



HYTERA WHITE PAPER

The Unrealised Potential of Digital Mobile Radio

Are Facilities Managers Facing a Communications D-Day?



Executive Summary

Two-way radio systems in the UK are not being used to their full potential and many installations are in drastic need of an upgrade. At the same time, innovative two-way radio manufacturers and the UK dealer network have never been more prepared to help.



Many businesses are suffering with two-way radio networks that simply aren't up to scratch, that drop out frequently, and deliver poor audio performance. As a result, many organisations are supplementing their radio networks with mobile phones, which themselves often drop-out in areas of poor coverage and don't offer the instant critical communications services required.

And that means employees run the risk of being unable to communicate and operate effectively during their working day, most critically during an emergency situation.

In February 2017, Hytera surveyed the readers of Facilities Management Journal to evaluate how they use two-way radios, establishing the issues they face and the importance of current and future communication requirements across some of the most important sites in the UK.

The survey findings reveal that many UK businesses, even those utilising more comprehensive systems, are failing – or are unable – to use their two-way radios to their full potential. This means that businesses are not getting the full return on their investment and must work more closely with their two-way radio provider to squeeze more value from the equipment they've already bought or upgrade to the latest technology.

Businesses reported that they are not maximising the in-built health and safety features in modern radio handsets and supporting applications, despite a clear desire on the part of Facilities Managers to upgrade their radio systems.

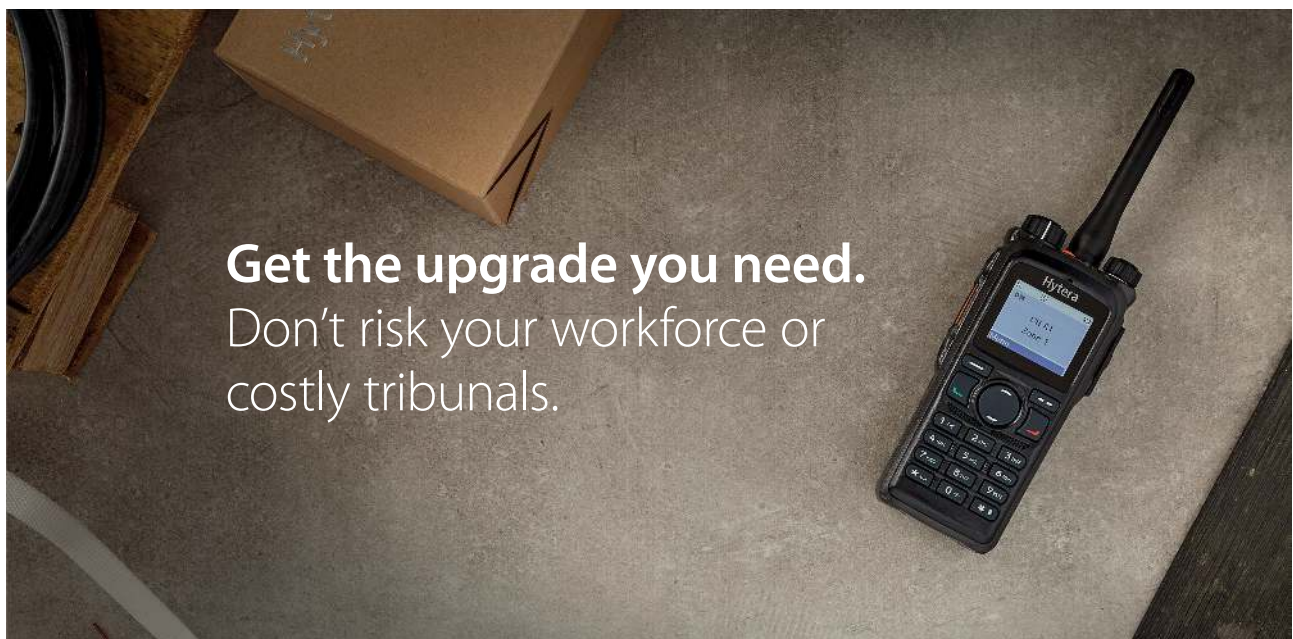
For others, it's the pressing need to address network coverage issues which force businesses to spend unnecessarily on secondary devices such as mobile phones – increasing the strain on budgets whilst still failing to deliver the comprehensive communication solution required.

It's a perilous picture that highlights how many UK businesses are on the brink of a 'Communications D-Day' – the point at which business critical communications fail, putting an employee at risk of injury or fatality.

The survey findings also illustrate how, if the UK's radio networks are to get the upgrade they need – and the upgrade Facilities Managers want – then a business case needs to be made that clearly lays out the return on investment, and crucially, the risk of not upgrading.

The HSE has reported on cases where a lack of adequate communication facilities has resulted in an injury or fatality in the workplace. In such scenarios, the tribunal costs alone far outweigh the investment in a new two-way radio system. But that's not all. Businesses report that the measurable workforce and operational productivity gains they've achieved following a two-way radio system upgrade could be enormous.

This report analyses the feedback from the 180 Facilities Managers who participated in the survey and sets out a way forward for those organisations whose two-way radio networks are in need of an upgrade.



A Failure to Maximise Capability

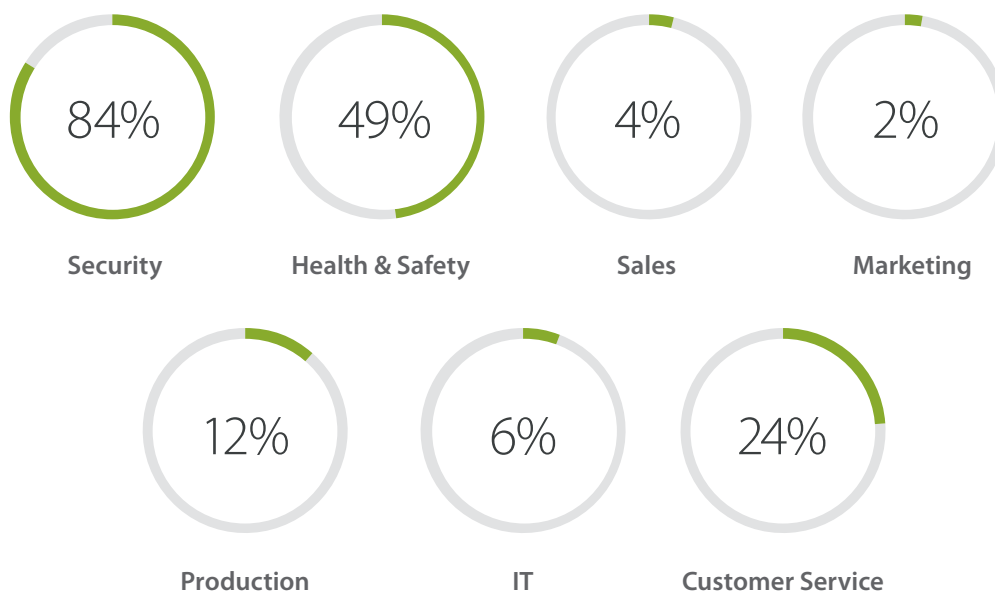
46% of those surveyed said that they operate on a radio-to-radio direct mode basis. While this configuration will function well within limited spaces, the finding confirms that a large number of radio users in the UK have not adopted basic systems technology, which allows radios to communicate across a larger area and ensure better coverage with simple repeaters and supporting applications.

What is a Repeater?

A repeater allows you to extend your radio range to achieve local or wide-area coverage and can be stand-alone or IP-connected. You can use single or multiple repeaters across sites and these can be either fixed or mobile. For instance, you may want to place repeaters in specific locations around your site, based on the findings of a coverage report. Alternatively, you might require a repeater that can be carried and moved, if you're operating outdoors or in a location that's frequently changing.

Survey respondents confirmed that, unsurprisingly, the majority of these two-way radio systems are being used by their Security teams, with Health and Safety personnel also using radio in approximately 50% of operations. Customer Service teams were represented in just 25% of respondents, while the larger networks also included Cleaning and Housekeeping teams.

Who uses radio systems?



This under-usage in many departments shows that a number of businesses are not looking at the potential benefits two-way radio communication can deliver across the wider organisation. Instead, the primary focus is on using devices as a traditional point-to-point communication tool for security staff. Indeed, the low number of businesses currently using radios for customer service or operations roles suggests that opportunities are being missed that could result in improved productivity or a better customer experience.

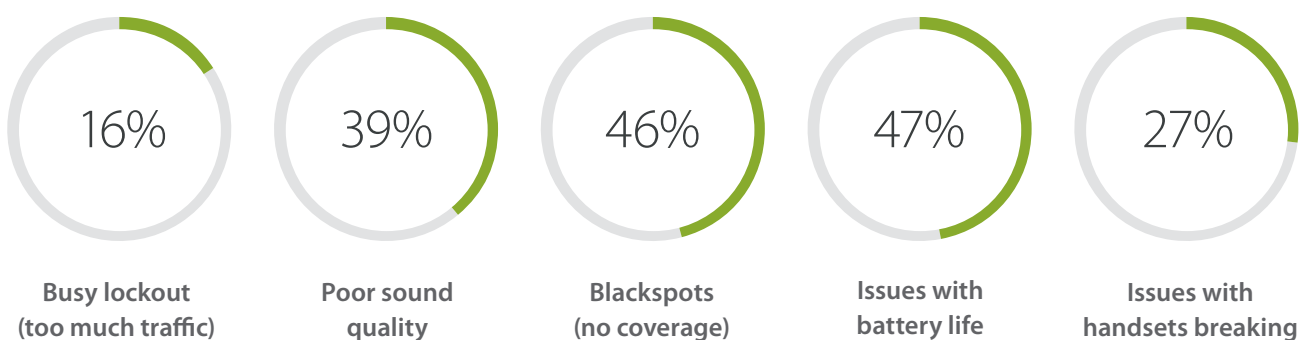
Today's modern two-way radio systems can deliver far more than point-to-point communication. With digital technology and IP connectivity, a network can be patched across multiple sites, enabling Facilities Managers to create a country-wide network and avoid unreliable and costly mobile phone usage. Applications can connect with other devices, alarms, systems, security gates, and so on, while employees can be geo-fenced and geo-located, meaning that you have greater visibility when, for instance, an employee strays into a hazardous area. Utilisation of a Tier III system would further increase call capacity and make it possible to involve other departments in cross-functional conversations, even connecting the phone networks or switchboard to unify communications.



A Failure to Communicate Efficiently

45% of respondents said that they experienced blackspots around their site – in other words, coverage that drops out in specific areas such as behind concrete walls or locations at the edge of the range. By seeking advice from an authorised system integrator or two-way radio provider, black spots can be quickly resolved with the correct RF and antenna solutions coupled with the latest digital radio handsets and repeaters.

Problems experienced across sites



The majority of those organisations experiencing blackouts are simply accepting this issue and issuing mobile phones as a supplementary communication method, rather than tackling the problem. However, in these instances the potential for poor mobile coverage also increases, doubling the risk that employees face when working on-site.

Security appears to be most at risk of compromise. Half (50%) of those organisations impacted by blackspots admitted security would improve if these were resolved. Furthermore, 83% of those suffering drop-outs in coverage say they also want better quality transmission from their handsets. In other words, not only do they want better coverage, they also want clarity when the handsets are working.

Blackspots are often present across systems due to poor radio engineering. Switching to a digital system can often solve this issue, but the first step is to carry out a coverage survey and evaluation of the current technology in place. Hytera's authorised dealers are experts in carrying out a system health check and providing a detailed survey. The findings may result in better antenna design, improved location of repeaters, and even the replacement of cables.

If you are suffering from poor coverage, the best option is to discuss the situation with your radio dealer. Busy traffic complaints can be resolved with an upgrade from a conventional solution to a trunked system (Tier III) which utilises the channel resource more efficiently thereby allowing more traffic for a growing site or campus.

A Failure to Use Radios to Their Full Extent

Disappointingly, given that the majority of users are working in Security or Health and Safety teams, only 23% of respondents said that the radios their teams were using featured 'Man Down' capabilities.

An integral attribute that's built into the latest professional two-way radios, Man Down functionality alerts a central dispatcher, handset or emergency group when a radio is on its side. The presence of this feature only rises to 30% when Health and Safety teams use the radios, which demonstrates that the large majority of users are not taking advantage of this feature.

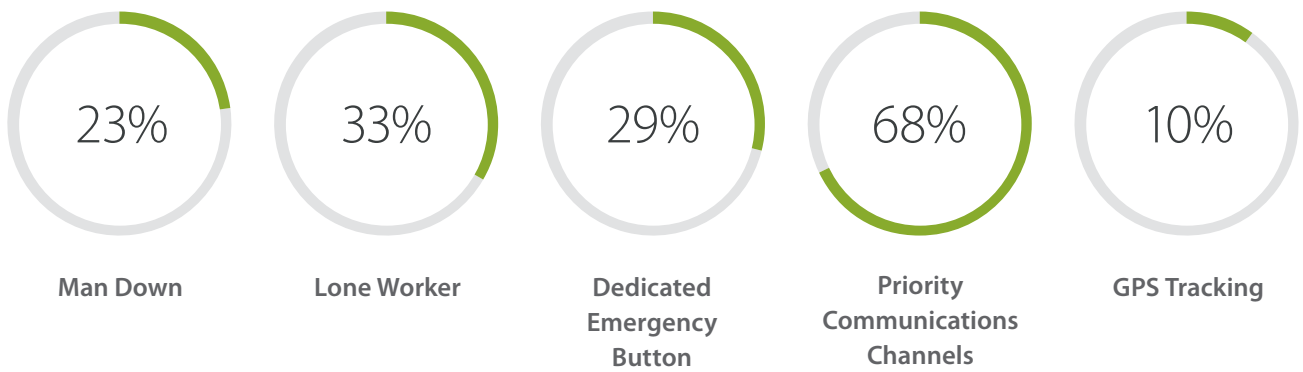
Lone Worker is another under-used safety feature. The survey found only 1-in-3 radio networks were utilising the Lone Worker functionality offered by the latest two-way radios. While Lone Worker is a legal requirement for organisations employing isolated workers in some countries across Europe, it is also a recommended safe working practice for UK employers.

What is Lone Worker?

Lone Worker functionality measures inactivity in a radio, prompting the user with a pre-alert, before sending an emergency alarm to colleagues if the user doesn't respond within a specified period of time. This Health & Safety feature ensures that the user doesn't require additional handsets or devices, and makes it possible to initiate an emergency call without the user having to press any dedicated button.

Similarly, only 29% of those surveyed said that their radios had a dedicated emergency button - a pre-programmed key on the handset that allows an alarm to be sent in the event of an emergency. Many of these Facilities Managers are dealing with sprawling complex sites or campuses, and acknowledge that simple radio safety features that can easily be initiated could save valuable minutes in the event of an emergency.

Under used safety features



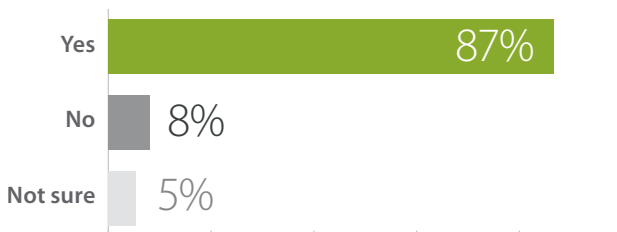
The overall picture is that, despite a growing knowledge of these features and the benefits of digital radio over classic analogue technology, radio behaviour continues to be very traditional – using radios solely as simple push-to-talk devices. With the majority of respondents stating they still operate radio-to-radio conventional, there is a huge opportunity to upgrade to a simple radio system which would allow businesses to maximise functionality, boost network resilience and improve responsiveness to emergency situations.

Perhaps more importantly, staff should be trained and made aware of the features available in the device, even if they are a transient workforce. Business-focused end user training is vital if Facilities Managers are to extract full value from their investment in two-way radio systems.

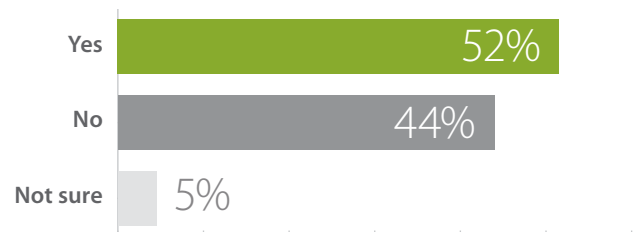
Mobile Phones – a Backup That’s Not Working

Almost 87% of those surveyed reported that employees were using mobile phones in addition to two-way radios. However, 56% of respondents confirmed these employees may well be working in remote on-site locations with limited mobile phone coverage.

Organisations whose employees use mobile phones



Organisations with employee who potentially work in areas of limited coverage







Allied with the Health and Safety deficiencies in networks already noted, this makes a potential 'Communications D-Day' all the more likely for many of the organisations surveyed.

That's because while smartphones are a useful tool for e-mails and some job task systems, it's clear that Facilities Managers are also relying on mobile phone networks as a backup to their two-way radio systems. Typically, this is to overcome specific challenges they are experiencing such as blackspots, sound quality issues or battery life problems.

However, as the research reveals, those companies using mobile phones also admit that these devices don't offer a reliable solution to their problems. Respondents cited issues such as poor or limited mobile coverage and confirmed that the handsets were far less rugged and often posed a potentially dangerous distraction for employees. Not to mention the fact that the employee is having to carry two devices.

Ideally, Facilities Managers need to speak with an authorised radio dealer who can easily run a coverage report, identify any upgrade requirements, and implement a simple personal digital network covering all the site communication requirements. These specialists can also recommend handsets that offer the required crystal-clear sound quality and long lasting battery life that can easily outlast a shift.

Benefits of DMR radio

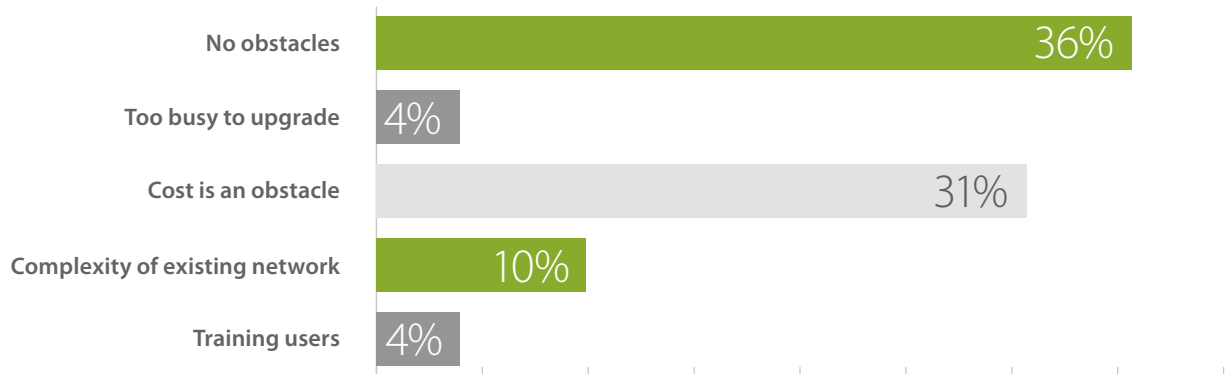
-  **CRYSTAL-CLEAR SOUND QUALITY**
-  **LONG LASTING BATTERY LIFE**
-  **INCREASED CAPACITY**
-  **IMPROVED COVERAGE**



When it came to upgrading an organisation's two-way radio network, the issue of cost was a major concern. Yet the survey identified that those respondents most likely to claim cost represented an obstacle to upgrading also appeared to be those most suffering from poor mobile phone coverage, poor two-way radio coverage, and poor sound quality over their networks.

Perversely, these organisations were happy to continue to pay supplementary monthly phone contracts and associated device support costs rather than initiate a professional two-way radio upgrade that would eliminate these costs by doing the job with one device.

Obstacles to upgrading – all respondents



If businesses are operating both two-way radio systems and mobile phones, that can be a tacit acceptance that their communications system is not fit for purpose. For many workers out in the field smartphones are not an adequate replacement for Digital Mobile Radio (DMR). More importantly, DMR enables instant communication - whether that's across a single or multiple sites. This may include group call functionality that allows more than two people to join the call, as well as recording, reporting and dispatching – all of which are important business requirements for the modern Facilities Manager.

Migration from old analogue technology to the latest digital radios can be made easier by using handsets that operate in dual mode. This means you can continue to use older handsets and migrate over time, in line with your budget allocation. DMR radios combined with applications can also deliver the job ticketing and messaging requirements used across many facilities to track and manage workload.





Orchestrating Operations – How Bluewater Achieved Retail Excellence

CASE STUDY

Bluewater is the UK's leading retail destination outside London. Welcoming 28 million visitors a year, the top priority is assuring the safety of visitors and staff. The smooth running of the site, therefore, depends on everyone being able to communicate at any given moment, no matter what the situation or where they are located.

When Bluewater took the decision to upgrade to a digital two-way radio system, it had to take into account the needs of multiple departments and user groups. That meant going beyond simply protecting the safety and wellbeing of all on site to ensuring that footfall and retail spend is optimised.

The system build featured instant call and text messaging capabilities to individuals or groups, as well as communication prioritisation and support for lone workers. The solution also featured easy-to-use radio handsets that deliver voice transmissions with total clarity, regardless of background noise.

It was also important that the new digital radio system integrate seamlessly with the site's Everbridge mass communications platform, which keeps everyone – including retailers – informed in real-time of routine events and incidents.

The Hytera DMR system was integrated with the CALM solution developed by Hytera Partner Chatterbox. This delivered all the integration, coverage and connectivity Bluewater needs to support a host of advanced communication applications.

The solution features a variety of voice and data services – Man Down, Lone Worker Monitoring, Text Messaging and High-Speed Emergency Response. Caller ID means that control teams can immediately identify every radio user, taking advantage of Caller Interrupt to break into radio traffic to send out priority transmissions.

Hytera's innovative XPT digital trunking technology doubles Bluewater's existing spectrum resources, maximising available traffic channels and capacity. Bluewater was also able to use its existing infrastructure.

Security and facilities personnel are now equipped with Hytera's X1P digital radios with in-built GPS and Bluetooth, complemented with Bluetooth earpieces to assure discrete and clear communications with reliable noise cancellation. The radios are lightweight and rugged, while batteries easily outlast a shift with a single charge.

Retailers are using the Hytera PD785G portable digital radio handsets, which also have in-built GPS, which are simple and intelligent and offer instant push-to-talk communication (PTT), as well as an emergency button and programmed keys.

Changing Workplaces, Next-Generation Systems

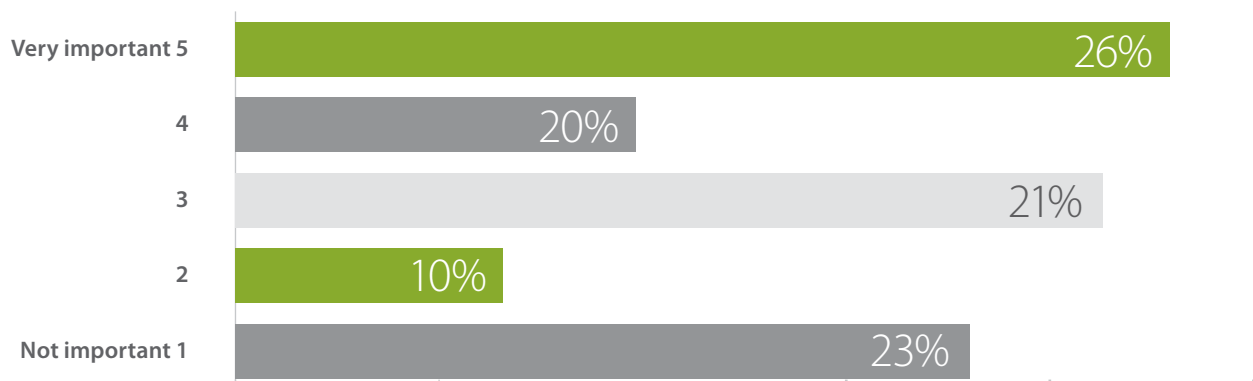
It is clear from the research that organisations across the UK are seeking next-generation solutions that combine Health & Safety features with more advanced technology and unified communications.

Facilities Managers appear to be extremely forward-thinking in terms of the technology they seek from future two-way radio systems, with 54% of those surveyed claiming they would like to see devices with built-in cameras as well as specific FM apps.

Two-way radios have advanced considerably since the old days of analogue radio-to-radio communications. What's more, fast-paced changes in the workplace are now forcing businesses to review how employees communicate across more disperse sites and undertake more varied work patterns. Indeed, as health and safety legislation continues to develop, a modern system that supports today's evolving workplace realities is becoming ever more important.

But while Facilities Managers clearly value the health and safety-led features of today's digital radio handsets, many still appear unaware of the benefits of GPS tracking. A readily available feature on the latest devices, GPS not only enables organisations to track employee movements – and fulfil their due diligence responsibilities – it can also act as a powerful dispatching tool protecting employee well-being.

Importance of GPS



As the survey findings confirm, Facilities Managers have two priorities: firstly, to resolve problems with their existing systems; and secondly, to utilise professional digital radios to meet the demands of the modern workplace.

But while many view cost as an obstacle to digital adoption, the burden of maintaining an out-of-date analogue or even a poorly specified digital system in itself represents a business case for eliminating or reducing the costs of:

- Repairs
- Replacing batteries
- Replacing broken radios
- Maintaining back-up mobile phones & contracts
- Lost productivity due to poor comms
- Employee tribunals due to incidents caused by lack of communications

Central College Nottingham – An Education on Digital Radio Upgrade

CASE STUDY

Central College Nottingham was facing many of the problems outlined in this report: poor coverage, frequent cut-outs, interference between channels, degrading devices with repair costs. This was largely due to an ageing analogue radio system that was no longer fit for purpose.

Recognising that a “Communications D-Day” was on the horizon, the Facilities Management team took the decision to move to a Digital Mobile Radio solution that tackled the problem head-on.

It would also enable them to handle a number of environmental obstacles and working practice challenges not uncommon in many businesses across the country: multiple sites, multiple floors, basements, transient workforce across night shifts...

The College switched to digital by adopting Hytera’s PD605 and PD665 handsets, and immediately realised they no longer experienced troublesome black spots thanks to these powerful devices. In fact, coverage was perfect across all of their seven sites – with no more drop-outs.

But that wasn’t the only gain. Today, multiple teams are able to use the system by using specific channels and groups. All of which maximises the communication benefits across the extended campus – from the cleaning staff, to the security team, and even the librarians, who have made particular use of the whisper feature for quiet communications.

The College also wanted to go beyond traditional radio, integrating its devices with other technology around the college. The radios now integrate with access control and CCTV systems, and can even operate the tannoy that communicate messages directly over loud speakers.



Hytera PD605 & PD665



More Than Just a Radio

If Facilities Managers are to avoid a Communications D-Day, they need to set clear expectations about what they want their two-way radios to deliver.

The survey findings confirm that radio usage across the UK is highly traditional, with a large proportion of systems being operated in a conventional radio-to-radio manner primarily for security purposes.

In other words, businesses simply aren't getting the most out of the devices that Facilities Managers and their teams carry around with them at all times.

Yet modern, professional two-way radios, supported and delivered by an authorised radio provider, can meet the majority of today's customer communication and integration requirements. And further innovative developments are just on the horizon.

Indeed, next-generation handsets and supporting applications will offer functionality that not only replaces existing technology - such as Lone Worker tags or even mobile phones - but offers true unified communications in an intelligent single handset.

This is the direction of travel - instant communication whenever people need it, wherever they are across their facility - a single device that offers reliable coverage, improved productivity and Health and Safety gains, while reducing cost.

If that's not happening in your business, then it's time for an upgrade.

If you'd like to discuss upgrading to Hytera, visit our website at hytera.co.uk where you can find a list of local authorised [dealers](#), view our extensive [product catalogue](#) and keep up-to-date with the latest [news](#) and [case studies](#).

