FIRE SERVICE RESEARCH AND TRAINING TRUST

Report date: 31.01.18

FUTURE DIRECTION SURVEY RESULTS

Introduction

This report provides an analysis of the responses given in the FRSTT Future Research Survey. This survey was circulated via SurveyMonkey and 75 responses were received. The survey closed on the 30th January and a draw took place for the winner of £50 of Marks and Spencer vouchers.

The three sections below discuss each question in turn.

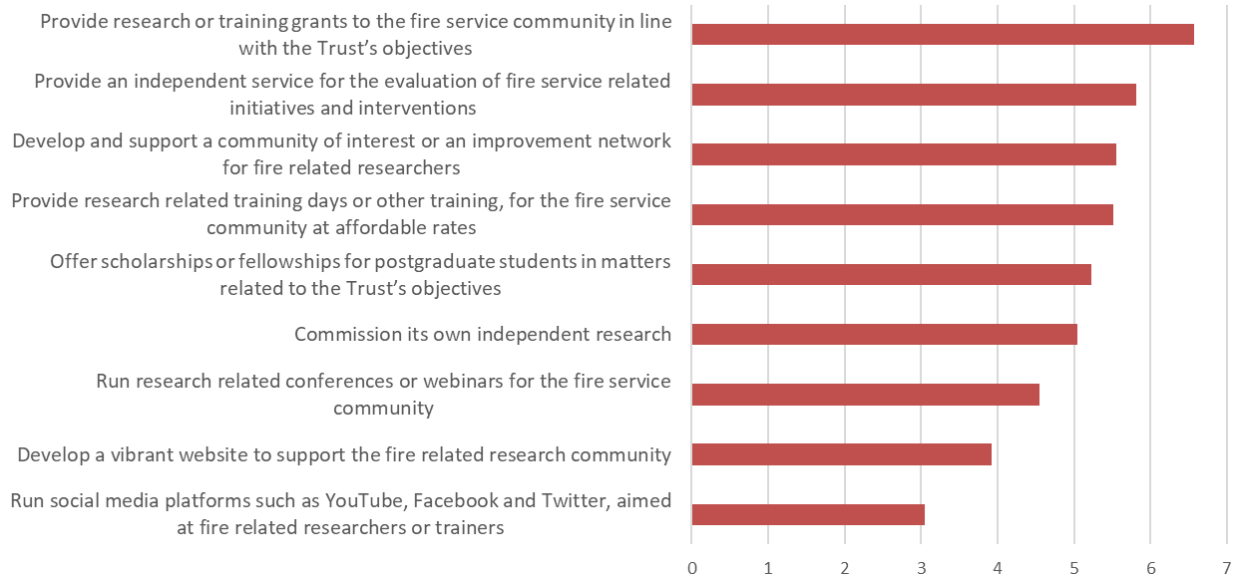
What the trust should do

The first question asked people to put the following statements in order, from most to least important:

- Develop a vibrant website to support the fire related research community;
- Develop and support a community of interest or an improvement network for fire related researchers;
- Provide research related training days or other training, for the fire service community at affordable rates;
- Offer scholarships or fellowships for postgraduate students in matters related to the Trust's objectives;
- Run social media platforms such as YouTube, Facebook and Twitter, aimed at fire related researchers or trainers;
- Run research related conferences or webinars for the fire service community;
- Provide an independent service for the evaluation of fire service related initiatives and interventions;
- Provide research or training grants to the fire service community in line with the Trust's objectives;
- Commission its own independent research.

Figure 1 provides an overall weighted average score for each statement, created by weighting each answer and calculating a sum.

Figure 1: Overall score for each of the statements



The statement with the highest score can be said to be more important overall.

The statement *'provide research or training grants to the fire service community in line with the Trust's objectives*' has the highest overall result, followed by *'provide an independent service for the evaluation of fire service related activities'.*

The people who deemed these options to be of highest importance tend to be FRS managers, FRS researchers or analysts, and FRS trainers.

The statement with the lowest score was *'run social media platforms such as YouTube, Facebook and Twitter, aimed at the fire service community',* with only two people choosing this as their first option. '*Developing a vibrant website to support the fire related research community*', also had a low score overall. This perhaps suggests that whilst communication is necessary, only something simple is required.

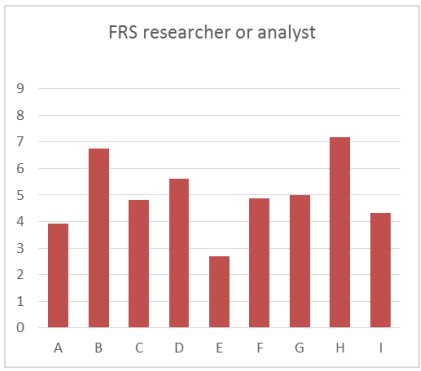
'Commissioning independent research' was the statement which had the most mixed response. Fourteen people chose it as the most important statement, most of whom had identified themselves as an operational or retired firefighter, whereas ten people chose it as the least important. The people who placed a lower priority on this tended to be FRS managers and those representing a membership body.

People were asked to choose the type of person/role that best described them, allowing for multiple responses. Figure 2 presents the weighted average score for each person type. These results should be treated with caution due to the low numbers presented in each graph, however they do highlight where one idea for the future is particularly favoured by a particular group.

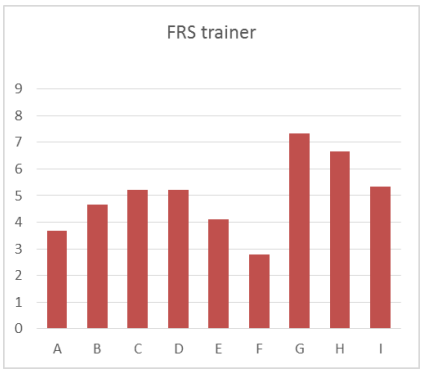
For example, FRS researchers or analysts would like the Trust to focus on providing research or training grants, as would those representing a membership organisation. Developing a

community of interest is also favoured by FRS researchers and those representing an organisation that can provide research to the FRS.

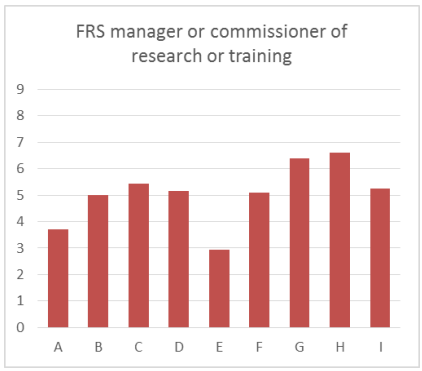
Figure 2: Weighted averages of responses split by person type



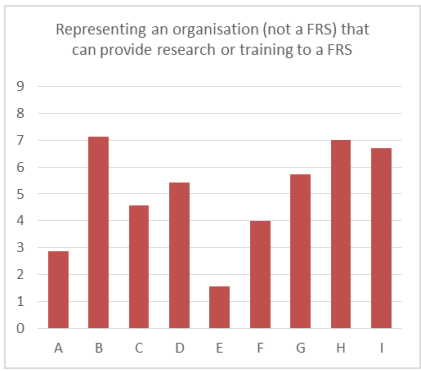
(16 responses)



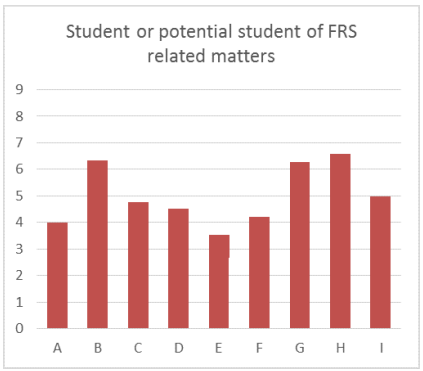
(9 responses)



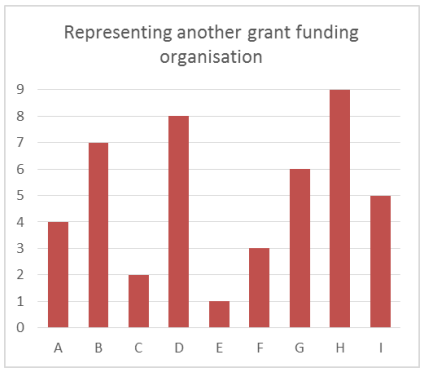
(21 responses)



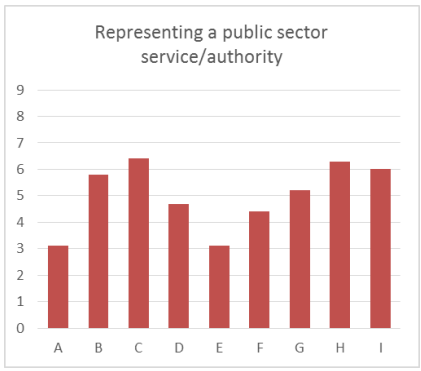
(7 responses)



(6 responses)

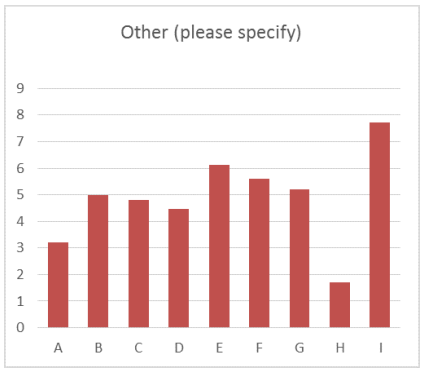


(1 response)



(10 responses)

(5 responses)



(21 responses)

A	Develop a vibrant website to support the fire related research community
B	Develop and support a community of interest or an improvement network for fire related researchers
C	Provide research related training days or other training, for the fire service community at affordable rates
D	Offer scholarships or fellowships for postgraduate students in matters related to the Trust's objectives
E	Run social media platforms such as YouTube, Facebook and Twitter, aimed at fire related researchers or trainers
F	Run research related conferences or webinars for the fire service community
G	Provide an independent service for the evaluation of fire service related initiatives and interventions
H	Provide research or training grants to the fire service community in line with the Trust's objectives
I	Commission its own independent research

Top three FRS related areas in need of further or new research

People were given the opportunity to suggest three things which they believed to be areas in need of further or new research. The responses were extremely varied. Where possible, the responses have been classified into broad categories to enable analysis of the results.

Community safety

The broad category of community safety / prevention had the most responses. A number of these related to analysing and evaluating the impact of prevention activities, including to reduce demand.

Other responses were more specific, for example, how to educate adults to be safe, the 'sociology' of fires, and how FRSs can collaborate with other services/partners to improve identification of vulnerable people.

Response

There were four mentions specifically relating to the impact of response times on fires.

Fire safety/built environment

Many responses referred to high rise buildings, including escape methods, whether 'Stay Put' is still the correct message, building construction, materials, including cladding, timber and sprinkler systems. Regulation was mentioned several times and the FRSs role post RRO 2005.

Incident Command

Replies relating to Incident Command were varied. They included the impact of JESIP (Joint Emergency Service Interoperability Principles) on the Incident Command, human factors and errors in Incident Command, the whole structure of Incident Command and functional roles. Furthermore, to look at evaluating Incident Command following complex incidents.

Emergency Services Interoperability / Co Responding

Somewhat linked to the above are replies relating to emergency services working together in a response environment, and co-responding. Others suggested research into specific incidents which were relatively new to the FRS such as emergency medical response and MTFA, should be further researched. The latter responses were often from operational staff.

Firefighting operations and techniques

Amongst responses in this category included those about specific techniques, such as ventilation and its impact, RTC techniques, water flow, suppression, cold cutting equipment, changing rescue techniques. Other responses were more general, just mentioning tactics and if they remain appropriate in new types of buildings. Responses in this category tended to be from operational firefighters/officers.

Related to this were suggestions to look into fire behaviour and science, but none of responses elaborated on this.

Health and wellbeing

A topic that was brought up often by a wide range of people was firefighter wellbeing. This included looking into the physiological effects of firefighting, cardiovascular risk, mental health, cancer risk, physical fitness. Some people further suggested research into the link between firefighter health and the culture of an organisation.

Future of fire service

Interesting suggestions that fall into this category are the optimum size of a FRS, the relationship between response and prevention, different duty systems and co-responding, although that is covered separately.

Technology

There were several mentions of research into new technology, both in an operational context such as drones, radios and GPS on the fire ground, and in the wider FRS organisation such as in prevention and in better mobilising systems.

Research, analysis, modelling

Some responses referred directly to data, analysis and modelling techniques; the use of them and new methods to interrogate data. These responses generally came from FRS analysts/researchers. An emphasis was placed by some on sharing of information.

Training

Finally, several responses related to training. However, these responses did not particularly suggest the need into further research into training, rather than more, or better, training is required. Given the number of responses about training, this is perhaps something that needs to be looked into separately.

A full list of responses is provided in the appendix.

Further feedback

The final question asked respondents for any further thoughts relating to research, the Trust etc.

The Trust

One common theme was that the Trust was not widely known about. There is a suggestion that to raise the profile of the Trust, there should be a dedicated person in each FRS who can champion the Trust and it's aims.

Although there are current research groups available, these aren't well known, so the Trust has a good opportunity to create something for all.

Another respondent commented that there is a need to market, promote and publicise prior work which the Trust has been involved, demonstrating the breath of research undertaken. Furthermore, it should be a requirement that those taking grants should provide follow up to assist with this promotion work.

Data and Analysis

One commenter believes that data and data analytics are key to help determine gaps in knowledge in fire safety and operations. One person identified that whilst dedicated external research is good, FRSs do not use their own data that they create on a daily basis well enough, for decision making in general, but also to question 'conventional wisdom' which is likely based upon someone's best guess 20 years ago.

Culture of Research

A final point that was highlighted is the culture of research by FRS personnel, suggesting that people have become reliant on being told information, and not doing personal research to investigate things themselves. Another commenter thinks that access to research and info for all levels of staff would be beneficial.

Conclusion

The results from the survey have shown that there is a definite and wide-ranging need for further research into many aspects of the fire and rescue service.

It is possible that some of this research and analysis has already been undertaken, but is not widely known about, or is difficult to find.

Next Steps

The survey results, along with other interviews and information, will be considered by the Trust at its meeting in the Spring 2018.

Appendix 1 – All comments from Question 2

The comments are not in any particular order.

EMR
Physiological Impact of Firefighting across the age-bands, in both males females, and across different ethnic origin groups
Correlation between people polcies and safety outcomes
Following up Grenfell findings
Making savings in support departments
Fire Science
The effects of ventilation on fire development (clear definition of the advantages and disadvantages)
Fire service medical response pre-ambulance
POOR management
Appliances and equipment
stay or go policy and related procedures
Understanding human behaviour
Ventilation natural and mechanical
Fire behaviour
How to deal with modern construction fires such as high rise
I think the above emphasis on the Trust sharing results is really useful. It feels like it should be a requirement that those that have been funded should present results. I think a conference focusing on the diverse range of areas the Trust funds would be interesting and useful to the FRS
On board appliance technology
Health & wellbeing
Human factors
Modern Methods of Building Construction
Cold cutting technology and its actual usefulness.
Cancer to firefighters
Virtual Realility for Training
Self-regulation of the Regulatory Reform (Fire Safety) Order
Evaluation
Impact of health and social 'wider work' on FRS personnel
Assistive Technology
High-rise Buildings Fire Safety
Where are knowledge gaps?
'Approved' building material (Grenfell)
Road Traffic incidents
Ways to encourage services to be more open to learning
firefighting media for modern day fires. eg CAFS, Presurised water
The collaborative role of emergency service responders
High Rise Fires
Impact/efficacy of Safe and Well visits on fire prevention

Command Support and Functional Roles
impact of prevention work
Women, physical fitness and the aging process
suppression
Community risk
Fighting fires in high ris buildings
building regulation
Monitor and Evaluation - Social Value methodology
Impact of prevention activities i.e. consequence of doing X amount of safe & wells
Tactical firefighting
Fire testing
co responding with ambulance service
prevention - demand reduction
Composite materials (cladding)
Technology for prevention
fire ground command, decision making & human factors
What makes people vulnerable to certain emergencies.
Evidencing the impact of prevention activities
safety
Horizon scanning and future threats
Firefighter training.
Comunity Safety
Behavioural research- of public and personnel
Incident Command
Front Line Training (Interface between operations and science/engineering)
fire behaviour
Engaging young people to become involved in the fire industry.
firefighter fitness
Domestic sprinkler systems
Firefighter personal development
Incident Commander Decision Making
Eston
Firefighting strategy and tactics, UHPL, CAFS, Ventilation control
Provision of date to support NFCC prevention calendar
Information to BA crews in compartment fires i.e. robust team communication & environmental information
The role of FRS aim 21centruy balance of response to prevention
MTFA
Cardiovascular risk factors across different the age-bands, in both males females, and across different ethnic origin groups
impact of inclusive leadership on safety outcomes
Spontaneous volunteers and FRSs
Change management
Effects of Fire in Modern Buildings
Tactical flow rates

hybrid vehicle response
fragmented service
training
Injuries and fatalities associated with dwelling fires
Organisational culture
PPE and RPE
High Rise
Community engagement
Whilst not a specific objective of the Trust (albeit looslely linked to the efficiiency and effectiveness object), I think areas such as modern delivery models, diversity and changing operational delivery are all worthy areas for the Trust to consider.Diversity in particular. Services are now recruiting for the first time in years - both the police and military have been sucessful in achieving much more diverse workforces - there is an opportunity for FRS to do this too.
Sustainable/alternative fuel supplies for vehicles
Forensic science
Effects of culture on firefighting
Human factors / error in command and control situations
Frontline appliance capabilities.
RRO appropriateness back to certifying
Firefighting Technolgy
The dynamic model of fire safety knowledge
Social return on investment
The role and value FRS can add to fire safety prevention, legislation and services post RR(FS)O 2005
Mental Health
Timber Structures
Impact of response times on effectiveness of FRS
Specialist Rescue Subjects
Influence of response times on the consequences of fires
looking more into the training of RTC techiques focused on vehicle construction not just "you cut it here" approach
Societal view of emergency services role
Preventing the spread of fires
Partnership working to improve identification and subsequent engagement with vulnerable people
The impact of JESIP on the Incident Commander
Waste fires
training & management
Building standard
Whether FRS are best placed to police fire safety non compliances
safe evacuation
Ecconomic Cost of Fire - outdated
Research into new crewing models where retained is no longer viable/working
Operational guidance
Sprinklers

FRS involvement at floodings
emerging risks
Fire investigation
Internal databases
positive pressure ventilation
What can we do with open data and new analytical techniques to better predict risk.
Understanding communities and developing messages to engage with them effectively
dignity
Holistic picture of community safety as a whole
Efficiency and effectiveness of current fire service.
Training
Wellbeing
New tech
Quality Assurance systems focused around community safety objectives
turnout system
training courses to become sector skilled in fire risk assessment and management
ventillation
Fire safety in older buildings - high rise
expansion of the firefighter role
Human Factors of Incident Command
Grovehill
Digitalisation on the fireground
Movement of people relating to gps
How to encourage adults to be safe i.e. roads, homes and workplaces
Gender diversity in FRS
Assisting Other Agencies
Mental Health and Wellbeing of Firefighters
Effetiveness of responses to complex incidents
Safety of crewing incidents with less firefighters
Use of Technology in FRS Training and Ops
Firefighting media
national standardization for retained firefighter pay.
firefighter fitness
Large scale emergencies associated with terrorism and natural disasers
Leadership
Drone use for operational survey
Building contruction
Developing fire improvements
Sharing information on the latest technological advances would also be useful. I would also focus on the word 'sharing'. See my comments below.
Address issue of waste ie: equipment turnover
Command competence
Performance shaping factors (fatigue, emotion...)
Long term health risks for ageing workforce

national intergration of background staff to reduce work duplication.
building construction and behaviour
Enhanced Comms and GPS location in buildings
The profile of the building user envisaged by the building designer
Prevention activities and research into future campaigns
Correlation between FRS injuries and deaths and the training arrangements and brigade priorities.
Modelling Techniques
Optimum size of a FRS
the Changing nature of rescue
Firefighter welfare
Modern BA communication eg better radios
Effective decision making in fire service culture
More effective methods of extinguishing fires
Successful change management in modern FRSs
Co-Respose Trauma Care and Casualty Management
Ongoing fixed installation work
construction
Leadership
whether the ADB Vol2 FRS requirements access for firgfighting are fit for purpose for modern buildings
enforcement
Response times relationship to fire deaths
Evaluation of whether mergers that have happened between FRSs and FRSs with other agencies (including control rooms) has had a positive impact overall, not just in terms of money.
New approaches
Smoke alarms
FRS involvement at terorist incidents
collaboration
Modeling with suppression systems
Apprenticeships
fire behaviour units
What works in prevention.
Mental wellbeing of firefighters and understanding effective methods of support
equality and diversity
Safe and well visits
Research firefighting methods.
Postive Action
Big data opportunities
Building Fire Safety (and training of front line crews)
Daa analysis and interpretation to support above two points
incident command
Sharing of regulations amongst global fire services for provision of fire protection and firefighter systems.
shotguns for firefighting

How to effectively better educate people re dangers of fire
more nationally recognised firerfighter qualifications
Interoperability of Emergency Services
Southbank
Duty systems and crewing
Training requirements for new enterents into FRS
New compartment firefighting methods i.e. use of misting technology and positive pressure
Data centre of excellence across FRS
development from fire fighter to officer
cancer risk to fire fighters
different kit for different jobs . e.g RTCS
Performance of Eco Buildings in Fire
Fire Safety for Persons with Cognitive Difficulties
Fire Safety in Buildings Under Construction

Appendix 2 – All comments from Question 3

So many opportunities for future research but access to funding is so difficult. I am a physiologist with an interest in occupational health, hence mental wellbeing as well as physical health and see so many opportunities for research that may enhance the physical and mental health of firefighters.
The work of the FSRTT is not widely known throughout the sector. Please take this as an invitation to present at the NFCC Operations Coordination Committee which I chair
Create a physical & virtual centre of excellence that FRS's could visit & gain insightful knowledge exchange for sharing & learning evidence based best practice
One cultural issue the FRS faces is that personnel have stopped seeing personal reading and research as a way of gaining information. Whilst social media, face to face, vodcasts, websites etc. have a place I think there is a cultural issue that a lack of personal ownership of being informed and in particular reading are issues. This feels (to me) a really old fashioned statement but I believe it is important that we find a way to engender a culture where individuals do personal research and read rather than simply waiting for information to be spoon fed to them. I am not sure how the Trust does this but some research linked to the efficiency and effectiveness objective could look at why this culture is purveying and how it could be changed. I am happy to discuss any of these issues further and my mobile number is below. On a separate and personal note, I have had a number of projects funded by the Trust over many years and am hugely grateful for the support it has given me.
The (building) construction industry is innovating and changing much more quickly than we can keep up with them on either operational response or fire protection. You could work with BRE (Global) and others to help us (national F&R) keep up.
I think the sociology of fire safety is under-researched.
The above three are the most important areas to be discovered more.
There is a need to market, promote and publicise the prior research work of the trust in a way that clearly shows that its open to a wide range of subjects and people. This should be done in a manner that examples prior work with brief summaries for the work and outcomes. AND more importantly it should be a requirement that those taking the grants provide follow up so that it can be used in this promotion work!!
As much as there is a place for dedicated research, we could make much progress if brigades took the time to analyse the data that is generated day-in, day-out, rather than simply returning to the fire station after each incident and waiting for the next one. In my experience brigades are good at focusing on immediate needs, but bad at encouraging curiosity to explore beyond the immediate. Too often I see FRS's placing an expectation on staff to follow conventional wisdom, i.e. avoid making decisions themselves, without questioning which bits of conventional wisdom are backed by sound evidence, which are based on someone's best guess decades ago when little evidence was available, which are demonstrably superannuated or plain wrong, and which are applicable only in certain circumstances.
N/A

There needs to be more emphasis on the development and assessment of Incident Command System roles beyond that of the Incident Commander. Roles such as Command Support, Sector Commander, Operations Commander need to have their own NOS and be assessable functions with regards to competency.
Great opportunity to pump prime research and support NFCC
I would like to see our work with Children and Young People evaluated to demonstrate the impact that we are having in our localities
Re: #no3 above - there have been a few attempts at this through various means, but one that is fully inclusive of all researchers/analysts and is known about, would be useful. Not just on a need to know basis, bit like the CFOA one now.
much is changing in its operating environment and this should be researched, many policy decisions appear more politically driven than research based - independent research. I am happy to share my recent experience in applying for a grant if that would be helpful or important to the trust
Providing ipads for advocates will mean forms are already uploaded onto the system without being duplicated by numerous people, with chance of error. Also freeing up time for home safety advisors to be out in the community
Lots of learning from risk critical industries such as nuclear power and airlines. I feel research opportunities should be explored and encouraged
Any research should have an applied focus, resulting in the production of guidance and training materials which can be used by the FRS community.
There may be an opportunity for the trust to engage more with Universities who are interested in fire research. It would be good to link up FRS with Universities so they can work on more robust research activities.
Data analytics is key to determining gaps in meeting set objectives for mainly fire safety but also fire fighting operations. Operations need to progress in line with science and engineering in order to become more effective and fit for purpose.
lack of opportunity for firefighters to gain fire related qualifications
To raise the profile of the trust I suggest having an identified person in each service, 'championing' the trust and its aims and providing a link from and to each FRS
I think access to information in good R&D practice in all areas of Fire & Rescue activity would be beneficial to get the grass routes personnel doing it right from within i.e. not jumping to a solution before understanding the actual nature of the problem.