LFB in a digital world

Information and technology strategy, 2019 – 2022

April 2019

**The London Fire Commissioner
and London Fire Brigade**
The London Fire Commissioner (LFC) is the fire
and rescue authority for London and is head of
London Fire Brigade.

For more information about LFC and the work of
London Fire Brigade visit: london-fire.gov.uk.

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Foreword

This strategy sets out our vision for information and technology (I&T) services over the next three years. It makes an honest appraisal of how far we have come, what we do well and what we need to do to provide our staff with the right digital environment to enhance the safety of all Londoners.

We face a series of challenges across our work with data, information and technology and we know we need to be brave enough to face them and make changes to the way we work.

In May 2017 we asked our staff what they thought of I&T services in the Brigade. We discovered that on the whole they thought we did a good job but that we were not innovative nor did we embrace new technologies. We recognise this and provide some commentary in response.

As we developed this narrative about our vision for I&T services, we kept coming back to the reality that we provide services to staff working in diverse environments.

Our staff work:
- at the fire station
- on the incident ground
- in the community
- in the office
- in the control room.

In fact, our work on this strategy revealed the massive potential, particularly in our fire stations, for digital transformation to relieve some of the burden of our paper heavy, analogue approach. We explore some of that potential in the imagined future states – our personas – set out in Appendix A.

And this is what makes our approach to I&T special. Being able to provide I&T services across these very different environments, we need to be alive to the potential that constant changes in technology represent.

There are three distinct threads running through this strategy:
- Emphasis on a resilient and secure infrastructure.
- A focus on Cloud technology.
- A belief that data is intrinsic to our digital transformation.

We will continue to talk to our staff, work with our partners in London, other emergency services and the wider fire and rescue service to learn and deliver the best service we can. As part of that commitment, we have signed up to the Local Digital Declaration, which sets out a common aspiration for the future of local public services.

I encourage you to read this document and share your thoughts with us.

Julian Martin
Chief Information Officer
London Fire Brigade

Introduction

London Fire Brigade is here to help make London the safest global city. Our vision is to be a world class fire and rescue service for London, Londoners and visitors. In our four-year London Safety Plan 2017 – 2021, we set out how the Brigade will manage risks to communities in London along with making a contribution to national, cross-border and multi-agency incidents.

Like the best public services and companies, the Brigade needs to be lean, agile and data-driven. Multi-agency working will be common practice as part of the emergency services collaboration and it requires an evolution in how we use our I&T services to support its development. As a result, our truly mobile workforce will be able to work in a variety of places.

Not only does the Brigade need to manage risks to communities, it also needs to manage risks in the way it manages its I&T. As we seek to deliver the Brigade's vision, we find that three themes run throughout our strategy. One of the themes is about striking the right balance between the need for security and resilience with the desire to innovate and introduce new ways of working. Security and resilience should not necessarily be viewed as opposing forces but more as components of a well-designed solution.

Our other two themes are a concerted move to a Cloud based approach to our I&T provision and a firm commitment to using our data in an open and transparent way to improve our services.

With the introduction of the Local Digital Declaration in July 2018, we see a growing commitment throughout the public sector for transforming services using digital tools and technology. We have signed up to this Declaration and share its ambitions particularly as we continue to collaborate with many partners across London and beyond.

All of this provides a starting point for our strategy. Here we set out our current I&T arrangements and our plans to enhance and improve what we do, acknowledging the challenges we face along the way.
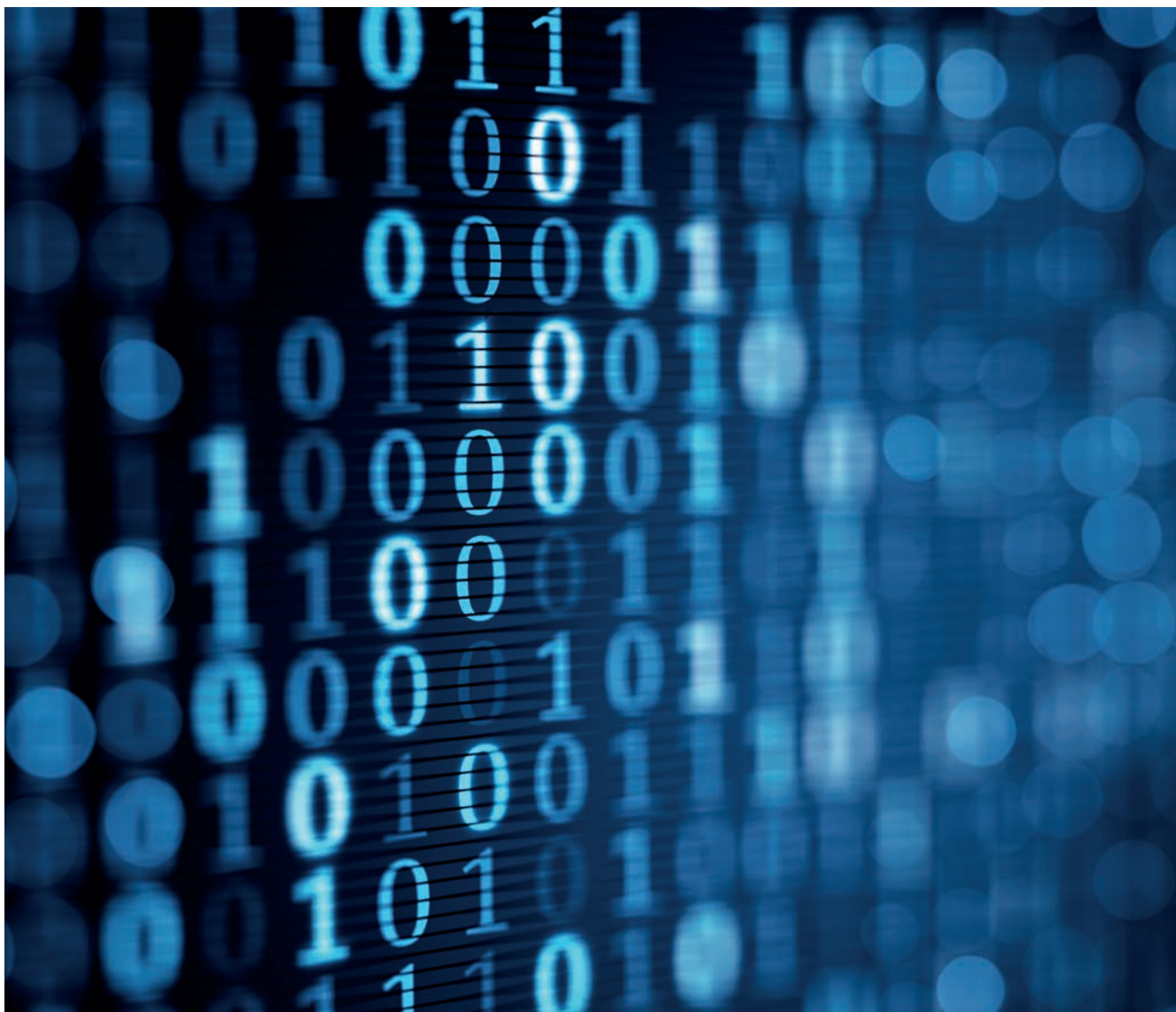
THE POWER OF DATA AND INFORMATION

Data and information are the lifeblood of our organisation; they are both vital to improving fire response, prevention and protection services to all Londoners. Everything the Brigade does depends on the effective use of data and information; either at the point of service delivery, or to check and monitor how well we are delivering our services.

The Brigade's need and uses for data and information drives the technology choices and direction of travel for I&T services. This includes:

● The systems and tools we use to create, collect or process information and data.
● The infrastructure that supports those systems.
● The devices that our staff use to access or input data and information.

WHERE ARE WE NOW?

We are really good at providing a robust, reliable I&T service and using the data and information we hold to support London Fire Brigade in its work.

We need to build on our solid technology foundations. We deployed mobile data terminals on fire engines in 2009, initiated mobile working projects in 2011 and 2016 for our fire safety staff and have a very good system for staff to access our I&T when away from the office. We want to enhance these areas even more.

What we don't do so well is to develop the elements of I&T around the edges. By this we mean the technology services that make a difference to the staff such as the social applications, enhanced Wi-Fi beyond our core service, and deployment of apps that bring I&T at work in line with what our staff experience using personal I&T and phones. These have traditionally taken a back-seat to the delivery of technology and systems for mobilising and core business services.

> " One way in which we have improved how we work is in delivering our Business Intelligence Solution project. Whilst the project is still ongoing, it aims to make a step change improvement in how we present data.

We have lots of data, it is good quality and reliable. We recognised a long time ago that as the quantity of data and information increases, we would need new and more sophisticated ways of making that data useable and accessible.

One way in which we have improved how we work is in delivering our Business Intelligence Solution project. While the project is still ongoing, it aims to make a step-change improvement in how we present data, by transforming our approach to data management. This will in part, be achieved by creating an online one-stop shop accessible to all staff – LFB Data – for all reported information. Using tools like the Azure Data Factory and Microsoft Power BI, data will be more easily accessible and useable than ever before.

The Data Protection Act 2018 and the General Data Protection Regulation is driving different ways of managing and sharing personal data, and we must deliver the core concept of 'privacy by design' in how we collect and use personal data. We are already working closely with the GLA to lead a project to overhaul data sharing among London

partners, which will have wide-ranging benefits for the way data is used to help make London a safer city.

And, with the GLA and group bodies, we have signed up to voluntarily comply with the UK Statistics Authority code of practice for statistics, which will introduce new standards for the way we publish some of our data. The abolition of the London Fire and Emergency Planning Authority (LFEPA) and establishment of the London Fire Commissioner as the fire and rescue authority for London (London Fire Brigade) presents new opportunities to be an open and transparent organisation in terms of the data and information we make available to our stakeholders and Londoners.

We are keen to participate in data projects with others, and are involved with the London City Data Analytics programme, which is being support by the Mayor's Chief Digital Officer as a programme of the London Office of Digital and Innovation (LOTI). The programme is about looking at new and creative ways to use data across different organisations to provide new insights and understandings, and drive improvement in service and outcomes for citizens.

TIPPING POINT

We are now at a tipping point. In general, our technology infrastructure is solid. It is time to make everything mobile so that staff can work wherever they want or need to be.

Where the nature of the role permits it, we want our staff to be truly agile in their approach to work. We need the right attitude in our approach to developing our I&T to help make this happen.

Realising our ambition rests on our appetite for risk and of course, sufficient resources to realise change. We need to weigh up our need for resilience and security with the desire to support staff to work flexibly. Agility, resilience and security should not always be viewed as mutually exclusive, and this is important when determining the appropriate tools that staff will need to support flexible working and to ensure that the Brigade remains protected against cyber-attacks, data loss, etc. In addition, we cannot of course, forget the various legal data protection and regulatory requirements.

Our challenge is how to strike the right balance within our existing technology arrangements. We plan to stay a Microsoft organisation (because of our existing investment) so we need to think how we can work within this environment.

WAYS OF WORKING

We need to look at how our office-based staff work. We have staff who use a mix of desk-based terminals and mobile tablets to do their work. We invested heavily in a zero (thin) client environment using a product called Citrix and this has significantly reduced the cost of ownership, increased security and simplified our management of the information technology infrastructure.

We discovered that along with the many advantages of having a zero client environment, there are issues that arise from adding new technology, such as Microsoft Office 365. We have resolved these for now, so we're going to continue

> " The introduction of this new mobile phone working environment also provides the opportunity to improve our messaging service and may lead to the removal of pagers that are still being used by operational staff.

with the zero client approach. We will keep an eye on industry developments and in particular whether the Cloud offers any increased benefits to us for our zero client approach as we move more services in that direction.

While we retain our current approach to desktop computing for our staff, we also need to support mobile working and the increasing use of tablet devices by our staff. We are unsure what the actual split of staff preference between desktop and tablet might be in the long term. We will need to look at this in more detail to make informed predictions to balance our investments both in technology but also in training for staff.

Mobile working does not only rely on tablets, but also on mobile phones. We are changing our Windows mobile phones (which are no longer made) for Android devices. We will be deploying software on the new phones that will create a safe and secure work area where our staff can access Brigade applications, separate from any apps that they install on the phone for personal use. We think creating this Corporately Owned Personally Enabled (COPE) environment provides the best of both worlds and will significantly enhance mobile working for our staff.

The introduction of this new mobile phone working environment also provides the opportunity to improve our messaging service and may lead to the removal of pagers that are still being used by operational staff.

We also think there may be potential to enhance mobile capability on the fireground, possibly leveraging capability delivered as part of the Emergency Services Mobile Communications Programme ESMCP, which includes delivery of the Emergency Services Network (in time) and would be looking to explore the practicalities of this approach.

Getting security right is critical to the successful move to mobile ways of working. We have adopted a strong multi-layered authentication for our tablets and laptops that requires not only an ID and password, but an extra code delivered via a mobile phone. Once our staff become familiar with this new login procedure, we believe they will quickly adapt and it will become second nature to them.

> " Getting security right is critical to the successful move to mobile ways of working.

WAYS OF WORKING (continued)

Although we have been able to reduce the volume of paper and printing significantly over the last 10 years through new ways of working, there is clearly more we can do about this. During the life of this strategy we intend to deliver further reductions in our use of paper and printing, by enabling paperless meetings, the better sharing of information electronically, and reducing paper form-filling.

To make a success of new ways of working, we need to make sure our I&T is an enabler to assist in the changes we want to make and to allow our staff to guide us along the way. To help facilitate this, we will be seeking to establish a user group to ensure feedback from staff is considered by the appropriate people in the ICT department.

COLLABORATIVE WORKING

We know that our staff like to collaborate when they work. They collaborate with teams in their own departments, across departments and with other organisations. We need to provide the right I&T environment to support their work in a safe and secure way.

The introduction of Microsoft Office 365 will provide staff with the technology and systems they need to collaborate safely and securely. One of the tools offered as part of Office 365 is called Teams. We have heard some very positive feedback from other organisations that are using Teams and we are keen to understand what works well and how it has transformed ways of working elsewhere.

One aspect of Teams is the shift away from individual email usage to a messaging environment where conversation coalesces around a particular team or project. This has the potential to provide a rich working environment to enhance collaboration outside of traditional physical team boundaries and to create a history of work that would previously have been buried in individual email accounts.

We are excited about the potential of Teams for the Brigade and will be investing considerable effort to make use of it to improve ways of working.

COLLABORATING WITH OUR PARTNERS

We will also look to the other members of the Greater London Authority (GLA) group to see what they are doing to support collaborative working.

We already meet regularly with the GLA group bodies to discuss technology matters of common interest, and we are also participating in the wider discussion forums like the London Peer Group which brings together local authority staff in London interested or involved in creating and delivering digital services. This initiative is being support by the Mayor's Chief Digital Officer for London, and the new London Office for Technology and Innovation (LOTI).

We have a good working relationship with the Metropolitan Police Service and the London Ambulance Service. Senior staff from our respective I&T departments meet regularly to discuss strategy and ongoing work, looking for opportunities to learn and join up where it provides real benefits. This relationship is particularly helpful when it comes to national I&T initiatives that affect us all, such as the replacement of the Airwave communications system with the Emergency Services Network. We continue to follow the ESN roll-out programme with great interest.

One example of how a joined-up approach can benefit us is in data analysis. We have a team of data analysts in the Brigade who already benefit from working collaboratively with other data analysts drawn from the GLA family and beyond. By working in this way, we can be sure to make the most of the huge amounts of Brigade data that we hold. Given the duty to collaborate that came into force last year, we are keen to see collaboration take place in the I&T arena as well as the front-line of service delivery.

The Local Digital Declaration can be particularly helpful to us in this area of our work. In it, there are sound principles of sharing plans and experience as well as a commitment to "working collaboratively with other organisations and reusing good practice". We support this approach wholeheartedly.

The National Fire Chiefs Council (NFCC) is developing a Digital and Data Programme that is looking at the way in

which fire and rescue services can work collaboratively in pursuit of digital transformation. We have already contributed to the initial scoping of the programme and will continue to be closely involved.

We are seeing other fire and rescue services and the NFCC use Workplace by Facebook to enhance cross organisation collaboration. The well-known Facebook interface allows work-based communities of interest to communicate and this is attractive, but we must consider the security and resilience considerations to operate in this type of environment. Nevertheless, if Workplace (or similar tools) offers the opportunity for staff to collaborate in specialist national forums as they have done using the existing NFCC Communities facility, then Workplace may be a useful addition to our technology collaboration offer.

We don't want to overwhelm our staff with too much choice or too many places to have to manage to do their jobs. Collaboration should be simple and easy; if the tools are not intuitive and become a burden, then we should rethink the way we work. It is important that staff know how to use the different communication channels we provide for them.

INVESTING IN OUR STAFF

A lot of I&T staff time is spent doing work that no one sees but everyone would notice if it wasn't done. For example, activities like applying anti-virus updates and patches or upgrades to software. This is extremely important work but not necessarily fulfilling.

We want to find a different way to get these important tasks done and free up our staff to do more interesting work. Our goal is to develop our staff to work on the projects that deliver on the ambitions set out here. Projects will move along quicker if the experts are available to assist. This has the advantage of boosting our own staff, improving retention and recruitment along the way. It's a win-win situation.

Another area for improvement is in how we identify new information and technology trends that enhance the working environment for our staff. Horizon scanning should be built into what we do in our everyday work.

We should embrace staff who are natural early adopters to test technologies with us and encourage staff to learn from others by building networks of people with shared interests.

Similarly, we should identify and support staff who wish to use existing technology and systems in new ways. For example, our Business Intelligence team uses Microsoft Power BI to develop dynamic reports and dashboards to provide instant access to performance data. We want our staff to be 'data literate' and training non-specialists to use information tools like Power BI is one way to achieve this.

We also want all our staff to enjoy the benefits that new technologies can bring. Updating the software on desktop terminals will help us with accessibility features to meet the needs of users, including those with disabilities. We already deploy text to speech, speech to text and visual learning software and work is well advanced on making these tools available as part of the upgraded Citrix desktop.

All of these examples help our staff do their jobs better and help the Brigade to be innovative and creative as we move from our I&T being reactive to a place where it is predicting what our staff might need in the future.

TAKING ADVANTAGE OF CLOUD BASED SERVICES

Currently we manage a hybrid environment where some of our technology services and infrastructure are on site (using Brigade buildings) and some are hosted in the Cloud.

We need to get the balance right between what we do in the Cloud (in terms of storing and processing data) and what we do onsite to maintain security and resilience. One of our challenges is to work out what is the optimum level of network links between physical sites to the Cloud, with guaranteed and dedicated access. Once again, the consideration centres on our attitude and appetite for risk and how far we want to go with changing the way we work to ensure we deliver our service but at the same time retain security and resilience.

TAKING ADVANTAGE OF CLOUD BASED SERVICES (continued)

Another part of our thinking about the greater use of the Cloud concerns how the technology infrastructure is managed. Infrastructure as a Service (IaaS) is a well-known concept in the technology industry. Our aim for IaaS is to have our own space in the Cloud hosting our infrastructure with the day-to-day repetitive tasks such as software patching and anti-virus updates carried out by our managed service provider instead of our own staff (released to do more interesting work as described above). There is a cost to this, but we will have a reduction in capital spending because we would not be buying new computers and servers.

We also need to be sure our back-up strategy and our testing services would work well in a Cloud environment. All of the testing regime could be moved to the Cloud. Currently the testing facilities are in our Woking data centre, waiting to be used, so are idle much of the time and a wasteful use of resources.

We want to understand the full potential of the Cloud to help us deliver our I&T services better. We have employed a specialist consultancy to do this. It's complex and time-consuming but important work.

FINANCIAL CHALLENGES

Budget is of course critical for delivering our I&T ambitions and this is a perennial challenge for any organisation.

Our budget for technology is split into capital (to buy things) and revenue (to do things with). Adopting IaaS would have an impact on our budget, which is heavily weighted to capital and requires a shift to a revenue-dominated budget.

Given that this revenue budget would be buying critical services, it would have to be ring-fenced. The organisation is significantly dependent on technology to deliver almost every aspect of its services to London. We have been fortunate that we have had continued investment, not only to maintain our current infrastructure, but to grow and change our offerings to reflect the business needs and drivers of the organisation.

I&T has a cost regardless of how it is delivered and its critical infrastructure without which the Brigade could not function. The challenge is to be able to make the move away from capital to revenue, while the Brigade overall faces continuing pressures in its revenue budget and the need to find savings in future years.

DIGITAL FOR OUR SERVICE USERS

Many of the services we deliver to Londoners are different to those of a typical local council. While we deliver our services to people at home, at work and elsewhere, many of these services, by their nature, have to be delivered face-to-face and onsite.

But we are committed to delivering as many of our services digitally by equipping our staff with the digital tools they need to support their face-to-face interactions. We recognise the importance of considering how different groups will access our services, including our own staff, and will take into account the differing needs of users who are potentially likely to be impacted when we implement I&T solutions.

We launched a new website in April 2018 – which meets current accessibility standards – and this provides a good platform to develop digital services where they are appropriate for what we do. During the life of the strategy, and beyond, we will look at new ways to deliver services in a digitally enabled way, whilst always considering the special needs of different users, like older people and those with disabilities. We are also maximising the opportunities available to us to deliver a wide range of information about the Brigade in an accessible way, and to develop this to provide better insights for the public about what the Brigade does using new data presentation tools.

MOVING FORWARD

Given all that we set out here, it is clear that we have to think differently when it comes to delivering I&T to support the vision of the Brigade.

We want to support new ways of working that are centred around making best use of Cloud and put data at the heart of what we do, without compromising security and resilience. We can balance the risk to deliver on our strategy.

We will be brave and shake up the way we've always worked, be a bit disruptive and make the Brigade better for it. We've got some help from external I&T consultants, they have done a health check on us and we're looking good but we need to address some issues before we can move ahead on all fronts.

We have an I&T work plan containing nearly one hundred discrete pieces of work or projects that will enable us to deliver the ambition set out in this strategy. Appendix B gives a flavour of all the change initiatives we need to deliver to keep our I&T infrastructure and services modern and up-to-date, supporting business changes across the organisation. This doesn't include the huge amount of vitally

> We will be brave and shake up the way we've always worked, be a bit disruptive and make the Brigade better for it.

important 'business as usual' activity that goes on to support the infrastructure and systems, as well as dealing with user issues and queries.

Through the activity in our I&T work plan we will be able to enhance and develop our I&T to support Brigade staff. Regardless of whether someone is at the fire station, on the incident ground, in the community, in the office or in the control room, they should have the very best I&T we can offer, keeping Londoners safe along the way.

Appendix A: How will our staff benefit?

In this section, we outline the way in which the lives of our staff will be affected, for the better, with the introduction of the technologies and use of data outlined in the strategy. 'Personas' have been created to illustrate the impact of I&T being delivered by the Brigade.

These 'personas' are simply to illustrate how the different jobs people do could be changed by the better use of technology and use of information. Some of the ideas are 'off the wall' at this stage, and these examples provided do not always represent a confirmed plan.

Two symbols are used in this appendix to show:

◆ things that are being planned and will be delivered during the life of the strategy.

◇ things which, at this stage, are more 'imaginative' and may take longer to deliver, or might eventually be in a different form.

The station Watch Manager

Asif is a well-established Watch Manager at a two-pump fire station. The members of his watch vary hugely in how much interest they have in I&T and often the tasks that require the use of the computers on the fire station fall to the Crew Manager as she is the most confident at using it.

AT THE FIRE STATION

- The **4G enabled tablet**◆ will host **3D images of buildings**◇ on the station ground. Preparing for operational risk visits will be much easier and recording the data – including the premises risk assessment – directly onto the tablet means that the Operational Risk Database is dynamically updated and available for all to see.

- Firefighters now login to the uniform supplier website to see a **dynamic 3D model of their fire kit allowance**◇. It tells them when it was bought, when it was cleaned and its lifespan for replacement. They can click on the image of what they want to clean or re-order and it instantly creates an order.

- Online training will be easier to find using the **new training portal**◆, and it will be linked to new updated operational guidance/policies so that you get a complete view of everything you need to know about dealing with a particular incident type or piece of equipment.

- All members of the watch will be able to look at the **LFB Data portal**◆ to access the management and performance data they need to help them do their jobs. Being able to access data when needed will support a new approach to performance management.

- There is **no more paper on the fire station**◇. All the folders of signed forms have gone. Everything is now digitised and accessible via apps on the desktop or tablet devices via the Cloud. The audit trail of routines on the station is all digital and all the checks and balances are in place to know when actions need to be taken for all routines.

IN THE COMMUNITY

- All firefighters will be able to use the **4G enabled tablet** ◆ that is stored on the appliance to complete the indemnity form and to record the outcomes of Home Fire Safety Visits. This means that the data is sent immediately to the central database and firefighters will no longer have to sit down at a computer in the station office to record the visit based on paper notes.

ON THE INCIDENT GROUND

- **4G enabled tablet** ◆ is now a critical part of the appliance. It is used to updated the **mobile rollcall board** ◇, **order Breathing Apparatus cylinders**◇ to replace those used during an incident.

- The **MDT** ◆ that sits on the fire appliance will continue to provide access to important data like Chemdata, car manufacturing specifications and ePiPs – to get an instant visual on the buildings in the area of the incident. The **tablet** ◆, which also accesses the same datasets as the MDT, is used by firefighters in the rear of the appliance and can be consulted on the incident ground as well.

- The driver of the appliance will use a specially configured **TomTom satnav**◆ for all navigation, it will automatically get the location of the incident sent from the mobilising system.

- When crews return to the fire station, **the appliance is scanned on entry** ◇ and all the equipment logged. Anything missing will immediately be notified to the watch manager who will then agree for items to be replaced using the Brigade's procurement system. No re-keying of data as all the **systems talk to one another**◇.

The Station Manager

Emma is a Station Manager. She is newly promoted and keen to make her mark. She is a big fan of technology but finds the Brigade's systems slow and uninspiring. She wants to get real-time access to data about how her station is doing in all areas of its work so that she can respond quickly to change and improve performance. She wants to bring her staff with her and get all the watches up to speed on data analysis so that they too can understand the power of data to improve what they do. She also wants to streamline the way admin work is done, to relieve the bureaucratic burden on her watch staff.

AT THE FIRE STATION

- Emma will get easy access to performance data through the **LFB Data portal**◆ and some user-friendly dashboards and reports based on her specification created by the Brigade's expert users of **MS Power BI**◆.
- Using **MS Teams**◆ (which comes with **Office 365**◆ which is available at stations) with her watches, Emma can blend the need to share information on a formal level with some fun, team building along the way. Emma can set up Teams to suit her, and that includes adding in different media, like GIFs, may seem like a distraction but have the benefit of adding humour while people work.
- **Using Brigade apps**◇ on her desktop computer (via Citrix) or via her phone (Android apps), Emma will be able to do many of the regular tasks more easily and simply.

IN THE COMMUNITY

- With her **Brigade issued Android phone**◆, Emma will gain access to Brigade systems wherever she is. She will be able to work safely and securely using the new functions on her phone and use the device for her own personal use too. The phone will also act as her pager ◆. No need to carry three devices around.
- **Workplace by Facebook**◇ is a great way for Emma to build community outside of her station. She is ambitious, so she wants to know what's happening in the wider world of the Brigade and the fire and rescue service nationally. By joining groups on Workplace and accessing them on her Android phone, Emma can keep up-to-date on topics that interest her and contribute to debate while doing her day job.

ON THE INCIDENT GROUND

- Emma's **Android mobile phone**◆ will give her access to all the information she needs about incidents via **BOSS Mobile**◆. She will be able to update her status easily using the app on her phone via **BOSS mobile**◆, so no need to keep phoning Control.
- Emma's car will have a **SC Guide**◇ just like the appliance which will automatically route her to incidents she has been mobilised to. This will save time and allow Control to effectively gauge her ETA to incidents.
- Emma will be able to call on the Brigade's **drones**◆ to be mobilised to incidents to provide a birds-eye view of the incident ground. It is a powerful tool for her decision-making toolkit. These images will be available across the devices at the scene, from MDTs, tablets and phones, as well as being available to Control and remote monitoring senior officers and the press office via **Office 365**◇.

The Borough Commander

Kemi is a Borough Commander (GM) with five years' experience at this level. She is a reluctant user of I&T and feels that the systems are not reliable enough, often falling to manual workarounds where she can. She is willing to learn and try out new solutions if they mean more mundane tasks are automated and free up her and her staff's time for other things.

AT THE FIRE STATION

- Kemi will benefit from the same tools available to Emma, and will be able to set up **MS Teams**◆ to collaborate more effectively with her partners from organisations across her borough, including the local council, the other emergency services and the charities she works with on a day-to-day basis.

IN THE COMMUNITY

- Kemi's **4G enabled tablet**◆ allows her to work more flexibly and will have a range of **Brigade apps**◇ that will help her do her work more efficiently. The tablet will allow her to hold meeting papers electronically, and to mark them up with notes in advance of the meeting or whilst at the meeting. The tablet will allow her to access the Brigade's **LFB Data portal**◆ which provides access to a wide range of performance information dashboards and reports, including those created using **Power BI**◆, that will help her work and engage with partners in the local council.

ON THE INCIDENT GROUND

- During an incident, the **body worn camera**◇ worn by firefighters is recording the activity and the video is dynamically available to Kemi and Brigade Control so that they can see the incident simultaneously, this will make remote monitoring incidents far more effective.
- A **streaming video app**◇ on a mobile phone will allow Kemi to stream images of an incident in progress to help Control understand the incident better, and those in command of an incident, to make more informed decisions. Brigade officers will have this as standard on their phone, but members of the public will be able to download it from the Brigade website.
- A transcript of the audio from the incident that was recorded on the body worn camera is scanned by the Brigade's **artificial intelligence system**◇ to work out the decision making at that incident based on previous incidents. It is recorded and reviewed by officers for training purposes.

The Control Room Watch

Martin is quite a new Operations Manager in London Fire Brigade, having worked previously in another control room and joined the Brigade on promotion last year. He is responsible for one of the six watches that manage the control room. He loves technology – the control room is a heavy user of I&T in the Brigade, so it's the perfect place for him. He is always looking for ways to improve the way that the control room can make best use of the innovations going on in this area of I&T.

IN THE CONTROL ROOM

- The feed from the Brigade's **drone**◆ is now an established way of viewing incidents. The dynamic feed appears on the screen as soon as it is available and provides extra information about the incident.
- Emergency calls for assistance from other blue light services as well as other fire control rooms now **appear automatically on the screen**◆ for Martin and his team to access and respond. They no longer need to wait or share information over the phone and re-key data. It's all done instantly.
- The public doesn't just call in with information about incidents now, but actually provides **video footage directly from their smart phone**◇ at the scene. Martin and his staff can see live video footage of the incident before the crews arrive providing valuable situational awareness.
- In a separate stream, the control room staff are monitoring live feed from the firefighters' **body worn cameras**◇. Again, it provides situational awareness on the ground, but later in the incident it shows the BA crews' position as they move through a property towards a caller who is trapped in a bedroom. The body worn cameras feed this information to the control operator who is on

the phone to the caller trapped in the bedroom, enabling them to provide the caller with advice to help keep them safe.
- Where needed, the control room staff can also tap into the **live feed from the appliances**◇ at the scene. The appliances are fixed, so it gives another view on the incident.
- With access to **TfL CCTV cameras**◆ nearby, the control room is the place where the Brigade has a fantastic 360° real time view of an incident and can helpfully field queries from Brigade officers, the Press Office and others.
- Callers now use alternative, app based ways of describing (e.g. what3words) where they are and the control room can **translate any app into geospatial data**◆ to supplement the GPS data from the 999 caller's mobile phone signal.
- Social media is so ingrained that information about incidents sometimes appears online before a 999 call is made to control. Knowing this, the Brigade is now using **predictive analytics**◇. It worked with leading artificial intelligence agencies to develop machine learning that has been trained to look for fire-related incident chatter on social media channels. Martin's staff now monitor this in a pop-up screen on their monitors, reviewing alerts as a business as usual activity.

The Fire Safety Inspecting Officer

Greg has been a Senior Fire Inspecting Officer for 10 years. He has a great knowledge of fire safety laws and has audited/inspected hundreds of buildings over the years. He is responsible for a team of inspectors and while he needs to spend a lot of time at his computer, he also wants to be out with his teams and on site so that he remains close to the front-line of this important area of the Brigade's work. He already makes good use of his dedicated fire safety tablet with its mobile working app.

AT THE FIRE STATION

- **MS Teams**◆ will be the mainstay of Greg's work. His distributed team will use it as the primary means by which they communicate with him and each other. His team **no longer use email internally** and Greg will see the benefit of being able to look back on conversation threads across all sorts of topics with different members of the team.
- Greg and his team **rely entirely on their tablets**◆ and have **stopped using a desktop computer** altogether. Even when they are in the office, Greg and his team simply plug in the Ethernet cable available from any desk and connect to Brigade systems or use the **super reliable wi-fi**◇ instead.

IN THE COMMUNITY

- This team is the most agile of all the Brigade's teams and because they work in such a flexible way, the Brigade has reduced the number of desks that it needs to dedicate to inspection teams in Union Street.
- Inspecting Officers have had **4G connected tablets**◆ for some time allowing them to record the outcomes of inspections dynamically while on site. The next generation software solution will also integrate smoothly with other Brigade **premises-based risk systems**◆, particularly those used by operational colleagues for recording risks and creating tactical plans for use at future incidents. Insights on the types of challenges that crews will face will also be used by Brigade training management to steer the training plans of local crews to prepare them for the types of situations that they will come up against.
- A **streaming video app**◇, which any 'responsible person' in charge of a building can download from the Brigade's website, will allow Greg to undertake a virtual re-inspection of premises from his tablet, to check that things he has asked to be addressed, have been done. The responsible person will be guided by Greg to show him things in the premises using the mobile phone. Greg can save a copy of the re-inspection video as part of the premises file on the fire safety system so he has a record of the inspection and an audit trail.

The Community Safety Officer

Marcus works in community safety. He is fairly new to the Brigade and is used to a great I&T set up from his previous job. He is really comfortable with I&T and keen to use Brigade and other data to provide the evidence base to develop community safety work.

IN THE OFFICE

- Marcus will get access to training on how to use **Power BI**◆ reports to help the team develop their policy interventions. He can find tutorials on Hotwire or spend some time with the Business Intelligence team, or other 'super' users in the Brigade, to get an insight into its potential. He won't create the reports, but he will become an intelligent consumer of them.
- Spending time with colleagues who aren't based in Union Street is really important for Marcus to get to know the Brigade. He will be able to seamlessly **transfer his working from his desk**◇ in Union Street to his tablet device, working on the way, at home and in other locations.
- It's clear that Marcus is a real fan of I&T and his manager has already put Marcus forward to join the new **'early adopters' I&T group**◇ that will help the Brigade continue to innovate its I&T offering in the years to come.

IN THE COMMUNITY

- Sometimes a tablet is too bulky and on his new **Android phone**◆, he can access his emails and files in **SharePoint** ◆ wherever he is working. **Cloud storage**◆ means he doesn't have to use the thin client (Citrix).
- Using both **MS Teams**◆ and **Workplace by Facebook**◇, Marcus can develop online communities to help him understand what others are doing, share information and learn what works elsewhere.
- There is so much interest in new technology because of the Brigade's innovations, that the ICT department host **monthly unconferences**◇ where staff generate an agenda of things they want to talk about, whether that's innovations from other sectors, personal experience or some ideas about how to make I&T better. There's a real buzz about digital in the Brigade now.

The People Services Manager

Erika has worked for the Brigade for over twenty years. She has seen the trends in human resources management come and go over that time. She's used to getting to grips with new I&T systems to manage the complexities of the Brigade's People Services function but as she nears retirement, she's optimistic about the improvements technology can bring to make employees' work lives even better.

IN THE OFFICE

- The paper trail is all gone. It's completely digital now. The **digital employee file**◆ contains everything about each employee and is accessible, depending on access privileges, to anyone in the Brigade.
- The digital employee file is built using an **open data standard**◇ allowing it to access the myriad legacy and proprietary I&T systems used by the Brigade over many years. The investment by the ICT department in this open data standard approach has had a huge impact on access to employee data and is completely aligned to data protection requirements.
- For Brigade employees, they now see a **personal dashboard**◆ when they login in the morning. They no longer need to consult many different I&T systems, as it's all going on in the background, so when a new employee starts they don't have to learn how to use lots of different systems.
- For Brigade managers, their **team dashboard**◆ delivered using **Power BI**◆ and the new **LFB Data portal**◆ gives an at-a-glance view on the team, drawing data from many Brigade I&T systems. The dashboard allows Erika to drill down into the detail and access the underlying systems. Having this overarching view on attendance, performance, leave allowances, training and so on, is a real step forward.
- One new feature that Erika really likes is the **talent management system**◇. Using some open source software developed by the new **'sprint development' unit**◇ in the ICT department, all of the free text used in staff performance reports is now **analysed using machine learning**◇. Having developed the training sets for the machine learning, it can now identify staff with the characteristics that fit the profile of managers of the future.

IN THE COMMUNITY

- Working intelligently with **social media algorithms**◇ Erika's People Services recruitment team has massively refined its advertising so that it targets potential recruits from under-represented areas of the community.
- Having analysed all the previous applications over the last decade, the recruitment system is able to determine, based on some **predictive analytics**◇, the chances of an application being successful at each stage of the process. Using a machine learning approach gives Erika's People Services recruitment managers insight into applications and allows them to refine the recruitment process over time.

Appendix B: Our top priorities now

A separate detailed three-year I&T work plan supports this strategy and comprises the actions, tasks and projects that will make this strategy become a reality. In this appendix we highlight some of the top priorities for the next three years, as we see them now. This is necessarily just the highlights of what we need to do, and the detailed three-year plan is the place to look to find more detail, and will be updated at least quarterly. The work plan will be a living document, reflecting the changing demands placed on the Brigade's I&T services over time, as projects and tasks are completed and new ones are introduced.

OPERATIONAL/FRONTLINE

- Complete work to allow transfer of mobilising data between blue-light partners (MAIT).

- Support the community use of our fire stations.

- Complete updates to the system that manages our Home Fire Safety Visits.

- Complete the roll-out, for appliances, of new Mobile Data Terminals (MDT), with SatNavs and tablets.

- Replace operational officer pagers with a pager 'app' for Android phones.

- Support the move for operational staff from 'Role to Rank' (R2R) by completing system changes and changes to policies.

- Support the implementation of FRS national operational guidance within the Brigade, including a new system to manage and access for operational (and other) policies.

- Deliver new incident ground radios for our firefighters.

- Deliver (subject to national project) the Emergency Services Network (ESN) to replace Airwave radio.

- Replace our fire safety system with an overall premises risk management system, including our Operational Risk Database including the Premises Risk Assessment.

- Replace our 999 mobilising system (by 2026).

SUPPORT/BACK-OFFICE

- Roll-out Android mobile phones to replace Windows phones.

- Complete LFB website security assurance.

- Implement a cyber defence system.

- Launch the LFB Data portal – a new data platform, as part of our Business Intelligence Solution (BIS).

- Roll-out updated MS Office with Office 365 (online) at fire stations (and including SharePoint Online, and mailboxes in the Cloud).

- Complete work to improve personal information retention to be more GDPR compliant.

- Improve our management of images and video (including better GDPR compliance).

- Support the delivery of a new performance administration management (planning) system.

- Update the 'thin client' desktop to Windows 10 'look and feel'.

- Complete the GLA/LFB Information Sharing project to provide a better way to share data between partners in London.

- Complete the 'Cyber Essentials' security accreditation.

- Replace our finance/purchasing system(s) and human resources/payroll system(s) (by 2022).