

# FIRE

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Focus  
on  
Climate  
change

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## iTrackPPE – The future of intelligent asset distribution, tracking and management



### Focus on PPE

Featuring contributions from Ballyclare, Hainsworth, Safety Components and PBI

### Reimagining services

*FIRE* previews the forthcoming Congress on integrating service delivery

### Terrorism resilience

*FIRE* reviews our acclaimed Congress on Fire & Emergency Resilience in the Face of Terrorism

'inform engage inspire'

**Steve McLinden, iTrackPPE,** reports on the clear and present danger facing fire personnel and outlines the solution which has been developed by individuals with firsthand knowledge and experience of managing operational PPE within service

# Firefighter carcinogenic exposure – preparing for the future



**A**re 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 multiple 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.

The reality is FRSs have significant quantities of PPE within their organisation, but it is unavailable to them due to the way it is 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.

## **Change Needs Investment**

It is often the case that whenever a new risk or challenge emerges for the UK fire and rescue sector, it ultimately results in budgets being squeezed and additional burdens being placed upon existing finances and the current contaminants exposure issue is no different!

However, iTrackPPE offers a different proposition to this situation because our solution has been developed by individuals with firsthand knowledge and experience of

*"iTrackPPE developed by individuals experienced in managing FRS PPE and equipment"*

managing operational PPE within service. We understand the inherent inefficiencies, weaknesses and end user/management frustrations of legacy allocation approaches and designed iTrackPPE Core to resolve them.

iTrackPPE is designed around three key principles.

- To know every asset's location and status at all times, using proven bleeding edge RFID and QR/barcode technology
- Optimise availability by removing underutilisation and over provision using our unique asset distribution model
- An end user and management interface which exploits lean system thinking and access to rich business data.

So, what do these principles mean in reality?

- All assets are tagged with bespoke RFID/QR tags enabling instant individual and bulk asset scanning (a whole PPE store can be manually scanned in under one minute, a complete appliance in under two minutes).
- The opportunity to move away from personal issue PPE to a distributed pool stock model, where individuals always have access to PPE for their exclusive use, but it is not their personal PPE.
- PPE assets are distributed based on activity levels and potential need (busy locations having more RFID tracked pooled PPE than quieter ones).
- Operational equipment can easily and quickly be moved and reallocated to appliances, removing time consuming post incident repatriation processes due to equipment having to remain with its original appliance/location.
- An intuitive mobile application that allows seamless PPE allocation for the end user and enhanced management and performance data for responsible persons, managers and third-party suppliers.

iTrackPPE allows FRSs to safely transition away from personal issue, 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 the cost of implementing iTrackPPE.

When applied to existing/legacy PPE, iTrackPPE 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, therefore paying for itself over three to five years.

### How to Make Sustainable PPE a Reality

How many organisations realise PPE is their largest but least optimised asset holding? On average a fire service of 750 staff has circa 12,000 individual PPE assets!

Considering the quantity/value of assets, how much focus is placed on PPE optimisation and sustainability beyond the initial procurement process?

In my experience there is almost a Laissez-faire approach to the accountability and management of PPE with innovation being centred on garment design and embedded technology. Evidence of meaningful improvements in the processes used to distribute, track



Bespoke combined RFID/QR tag

and manage PPE and optimise organisational return on investment (ROI) and sustainability are difficult to identify.

### Legacy Underutilisation and Inefficiency

Legacy processes for the provision and management of PPE creates arbitrary life cycles for the assets, which increases the procurement frequency because organisations do not have accurate, real time PPE performance data giving insight on the availability, location, condition, compliance, use and damage of their risk critical assets.

Personal issue PPE results in 50 per cent of all issued PPE being unavailable to anybody else. It generates an imbalance of use and wear of individual assets across the organisation, where busy locations require asset repair and replacement more often than the quieter locations. Often new PPE is procured for individuals when there are hundreds of the same asset individually issued in the organisation, but not being used.

Organisations that move away from personal issue can extend the life of its PPE through balancing wear exposure across the asset holding by circulating PPE between high and low activity locations, minimising individual items being subjected to repeated wear and damage. Intelligent asset management can reduce repairs and unnecessary logistical journeys to distribute and collect PPE and can significantly reduce the long-term environmental impact improving sustainability.

Applying combined RFID QR/barcode tags to operational equipment and breathing apparatus delivers further efficiencies and capabilities. If the handheld scanner is stowed on the appliance, it can be used to check operational equipment location in under two minutes prior to leaving an incident, reducing the opportunity for assets to be misplaced or lost.

It also allows replacement items, such as another appliances hose, to be instantly reallocated to that appliance reducing the effort and time needed for post incident equipment repatriation.

*“Enables FRSs to safely transition from personal issue, while saving money and improving resilience”*

## “RFID technology reduces time accounting for assets enabling increased time for testing, maintenance and training”

### Technology Delivering Sustainability Improvements

Focusing on PPE, significant sustainability and efficiency gains can be achieved reducing the environmental impact and carbon footprint created through the manufacture, transportation, managed-care logistics and disposal of assets.

Managed care providers can travel circa 3000 miles a month servicing PPE collection and delivery within an organisation, equating to approximately 15 tonnes CO<sub>2</sub> per year. Often 40 per cent of scheduled route locations have no asset to deliver or collect, needlessly creating over six tonnes CO<sub>2</sub> and additional road risk. Although hybrid and fully electric vehicle ranges are increasing, it is often not viable for managed care providers to use them, due to the location of their servicing facilities being a long distance away.

iTrackPPE's logistics module identifies exactly which locations need replacement PPE. Existing internal logistic teams are provided with optimised collection/delivery information, reducing the distances travelled allowing for the adoption of fully electric vehicles which reduces costs, time, road risk and the organisations carbon footprint.

### Firefighter Wellbeing – Exposure to Carcinogens

Organisations are looking to put measures in place to mitigate risk of carcinogenic exposure directly linked to contaminated operational PPE. An immediate solution to minimise risk is the provision of clean PPE after every contamination event with some organisations procuring a third set of personal issue PPE at an average investment circa £400k.

However, this does not solve the problem because if you have more than three incidents within a tour of duty you run out of PPE. This further increases the inefficiency because now two thirds of all PPE is not available to anybody else.

The reality is most organisations have enough assets to provide clean PPE after every incident using their existing holding, it just needs to be distributed and managed in a more intelligent way! iTrackPPE has been designed to enable this through the integration of technology, intuitive software interfaces and bespoke distribution algorithms.

### Technology Has the Answer

iTrackPPE's integration of proven industry technologies exploiting Radio frequency Identification (RFID), QR/barcodes and mobile smart devices, can deliver substantial efficiency and improved sustainability of organisational assets. iTrackPPE is partnered with Ministry of Furniture (MOF) and Zebra Technologies to provide RFID enabled storage units and multi-function mobile devices and scanners. Both partners have excellent sustainability and ethical credentials, for example MOF manufacture

from recycled office furniture with more than 30 per cent of their workforce being people with disabilities. Zebra Technologies are global leaders in RFID and barcode scanning technology. Their hardware recycling schemes combined with extended device life of up to eight years, delivers improved ROI and sustainability compared to other commercial device three-year life cycles.

### Data that Informs Operational Procedure and PPE Design

The NFCC digital and data agenda encourages organisations to enhance their understanding of performance to deliver improved outcomes and drive innovation and efficiency. iTrackPPE's configurable performance module provides a single 'pane of glass' view into a wealth of PPE and wider operational asset business and performance data, giving real time insight of the location, status, availability and compliance of all assets. Data sharing between iTrackPPE and the managed care provider enables the full life history of each asset to be captured.

Our intuitive end user application provides a seamless interface for the issue, testing, wash, repair and decontamination of PPE. It automatically creates individual end user 'PPE Passport' that provides details of all the assets they have had assigned to them.

The application functionality extends to collecting use and damage data. When a user submits their PPE for wash or repair, they can link to the incident where the contamination or damage occurred. Images of specific damage can be attached to inform understanding of how PPE is performing in different scenarios. This data, if used with AI and machine learning, can provide insight into operational and training practices which cause damage to PPE. This can inform procedural change and support manufacturers in improving future design.

### Fire Service College Adopts iTrackPPE

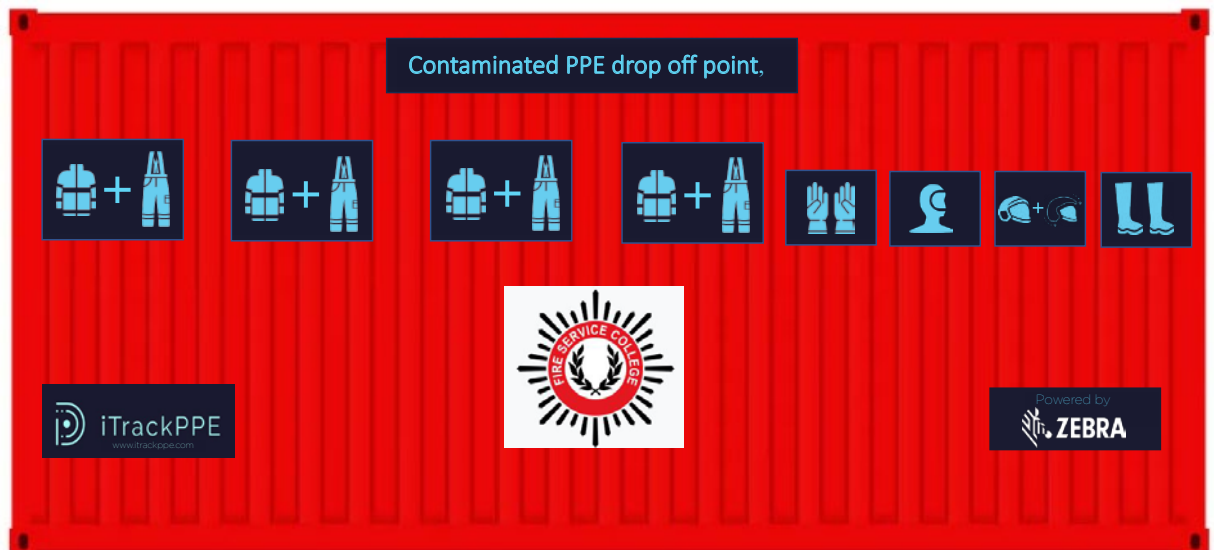
Recognising the Fire Service College (FSC) unique status within the fire and rescue sector globally, iTrackPPE was delighted to offer our solution for the distribution, tracking and management of their PPE, operational equipment and breathing apparatus assets.

### The challenge

The college has made a commitment to drive innovation to deliver the best possible learning environment and



Zebra TC57x  
iTrackPPE intuitive  
user application



experience for its delegates. With increasing competition and tighter Fire and Rescue Service budgets, the college understands the importance of developing its offering to encourage future business.

With firefighter health, safety and wellbeing firmly front and centre of the national agenda, there has never been a greater emphasis on ensuring operational activities undertaken by delegates attending the FSC are the safest they can be. The ongoing research focused on PPE contamination from firefighting activities and increased rates of cancer within operational personnel has led the college to implement new procedures to minimise the risk of exposure and personal contamination.

The challenges the college is addressing are:

- Being able to account for all risk critical PPE, operational equipment and breathing apparatus assets
- Improving current time consuming and resource intensive asset management audit processes
  - Enhancing current delegate PPE issue and return processes
  - Understanding asset usage, performance and return on investment through better business intelligence data
  - Gaining better visibility of their managed care provider performance
- Preparing for future PPE contamination exposure procedural changes (clean PPE after every carbonaceous exercise).

**The solution**

The FSC have commissioned the implementation and integration of iTrackPPE Core, operational equipment and breathing apparatus modules.

Our team have currently fitted over 3,000 bespoke RFID / QR tags and supplied four Zebra Technologies TC57x and RFD40 premium handheld

scanners, to enable the daily tracking and management of their assets.

Initial testing has already demonstrated a significant reduction in the time needed to identify and record dirty PPE being sent away for washing.

A pile of 136 firefighting jackets and trousers would normally take the FSC team several hours to go through and barcode scan. Using the Zebra RFD40 scanner, all 136 assets were identified and recorded in under five seconds, without the need for the FSC team to go within three metres of the dirty assets.

To further meet the FSC’s specific use case, we have reconfigured our ‘Scanbox’ solution into a shipping container which will be the first RFID enabled ‘dirty PPE drop of unit’. End users will deposit bagged PPE into the unit which instantly scans the assets and changes its status from issued to returned. This will allow the FSC to monitor and identify missing or non-returned assets in real time.

Current management and tracking processes for operational equipment and BA are time consuming. It takes an average of 40 minutes per appliance to complete a full inventory. With 20 appliances to manage, plus non-mobile equipment held in a central store, it requires considerable resources and time. When implemented iTrackPPE’s equipment and BA module will enable each appliance inventory to be completed in under 2 minutes, allowing more time and resource to focus on asset maintenance.

**The future**

The optimisation of FRS and other agencies asset management is crucial to allow the emerging challenges to be resolved and the safety of operational personnel to be managed effectively.

The issues highlighted need to be addressed. Therefore, adoption of proven innovative technology is the only viable solution.

For more information on how iTrackPPE can support your organisation visit our website: [www.itrackppe.com](http://www.itrackppe.com) or contact us on [enquiries@itrackppe.com](mailto:enquiries@itrackppe.com)

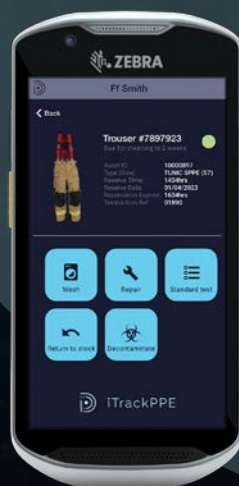


Zebra RFD40 Premium scanner enabling rapid asset accountability

# FUTURE-PROOF ASSET MANAGEMENT THAT PAYS FOR ITSELF



- Intelligent asset distribution, optimisation & management
- Increased PPE availability, reducing the risk of carcinogenic exposure
- Integrated RFID & QR tracking technology
- Intuitive end user application
- Complete user and asset compliance history capture
- Sustainable logistics & performance management functionalities



INCREASED ASSET AVAILABILITY  
& LONGEVITY AT A LOWER  
OPERATIONAL COST



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