

Critical elements of PPE evolution

Honest and frank partnerships with end users, along with commercial competition to fuel research and development, are critical elements in the continued innovation and design of PPE, says

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FIREFIGHTERS TODAY BENEFIT from an unprecedented level of personal protection thanks to the incredible pace of innovation in the market over the last 20 years. However, as the role of the firefighter has changed, and will continue to so over the coming years, a paradox has emerged whereby the very equipment that protects them in some circumstances, becomes a hindrance in others.

Clothing

The first line of protection for firefighters is the clothing that they wear to tackle a fire. We've moved on considerably from the days of wool tunics and PVC leggings, so that modern fire kit is manufactured from state-of-the-art fabrics and incorporates high performance thermal protection, combined with waterproof, breathable barriers. This is exactly what is needed when trying to control a blaze in a building, but is it really the best equipment for a search and rescue operation or extrication at the side of a busy road in hot weather?

In the UK the development of modern clothing solutions for the Fire Service has evolved with one key objective – the protection of the wearer in a fire. In this respect, modern PPE delivers outstanding levels of protection. However in a search and rescue operation, the bulk of the kit is often a hindrance and all the qualities that protect from the extremes of a fire, can expose the wearer to the risk of heat stress. A similar situation occurs for firefighters attending road traffic accidents where prolonged extrication is required.

Those at the sharp end of operations will often complain that they are hampered in non-fire operations by the very clothing and equipment that they swear by in the extremes of a fire.

The obvious answer is to create specialist clothing that will provide protection for search and rescue and extrication, while at the same time being fit for the purpose it was designed for.



Photo: Royal Berkshire Fire and Rescue Service

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So what is the solution? Three words – innovation, design, partnership.

It is innovation and design that have created the standard of equipment available today, but this could not have been achieved without the openness of the UK Fire Services, allowing suppliers to work with them in partnership and analyse the functions that they undertake.

An honest and open relationship with brigades allows suppliers to look at their products more holistically and to take account of how other pieces of equipment used with their products may impact upon performance.

Historically, it has always taken a major incident with loss of life to galvanise political masters into releasing funding for improvements that the emergency services have known about

for years. A good example of this is perhaps the Kings Cross disaster (UK; 1998), which led to the move away from wool and PVC and was pivotal in the development of the kind of equipment we see today.

Competition

Companies that create innovative solutions for their customers are those who are prepared to spend time with them analysing every aspect of their operations and the equipment required. Honesty and frankness is fundamental on both sides as it allows both parties to establish where improvements can be made. It's a long-term process that requires absolute clarity in the performance objectives of the products and constant refinement and testing to create meaningful solutions.

One other major factor that contributes to product development is competition in the market. Every company that supplies the emergency services wants to create the best possible product at an affordable price. Most invest a significant proportion of their profits into researching and developing new products that will better benefit the services. To be successful, their product must be better than their competitors'. However, without competition, there is significantly less incentive to invest time and money on research and development.

So, to go back to the issue raised at the start of this article, there will one day be a single solution to the perennial problem of fire kit versus specialised kit for specialised tasks. The single solution garment will only be achieved if brigades and suppliers work closely together to fuel innovation in the market.

Until that time there will be workable compromise solutions that may potentially result in a wardrobe of kit on the back of the appliance, but if we keep working together, we'll get there in the long term.

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