members went to London, Bedfordshire and Luton, and Hertfordshire Fire and Rescue Services to review their systems. After this initial scoping work it was decided that the SFRS would build a bespoke system, as it was felt that off-the-shelf products lacked flexibility. We have been unable to review a comprehensive evaluation of why these options failed to meet the SFRS's requirements.

A later visit in 2015 was carried out to Northumberland Fire and Rescue Service. Subsequently a visit was also made to Hull University, the designers of the system used by Northumberland.

At the commencement of the project there was a view to developing a system to run on existing MDTs, however, early in the project it was confirmed that this would not be possible due to software issues with the MDTs and an alternative would be necessary. Although we have been unable to review evidence of any consideration of an assessment being made by the SFRS of the potential to carry out a refresh of the existing MDTs.

The project was initially given funding from the Transitional Funding programme in the financial year 2014/15. The initial estimation of the costs involved were that £300,000 was required for software development and a further £200,000 was required for portable hardware. The initial completion date was set for June 2015. In December 2015 the completion date had been extended to March 2017.

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8   https://www.firescotland.gov.uk/media/942362/160519_stc_paper_1_draft_march_minutes.pdf
9   https://www.firescotland.gov.uk/media/970055/160714_stc_paper_2_workshop_minutes.pdf

Following a recognition of an initial lack of robust governance of the project, a decision was taken to strengthen the project management team and carry out a revision of costs. The project was also split into three phases at this time with a revised completion date set for March 2019. The estimated costs for software had increased to £428,500 with a further £1.2m estimate for purchase and roll out of hardware. The three phases are shown below:

■ Delivery of a bespoke digital platform for the capture, management and delivery of Operational Intelligence data.

■ A regional roll out of the Operational Intelligence System across a single legacy fire and rescue service area.

■ A phased national roll out of the OIS across Scotland including a hardware procurement exercise.

Project milestones are shown in table 2.

Table 2 Project timetable[10]

Milestones	Dates
Develop training	Jan 2016
User testing of management system and interface with OI application	Feb – May 2016
Carry out recruitment process for additional CAD and data collection staff	April – May 2016
Create suite of documents to support OI process	June 2016
Build and customise the solution	June 2016
Deploy the solution as a limited pilot	April – June 2016
Deliver OI Management System	June 2016
Testing	Jan 2016 – June 2016
Plan a regional pilot	May – June 2016
Deliver training	Jan 2016 – June 2016

In January 2018 estimates for the project costs were increased to include £1.4m for the roll out of hardware.

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10   https://www.firescotland.gov.uk/media/942378/160519_stc_paper_5_key_projects.pdf

A summary of the project timescales and costs is included in table 3.

Table 3 project costs and timescales

Date	Details	Estimated costs	Completion Date
April 2014[11]	Project part of the transitional funding provided in year two of the SFRS	£300,000 initial transitional funding for software development £200,000 for portable hardware[12]	June 2015
December 2015[13]	Agreement to fund an external ICT support post		March 2017
May 2016[14]	Project split into three phases with reports required for each phase	£428,500 estimate cost of software development £1.2m estimate for purchase and roll out of hardware	March 2019
January 2018[15]		£1.4m estimate for purchase and roll out of hardware	March 2019

The OIS consists of an OI application loaded onto mobile tablet devices, which are designed to be robust and used in all weathers. The devices can be securely housed in a docking system installed in the front cab of each pumping appliance. The legacy service systems, understandably, had mapping systems limited to their service boundary. The new system utilises 'One Scotland Mapping' produced by Ordnance Survey (OS). This provides all layers of mapping, down to street level, in Scotland and six miles into Northern England beyond the Scottish Border.

Records on the system contain a Unique Property Reference Number (UPRN). A UPRN is the unique identifier for every addressable location in Great Britain. The Scottish Gazetteer, which is used by the Service for mapping has a search facility to look up UPRNs. In legacy systems it was common to use a reference number generated by the legacy service. Therefore migration of legacy information onto the new system has required a re-referencing of data.

The detachable tablet format is designed to be used easily by personnel on the incident ground and allows information such as SOPs, building plans and hydrant locations to be available to the end user.

11   https://www.firescotland.gov.uk/media/618408/20140612stc_finance_paper_5.pdf
12   https://www.firescotland.gov.uk/media/685343/141030_paper_3_stc_project_dossiers.pdf
13   https://www.firescotland.gov.uk/media/876881/151210_stc_paper_4_prog_delivery.pdf
14   https://www.firescotland.gov.uk/media/942378/160519_stc_paper_5_key_projects.pdf
15   https://www.firescotland.gov.uk/media/1238630/20180109c.tmpc___programmedelivery_complete.pdf

It was common for legacy MDTs to have measuring tool options for the incident commander to use. These tools would, for example, allow the user to calculate and display an outer cordon of a given dimension, calculate hose lengths from a hydrant or water source to the appliance, or the area of land involved in a wildfire. The new tablet however, does not have these features and we view this as a retrograde step.

We would also expect that the tablets should provide access to information on other levels of data that was held by legacy FRSs: such as mine working information from the Coal Authority; information from the Scottish Historic Buildings National Fire Database; vehicle construction; and safety systems information. These are three examples of information which we know some legacy services had access to, there may be more. We feel that these features and overlays could have been included during the development stage.

Though there are differences between the two, by comparison, crews in Northumberland and Cumbria FRSs have access to more information through their appliance MDTs, such as trunk mains, flood plains, flood plains likely, high pressure gas pipes, gas sites, mine gas, mine entries, mine entry zone of influence, past shallow workings, coalfields, water rescue entry point, water rescue viewing points.

A further feature of the Northumberland MDTs is the ability to demount the MDT from the appliance and take it onto the incident ground. The MDT can also be configured to use an integral full keyboard when demounted from the appliance.

The table following shows a comparison of the capabilities of ORI systems in Cumbria, Northumberland and South Yorkshire Fire and Rescue Services with, the new SFRS system.

Table 4 end user interface capabilities

	SFRS Tablet	Northumberland FRS	Cumbria FRS	South Yorkshire FRS
Demountable unit	✔	✔	✘	✘
Link to mobilising system	✘	✔	✔	✔
Street Mapping	✔	✔	✔	✔
Address Point	✔	✔	✔	✔
SSRI	✔	✔	✔	✔
Hydrant Overlay	✔	✔	✔	✔
SSSI Information	✘	✔	✔	✔
Measuring tool	✘	✔	✔	✔
Cordon tool	✘	✔	✔	✔
Mine workings	✘	✔	✔	✔
RTC information	✘	✔	✔	✔
SRT spotter points	✘	✔	✘	✔
SRT access points	✘	✔	✔	✔
Flood plains	✘	✔	✔	✔
High pressure gas pipes	✘	✔	✔	✔
Shallow mines	✘	✔	✔	✔
Coalfields	✘	✔	✔	✔
Trunk mains	✘	✔	✔	✔

As can be seen in the table above the new SFRS tablet has a limited capability when compared to the other FRSs we visited. We feel that the SFRS should develop further the type of risk information made available.

Prior to the commencement of the new system in April 2018, a live pilot of the project has been operating within the Stirling and Clackmannanshire, and Falkirk and West Lothian LSO areas. The pilot commenced in January 2017 with a data gathering exercise in the Stirling and Clackmannanshire area. Following data gathering, the web-based system and the tablets were commissioned in stations there in October 2017. The pilot was then extended in November 2017 to the Falkirk and West Lothian LSO area. This wider pilot concluded on 1 April 2018. The national roll out of the system commenced on 16 April 2018.

We have been unable to ascertain whether there was a robust evaluation of the pilot, before a decision was taken to commence the wider roll out. Given the short period of time, from the end of the pilot on the 1 April to the full roll out commencing on the 16 April, we find it unlikely that a fully robust evaluation could have been undertaken. The process of, and reasons for, evaluation should have been defined at that start of the project. The SPFM provides a checklist for guidance on what should be considered[16]. We also believe that any assessment of a pilot should include end user engagement. We specifically asked operational crews within the pilot area whether their views had been sought on how the system had operated during the pilot period and were advised that this had not happened. However, we understand that there were workshops for station-based personnel early on in the pilot area to seek views of the end user interface hardware, as an evaluation of three hardware options.

Research[17] carried out in 1995 in the USA identified that the three main reasons that an IT project will succeed are, user involvement, executive management support, and a clear statements of requirements. Although dated, this research still has relevance to IT projects.

The SFRS OI project has had little end user involvement. Although the project had involvement from representatives of the Response and Resilience Department of the SFRS and had support of senior management, we feel there was poor engagement with end users, particularly during the pilot stage of the project. Prior to roll out to stations in the pilot area one member of the OIO team contributed to system testing. From our discussions with crews in the pilot area they had no engagement with the project team during the development stage, and there had been limited contact during the pilot phase to evaluate user satisfaction with the system. We understand that amendments were made to the data gathering form based on feedback from personnel. There had, however, been an evaluation of the training package developed for the system, in the form of a simple survey of user satisfaction. Though no survey was carried out for satisfaction with the whole system. In our visits to the pilot area we found little enthusiasm for the system or tablets, beyond their functionality which is similar to a mobile phone, and believe this is a consequence of poor consultation and engagement. Demonstrable engagement with end users would also assist in achieving buy-in from other end users as the system is rolled out.

Employee representative organisations were consulted on the location within the appliance cab of the final system hardware.

Although the Options Appraisal Document indicated the requirements of the system – the need to present information in an easily assimilated format – this need has not been translated into the system delivered.

16   https://beta.gov.scot/publications/scottish-public-finance-manual/appraisal-and-evaluation/annex-1-appraisal-and-evaluation-checklist/

17   The Standish Group Report 'Chaos' 1995, (referenced in Ministerial Advisory Group report *Fire Control Learning the lessons*) https://www.standishgroup.com/sample_research_files/chaos_report_1994.pdf

During the pilot project a limited amount of OI was made available on the new system. As early as January 2015 the Project Board identified COMAH sites and other high risk locations as a priority for information transfer[18]. By the conclusion of our fieldwork at the beginning of September, very limited information has been made available from the legacy Central Fire and Rescue Service MDTs to the new tablets for the Grangemouth petrochemicals complex, despite this area being located within the pilot area. At the point that the legacy OI system is decommissioned and removed from the MDTs, we see the reduction in risk information as a significant risk until such time that these premises are visited using the new data capture forms. We understand that following the conclusion of our fieldwork, a significant amount of risk information has now been added.

The new OI system is not linked to the mobilising system. As a result, the potential for the new OI tablet to fully replace the dated MDTs has been a missed opportunity. The OI system should be directly connected to the mobilising system to allow for automatic identification of the premises that crews are being mobilised to. Crews are therefore required to manually search for premises on a second device rather than have the address automatically highlighted. As the tablet is being rolled out across Scotland, crews will have to use the search address function or use the mapping to identify the address and then check if there is OI information on it. Until the new mobilising system has been rolled out across Scotland, which is scheduled for completion in February/March 2020, there will not be the facility to send a copy of the UPRN with the mobilising message. When this is possible crews will then be able to utilise the number to manually search on the OI tablet. In addition, the new mobilising system has the facility to introduce an information message to inform crews that there are SSRI records held for the premise UPRN.

The MDTs will continue to be available beyond the termination of the software licence for the legacy ORI systems, this is because the MDTs are part of the SFRS's current mobilising systems, and are used to transmit appliance status messages to Operations Control. The new OI tablet system is self-contained, and not linked to the mobilising system. Until either the replacement for the Firelink radio system is introduced or, as yet unplanned, further development of the tablet connectivity is completed, it will remain isolated from the mobilising system for some considerable length of time. We see this as a retrograde step and not without its risks which we discuss further below.

The OIS also consists of an OI website which will be available to personnel to use, once training has been received and user group access rights are provided. The system consists of the following elements:

- The Operational Intelligence Application, or SFRS-OI App, is the software which facilitates the creating, viewing and editing of OI Records on the mobile platform, as well as providing fully functional mapping and document Library access.

- The OI Website, or SFRS OI Web Management System is the central database and cloud based storage mechanism responsible for holding all OI records. As well as providing a central database where OI Records can be created, edited and viewed, the site also handles the processing and management of all OI records from start to finish.

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18   Operational Intelligence Project Minutes 16 January 2015

- The OI gathering form is a document which can be used to gather OI on a premises during an inspection. The format of the form is consistent with OI records found throughout the OIS.

- The Risk Matrix is a questionnaire style document which is used to generate a risk score for an OI record using the information held. The score is used to assign a risk level to the OI record. For premises in category 10 of the Matrix this risk level is also required in order to calculate the expiration or revalidation date.

The Operational Intelligence E-Learning Hub is an online interactive learning system designed to assist in the understanding and usage of the OIS and related documentation. The training package forms a part of SFRS's Learning Content Management System (LCMS). LCMS is the web-based system used for all SFRS operational training packages. The OIS training package contains tutorial animations which guide the user through the actions required when working on the live system. The package has been designed to be modular, meaning that only the parts of the system relevant to the particular user requirements need be accessed. We can see this to be of benefit to, for example, RDS personnel who may not be involved in the collection process, but who have to access stored information on the tablet. The view of the limited number of personnel we spoke to about the training package is broadly positive.

We think the disconnect between the new tablet devices and the SFRS's mobilising systems is a significant barrier to the successful use of OI. Effectively, in order to find out whether a premises has a record on the system, the OIC will have to manually search for it, either by looking up the UPRN, which can be up to 12 digits, or by searching for the address of the premises. Because the system contains all Scotland information searching for an address on, for example High Street, will bring up all records on the system in High Street locations in Scotland, crews will therefore have to be very specific in their searching.

Another way of finding a premises is simply by searching for it on the map displayed on the tablet. In the case of an industrial estate for example, this might not be a simple task, where there may be numerous premises with information clustered in a small area. With the current MDT based system, when an appliance is mobilised the incident location is automatically displayed on the MDT screen.

The following is an extract from the Options Appraisal Document produced by the Service:[19]

> *"End User Provision*
> *The MDT is the key access platform for the OI stored within it. The end user will obviously have less flexibility in navigating between applications due to the competing priorities when a fire appliance is responding to incident (sic). It is therefore imperative that data, in the form of OI, is presented in the most effective and easily assimilated format. Every effort should be made in minimising the requirement to search the system for supporting intelligence. Where possible, information should be presented to the responder whilst being relevant and tailored to the operational requirement."*

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19   Response and Resilience Operational Intelligence Options appraisal and Technical report Circa March 2014

In addition, the paper includes one of the few details that can be found on end user engagement and states the findings in relation to what would be required by operational crews as follows:

> *"There was also a consultation at station level across Scotland where discussions between the OI Strategic Group and Watch/group personnel on what the end user would like on a new system.*
>
> *Points included:*
>
> - *Better, easier, and quicker access to risk information whilst on route (sic) to an incident*
> - *Mapping*
> - *Hydrant information*
> - *Mine shaft locations*
> - *Operational Procedures*
> - *Water Rescue information/access egress*
> - *Chemdata*
> - *High Rise information*
> - *Clearer Plans.*

The strategic group has taken cognisance of all these points and will build them into any software solution which is developed within the SFRS or sourced externally"

In light of the details in the options appraisal and technical report we have to conclude that end user requirements have not been given the priority that they should have been given if the end system is to be fully utilised by operational crews. As can be seen from the MDT comparison in table 4, the new SFRS tablet does not include a number of the requirements set out by the early end user consultation and in our opinion is likely to be infrequently utilised by operational crews.

Given the fact that during our fieldwork and during our local area inspections we found a tendency for incident commanders in the first attendance not to use ORI, we have concerns over the added disincentive that the lack of connectivity to the mobilising system provides. One of the reasons that OICs of responding appliances state that they do not use ORI is a lack of time and the fact that there are so many other issues to contend with. The fact that accessing information on the new system is both cumbersome and time consuming, is likely to reduce further the usage of ORI by crews attending incidents.

Where a record exists for the premises, this is usually displayed by a coloured triangle symbol on the map. The information is therefore readily accessible by the OIC selecting the symbol and retrieving the detail for the location stored on the system. Where there is premises information on the tablet, the same method of identification is used as on the MDT, a triangle symbol is displayed.

4.3_The new SFRS tablet

The user interface of the new OI system is a Getac tablet which is secured in the front of an appliance by the use of a locking device that allows the device to be charged on the vehicle. The tablet can be removed from the appliance by unlocking the securing arm and can be taken into premises or onto the fire ground.

Figure 1 Tablet locked into holding arm on an appliance:

The tablet will, after the MDT ORI system has been decommissioned, be linked to the thermal printer that is fitted within the crew cab as shown in Figure 1 above. The tablet will hold SSRI information for the whole of Scotland and will have mapping for the whole of Scotland and part of Northern England.
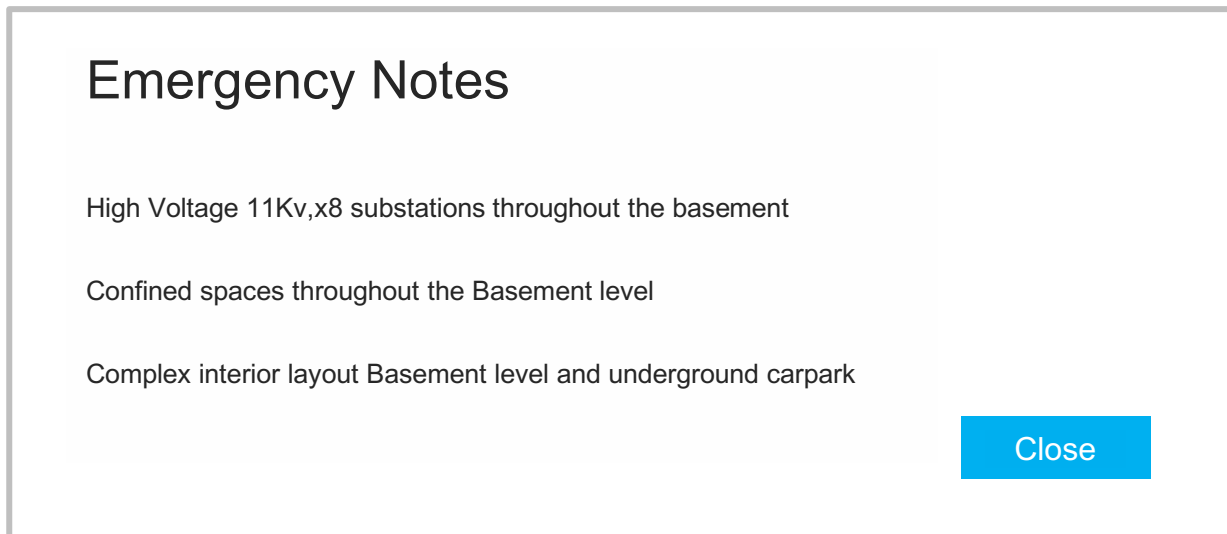
The tablet has the following overlays available:

- Location display;
- Gazetteer;
- SFRS fire stations;
- Hydrants; and
- Local authority electoral wards.

The mapping available on the tablet is provided by the SFRS gazetteer which will also be utilised for the Service's new mobilising system. The gazetteer provides the UPRN numbers which are used to identify properties on the OI system.

Crews can search for addresses using one of three options. The first is to use the UPRN number which will identify the property involved. Crews would have to know the number or be sent the number via control to allow for a search to be carried out. The second is to use the search function and type in the address of the property. This however, is not straight forward as the tablet contains addresses for the whole of Scotland and a large number of results could potentially be shown unless the crews are very accurate with the input. The final method is to use the onscreen mapping and drag the maps to the location and zoom into the address.

When there is SSRI available for a premises, this is indicated by the presence of a red triangle with an exclamation mark in it. The crews can then directly click on the triangle and the information will be displayed on the screen. The first image will include an emergency notes box which will contain information that will be required by the crews to ensure a relevant dynamic risk assessment can be carried out. Crews are unable to read any other information until the box has been closed. We consider the Emergency Notes box a good feature of the system.

Figure 2 Example of an Emergency Notes box:

Emergency Notes

High Voltage 11Kv,x8 substations throughout the basement

Confined spaces throughout the Basement level

Complex interior layout Basement level and underground carpark

Close

After the emergency notes box has been closed, premises risk information can be accessed. It is provided in the same format as the collation form used to record information. The sections include information on the building hazards and layout as well as information on numbers of people likely to be using the building.

There are also a number of maps and plans available (dependant on what has been completed by the CAD team) and which could include floor plans, premise overviews and a pictorial representation called a Fire Service Response Plan (FSRP). The floor plans can vary dependant on the complexity of the building and can be either in two dimensions or in three dimensions.

Figure 3 Example of a FSRP[20]
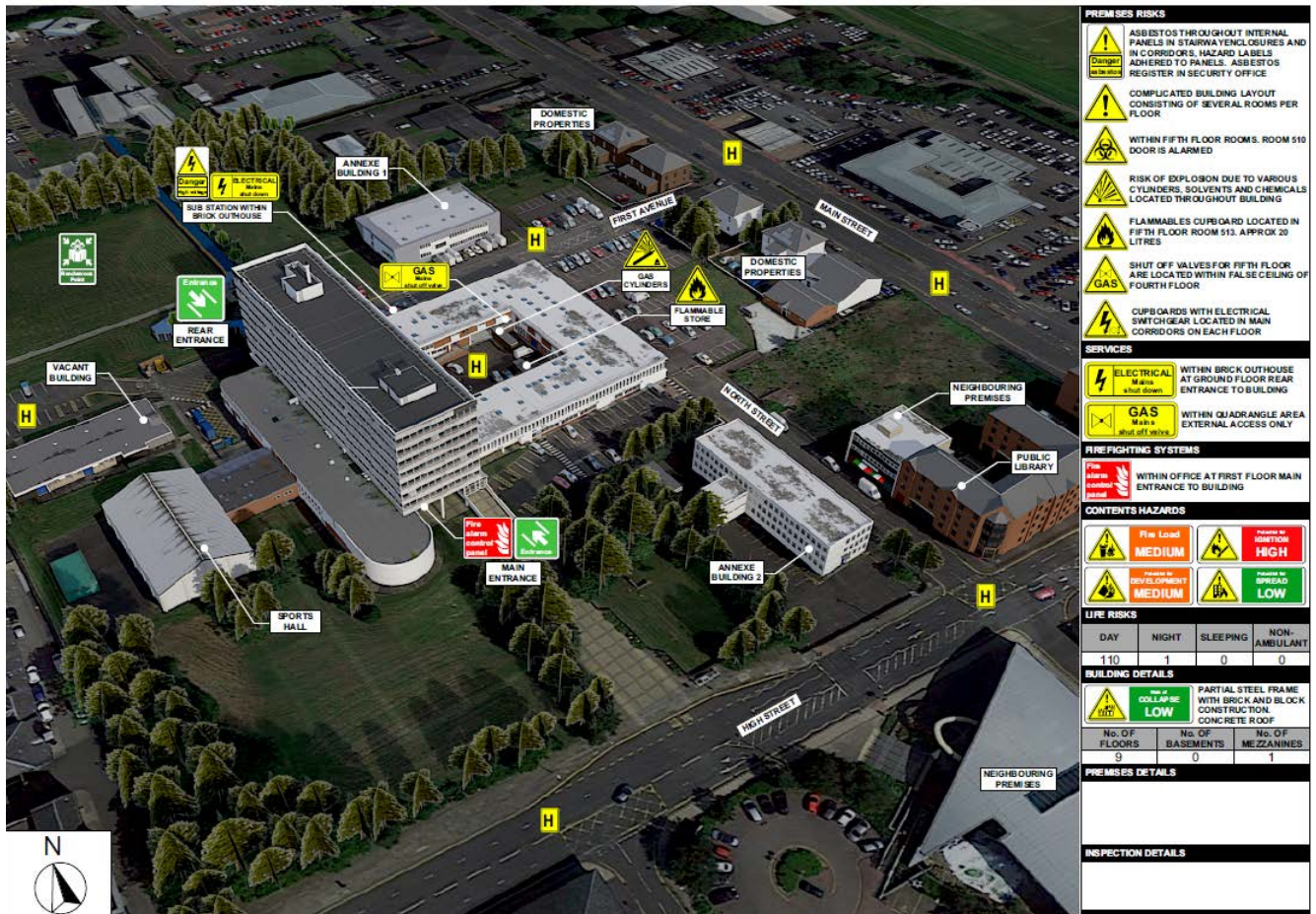
The Fire Service Response Plans (FSRP) that are produced are a pictorial image of the entire site which typically shows the layout and entry and exit points of the site. There are also various risk areas highlighted such as gas and electrical shut off points, locations of any external chemical storage, and the location of fire hydrants. This provides a quick and easy pictographic summary of the initial risks to crews attending and is designed to not only assist the initial crew attending the incident but to be utilised throughout the incident. An example of a FSRP can be seen in Figure 3.

We consider the FSRPs to be an example of good practice in providing information that can be easily read and understood giving relevant risk information in a visual format. The example in Figure 4 is one of a 3 dimensional internal layout plan of the same building. The plans that are available on the system are a mixture of both 3D or 2D, an example of a 2D plan of the same floor of the same building is shown in Figure 5.
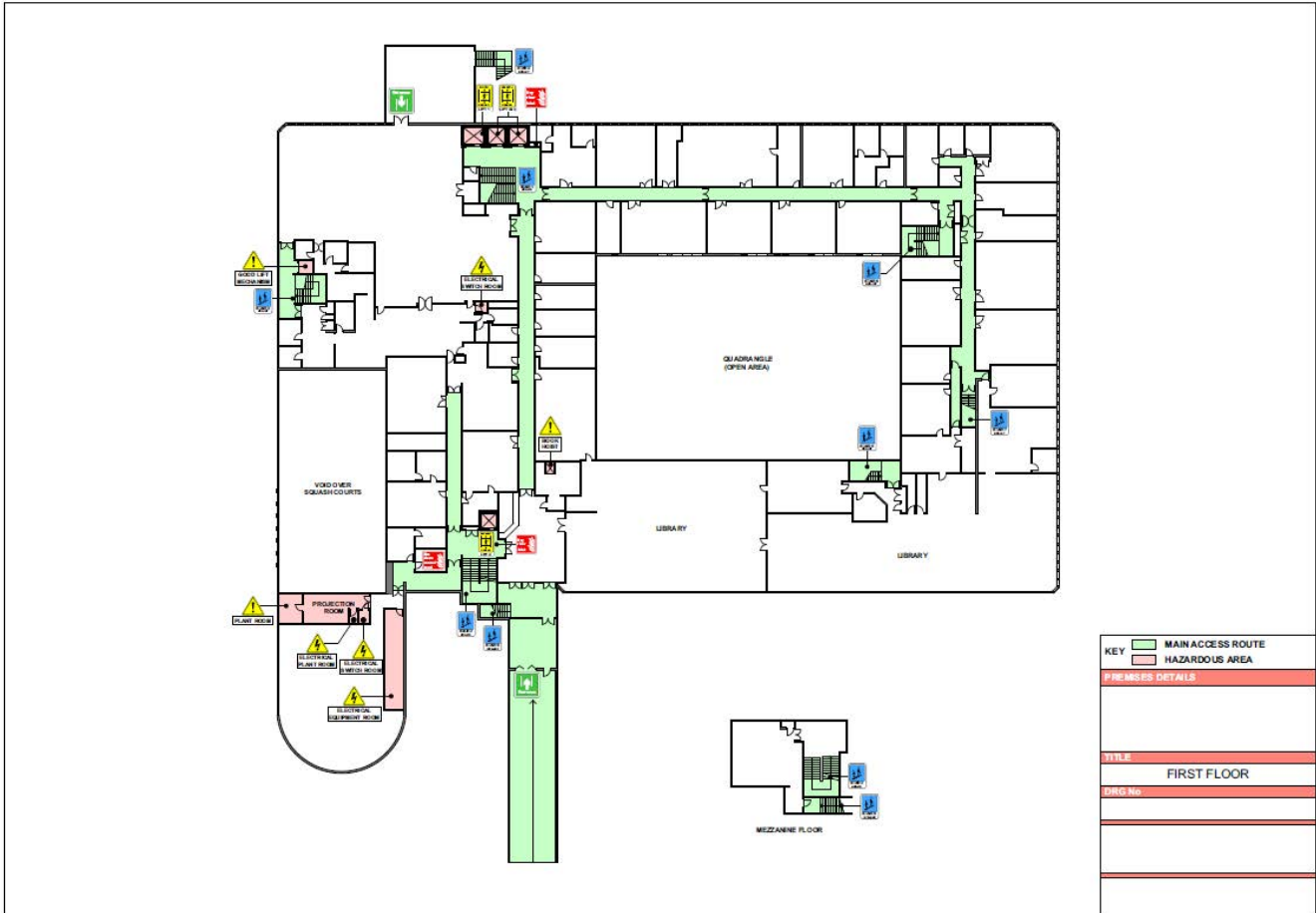
During our visits we encountered information on premises that had a variety of plans available, some with a full range and others with more limited information and more basic plans with no FSRPs.

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20   Image FSRP courtesy of the SFRS

Figure 4 Example of a 3D plan:[21]

Figure 5 Example of a 2D plan:[22]

In relation to its functionality the tablet is operated in a very similar manner to that of any of the smartphones that are available in the UK. The feedback from station-based personnel regarding the speed and ease of use of the tablet was, on the whole, positive in that they thought that the tablet would bring additional functionality and speed to ORI compared to the MDTs which they considered slow, and on some occasions prone to crash and required to be restarted.

The tablet is essentially a large storage device with all mapping and all risk premise details for the whole of Scotland. The tablet is updated via a Wi-Fi connection in each station appliance bay. During our fieldwork we were made aware of connection problems in some of the more remote fire stations in Scotland. We were also informed of issues with the update process and that crews were required to ensure that the appliance drivers carried out a manual intervention to ensure that the tablet was updated on a daily basis, or on RDS training nights.

22   Image of 2D plan courtesy of the SFRS

4.4_National OI resources

The processing of SSRI is carried out both by station-based firefighters and also by non-uniformed support staff.

A number of staff changes took place around the time of the creation of the Service and many of the support staff previously involved in conducting SSRI visits and supporting operational crews in the collation and recording of SSRI were relocated or left the Service. For example, the former Grampian Fire and Rescue Service had a dedicated team of seven risk assessors, with additional support staff for producing building plans and to update systems, all involved in producing SSRI. The majority of these staff are no longer involved in this type of work.

The SFRS took the decision to establish a dedicated OI Unit comprising Operational Intelligence Officers (OIOs) and computer-aided drawing (CAD) operators. The Unit has six OIOs within the three SDAs, located as follows:

West SDA: two OIOs located in Hamilton;

East SDA: two OIOs located in Newbridge;

North SDA: two OIOs – one located in Dyce and one in Inverness.

The OI Unit's role is to augment the work done by operational crews in the collection and management of OI.

The establishment of the OIO team has been ad hoc. We have not been provided with any assessment of the workload requirements across Scotland or a business case in relation to the personnel that have formed the team. We think the lack of detailed assessment of the workload has been contributory in the very limited development of the team since its formation.

There is a CAD supervisor and ten CAD operators. These staff create plans and when necessary, 3-dimensional images of complex premises for which the Service has site specific information. The CAD team is located as follows:

West SDA: CAD Supervisor and six operators located in Hamilton;

North SDA: three CAD Operators located in Dyce and one part-time post in Dundee.

The national OI team is managed by an OI Manager and there is an OIO supervisor and a CAD supervisor. The OI Manager reports to a Group Manager responsible for OI. This Group Manager also has responsibility for providing a common methodology and approach to managing the identification, gathering, analysis, provision, audit and review of SSRI.

OIOs are responsible for collating OI data collected during visits and for providing training and support to operational crews. For example, in the Highland LSO area the local OIO has been supporting the development of a core team of local OI 'champions' amongst firefighters based at a number of fire stations across the area. Similarly in the Dumfries and Galloway LSO area, OI 'champions' are utilised in RDS fire stations to ensure a capability across the area.

OIOs upload data to the OI system where required and provide a data quality check of work carried out by operational crews. The OIO team can deploy peripatetically to areas of particular need across the SFRS. OIOs can also be used to gather information on large or complex premises.

The establishment of the OIO Unit was completed over a period of time. Some of the OI staff being in post from November 2016, the most recently recruited operative started in March 2018. Therefore, by the time the new process went live in April 2018 some of the team had less than one month's experience. The level of experience of the OIOs varies, due in part to the time in post, but also due to a lack of previous experience and knowledge, with only two of the team having any form of fire service experience.

Although issued for England, there is useful guidance in the 2012 Fire and Rescue Service Operational Guidance – Operational Risk Information[23]. This suggests that Fire and Rescue Services need to ensure that those employees involved in undertaking the operational risk information processes are competent to:

- accurately identify hazards to firefighters, society, environment, community, heritage;
- are capable of making professional judgements taking account of the availability of information, the severity and likelihood of risk being assessed and the critical nature of the risk management options;
- understand the range of risk management options available to mitigate the risk identified;
- understand their responsibility for the safety of others and the effect of their actions on the effectiveness of the safe person principles; and
- understand the legislative framework within which the FRS operates.

Although the decision was taken to create a national OI resource, a training plan for OIOs was not put in place. We would have expected that the decision to develop an OI unit, would have included a detailed plan setting out the role of an OIO and what training would be put in place to develop someone into that role.

In order to achieve the stated goals for OI, the national team must have sufficient skills and knowledge to carry out their function effectively. Of the six OIOs, only two have direct experience of fire service operations. We recognise that arrangements are now in place to ensure that new OIOs are mentored by a more experienced colleague and would be supported in conducting a visit before being allowed to conduct one unsupervised. We feel that not having an earlier structured and in-depth process was a missed opportunity. Since the conclusion of our fieldwork, work has been underway to develop a training plan.

The training that has been provided for the OIO team is extremely limited. There is no evidence of a training needs analysis for the OIOs and there has been no comprehensive training delivered.

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23   Fire and Rescue Service Operational Guidance Operational Risk Information
      https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/5914/2124406.pdf

Integrity, Objectivity, and Fairness.

The following is a quote from the above mentioned Fire and Rescue Service Operational Guidance – Operational Risk Information in reference to the training and competence of personnel involved in the ORI process.

"There are many tasks in an operational risk information management system where it may not be a (sic) relevant for all staff involved to have operational competence – for instance information communication technologists and non-operational community safety or technical fire safety staff. When utilising individuals, who are not required to have an operational competence as part of their role, it is important to recognise the limitations of their knowledge, skills or understanding of operational issues. The credibility and justification of the process will only be achieved if those who will use the operational risk information management system outputs have confidence in the process's integrity and robustness.

Similar quality controls will need to be applied when utilising the information to gain familiarisation and execute planning assumptions. This activity, which also provides essential feedback, again requires supervision and oversight by individuals having competency in operational tasks and incident command."

We consider the lack of development to the OIO team is a risk to the Service. Particularly as the OIOs have a remit that includes co-ordinating and providing assistance to others within the SFRS in relation to the Operational Intelligence (OI) process and carrying out the initial data gathering for complex premises. OIOs are also an integral part of the approval process before documents go onto the OI system. At the time of the inspection not all the OIOs have the skills and experience to fully assess the risks that firefighters may encounter in the variety of premises across Scotland.

4.5_How OI is collected

From the 16 April 2018 the SFRS has a new written policy for OI. The policy objectives are stated as being to outline the SFRS intention to safeguard, as far as is reasonably practicable, firefighter safety at operational incidents through the provision of risk critical information accessible at the point of need. The policy also sets out its definition of OI and the role of OI in supporting incident commanders (IC) during incidents.

- OI Policy;
- OI Management Guidance;
- Operational Intelligence Information Gathering;
- Completion of Risk Scoring Matrix; and
- OI System Guidance and Training.

Prior to the new OI policy going live, legacy procedures were in use within the three SDAs. The new policy includes transitional requirements therefore there will be a period of time before it will be wholly in place. Further, until such time as the tablet roll out is complete there will be, in some areas, an interim period where legacy system procedures are still in use.

During our early fieldwork, operational crews in each area were following the legacy guidance for scheduled re-inspections and collection of data, with the exception of crews in the former Central Scotland Fire and Rescue Service area who were using new SFRS procedures as part of the pilot project for the new system.

Each legacy service had a policy and process in place to obtain SSRI. The processes were broadly similar across the eight legacy services, though there were differences in the quantity of information, or level of detail held, and the way in which information would be displayed to crews when interrogated.

During our fire station visits, we found similarities around how SSRI was recorded and how visits were organised and managed. In most wholetime stations we visited, one Watch Manager has the reference for managing the risk information process. It is that person's responsibility to allocate re-inspections, across all the Watches at the station. It is usual practise for visits to be rotated across the Watches over time, so that each Watch has the opportunity to visit each premises.

In one area we found that responsibility for managing visits was delegated to individual Watch personnel. In this case, individual crew members are allocated, as part of their individual annual performance objectives, the task of managing visits and record keeping. We think this a good example of engendering a culture of ownership and responsibility for risk information.

A list of SSRI premises was held on generic excel spreadsheets on common computer drives. These contain basic information such as the premise's name, address, premise type, date of the last visit and scheduled revisit date, (based on the legacy policy revisit schedule). The records are colour coded to indicate which Watch is allocated the revisit. In some areas further fields are used, for example, the date that plans are uploaded to the MDT.

During our fieldwork we encountered a wide variation between LSO areas in the number of premises on their systems. The City of Edinburgh is an example of an area that has a very low number of premises on its OI list; in Kirkcaldy and Dunfermline there are very high numbers. For example, one fire station in Edinburgh has 20 premises recorded while one fire station in Fife has 600.

It is likely, given the scale and variety of premises within the City of Edinburgh, for example, that there are a number of sites which may present a risk to firefighter safety and if an incident occurs in such a premise, risk information will not be available to crews attending the incident. We believe that the low number of premises in certain areas is a short-term risk to the Service. The new SFRS procedures, which contain a major prescriptive element, should reduce this risk, provided that there is adequate focus given to the acquisition of premises' information which may present a risk to firefighter safety.

The SFRS has policies and processes in place to allow information sharing. There are examples of Fire Safety Enforcement Officers identifying premises where they have identified and communicated a need to record risk information for certain premises.

Occasionally local authority building control would make legacy services aware of a potential building of interest through the licensing or planning consultation processes. In the legacy services of Dumfries and Galloway, and Fife, this process was more routine as the service was a department of the local authority. In the latter, this is likely to be the reason for the large volume of information held there.

What we found for RDS personnel varied, in a majority of areas RDS personnel are not utilised to collect information or carry out inspections. Due to the time pressures for training of RDS personnel, there was little or no time to carry out inspections during training nights. With the exceptions of the RDS 'OI champions' mentioned elsewhere in the report, under the new OI system the fact that RDS personnel do not have to be trained with the additional skills and knowledge to carry out inspections and initial information gathering, reduces the additional training burden that the new system places on RDS personnel.

We did however find some good examples of where RDS personnel are being used as 'champions' for SSRI in their particular area. This system was being utilised in the more remote areas in Scotland where geography required these tasks to be completed by locally based personnel. In the Highland and Dumfries and Galloway areas, we found locally arranged systems of OI 'champions' being utilised to good effect. This allows a small cadre of RDS personnel to be given additional training on OI and will allow them to build up a level of expertise on the subject as they become more experienced. In the Highland area the OIO has been working closely with the 'champions' across the area in developing the required skill set.

Under the new arrangements within the Service for OI, the primary responsibility for OI rests with the service delivery (response) part of the SFRS. Operational staff still have a role in collecting information. There is an expectation within the policy that LSO management teams will guide operational personnel within the LSO area in the arrangements for undertaking visits. The policy defines that middle managers in LSO areas will support the delivery of OI by developing, maintaining and monitoring plans in support of OI delivery and ensure that a robust system of collation, review and familiarisation is in place.

Station Managers are expected to develop a programme to ensure that information is gathered and refreshed appropriately. The policy also makes fire station personnel responsible for delegated tasks in relation to the inspection programme, including making initial contact with the owner/occupier, informing them of the purpose of the inspection and the importance of maintaining the accuracy and currency of information.

The OIOs have a support, training and specialist advice role in the provision of OI.

The policy sets out to achieve a common standard across Scotland through defining a standard programme and a risk matrix against which premises can be assessed. In the premises categorisation, there is a centrally directed programme and a locally determined element. In the centrally directed programme, specified premises types are listed for compulsory inclusion in a programme with a prescriptive visit frequency relative to the premises type. The locally determined element allows LSOs to include premises that are not otherwise included in the central programme on a risk assessed basis. A copy of the programme is reproduced in Appendix 2.

We have no evidence of a Scotland wide impact assessment being carried out in terms of the workload generated, or the skillset required, by the new OI process and subsequent timescales required to deliver what is required within the OI policy. We did however find a good example of a local impact assessment being carried out in the Perth and Kinross, Angus, and Dundee City LSO area.

We are of the view that the criteria set out in the OI programme for high rise buildings will give a workload that is unachievable with the resources available. The programme requires that all buildings of five floors and above will be inspected quarterly for risk information purposes and visited annually by all fire station Watches for familiarisation. We do not know the number of buildings that meet this criteria, but subjectively the number must be large in most of Scotland's cities.

From the commencement of the policy in April 2018, for new inspections to be undertaken, the OIOs and operational crews use the SFRS standard forms for gathering SSRI and a risk matrix for categorising the data and re-inspection timescale, where appropriate. Revalidation of the existing legacy risk score or categorisation is being undertaken. In this case the premises will be scored against the new risk matrix and a new risk score or category will be allocated to it.

SFRS has an OI General Information Note (GIN) which sets out guidance for operational personnel to gather and enter information within the Operational Intelligence System (OIS). There are 16 sections within the database and the GIN sets out what should be recorded in each, providing worked examples where necessary. These sections are designed to collect information on the premises regarding subjects such as; general premises information; building structure; life risk; firefighting information; firefighting systems.

The level of information collected is an increase from that previously collected in some legacy service areas. Provided that accurate information is recorded and quality assured we consider this to be an improvement on some legacy arrangements. We do however believe that in order to adequately assess fire engineering solutions and building structure elements within some premises presents a knowledge level and experience requirement that is not normally held by operational crews, and potentially, OIOs. Therefore a reliance will be placed on obtaining the necessary information from premises owners and managers.

4.6_ORI Systems and use

The legacy systems previously in use within SFRS included a mixture of 'off-the-shelf' products which had significant annual contractual costs, and a single 'in-house' developed solution (VMDS) which was used within the legacy Strathclyde and Dumfries & Galloway service areas. There were no contractual costs associated with the use of VMDS.

We discuss the new system for ORI and its development and roll out in detail elsewhere in this report. Essentially the information, either legacy or newly collected is contained on a database.

For reasons which we have explained, once the new OI system is rolled out across Scotland, appliances will have two display screens in the cab. One is the legacy MDT (shown on the left of Figure 6) and one is the new demountable rugged laptop or tablet.

Figure 6 Appliance crew cab with two devices and thermal printer

Once the information has been collected, it, along with any site and building plans were loaded onto the system used to operate the MDT, shown previously with the new tablet, there were different systems in the legacy areas.

The MDTs are fairly old technology, essentially a computer linked to a touch screen. MDTs were initially installed in appliances as part of a national Firelink Radio system roll out in 2009 and 2010, as they form part of the appliance status and mobilising system. There were also variations in the legacy systems installed on them to process and display the information. As can be expected with IT products, more modern systems would be expected to perform better when compared to older technology. Some legacy MDTs are slow to retrieve and display information, though others perform better. The search facilities also vary, with the retrieval of information relatively straightforward in some, in others it is problematic finding information.

Since the implementation of the new policy in April 2018 all the SSRI information that has been collated and collected is on a standard form. Once complete the documents go through an approval process and are placed on the system. If the appliances in the area have not been fitted with the new tablet, a copy of the form in a pdf format is placed on the legacy system. This ensures that crews have the most up-to-date information available whilst the roll out of the new tablets continues.

The Service has decided not to transfer all legacy information onto the new system and that only information in the new format will be included in the new OI database. Until such time as the legacy premises are re-visited and information collected in the new format, the Service will review any appropriate legacy information and transfer it onto the system in a PDF format.

Introduction in the use of OI to personnel is done as early on as a new entrant's trainee course when input is given on Operational Intelligence. Later in a firefighter's career, should they choose to do so, when undertaking progression to a role of an incident commander, the use of OI is covered in greater detail in the incident command courses commencing at Incident Command Level 1 (ICL1), progressing through to Incident Command Level 4 (ICL4).

The Service's three control rooms have risk information contained on their mobilising systems. The Service is moving towards a new command and control system. The new system will be common across all three controls, where currently separate systems exist. There are minor differences in how mobilising information is referenced. Currently legacy Strathclyde OC has a street based mobilising system, where risk information is recorded against the whole street, in Edinburgh OC there is a mix of information, some is stored against property specific locations, for other pieces, it's street based, Dundee OC has premises based information and the new SFRS gazetteer is utilised.

The information held on these mobilising systems can be sent directly to responding crews either by being printed out at the fire station on the paper turnout slip which crews refer to on receipt of the instruction to mobilise, or the information can be sent to the appliance MDT.

The SFRS has a Control Operating Procedure (COP), its purpose is to give guidance to OC personnel on the procedures and techniques to be utilised when call handling. It covers the various questioning and listening techniques aimed at deriving sufficient information from the caller to ensure that the necessary response is dispatched to the incident. From our interviews with OC personnel, depending on the nature of the call and on what the caller is saying, OC personnel may question the caller further to glean more intelligence regarding the incident and on occasion, risk information, from the caller in order to pass this onto the attending crews. This further information may also be used to amend the initial mobilised attendance.

Currently incident commanders are able to access OI using the MDT installed and permanently fixed in the cabin of the fire appliance. The MDT system consists of a touch-screen monitor, which is driven by a fixed [computer] elsewhere in the cab. We describe in further detail elsewhere in this report the new system which is being brought in to replace the current MDTs. ORI has a role in supporting incident commanders resolve the incident they are mobilised to and should be considered as part of their dynamic risk assessment. Effective gathering and use of ORI makes a significant contribution to effective incident management and the development of safe systems of work.

Incident commanders, on first attendance at an incident will have a wide range of information to consider from a variety of sources. Our report concentrates on the data from the pre-planning stage of incident command. We have set out examples of what ORI is, such as Standard Operating Procedures, SSRI, etc.

The SFRS has a suite of Standard Operating Procedures (SOPs) covering a variety of incident types. The SOPs are available on the SFRS intranet, the MDTs, and Incident Commanders Aide Memoir (a folder containing laminated copies of information) and the tablet devices. There are also SOP summaries which provide a summarised version of the SOP.

As part of our fire station visits we interviewed staff to learn about how the legacy systems operated, their views on the quality of the information and its accessibility, and we sample tested user knowledge and interaction with systems, predominantly MDTs and in the pilot project areas, the tablet device.

We acknowledge that it is unrealistic to expect the SFRS to have information on every building or location that they may be expected to attend. We were interested to know what, if any, barriers existed to prevent information from being used where it did exist.

From our discussions with operational crews we routinely found that limited use is made of risk information. This occurs for a number of reasons, but can be listed as:

■ a lack of time en-route to an incident, too many other things to consider or do en-route;

■ familiarity with the incident type or premises location involved, therefore an assumption that they won't learn anything new;

■ doubt over the accuracy of the information; and

■ reliance on information from the premises occupier on-scene.

Recorded Risk Information is more likely to be referred to as the duration of an incident develops. Incident commanders said that as an incident settled down they may take time to look to see if there was any premises specific information available. Reference was also more likely to be made if the incident was likely to develop in size which would thereby necessitate attendance of a senior officer. A senior officer will often ask the initial attending officer in charge where they got their risk information from and whether they have retrieved information from the MDT.

Our sample testing of crew's knowledge and interaction with the systems found a variety of system capability and performance.

On MDTs in a number of locations, we found legacy SOP guidance which had been superseded by SFRS SOP guidance. Clearly these should have been removed from the MDTs in order to prevent reference to potentially out-of-date guidance. Where we found this we informed the local managers of the existence of out-of-date policies and procedures to have them removed from the system.

Overall, when staff were asked to retrieve data they were able to find it or confirm that no record existed. However, performance in this task within the RDS workforce was less confident. In some locations this may be expected. RDS personnel on a pump that regularly attends incidents in support of a wholetime-crewed pump, may have little need to access information. However, we would still expect a degree of familiarity with the equipment, as an RDS crew may still have to access and retrieve information when acting in a command support pump role or when operating in a stand-by role at another station. In these circumstances it is even more important the crews are able to use MDTs as they may be mobilised to unfamiliar premises and therefore have to place more reliance on the information held.

In the pilot area fire stations we visited we found variation in the proficiency of use of the tablets. In these stations there was a tendency to fall-back on the use of the MDT as it contained more legacy premises specific risk information. For example in the Falkirk area, there was little information for the COMAH sites in the Grangemouth area available on the tablet by comparison to what was known to be available on the MDT. We found a similar situation at other stations we visited in the East SDA after the roll out of the tablet, there was little information available on the tablet, compared to the MDT.

We understand that as premises are visited using the new information gathering form, either as a revalidation of existing data or for a new premises, it will be added to the new database and therefore will appear on the tablet device. We see this as a risk. There may be premises for which data already exists on the MDT, but it hasn't yet had a visit under the new policy and therefore the tablet will contain no information on it. Crews may therefore develop a tendency to automatically default to the MDT with the potential to subsequently miss more up-to-date information which may well be on the tablet.

In addition, when the legacy MDT OI system is switched off in order to realise part of the project benefits from licence costs savings, crews will have to rely entirely on the information on the tablet. At the time of our inspection the Service has decided not to include all legacy premises information, previously available on the MDTs, onto the tablet unless an inspection has been carried out utilising the new format. Until such time as the legacy premises are re-visited and information collected in the new format, we are informed that the Service will review any appropriate legacy information and transfer it onto the system in a PDF format. We consider this a significant risk for the Service in that there is information that is held by the Service which may not be available to operational crews attending incidents.

Appliances from the SFRS and the neighbouring services of Cumbria and Northumberland regularly operate over the border, either responding to incidents or providing operational cover when appliances are unavailable. These vehicle movements operate under agreed protocols. Both neighbouring services describe having a good relationship with SFRS local station managers and personnel. These relationships are formalised through Memoranda of Understanding (MOU). At the time of writing one MOU had been recently reviewed and the other was in the process of review. The MOUs, as well as setting out strategic detail, also include a level of operational information, covering subjects such as radio talk groups and BA operating procedures.

The risk information processes in operation within Cumbria and Northumberland are broadly similar to those that operated in the legacy Scottish services. Namely, there are information recording forms, populated with relevant risk information regarding premises. The form information is then uploaded to appliance MDTs. Depending on service and risk category of premises, CAD drawings (some outline drawings, others full CAD plans) are also available. The revalidation of information is carried out in line with service policy and a risk matrix. In one service all premises are visited annually, in the other the re-visit frequency varies depending on assessed risk, on a scale of one to five.

The number of premises also varies between services, one has less than 100 records, the other over 300. By comparison SFRS in April 2018 had around 20,000 premises records on the legacy service systems. In both English services a central system is used to manage the data. In Cumbria this is a SharePoint site. Northumberland use the CFRMIS Fire Risk Management solution, a modular system also used by Northumberland's other bordering services of Durham and Darlington, and Tyne and Wear. CFRMIS is an electronic data management and recording system. The process of data collection, with the exception of OIOs, is broadly similar too, with the use of operational crews in data gathering, some information is also gathered or managed by Fire Safety Enforcement staff in one service.

The exchange of premises risk information with the SFRS is usually by email and, in the case of Northumberland, information relating to premises in Scotland is uploaded to appliance MDTs and is available to crews. Cumbria has no information relating to premises in Scotland, although the SFRS has information on premises within Scotland close to the border which we feel should be shared with Cumbria. We are aware that the SFRS has risk information relating to premises in England close to the border with Cumbria.

Where there is exchange of information, this is carried out in a comparatively informal basis between individual officers. Due to the lack of formality there is a risk that that relevant information may not be shared. We think that the SFRS should seek to do this using a more formalised process, with the use of agreed periods for review of information and generic mailbox details, rather than relying on individual contacts. SFRS General Information Note (GIN) for OI data gathering in its Risk Management Action section does ask the officer involved in the gathering of data to consider whether the information should be shared with Cumbria and Northumberland.

We would encourage the Service to ensure that data sharing includes operational risk information with all key partners, including Cumbria and Northumberland FRSs.

As we have described above a tablet device is used by other services, some to gather information, such as for Home Fire Safety Visits. The SFRS does have plans to exploit the flexibility that the mobile device offers, however, plans to extend its use to other functions have not been finalised.

4.7_How the SFRS monitors its performance

SFRS has an Operational Intelligence: Performance Framework, the current version being for the years 2017-2020. The stated purpose of this framework is to define the Operational Intelligence (OI) performance standards through which the SFRS will deliver its statutory duties in respect of the Fire (Scotland) Act 2005. However, the Fire (Scotland) Act 2005 requirements on the Service, in relation to obtaining information, are much wider than for just premises based information. Therefore there is a shortfall in the framework achieving its stated purpose, and in our opinion the Service's legal obligations.

The OI performance framework mentioned above has been published with a four year plan for OI. A copy of the plan is replicated in table 5. As can be seen the ambition for year one is to consolidate the existing information through a process of revalidation.

Table 5 showing 4 year plan for OI

	Ambition
Year 1	Primary focus on quality, with standardisation of existing OI in line with OI Policy and supporting documentation.
Year 2	Creation of new OI, with focus on performance.
Year 3	A blend of creation and revalidation , with focus on performance.
Year 4	Majority of revalidation and minimal creation, with focus on performance.

The OI Performance Framework defines the frequency of familiarisation visits for specific risk types. The risk types and visit frequency are shown in Appendix 2. Whilst we would commend the aspiration to visit 100% of the types of premises outlined in the risk type table, we are of the opinion that it is not achievable and in some cases not necessary. For example, the framework requirements for visiting 100% of premises over five floors and above quarterly we believe will create an unachievable burden, particularly in major cities such as Edinburgh and Glasgow because of the proliferation of this type of property. A lack of any type of impact assessment on the implementation of the new OI policy would suggest that the Service has not fully assessed the numbers and workload involved in the performance framework.

During our fieldwork the feedback we received on the OI website was that it was not user friendly and that searching for premises that were due to be inspected was not easy. Furthermore, at the time of inspection there was no facility to carry out a performance report at station level and that this was required to be carried out by a member of the OIO team. Therefore, regular up-to-date performance reporting is not straight forward and requires the input of personnel external to the service delivery area that is carrying out the OI visits.

Currently, performance monitoring reports within the OIS can only be created by OIOs. The Performance Framework delegates responsibility for managing OI to Local Senior Officers (LSOs). LSOs are therefore reliant on OIOs providing data to enable them to appropriately monitor performance. We consider this to be a barrier to adequate performance monitoring.

4.8_The SFRS's Control Futures Project

On 26 September 2013, the SFRS agreed, as part of wider Strategic Intent proposals to rationalise its inherited property estate, and to reduce the number of Fire Controls from eight to three. Following further consideration of a business case and options appraisal developed by officers of the Service, Board members approved, in January 2014, a new delivery model with three Controls to be based at Johnstone, Tollcross in Edinburgh, and Dundee. The Command and Control Futures (CCF) project was developed to implement this new model.

In a 2015 report[24], we observed that a fundamental step in creating a single national fire and rescue service is the harmonisation of the different systems used by the predecessor services for command and control. By this we mean the systems in place for receiving emergency calls, identifying the appropriate assets to dispatch, managing the incident from a logistical point of view (command management is typically provided by an incident commander on scene), and managing the information flow and resultant data collection coming out from the incident. At the time of the 2015 report, in our view, the SFRS Command and Control Futures project was its most challenging project, in terms of the physical and technological changes required.

In a 2017 inspection report[25] on the SFRS OC in Dundee we also made some comment on the CCF project.

The CCF project adopted a phased approach to the delivery of Strategic Intent objectives. These phases included the migration of the legacy controls in the West into Johnstone, the East into Tollcross, the North into Dundee and the final stage (split into parts) is to migrate all three Controls onto a single Control operating system.

The last of the migration of the control rooms took place in 2016 with the Control in Aberdeen (the legacy Grampian Fire and Rescue Service control room) moving to Dundee on November 2016 and the control in Inverness (the legacy Highlands and Islands Fire and Rescue Service control room) also moving to Dundee on December 2016. The remaining phase of the project to migrate the three controls into a single operating system is still to be completed. The contract to carry out this work was signed on 13 April 2018 during our early fieldwork stage.

By the commencement of this inspection, the Control Futures Project had advanced towards the projected end state and is due to conclude in February 2020.

The scope of the Project is to provide a Command and Control Mobilising System (CCMS) across the SFRS area of operations that:

- Deals with the receipt and answering of emergency calls;

- Dispatches resources as part of any emergency response to calls received;

- Facilitates incident management; and

- Facilitates the support of mobilised resources en-route to or at the scene of operational incidents.

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24   HM Fire Service Inspectorate "Performance Management Information Systems in the Scottish Fire and Rescue Service" http://www.gov.scot/Resource/0047/00476788.pdf

25   HM Fire Service Inspectorate "….." http://www.gov.scot/Resource/0052/00522953.pdf

As we identify elsewhere in this report, the new tablet devices are not connected to the current mobilising systems. The statement of requirements for the new CCMS requires the suppliers to integrate their solution with a number of existing and new SFRS applications, including the OIS. Although the CCF project requires the new mobilising system to have the ability to interface with the OIS, by the end of the CCF project that interface will not exist, because although the new CCMS will be able to transmit mobilising information to an appliance or resource, the new tablet devices are unable to receive these messages.

There is a lack of evidence to establish a reason why the SFRS introduced new tablets that are not linked to the CCMS although we have been advised that this decision was taken on the basis of technical advice not to do so.

Whilst we understand that it is possible to connect the OIS into the CCMS after a code of connection has been approved by Airwave, there are no plans to carry this out. As stated earlier in this report, we consider the lack of connectivity of the two systems has resulted in a failure to deliver effective risk information to front line crews.

As an interim measure to make information more readily available we understand that it will be possible for UPRN numbers to be sent through the mobilising system once the new CCMS system is functioning, currently projected to conclude in February 2020. This would enable crews to manually search for premises utilising the twelve figure UPRN sent as part of a mobilising message to the MDT. Furthermore, we have also been informed that it is technically possible to have the mobilising system indicate if there is SSRI for the particular premise that appliances are being mobilised to. Therefore this would inform crews that SSRI existed for the premises and allow them to manually search for it.

During the benchmarking that we carried out in a number of FRSs in England, we discovered that all the services we visited had on at least one occasion updated their MDTs. South Yorkshire FRS is currently in the process of replacing all of its MDTs with tablets which have been purchased as part of a joint procurement process involving seven FRSs. Although it should be noted that they will not be demountable.

Additionally SYFRS operational crews have been using tablets to gather non ORI information and also use them to carry out HFSVs however, the tablets have not been used for ORI purposes as this function is still carried out by the appliance MDTs. At the time of our visit a pilot had commenced where the tablet was being utilised to gather ORI information during inspections.

We have been unable to establish the reason why the SFRS has chosen to introduce a tablet device into appliance cabs, in addition to existing MDTs, when single solutions exist elsewhere. We feel that an opportunity has been lost.

As we have indicated the current appliance MDTs, as part of the secure Airwave fire service radio system, receive mobilising information. Due to the nature of the Airwave system in order to connect to it, a code of connection certificate must be obtained for the device. At this time the tablets do not have such certification and are therefore unable to connect to the Airwave network and receive any information transmitted over it. It is therefore currently not possible to simply replace the aging MDTs with the new tablet and have a single integrated

solution in appliance cabs. Even if the necessary work was undertaken to achieve certification for the tablets, it could be expected to take considerable time, possibly a number of years, to decommission the MDTs and remove them from appliances and complete the physical connection of the tablet to the Airwave system.

The Airwave system is due to be replaced by a new UK wide system ESN (Emergency Services Network) using 4G or 5G technology, however, there have been significant delays in this project and it is unclear when this solution may be rolled out in Scotland.

It is technically possible for the new tablet devices, if they were enabled, to receive messages, similar to mobile phone text messages. It would therefore be possible to send mobilising information in the form of a text message which under the current set-up is not feasible.

The inability for the tablet to receive mobilising information and automatically cross-refer this to premises information is a shortcoming which we believe will make it unlikely that the initial attending crews will refer to the tablet, manually searching for information, which may or may not be there, particularly during the limited time available en-route to an incident. We see this contributing a significant risk to firefighter safety.

5_Conclusions

We have made reference within this document to the expectations of the HSE in relation to risk information. We are able to confirm that the SFRS is able to demonstrate areas in which it meets some of these expectations. However, we feel that the SFRS falls short in a significant number of areas.

For clarity we will now repeat these expectations and summarise our assessment.

Table 6 HSE expectation and HMFSI assessment

HSE Expectation: All services should ensure that:	HMFSI Assessment
They provide adequate training for staff gathering and assessing risk critical information	The SFRS has developed a LCMS training module for OI. This is a modular system that allows the user to access only the parts of training that are relevant to their particular role. There was positive comment from crews regarding the LCMS package. However, we are of the view that a suitable training and development programme has not been put in place for OIOs. Meaning that the personnel who are likely to be responsible for carrying out the more complex information gathering do not have the requisite skill set to carry out the task adequately. These personnel are also responsible for carrying out the 'stage two' approvals for information being added to the system.
There is a system in place to actively collect relevant risk critical information	The SFRS has provided personnel with guidance on what to consider and how to identify premises to target for the collection of information and there is a system in place to enable the collection and storage of relevant information. However, we believe that the system only partially supports this expectation and we are of the view that the system should include a suitable scheduling element to assist in progressing site visits. The system put in place we believe does not discharge the Service's legal obligation to obtain information due to the fact that the system is purely for premises based risks and doesn't include other, non-property based sites which may contain risk, such as bodies of water.
They monitor the effectiveness of these arrangements	The policies supporting ORI do have defined review dates and the OI system does have the ability to generate performance type information regarding the progress of visits, e.g. how many have been undertaken and at what stage they are at, but access to this system feature is limited and therefore information is not readily available to managers responsible for implementing and overseeing the policy.

Integrity, Objectivity, and Fairness.

Risk critical information is kept up to date and is in a suitable format	The SFRS's OI Performance Framework defines the frequency of familiarisation visits for specific risk premise types. We believe that the visit schedule is unachievable, given that of the 10 categories of premises listed, 100% of the known premises within nine of these categories are expected to receive a visit at least once per annum, and for one of them as many as four times per year.
	Where necessary fire service response plans have been devised for premises. These provide, in graphic form, a pictorial representation of the premises with relevant risk information, such as the location of services shut offs. We see this as a useful resource in a suitable format. These plans are created by the SFRS national CAD team. This is a limited resource and could therefore be expected to take some time to create plans for the premises requiring them. Further, the software available on the tablets is not capable of displaying existing legacy CAD files and 100,000 of these files require to be manually converted to a suitable file format.
Incident commanders are able to access the information to inform their command decisions	Incident commanders are able to access information on the tablet, however, it is not an automatic process, requiring manual intervention, and we consider that this is a barrier to it not being used. There will be no link to the mobilising system in the short to medium term.
	All historic legacy area risk critical information has not been transferred to the new system, only information collected under the new policy. Meaning that although information may be held, it will not be accessible to incident commanders, until a new visit has been made to a premise and it is uploaded to the system.
	At a basic level the new tablets have less relevant information for incident commanders, such as map overlays for cordons, vehicle crash data and measuring tools, than was available on legacy MDTs. Additionally the system is purely for premises based risks and doesn't include other, non-property based sites which may contain risk, such as bodies of water.

In our report on Risk Based Operational Decision Making in the Scottish Fire and Rescue Service[26] we stated that: *"The SFRS still lacks comprehensive operational risk information provision to crews and oncoming commanders. Although significant strides have been made in filling this gap, and we have been advised that this work is actively ongoing, this will remain an important vulnerability for the Service until comprehensive, up-to-date operational guidance is available to all operational crews and incident commanders."* There would seem to have been limited progress made on this front since that report was published.

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26   Op. Cit.

6_Recommendations

We make the following recommendations in regard to the provision of Operational Risk Information in the SFRS:

- Given the lack of certainty around the implementation date of the new ESN system, the SFRS should implement a review of the sustainability of the existing MDTs, which will continue to be used for mobilising. In conducting this review the Service should consider the feasibility of replacing the MDT with the new tablet device.

- In the short term, the Service should develop a process that will enable the tablet to be connected to the mobilising system. The process should allow the incident location to be identified automatically providing responding crews quick access to SSRI without the requirement to manually search for the location.

- As an interim measure the Service should ensure that the new mobilising system has the capability to provide crews the UPRN, via the MDT, for premises that the Service hold SSRI for. This will improve the likelihood that initial attending crews will access information.

- In the short term, the type of risk information held on the tablets should be increased to provide at least the same level of information and functionality as that of the former legacy service systems, as shown on table 4.

- The Service should develop its OIS website to enable performance reporting to be carried out by LSO based personnel, and to allow station based personnel to manage inspections and visits rather than rely on locally created spreadsheets. Development should take account of end user requirements so that the updated system delivers what is required.

- Future developments of the OIS and the tablet should take account of end user requirements. A structure should be put in place to collect and collate feedback from users and station based personnel who are involved in carrying out ORI duties and personnel who use the ORI at operational incidents.

- The Service should ensure, where possible, that there is suitable Wi-Fi connection at all stations in Scotland to ensure that the tablet devices are updated on a regular basis. The system should also include an automatic update function to ensure that there is no reliance on a manual update carried out by crews at stations.

- The Service should consider the capacity and remit of the OIO team and other personnel involved in the OI process such as operational personnel. There is a considerable workload at the current time and one that may not be achievable given the size of the team and the wide remit that they have.

- The Service should ensure that the OIO team are competent to carry out their role. The Service should develop and implement comprehensive training and development for the OIO team. The team require to be developed across the range of skills that they will need to lead on OI inspections and to undertake their approval duties.

- The Service should further develop the use of 'champions' as used within the Highland and Dumfries and Galloway LSO areas, to enhance OI capacity within RDS fire stations.

Integrity, Objectivity, and Fairness.

- The Service should consider methods of improving the culture of utilising ORI at incidents and should monitor its use by adding a specific question or section on the use of ORI by incident commanders, to its Operational Assurance Policy and Procedures.

- The Service should carry out a review of the premises or sites that it has SSRI for. The review should focus on the areas that have comparatively low numbers of premises on the OI database. The plans in the initial stages for the new system do not focus on the creation of records for previously unidentified premises. In particular, we believe a focus on the low number of premises in the City of Edinburgh is required.

- The Service should progress the data sharing with partners which is planned as part of the Service's Digital Strategy. This includes access to relevant risk information from key partners where that information would assist operational crews.

- The Service should formalise data sharing with the neighbouring FRSs of Cumbria and Northumberland.

We make the following general recommendation to the SFRS:

- In 2015, we recommended[27] that the SFRS should strengthen the use of an option appraisal and evaluation approach in resource planning. We now further recommend that the Service should embrace the appraisal and evaluation principles set out in the Scottish Public Finance Manual in its project work. In particular, there should be agreed methods of evaluation, including end user feedback and details on how the evaluation will shape the direction and content of a project as it progresses.

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27   HM Fire Service Inspectorate "Planning and defining Service Resources in the Scottish Fire and Rescue Service", 2015,

Glossary and abbreviations

An explanation of abbreviations and terms used in this report can be found in the table below.

analytical risk assessment	A detailed and formal record of the significant findings of a risk assessment – usually carried out as an incident develops or becomes more complex.
appliance	Vehicle used for the transport of personnel and equipment to an emergency.
CAD	Computer-aided drawing
CCMS	Command and Control Mobilising System
CFRMIS	Community Fire Risk Management Information System
CPD	Continuing professional development
Dynamic risk assessment	The assessment of risk in a rapidly changing environment at an incident where decisions are sometimes made in fast-moving situations, with incomplete or inaccurate information. The outcome of the dynamic risk assessment will contribute to the incident commander's operational plan. It helps to inform whether crews should be operating in the risk area.
FSE	Fire Safety Enforcement: the function of enforcing legislation in respect of non-domestic premises.
GRA	Generic risk assessment
HMFSI	Her Majesty's Fire Service Inspectorate in Scotland
HSE	Health and Safety Executive
LAI	Local Area Inspection: A type of regular inspection of SFRS service delivery carried out by HMFSI in local authority areas.
MDT	Mobile Data Terminal: A touch screen device used to retrieve data stored relating to, for example, premises specific information such as plans or Standard Operating Procedures to be employed at incidents.
OI	Operational Intelligence
OIO	Operational Intelligence Officer
OIS	Operational Intelligence System
ORI	Operational Risk Information
Overlays	A method for showing geographic features or information as layers over a base map, for example, the hydrant overlay will display all hydrants plotted on the map.
Safe person concept	See Appendix 3

Integrity, Objectivity, and Fairness.

SDA	Service Delivery Area: the SFRS is organised into three geographical areas for service delivery (East, North and West).
SOP	Standard Operating Procedure
SFRS	Scottish Fire and Rescue Service
SPFM	Scottish Public Finance Manual
SSRI	Site specific risk information
SSSI	Site of Special Scientific Interest
the 2005 Act	The Fire (Scotland) Act 2005 This Act contains the legal duties, powers and organisation of the SFRS.

Appendix 1: HSE Report Recommendation

It is important that the risk critical information provided to an Incident Commander is accurate, timely and suitable (i.e. easily understandable and applicable to the incident). Services need to ensure that their systems to capture and maintain risk critical information are robust to allow appropriate information to be used and understood at the point of use.

All services should ensure that:

- they provide adequate training for staff gathering and assessing risk critical information;
- there is a system in place to actively collect relevant risk critical information;
- they monitor the effectiveness of these arrangements;
- risk critical information is kept up-to-date and is in a suitable format; and
- incident commanders are able to access the information to inform their command decisions.

HSE risk information expectations

The service has a policy on the risk information they need to gather and how it is to be disseminated.

The policy is supported by arrangements that deliver:

- Acquisition – of risk critical information.
- Evaluation – of the information.
- Planning and Communication – how to present and convey the information ensuring that the appropriate people are aware of it.
- Preparing – responding to the information by reviewing response and on-scene operational arrangements.
- Training – to ensure firefighters are equipped to recognise and deal with the risk identified.
- Application – ensuring the information will be used on the incident ground.
- Re-evaluating and Updating – the information.

There are criteria to determine whether a site is inspected and re-inspected under Fire and Rescue Service Act 2004, section 7(2)(d), Fire (Scotland) Act, section (9(2) (d). These include:

- risk assessments/classifications of priority and frequency;
- who decides whether to inspect; and
- methods of familiarisation e.g. site visits, GRA based lectures etc.

Integrity, Objectivity, and Fairness.

The service demonstrates effective liaison with major hazard sites and through the variety of forums and partnerships, such as the Police, Building Control, Local Strategic Partnerships, Community Planning Partnerships and Strategic Coordinating Groups available, actively seeking to obtain and share risk information that contributes to firefighter safety. Where necessary there are data sharing protocols to enable the exchange of information and the development of plans.

Personnel engaged in risk analysis (e.g. fire inspectors) and/or the developments of operational plans are competent, or, if in development, provided with adequate levels of supervision.

Operational Crews are provided with information that is: accurate, relevant, understandable and timely.

There are processes for sharing information across the service, for example between Prevention (Community Fire Safety) and Protection (Fire Safety Inspectors) teams, front-line firefighters and training departments (if appropriate). Information is also shared with neighbouring FRSs to ensure safe and effective interoperability before and during incidents.

Effective communication strategies are in place to ensure that the findings from the risk analysis process and the control measures put in place to control risk are conveyed to firefighters (and other operational staff) as required (e.g. through turnout messages or risk cards* (sic)). There are good plans and arrangements to pass information that becomes available during incidents to incident commanders.

There is a control system that ensures regular auditing, reviewing and tracking of amendments to risk information.

Processes and procedures are in place to allow Incident Commanders to obtain additional risk information for hazards at incidents if they need it.

Information from response debriefs and post incident reviews is used effectively (sic) used to inform policies and practices across the organisation.

Appendix 2

	Risk Category	Action	% Visitation & Frequency
1.	**COMAH Sites**	Upper and Lower tier sites will be visited annually in order to update information for operational response purposes. Implementation of a programme for Operational Personnel familiarisation, with all Watches visiting sites on a 5 year rolling programme.	100% of known sites per annum
2.	**Hospitals**	Relevant NHS Hospitals, Private Hospitals and Hospices which provide in-patient care will be visited annually in order to update information for operational response purposes. Implementation of a programme for Operational Personnel familiarisation, with all Watches visiting sites on a 5 year rolling programme.	100% of known premises per annum
3.	**Care Home**	Care Homes will be visited annually in order to update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting care homes in their local area annually.	100% of known premises per annum
4.	**Sheltered accommodation**	Sheltered Accommodation will be visited annually in order to update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting sites on a 5 year rolling programme.	100% of known premises per annum
5.	**High Rise Buildings**	All premises comprised of five floors and above, will be inspected quarterly in order to gather/update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting sites within their local area annually.	100% of known premises per quarter

6.	**Fire Engineered Solutions**	Premises that contain significant active and passive fire engineered solutions will be visited annually in order to update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting sites on a 5 year rolling programme.	100% of known premises per annum
7.	**Airports**	All Airports will be visited annually in order to update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting sites on a 5 year rolling programme.	100% of known premises per annum
8.	**Secure Establishments**	All Secure Establishments will be visited annually to update information for operational response purposes. Implement a programme for staff familiarisation with all Watches visiting sites on a 5 year rolling programme.	100% of known premises per annum
9.	**Special Risks/ Critical National Infrastructure**	In addition to the aforementioned categories, other risks, identified by the SFRS and partner agencies that require OI. Familiarisation frequencies will be agreed by R&R on an individual basis.	100% of known premises per annum
10.	**SDA identified programme OI visits of Premises/Sites**	Once an initial inspection of a premises has been carried out, the risk categorisation determined and the outcomes entered in the system. The frequency of OI Audits is automatically calculated and proposed by the OI System.	Very high/High – 100% known risks per annum Medium – 50% known risks per annum Low – 33% known risks per annum Very Low – 20% known risks per annum

Appendix 3
Definition of the Safe Person Concept

An approach in health and safety used to make the fire service workplace as safe as possible. The concept has two aspects; organisational responsibility and personal responsibility. Organisational responsibility defines the support the organisation must provide to keep its workforce safe. Personal responsibility defines the skills personnel must possess in order to control the risks inherent in an emergency situation. (Dynamic Management of Risks at Operational Incidents: 1998)

The safe person principles that establish the foundation for effective health, safety and welfare management in the operational environment require Fire and Rescue Authorities to plan for and implement suitable arrangements for:

■ The assessment and selection of people with the appropriate skills, abilities and attributes for development as firefighters, who are capable of making safe judgements in an emergency situation; who are aware of their role in an incident command system, their own safety and the safety of others, and who can accept and safely implement the instructions of their supervisors, managers and commanders.

■ The assessment and selection of people with the appropriate skills, abilities and attributes for development as supervisors, managers and commanders who will exercise professional judgements at incidents that minimise, and where possible, eliminate the risk of harm to operational personnel; and who can give clear and effective instructions in the risk critical environment of operational incidents.

■ The provision of structured training to establish and maintain the skill, knowledge and competence of firefighters, their supervisors, managers and commanders in those technical and operational matters necessary to maintain safe and effective operations at incidents.

■ The establishment of suitable arrangements for the maintenance and recording of the incident command skill and competence of supervisors, managers, and commanders.

■ Ensuring safe and effective operations by the provision of detailed guidance on how to establish a safe system of work to deal with the range of operational incidents a Fire and Rescue Authority will be called upon to attend.

■ The provision, maintenance and response of suitable appliances and equipment necessary to deal with the range of operational incidents a Fire and Rescue Authority will be called upon to attend.

■ The provision and maintenance of any necessary personal protective equipment, including respiratory protective equipment, to ensure the safety of operational personnel when responding to, and in attendance at, the operational incidents a Fire and Rescue Authority will be called upon to attend.

■ Identifying, gathering, analysing, and providing operational risk information; and suitable arrangements for its review. These arrangements should ensure any site-specific information is accurate, easy to interpret and accessible to Incident Commanders when responding to and in attendance at the operational incidents they will be called upon to attend.

■ The provision of suitable welfare arrangements for rest, recovery and replacement of personnel during operational incidents. In the case of protracted incidents, this should include suitable arrangements for refreshment and re-hydration and take account of the weather. Fire and Rescue Authority welfare arrangements should also include post-event support for those personnel exposed to an event or occurrence which has the potential to cause anxiety and stress or some similar emotional response.

■ Learning from post-event analysis, incident debrief and review, including a process for recording and managing information gained and any subsequent developments or changes to safe systems of work.