

## Addressing the challenges of ESN Transition

A discussion paper for  
UK emergency services

A stylized, light brown mobile phone is the central focus, tilted slightly to the right. It features a large screen area, a speaker grille at the top, and a keypad at the bottom. A bright blue rectangular sticker is placed on the screen, containing the text 'ESNReady™' in white. The phone is surrounded by several vertical bars of varying heights and colors, including shades of blue, pink, and grey, which create a modern, abstract background.

ESNReady™

## Background

The government's Emergency Services Mobile Communications Programme (ESMCP) is set to replace the Airwave service with a new national mobile communications service, to be known as the Emergency Services Network (ESN).

ESN will provide 'next generation integrated critical voice and broadband data services' as a 'mobile communications network with extensive coverage, high resilience, appropriate security and public safety functionality'.

The scope of the programme is huge, embracing the three core emergency services (fire, police, and ambulance) and some 300 other agencies.

With contracts for the main Lots being awarded in 2015 and the transition to begin between 2017 and 2019, this paper has been produced to help agencies gain awareness of the issues they will shortly face.

## Challenging timescales

As is clear from a look at the programme schedule, there isn't much time for procrastination or mistakes. All of the agencies that will make the transition from Airwave to ESN need to get ahead of the programme in order to be fully prepared.

The same is true for the various suppliers involved in the programme. For example, control room suppliers must fully understand the User Services (Lot 2) delivery as soon as possible after the contract award and work closely with the successful Lot 2 bidder, expected to be Motorola, to achieve certification for the control room solutions.

Suppliers will face the additional challenge of working with multiple clients, so they must find a way to schedule work across their client base. A planned programme of work will be needed to ensure a manageable schedule. Early engagement and the 'booking in' of work will be necessary.

## Learning lessons from the transition to Airwave

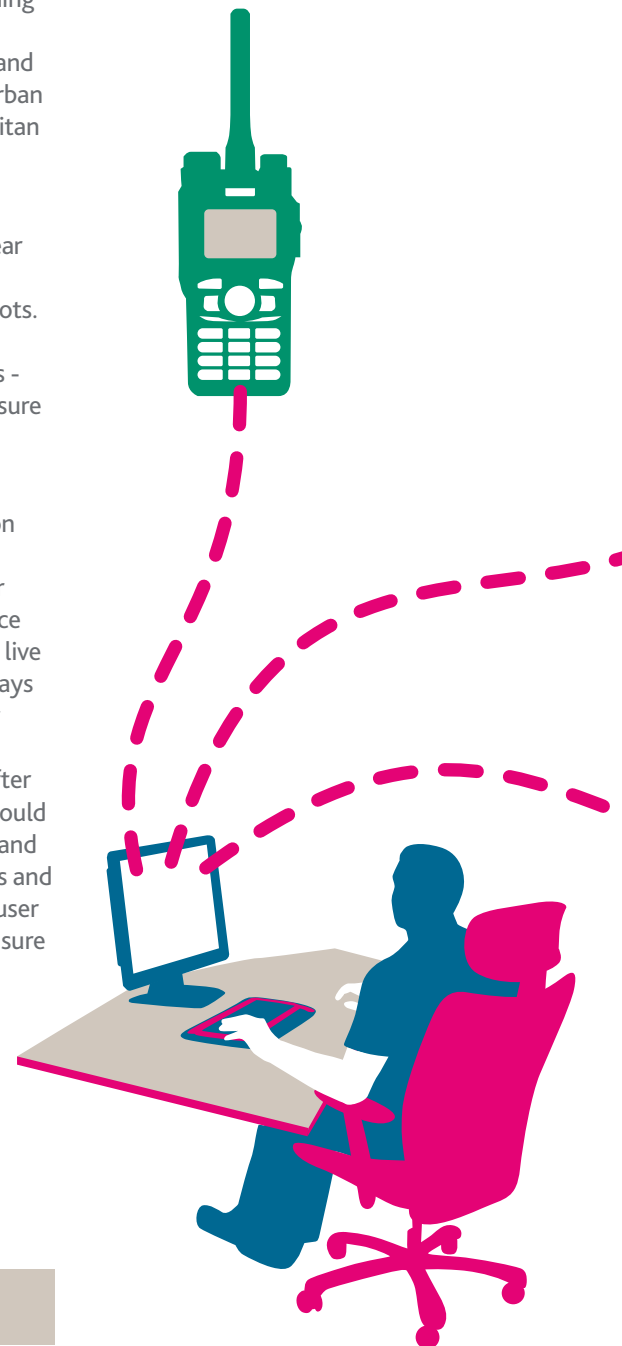
Capita was heavily involved in the transition from analogue radio systems to Airwave back in the early 2000s with our first integration at Greater Manchester Police in 2001. That corporate memory and experience will be useful, therefore, to tap into as it will have considerable relevance for the upcoming ESN programme.

The main lesson learned from the Airwave implementation was the value of running pilot launches. There was a Lancashire pilot that covered a mixture of urban and rural locations, followed by the first urban deployment of a pilot in the metropolitan area of Greater Manchester.

Although there is to be a phased roll out of ESN region by region, it is unclear at the moment whether the initial implementations will act as formal pilots. If not, it should be relatively simple to nominate the 'early adopters' as pilots - even on an informal basis - and make sure that their experiences are shared with other agencies and their suppliers.

The second lesson worthy of a mention at this stage is the difference between test and live environments. No matter how extensive the testing of a reference system may be, once the system goes live with thousands of users there will always be challenges to address for a number of weeks or even months. Capita are preparing to support several phases after initial integration and project plans should therefore take this into consideration and anticipate the need for time, processes and resources after go-live both from the user and the supplier as true partners to ensure as smooth a transition as possible.

In a complex transition such as ESN things will inevitably not go to plan, and the unexpected may occur. Capita is ready and able to help plan for these possibilities, and provide contingencies to mitigate them. A secure messaging overlay could be used during the transition for alerting and broadcast messaging, helping smooth the transition where operational demand cannot be compromised. Longer term a messaging overlay can help serve to enhance communications as part of an independent and resilient multi-channel approach to ESN. This can be achieved with minimal impact and with the ability to integrate seamlessly in the control room despatching processes.



## Preparing the control room environments for ESN

There are a number of specific challenges for those involved in developing and maintaining control room solutions and communications infrastructure. Firstly, there is the fundamental need to create the capability to deliver on the new ESN platform.



The minimum requirement at the start of transition for each agency is that control room ESN functionality provided will match that currently available with Airwave. For example, a new ESN talk group would likely need to be identical to an existing Airwave talk group.

Control room suppliers will need to get together with clients to define the functionality that is required. Development is already underway. Capita have already commenced engagement with user groups and are progressing development activities in line with the national programme to ensure that integrated solutions are available to support trial and transition activities.

As this affects all our clients Capita will be developing solutions that meet functional approaches agreed via product user groups and thus it is essential that clients get involved in this process if they wish to influence direction. For initial like for like deployment common approaches, similar to that used with Airwave today, will need to be taken to minimise control room staff training and the overall risk of the transition. This will allow clients to focus on the bigger logistical challenge of rolling out new mobile devices to field based resources.

The largest challenge will be the logistics of rolling out solutions to multiple clients in parallel and thus prior planning and engagement to carefully plan this is essential for ensuring success.

Another requirement is to ensure interoperability between Airwave and ESN. In each agency and within each region there will need to be periods where the old and new networks work alongside one another. For example, if a police force has 500 officers and 200 vehicles, not all of them will be equipped with ESN-enabled devices at the same time.

The same is true for inter-agency communications. Ambulance crews will need to talk to their police colleagues, even if one organisation is further along the transition programme than another.

Transition programmes will therefore need to include facilities which enable control rooms to use different gateways simultaneously. This will avoid the need for police officers and colleagues in other agencies to carry both a radio and a digital device during the transition.

Capita is able to provide a secure messaging overlay using tried and tested technologies capable of providing alerting and broadcast messaging, independent of the new and existing radio gateways. The ubiquitous nature of messaging can provide both continuity and contingency in the face of uncertainty. Such technology is easily accessible and device agnostic, therefore effortless to implement in terms of logistics, training and the consideration for interoperability. This channel of communication can offer agencies assurance during the control room transition program, as well as in future services.

Achieving interoperability should be relatively straightforward - Capita will be able to advise clients on the best approaches for achieving inter-operability and will be ensuring that control room solutions can enable this, if it is considered the most appropriate approach moving forward.

### 'Like for like' or embracing every opportunity?

It is inevitable that the switch to a communications network that is capable of providing a higher bandwidth data-based system will lead to the development of many new applications that will hopefully allow the users make the most of the latest 'smart' devices. Applications that enable the creation and transfer of pictures and video will feature heavily in this trend, as well as various other types of data.

Although we do not wish to dampen down expectations in this area, we would suggest that caution is needed. A rush to embrace lots of new apps is to be avoided. The pressing need is to make a smooth transition to ESN, phasing in apps over a period of time ideally on a like-for-like basis where possible to minimise disruption.

As with all projects of this magnitude, it is about working in a manageable way. Agencies should steer clear of creating a challenge bigger than necessary, and in doing so run the risk of failing to achieve success in key functionality in the first instance. Another benefit of an initial 'like for like' implementation is that it will minimise the training required for control room and field personnel.

## Device selection and installation

A fundamental issue that every agency will face is to decide which devices will be used in the field. The decision will be more complex than has been the case with Airwave as there is a suggestion that there will be a large catalogue of approved devices, from a conventional radio to a hybrid smartphone or tablet.

Capita's Mobile Technology Managed Service team currently support over 150,000 Airwave radios for various police forces, ambulance services and other organisations across the UK. We have gained considerable experience and so feel qualified to offer some guidance on the issues around the selection, installation and commissioning of equipment suitable for ESN.

The overriding challenge is presented by the scale of the exercise. Across the 107 Tier 1 emergency services alone, there will be something in the order of 300,000 radios to replace with digital handheld, chest/shoulder worn and vehicle devices.

One immediate requirement is to ensure that an accurate asset list is in place as this will be the starting point for managing the changeover. We would hope that every organisation has an up-to-date radio/device asset list, but if this isn't the case it should be addressed immediately.

With the maintenance of a reliable asset list, the main steps to address can be summarised as follows:

- Identification of requirements.
- Selection and procurement of devices.
- Configuration of devices to meet the organisation's precise needs.
- Training of personnel.
- The actual physical installation/ issuing of new devices.
- Decommissioning and disposal of old radio units.

We don't intend to map this process in detail here, but there are few issues that are especially important and worthy of consideration.

## Choosing devices

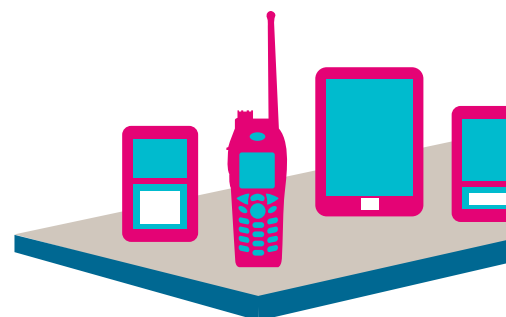
Of course, at this stage organisations and their partners are hampered because nobody knows which devices will be available. Manufacturers are understandably being cautious about releasing information on device specifications. Even variables as fundamental as device size, shape and style (whether they will be of a tablet format or more like traditional radios, for example) are unknown.

Another concern is that manufacturers may decide to compete on price rather than quality, in terms of build standards and support. The radios in use now are generally very robust and are often warranted for several years because manufacturers have great confidence in them. If the replacement devices are to be made to a cost they could in effect become almost disposable. Therefore the total cost of ownership must be assessed, going beyond the initial cost of the devices themselves.

The move from today's world where two suppliers of radios dominate the landscape to potentially dozens of device suppliers will also bring complexity in terms of accessories including earpieces, microphones, cases, belt/shoulder clips and so on. It is also conceivable that similar devices from differing manufacturers may have different performance characteristics.

Deploying dedicated encrypted messaging devices independent of Airwave and ESN could offer a robust belt and braces solution to the uncertainty, the selection, trials and acceptance of new ESN user devices in the field. Knowing that the alert or message will be received using existing broadcast technology gives real peace of mind, and mimics other countries, such as Belgium and the Netherlands, where this approach is now being implemented.

At the moment there is no indication that regional groups will work together in the selection of devices. That approach would achieve economies of scale and enable more sharing of best practice in relation to the installation of devices. In the absence of an approach like this, Agencies must work with the Home Office and the Lot 1 provider to ensure that information from early adopters is fed back into the system.



## Making the physical transition to new devices

As far as handheld/bodyworn devices are concerned, the aim is to make the transition as simple as possible. In effect, personnel should be able to come in at the end of a shift to hand in their old radio, and then pick up a new device at the start of the next shift. The main issue to address will be ensuring that personnel receive appropriate training before that transition. Emergency services have recently been driven to take the easy cost saving by cutting back on training spend - they must satisfy themselves that all officers know how to find the emergency button and PTT on a dark, noisy, wet night on every new device issued within their teams.

The installation of devices in vehicles will of course be the work most likely to take up time and resources. Consider for a moment just some of the installation practicalities of this work: the space left by the removal of the existing radio unit may not be the same size as the digital device, there may be different electrical characteristics, the wiring loom may not be suitable, and so on.

Then there are differences between vehicles to consider. The physical space available in a Ford Focus differs from the space available in a Vauxhall Astra or a fire appliance.

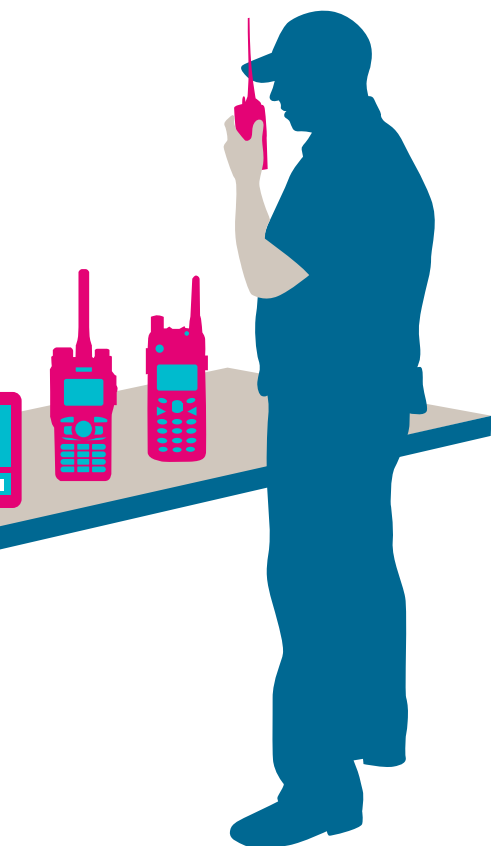
There are also usability issues. The screen on new devices will need to be seen clearly, and so may need to be closer to the user than was the case with the old radios. The new devices may also have smaller buttons, so once again the old location may not be suitable.

Next, there is the logistical challenge of taking vehicles off the road. This will tie in with looking at what new vehicles are due to come into operation and liaising with vehicle suppliers on the addition of the new devices to specifications.

It is clear that organisations will need to make a comprehensive assessment of what is involved in removal and refitting in each vehicle and radio/device combination. This assessment should include what work will be required, how long will it take, what skills and resources are needed, and so on. We suggest that the fitters who will be doing the work should be fully involved in this process. As with the Control Room transition, this is another area where 'lessons learned' should ideally be shared between regions.

Finally, it is important to note that organisations across the emergency services sector have become leaner in recent years. One area where this is the case in many organisations is IT and communications. There is concern in some quarters that organisations will therefore lack the resources - in terms of skills, expertise and capacity - necessary for a complex technology and business change programme.

Putting in place mitigation strategies that are independent of either Airwave or ESN, to ensure the operational need is not compromised during transition, will alleviate pressure from project management challenges and time frames. And, in the longer term, provide credible resilience to an as yet un-tried and un-tested network.



## Decommissioning challenges

Once removed from vehicles or buildings, or handed in by personnel, equipment needs to be properly decommissioned. There is a risk that if old Airwave radios fall into the wrong hands they could be a powerful aid to organised crime during the period of many months, even years that the Airwave system runs parallel with ESN network. Decommissioning should be followed by safe and environmentally-friendly disposal.

The process of decommissioning and disposing of radios should be relatively simple. It is, after all, something that organisations do frequently as radios reach the end of their working life. However, the scale of the exercise ahead presents its own logistical and resource challenges. Whilst it is equally effective to either logically remove a radio from the network via breaking the ISSI/TEI pair or to simply decommission the radio, these activities may well be undertaken by different groups of people, the potential for missing a batch always exists. This risk increases with mobiles installed in vehicles where the handling of the equipment within the garage environment may lack the rigor applied to handportable devices.

## Summary

Addressing these challenges will be key to ensuring a smooth transition to ESN, minimising the risk to the users and the public during the programmes. We can't stress enough the benefits that early engagement with key suppliers and partners will bring and, by making use of the 'corporate memory' of those involved in the Airwave implementation will, without doubt, help.

Engaging with reputable suppliers who have previous change management experience as well as the physical capacity and capability to support organisations during the ESN transition will be key. Business credentials must be thoroughly assessed and organisations with a proven track record, the pedigree and resources to deliver particularly in uncharted territory should be given precedence.

Capita is keen to engage with the people within client organisations who have responsibility for ESN projects, to assist them in the process. Our focus is on understanding our clients' requirements so we are fully committed to full engagement in order to play our part in a smooth and successful transition to ESN.



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