



Simulating stimulation

There are many approaches for delivering simulation-based incident command training – expert incident command facilitators from Oxfordshire Fire & Rescue Service, UK, the Estonian Academy of Security Sciences, the safety region of Gelderland Midden, the Netherlands and the Metropolitan Fire Service of South Australia share their own experiences.

From an organisational perspective incident commanders need to demonstrate a capacity to react to the incident they are exposed to, but this 'reaction' needs to be considered and, more importantly, safe. They need to appropriately analyse the risk of the incident to the affected individuals, the building, the community and the safety of their crew. They need to evaluate the information accurately and then implement the most effective plan to resolve the incident whilst ensuring that safe systems of work are activated. In a world where incident numbers are dropping due to improvements in fire safety regulations, building design or vehicle safety systems, is simulation-based training the most cost-effective solution to compensate for this reduction in incident exposure?

The use of simulation within all incident command departments that were studied is growing year on year. Simulation continues to provide a consistent training tool in which scenarios can be specifically designed for their complexity and facilitated to be consistent and reproducible. In particular, at the Estonian Academy of Security Sciences (EASS) the use of simulation during incident command training has increased from 10% to almost 70% over the last eight years. This increase in simulation usage is also true in the Netherlands, where simulation is used in the training of command and control from the lead firefighter or truck-leader right up to the Chief, in both mono-disciplinary training and multi-disciplinary training of large operational incidents. In Australia, the Metropolitan Fire Service also uses simulation as a strategy within all career development incident command programs. The use of simulations complements other more traditional learning strategies including reading materials, live fire training, case review and tactical exercises.

The flexibility within the scenario building offered by software such as XVR (produced by Dutch company Esemble), which is currently used by OFRS, EASS and GM, gives the incident command trainers a blank canvas to work with when designing scenarios for both training and assessment. The range of functionality available within the software provides limitless versatility when compared to traditional drill-based training methods.

'I think we should not compare live training against virtual simulation training. It is not possible to say which is better – hammer or a screwdriver. Every tool serves a purpose and in reality the more tools we have in the toolbox the better,' commented Marek Link, of the Estonian Academy of Security Services.

This is an opinion shared by all four services, as simulation is a tool that can flexibly be used in conjunction with more traditional training methods or equally effectively on its own. In particular, some learning outcomes are just more reasonable to exercise within a simulated learning environment. Simulation provides an opportunity for the learners to exercise in a safe environment first – in a place where they can make mistakes without causing any damage to themselves or physical environment. Simulations can be stopped, controlled and repeated and they allow also to prepare for situations that are very difficult to resource in live conditions.

This opinion is shared by Jessica de Olde from Gelderland Midden, where most of the training is a combination of many different types of methods. In particular, the availability of simulated environments which include highway, inner city, high rises or wildfire are especially perfect for training with the use of simulation, as they provide an opportunity for delivering structured training in scenarios where live training in these environments is not achievable, so the use of simulation is almost mandatory.

'All training methods have their uses and are needed. The advantage of the use of simulation or serious gaming is the possibility to train a lot of people with the same scenario. New tactics or information can be shared and tested. The incidents that can be created in simulation can't always be created in real live training situations. The choices made by the trainee during the training can influence the progress and outcome of the training. This isn't possible in most other types of training methods,' said Jessica de Olde.

David Launder from the Metropolitan Fire Service, agrees with this view. 'The advantage of simulation-based training over live scenario training is the ability to provide training that is safe, repeatable and can focus on previously defined clear



The four services in different countries share many similarities in how virtual training for incident commanders is delivered.

outcomes and behaviours. Learning has to be authentic, interesting, useful and assessable, and simulations allow all that with reasonable investment of time and effort. The quality of the simulation is extremely important. A large proportion of our incident decision-making is based on analysing visual cues. These important cues include: smoke colour and density, realistic neutral plane behaviour, radiant heat, noise and structural cues. It has been our experience that the value of simulation training is dependent on the extent to which it accurately replicates real life situations and to which it requires participants to employ those behaviours that will be required in real incidents,' said Launder.

Within all four services, incident command training is aligned to national guidance documents, but only within Estonia is this guidance applied in exactly the same way throughout the whole country. The Fire Services in the UK, the Netherlands and Australia all apply national guidance, but the exact details of the training or assessment are not specified.

Oxfordshire Fire & Rescue Service primarily uses simulation during the training and assessment of incident commanders at the operational tier of management. The incidents are carefully scripted to ensure that the complexity and urgency of response is consistent and provides the candidates with an opportunity to demonstrate competence against their specific role map. Within OFRS and many other UK Fire & Rescue services, the Introspect Model is used to assess candidates against map-role specified criteria (Lamb KJ et al. 2014).

'The Introspect Model was developed in OFRS by Jim Davies as a method to consistently assess decision-making competence throughout all levels of the fire service. It provides the candidates with an opportunity to reflect and learn about their own decision making process by utilising a facilitated debrief, which enables the candidates to understand which decisions they made were right, but more importantly understand the rationale behind the decisions that made them right,' explained Dr. Katherine Lamb, Oxfordshire Fire & Rescue Service.

Within EASS simulation is used for training and assessment at tactical and strategic level of command utilising an XVR module called Resource and Casualty Management, and assess at this level against specific learning outcomes for the exercise, as described in the national professional qualification standards.

In the Netherlands the assessment criteria currently used are competence based, and they are currently trialling a naturalistic decision making-based assessment model (FABCM developed by Crislab). This model focusses on improving incident command for first-line fire officers, where they have to

be focussed on where they can (or even should) make a difference. The MFS assesses personnel against a range of criteria established within national competency standards, and simulation is used as a component of incident management training at all ranks. Simulation is used primarily for development purposes and use as an assessment tool is limited to supporting assessment against competency-based criteria. Due to industrial opposition simulations are not used in promotional assessments or other evaluations that impact on career progression.

MFS also places priority on assessing key behaviours including human factors (Launder & Perry 2014). Paralleling the approach taken by the Oxfordshire Fire & Rescue Service the MFS also trains to, and assesses against, a decision model that incorporates the key behaviours of establishing situational awareness, selecting and employing an appropriate decision strategy, formalising the incident plan, managing deployment (and tasking) and ongoing, dynamic review of progress. In addition, participants are assessed for technical knowledge and understanding of organisational procedures as well as communication and personnel management skills.

National incident command training requirements in Estonia, the Netherlands, Australia and the UK are all different, but yet fundamentally the same. There are many similarities in the way simulation is used to provide training within the services studied and the advantages of using simulation as a training tool are very apparent. However, there are many differences in the way it is used to determine or document incident-command competence, giving 'food for thought' on the diversification possible and the scope of simulation-based incident command training and assessment for the future.

References

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