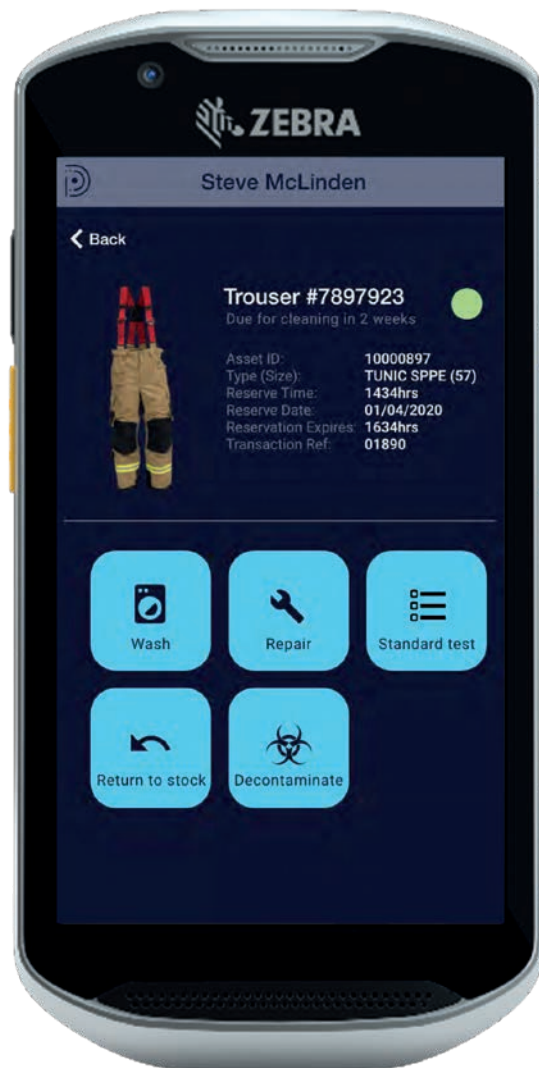


**Steve McLinden**, former Group Manager and Digital Innovation lead for Mid and West Wales Fire and Rescue Service, and now CEO and Founder of iTrackPPE reports on existing and future challenges facing UK and global first responders in the provision, distribution, tracking and management of operational PPE and how this can be enhanced to always guarantee the availability of clean PPE

# Safeguarding first responders from PPE contamination



**W**e are all aware of the ongoing medical and academic research into the correlation of increased instances of cancer within firefighters being connected to the contamination of firefighting PPE. The National Fire Chiefs Council and trade unions have issued guidance and continue to commission research to enable scientific evidence to confirm or refute these links to firefighter health and wellbeing. These studies are sharply brought into focus now that the World Health Organisation has declared firefighting to be a carcinogenic occupation.

Having held responsibility for PPE in my previous fire and rescue service, who's former CFO Chris Davies was the NFCC PPE Contaminants project lead, I have had first-hand experience of how PPE is issued, managed and maintained within services and the legacy challenges needing to be overcome to allow for increased access to and visibility of PPE.

Although my focus is on fire and rescue PPE, the innovative iTrackPPE solution equally applies to all agencies and sectors where access to risk critical PPE is required.



## Do You Have Visibility of Your PPE?

During my 34-year career I have been through many PPE refreshes and have been the project lead for two of them. Each time my service procured the best available PPE, but never looked at or changed the way we issued, distributed, tracked or managed the PPE. So, soon after the rollout I was left asking myself the same questions:

- How much PPE do we actually have?
- Where is it?
- What is it's condition?
- Does everyone have PPE?
- Is it in test?

*“You wouldn't leave £300 cash lying around unaccounted for, but we don't seem to worry when that £300 is an item of PPE”*

# *“FRSs can significantly reduce the number of PPE assets within the organisation should the contamination legislation be introduced”*

- How often is it being used?
- What assets are with managed care?
- How well is managed care performing?
- What type of damage is occurring to our PPE?
- How can I find, isolate and recall defective items immediately?

Managed care providers have improved access to data on the cleaning and repair of PPE, but there is limited data available within service to provide a ‘real time’ view of where each PPE asset is, when it is being used, its condition and whether it is in test.

Fire and rescue services will claim they do have this data, albeit in paper format at each individual location, and this combined with the managed care data, provides a ‘view’.

However, having been responsible for PPE and gone through the pain of recalling specific PPE due to identified repair quality issue, I know paper-based management systems do not lend themselves to an efficient and quick recall of defective and potentially unsafe PPE (it took just over four weeks to locate and recall the PPE!)

Through my experience, I can validate the frustrations of both end users and the organisation when it comes to the management of personal issue PPE. Laborious administration, PPE not being returned or returning with multiple patches or slightly smaller.

Non-centralised, paper-based administration of personal issue PPE must be one of the most inefficient, unreliable and time-consuming processes within the UK FRS.

Any provision where 50 per cent of all PPE is not available to anyone else, therefore limiting the amount of PPE an individual has access to cannot be efficient, cost-effective or resilient, particularly in these austere times.

Having audited existing PPE prior to refresh, I have found up to 15 per cent of issued PPE cannot be located and up to 20 per cent of personal issued PPE is returned in its original packaging never been used. However, through the life of the contract hundreds, if not thousands of replacement assets have been procured when there are hundreds of those assets in individual lockers unavailable and not being used.

I could never understand the relaxed attitude to the over provision, underutilisation and not knowing the location of PPE. You would not leave £300 cash lying around

unaccounted for, but we do not seem to worry when that £300 is an item of PPE.

Considering the above, I set about identifying the issues that needed resolving, which I believed were:

- A more efficient user focused process for end users
- Reduce time spent by users and administrators locating missing PPE
- Reduce organisational underutilisation and over provision of existing assets
- How to make PPE more available to all users
- How to reduce annual revenue expenditure on PPE
- Remove potential for 20 per cent of assets procured and issued never being used
- A solution to Improve availability and resilience of PPE considering potential contamination legislation.

## **Is There a Solution?**

The short answer is NO! Well, there was not, until recently.

When looking at the market there was not a sector specific, user-focused solution available which distributed, tracked, managed and optimised PPE by fully exploiting active and passive RFID technology.

The iTrackPPE solution uses existing, proven industrial grade technology and combines it with bespoke storage solutions and an intuitive software platform, specifically designed for first responder organisations.

We are fortunate to have great partners who support us. They are:

- Zebra Technologies – who are the global leaders in RFID and barcode scanning technology.
- Ministry of Furniture – who supply our bespoke RFID enabled PPE storage solutions from recycled office furniture with more than 30 per cent of their workforce being people with disabilities.
- Torchwood Technologies – who supply us with state of art RFID and barcode tags designed to meet the demanding environment of the Fire and Rescue Service.

End users (firefighters) engage with the iTrackPPE solution via an intuitive Android application on a ruggedised Zebra handheld barcode scanner, which is similar in look and feel to a mobile phone. This is integrated with the Zebra RFD40 handheld RFID scanner and allows all users to manage their PPE easily and quickly. The PPE is fitted with iTrackPPE RFID and barcode tags enabling





*“We are unique in what we offer and can be procured directly from GCloud13”*

to £25,000 can be reduced by reducing the number of assets allocated to that station from 448 to 270 items. The average UK FRS has 25 plus stations which potentially equates to £500k savings while improving PPE availability by over eight times compared to personal issue.

#### **In-service Real-time PPE Tracking**

The ‘logistics app’ for use by the organisation’s internal stores team, provides the FRS with full control and a real-time view of all its PPE assets.

The stores solution incorporates the ScanBox that has been developed in partnership with Zebra. This is an RFID enabled scanning container that improves accountability and efficiency of the stores team when managing PPE in transit or returning from the managed care provider.

active and passive scanning of each asset, which are then distributed in line with our bespoke location stock profile modelling algorithm.

iTrackPPE’s unique proposition is the way it enables the FRS to intelligently distribute, track and manage its risk critical PPE. Legacy solutions based on personal issue, where the PPE belongs to the firefighter and cannot be used by anyone else, are inefficient and expensive: Effectively 50 per cent of all PPE is not available to anyone else at any time, plus firefighters only have access to an extremely limited number of spare assets that fit them.

Adopting iTrackPPE resolves legacy issues in the management of PPE. All firefighters have a dedicated set of PPE for their exclusive use while allocated to them. They also have access to every single piece of PPE of their size, which is not allocated or within the wash/repair process.

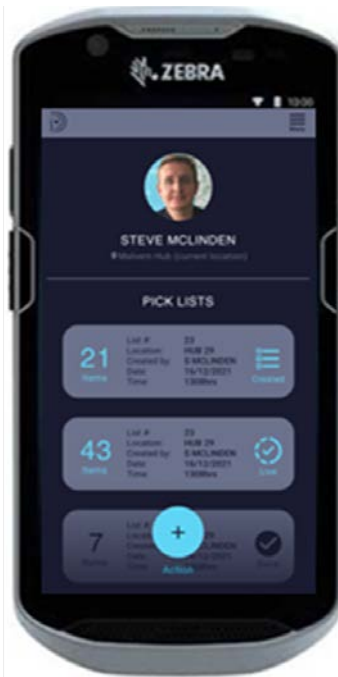
iTrackPPE’s intelligent distribution model enables FRSs to place their PPE assets where they are needed based on risk and activity of firefighters. It allows them to confidently move away from personal issue to a pooled issue model. This approach removes over provision and underutilisation in low-activity locations, reduces uneven wear and unnecessary asset replacement, which in turn extends PPE life and return on investment.

Distributed spare PPE is kept in bespoke RFID storage units that can be designed for the location including multi-function furniture, like a sideboard if you are stuck for space. The spare PPE is monitored in real time, so its location is always known.

Moving away from personal issue PPE to a distributed and tracked pooled model ensures all PPE not issued is available for use across the organisation, optimising PPE usage and reducing the overall amount of PPE needed within service.

Our academically validated calculations predict a two pump, one special station with 56 firefighters, can save up





Dirty or returning clean PPE are placed into the ScanBox, which instantly scans the contents and provides a manifest of all the assets present. This provides a date and time stamped record of items that are either leaving or returning into the service, visible accountability of assets in real time. Once that dirty PPE is taken away, the app counts down the time. So, when the clean kit returns it is again placed into the ScanBox, the RFID tags are read and flags up anything that is not correct. In that instance, the stores team know immediately if something expected back has not arrived.

The system is so precise that if a PPE asset is removed from the station storage unit and not allocated an alert can be triggered to the stores team and station manager within 30 seconds of its removal. All this activity is available to see on the iTrackPPE performance dashboard, which is configurable by the end user.

iTrackPPE is not a competitor to managed care but a complementor. It supports FRSS to accurately track and manage their PPE within service while delivering significant financial and sustainability savings by reducing managed care costs and unnecessary delivery or collection journeys.

### **Are You Prepared to Provide Clean PPE After Every Contamination Event?**

During my career it was always a “badge of honour” to have PPE and appliances that stank of smoke (although they were always visibly clean). We did not change our PPE because we only had one spare set, ‘our parade set’, and getting loan stock was often too much effort.

The research into causal links between PPE contamination and risk of cancer continues, with multiple groups seeking solutions to minimise risk including, removing exposure by using alternative firefighting techniques and the redesign of clothing layers underneath the external PPE to draw away contaminants.

But what is stopping FRSS providing access to clean external PPE after every exposure or contamination now?

With personal issue PPE, if you have more than two fires, you will not have any PPE left. Many organisations may issue a third set of PPE, however, this does not solve the problem. If a firefighter has three fires in a tour, they still run out of PPE at their location, as all the spare PPE is unavailable in individual lockers.

The financial challenges facing FRSS and the public sector are unprecedented and not getting better anytime soon. Enabling firefighters to have clean kit after every exposure presents a challenge for FRSS because if they choose to increase the amount of PPE issued to individuals, they will need to find a significant amount of money to do so.

Fire and rescue services have significant quantities of PPE within their organisation, but unavailable to them due to the way its issued. Providing access to this underutilised PPE by moving to a distributed, tracked pooled issue model will provide firefighters with greater access to clean PPE after each exposure event.

iTrackPPE allows FRSS to safely make this transition while saving money and significantly improving resilience. Our solution is an invest to save proposition which has the potential to reduce asset refresh costs by up to 40 per cent, which more than covers of implementing iTrackPPE. It also can deliver revenue savings of up to 70 per cent per year by reducing PPE replacement or procurement for new entrants as the PPE is available to all.

We are unique in what we offer and can be procured directly from GCloud13.

For more information on how iTrackPPE will work for your organisation contact me at: [steve@itrackppe.com](mailto:steve@itrackppe.com) [www.itrackppe.com](http://www.itrackppe.com)