

Risk Management

21st century solutions

Jo Jones examines how advanced strategic planning techniques are enabling West Midlands Fire Service to increase efficiency and performance



AS WITH ALL EMERGENCY SERVICES organisations, West Midlands Fire and Rescue Service's ability to understand its demand profile and provide appropriate resources is fundamental to its success. Eighteen months ago, in an effort to expand the breadth of its capacity for data analysis in relation to emergency response, the IRMP team turned to improvement specialists, Process Evolution, for a supporting analysis that would underpin their strategic planning. They have not looked back since.

Matching Supply With Demand

In 2006, West Midlands FRS was deciding how to further improve its shift patterns. Until recently, like many fire services, WMFS had operated a simple two days on, two nights on and four days off shift pattern for its wholetime operational staff, for many years. However, although the pattern was straightforward and

well liked, WMFS recognised that there was scope to reduce the number of pumping appliances maintained through the nighttime period of minimum service demand. So, in 2005, the service implemented a reduction in the number of personnel on duty overnight, made possible through the introduction of two additional daytime shifts, to cover the busy part of the day.

Unfortunately, the new shifts did not achieve the optimum efficiency improvements that had been anticipated. Crewed by officers from across the service on a rota basis (every seventh tour), the shifts were complicated and unpopular with staff. After the continuity of working in the same team, officers were brought together with colleagues they did not know, with each tour creating a different team mix. The late finish of the second shift (midnight) was unpopular and staff found it hard to plan a social life around the changes. Organisationally it was not ideal, as

Rory Campbell, Manager of the Integrated Risk Management Team, explains: "Not only were the new shifts unpopular but they created a number of organisational problems. As well as losing the efficiency and motivational advantages that derive from a cohesive and well-established team, we found that PPE kitbags sometimes went astray and we were constantly struggling to fill the skills requirement. Although we undoubtedly needed the extra afternoon and evening cover, it was obvious that we needed to find a better way of doing it."

The Right Decision

West Midlands were fairly confident that by combining the two additional shifts into one twelve hour shift (1100–2300) they could solve some of the problems but wanted to make sure that this time they had got it right. WMFS were seeking additional reassurance that a refined shift system would be appropriate to the risk.

When Campbell heard of the benefits Merseyside Fire and Rescue Service had accrued through their relationship with Process Evolution he decided that this supplier had the approach and knowledge to give him the confidence they required. He says: "From the start I could see that Process Evolution could help us. With their experience in the emergency services sector, the company understood our needs and had created a suite of solutions that offered a great deal of clarity and was simple to use."

In the first instance, rather than invest in the company's software directly, WMFS asked Process Evolution to work in a consultative role so that the feasibility of several scenarios could quickly be quantified. Process Evolution went away and very quickly reported back with their findings. Their approach consists of creating an exact picture of the current situation at WMFS,



using the Fire Incident Analyser (FIA), followed by experimentation with different scenarios, using the Fire Incident Response Simulator (FIRS).

Firstly, they confirmed that the new additional shift would enable WMFS to provide the level of cover required. Crucially, Process Evolution were able to quantify their findings to a level of detail the service previously did not have. By analysing demand and deployment at a station level, the company were able to determine that implementation of the shift pattern would release 16 fulltime posts for deployment elsewhere within the organisation. The analysis also showed that the 1100 start was the most appropriate starting time; indeed, they were able to quantify that starting either earlier or later would lead to a marginal drop in overall performance.

It was this kind of detail that gave WMFS confidence in the change. The results from the analysis were detailed, clear and transparent and they had the quantitative evidence that the refined shift pattern would work more effectively. WMFS completed the consultative process and made the change. The new shift went live – with the success and resource savings they expected. Process Evolution’s report reinforced confidence in the whole process. Campbell again: “One of the striking things about Process’s work is the clarity of their reporting. Their tools are highly visual and graphs showing exactly how the proposed changes would impact the organisation and its performance helped to reassure stakeholders that we had made the right decision.”

Gaining Benefits

The other recommendations from the initial work were equally important. WMFS wanted to understand the impact on performance of introducing Targeted Response Vehicles (TRVs) to deal with secondary fires. Once again Process Evolution were able to come back with a comprehensive analysis of their impact, showing that the approach would bring significant benefits to the areas most affected by nuisance fires. Whilst WMFS already understood where such incidents were most prevalent, the thoroughness of the Process Evolution analysis was able to show detail by station on an hourly basis. Display of the information in a temporal chart, such as shown in figure 1, ensured that everyone could quickly understand what was happening there.

The results did not stop there, however. As well as evaluating the benefit of moving different pumps, the company looked at the service’s response standards. They were able to quantify exactly how often the service was meeting its current response targets and what the impact would be of changing targets and incorporating the TRV service. The analysis also considered and ruled out the idea of creating a faster response service by introducing a

dedicated vehicle for automatic fire alarms. This kind of scenario clearly shows the real benefit of simulation-based analysis. The fast response AFA vehicle is a concept that works well for many fire services but was shown not to add benefit to WMFS. Without the analysis WMFS may have made a costly investment from which they would have derived no real benefit. Following the consultative work West Midlands decided to make further use of the FIA and Fire Incident Response Simulator (FIRS). FIA and FIRS are used constantly to evaluate different decisions and are undoubtedly helping to increase the service’s efficiency. For example, by experimenting with FIRS, the service realised that it made sense to move one additional permanent appliance from Birmingham to the Coventry region rather than sending engines to provide additional cover when called.

The benefits were far reaching. With this change, not only have response times to Coventry incidents improved, but the service has enjoyed a significant efficiency improvement, not to mention the environmental benefit of no longer sending appliances from Birmingham to Coventry and back.

The IRMP team itself is also reaping the benefits. The yearly upload of operational data is a straightforward task and day-to-day working has changed. Reports which may have previously taken hours to complete can now be executed in minutes and automatically presented in a format that is highly visual and simple to understand. The team has also benefited from having a good relationship with the supplier, who provides an excellent level of support. Undoubtedly FIA and FIRS are set to become permanent fixtures at West Midlands Fire Service.

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Incident Occurrences For 2005/2006, 2006/2007 and 2007/2008, Selected Station Grounds And FA Incidents

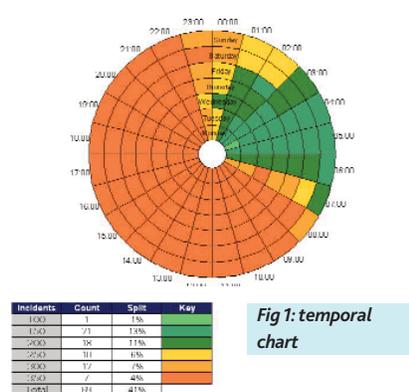


Fig 1: temporal chart