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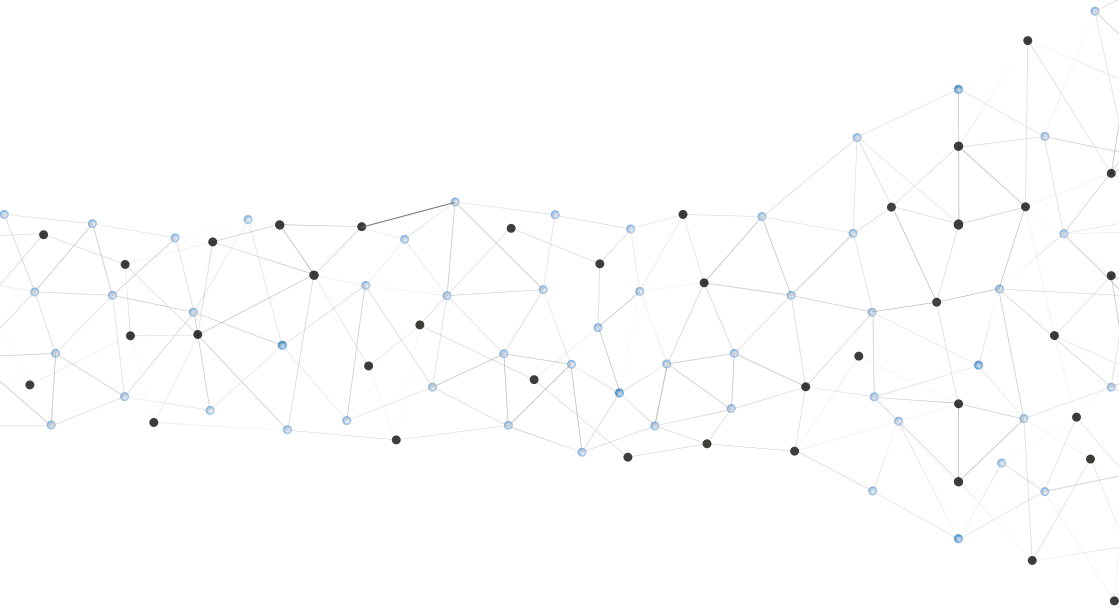
Implementing Mobile Technologies in UK Policing



March 2018

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Acknowledgements

The Authors would like to thank the members of the project advisory board for their guidance and support:

Steve Whatson
Deputy Director, Emergency Service Mobile Communications Programme (ESN), The Home Office

Dr Nigel Brown
Lead for Resilient ICT Strategy, Cabinet Office

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Jeni Jacques-Williams
Digital Solutions Manager, Bluelightworks

We would also like to thank the police Forces that cooperated in support of this project and Justin Partridge, ACO Regional Collaboration, North East Region, Humberside Police for his comments on an early draft of this report. This work has been supported by an Impact Acceleration Award funded by the ESRC and EPSRC. Opinions of points of view expressed are those of the authors.

Report published in March 2018 by the AIMTech Research Centre, Leeds University Business School, University of Leeds, UK.

Citation

Allen, D.K., Norman, A., Williams, S.C., E. Gritt,, E. Forsgren, Shaw, N. (2018) Implementing Mobile Technologies in UK Policing. Leeds University Business School, University of Leeds, UK.

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Contents

Executive Summary

This report identifies, and provides insight into, the implementation of mobile technology in UK Police Forces. It follows on from our reports Mobile Technology in UK Policing and the Emergency Service Network, and Mobile Technology in Policing: Benefits Identification and Measurement. These two reports provide an overview of the technological landscape, the strategic aims and objectives of implementation, and the way in which Forces are measuring or understanding the influence of mobile technologies. In common with the two earlier reports this report has been produced for a policing practitioner community and provides the data from the research to support decision making.

In this report four aspects of organisational change are identified: organisational culture, supervision, stress and technology, and organisational structure. We then explore two ways of supporting effective implementation: training, and the sharing of information, practice and experiences. The key aspects related to each challenge are:

In our 2017 report thirty six of the operational officers leading, or responsible for, the implementation of mobile data within their Force indicated that they were aware of barriers to successful implementation of mobile technology in their Force. A similar number of technical leads indicated that they had experienced barriers to the successful implementation of mobile technology (35 respondents).

In order to identify specific challenges, Forces were provided with a list of tactical technical issues which can influence implementations. The majority of Forces indicated that they had experienced all of these issues. Three sets of additional issues were identified by respondents. These were capability and expectation management, vendor relationship management, integration and configuration:

1. The difference between the expectation of the performance of the technology and initial experience can lead to user resistance and a lack of adoption. This can persist and can be particularly difficult to address.

2. Vendor relationship management is a key element of successful implementation. This is particularly relevant in relation to implementation of mobile technology as the market is dynamic and the focus of providers is on rapid development.

3. Incompatibility with existing core Force systems provided by other suppliers can be particularly problematic.

In 2004 and 2006 there was a recognition by respondents that organisational culture could enable or impede mobile data implementations. Few, however, indicated that they had focused on cultural change as an explicit element of their implementation plans. In 2017 organisational culture was described by most respondents as a significant barrier to implementation.

84% (26 respondents) indicated that their Force culture was changing as a result of the implementation of mobile data systems. In 2017 66% (25 respondents) indicated that cultural change initiatives had been undertaken in anticipation of changes brought about by the technology.

Mobile technology is an important enabling technology for significant change to organisational structures. In 2006 very few Forces indicated that they were contemplating structural change as a result of innovations in communications technologies and mobile data. In 2017 some Forces indicated that mobile technology was being used by senior officers to drive change to organisational structures, or was seen as one enabling factor which allowed organisational change to occur. Many of the changes noted have political and public implications beyond the use of smart devices alone – the most obvious example being closure of police stations. Others took the view that the organisational structures in their police Force were so resistant to change that they couldn't be changed and instead would determine the use of the mobile technology.

In 2004 we noted that Forces reported different views on the role of supervisors. This included the extent to which mobile data would enable changes to the location, frequency and the amount of supervision that would be needed. In 2017 27 Forces indicated supervision within the Force had changed because of the deployment of mobile technology.

In the 2017 study 20 respondents indicated that officers in their Force had displayed signs of stress as they had adapted to the use of mobile technologies.

In 2004 only a small number of Forces provided training and those interviewed felt that the training provided on mobile data systems could have been either better designed or more extensive. In 2017 twenty three respondents indicated that their Force had specialised technology training programmes which they offered to staff. The approaches used by Forces differed significantly.

In 2006 we noted significant barriers to information and knowledge sharing between Forces, that the process for sharing were largely informal and that it was limited in both scope and volume. In 2017 the respondents described a much more open environment, however, suggested that the community did not have a single authoritative source for information or collation of knowledge, nor were there formal mechanisms for collating or sharing best practice.

Introduction

In this, the final of three reports in the series on mobile technology in UK policing, we focus on the process of implementation of mobile technology within UK Police Services. The evidence provided here was drawn from telephone interviews with every Police Force in the UK. Comparative data is provided from similar studies conducted in 2004 and 2006. In the earlier studies we noted diverse approaches to implementation and very different understandings of the role and impact of mobile technology on Police Forces. The results from our 2017 study indicate that Police Forces in the UK were, as a community, more aware of implementation challenges and had placed greater emphasis on the management of associated organisational change. We start this report by identifying the implementation challenges that Forces experienced in 2017. We then review how Forces addressed, and are addressing, implementation and their management of four aspects of organisational change: organisational culture, supervision, stress and technology, and organisational structure. Finally, we then discuss the Forces' approaches to two ways of supporting effective implementation: training, and the sharing of practice and experiences. In this report we present the data with a limited commentary as this will be undertaken in further papers where we aggregate the data across this and a number of related projects.

Methodology

In our 2004 study interviews of groups and/or individuals were conducted in thirteen Forces, face-to-face interviews in a further seven Forces and telephone interviews were carried out in the remaining Forces in England and Wales. In addition, visits and/or telephone interviews were made to hardware and software suppliers and to telecommunications providers. We also interviewed IT staff and senior officers involved in the deployment of technology and where possible also interviewed users. The study was intended to be qualitative because it was intended to complement a separate project being undertaken by The Police Information Technology Organisation (PITO) which would gather quantitative data.

In 2006 we undertook a follow-on study supported by the National Police Improvement Agency (NPIA). In this study telephone interviews were conducted with all Forces. Site visits were also undertaken in the following 11 Forces: Merseyside, Strathclyde, West Yorkshire, Lancashire, Thames Valley, British Transport Police, North Wales, Surrey, West Midlands, Metropolitan Police, and Bedfordshire.

At this point, each of these Forces were identified by PITO /NPIA as leading in the development of mobile data. The Forces were visited by a researcher with a view to gathering feedback from a range of key parties involved in the deployment. The visits comprised a mix of interviews and observation of the technologies in use.

For the 2017 study we built upon the question sets used in the 2004 and 2006 studies to develop two semi-structured questionnaire sets, one focusing on the technology perspective (22 questions) and one focusing on the operational perspective (18 questions). Information was collected via semi-structured telephone interviews using a mix of qualitative and quantitative questions. All UK terrestrial Police Forces (with the exception of PSNI) were contacted in advance to allocate the necessary time and identify the correct people to speak to during the interview process. The research aimed to obtain two separate interviews per Force with very different perspectives – a technology perspective and an operational perspective. In total we were able to undertake 88 interviews. Overall response rates were very high: 100% of UK terrestrial Police Forces (44 in total) were consulted in this research with interviewees reflecting views of their own Forces or, in a small number of cases, multi-Force or tri-Force perspectives where such technological or operational arrangements existed. When considering the response rates gained for both technology and operational perspectives, a 96% response rate was gained, with 84 of the 88 potential Force interviews covered.

Tactical Challenges

In our 2017 study 92% (36 respondents) of operational officers leading, or responsible for, the implementation of mobile technology within their Force indicated that they were aware of barriers to successful implementation of mobile technology in their Force. A similar number of technical leads indicated that they had experienced barriers to the successful implementation of mobile technology (95% or 35 respondents).

We provided respondents with a list of tactical issues and asked them to indicate whether or not they had experienced a particular issue and whether it was anticipated or unanticipated. Table 1 below gives their responses.

Question	Anticipated	Number	Unanticipated	Number	Total
Security / confidentiality / lost devices	100%	32	0%	0	32
Device cost	100%	26	0%	0	26
Poor scanning performance of device	100%	2	0%	0	2
User resistance	97%	31	3%	1	32
Poor connection speed / signal availability	95%	35	5	2	37
Support overheads for multiple device types / OS	84%	21	16%	4	25
Poor battery life	80%	16	20%	4	20
Development time/resource for on-device apps	77%	17	23%	5	22
Secure connection of device to process application	74%	20	25%	7	27
None of these	0%	0	0%	0	0

Table 1: What issues have you encountered with your mobile projects?

Respondents indicated that the majority of issues listed were both anticipated and experienced, and many mentioned that they had put in place work-arounds to manage the problem(s). Other Forces indicated that while some issues may have been anticipated the impact, persistence and cost of resolving the issue wasn't. One example given related to the battery life of devices. The respondent indicated that:

"…I guess it was anticipated, we also still get it because we're using these devices increasingly for more and more things, day in, day out and the batteries can only last so long."

They went on to note that this had increased overall capital expenditure costs because the devices needed to be replaced more frequently than expected as the batteries wouldn't last for a shift without recharging.

When asked if any further issues could be identified, 58% (22) of respondents indicated that they could. We categorised them as relating primarily either to capability and expectations management, vendor relationship management, integration and configuration, or cultural change, an issue which was raised in response to a number of questions and which is dealt with later in the report.

Capability and Expectation Management

Respondents noted that management of expectations of the technology and of the results of related process improvement can prove challenging. They indicated that the difference between the expectation of the performance of the technology and initial experience could lead to resistance and a lack of adoption. This was mentioned by a number of respondents in relation to the time it took to complete an on-line process. One respondent noted of his Force that the use of an on-line application on a mobile device to input or request data took more time than the original process of either filling in a paper form or calling in over the radio. A number of respondents raised the same issue and linked this to the security requirements for multiple passwords. As one stated:

"Security is problematic because it can be awkward to log on to the device to use it when it is actually quicker to go 'Hiya, Comms, can I have a check on'…?"

Others noted the amount of time needed to learn to use mobile technology and associated new work processes meant that officers found using the new process initially slower than the original paper one. Another respondent indicated that these attitudes could persist and are difficult to change:

"…some people say that it took them longer to do it on the mobile device or they needed to be in the station to complete the forms, but that was nigh on two years ago now and we're not through it but it's getting easier…"

"The difference between the expectation of the performance of the technology and initial experience could lead to resistance and a lack of adoption."

Vendor Relationship Management

Vendor relationship management was seen as a particularly important issue for successful implementation. The responses received pointed to the dangers of short-term and/or purely sales-based relationships. Issues identified included lack of accurate information being provided on device capability or coverage. One respondent indicated that the supplier had presented a view of coverage, however that this does not always correspond to the reality experienced for front line users. Another noted:

"What's promised and what's achieved is a fair gap there in the mobile world... Everyone's promising they can do everything to get contracts and then struggling to achieve it..., it's fast changing and they're kind of selling their next generation system...".

This quotation points to a number of potential causes of this disconnect. Mobile technology and mobile data solutions are areas of rapid development and change, however, in many Forces (as will be discussed below) stability and control is highly valued. It could be argued that the lifecycle expectations of sellers and buyers are out of kilter in the policing market. Equally, a number of respondents noted inadequate information being provided by vendors about the lifecycle of suppled technology which led to poor purchasing decisions as they bought devices which were discontinued or the supplier refused to support. One noted:

"...we were not provided with the strategic road maps that these vendors have, so we made some wrong decisions – they've not always been open and transparent in what it is perhaps they are delivering or what they think they should be delivering – there are two separate things here."

In this case the respondent indicated that the initial issue was resolved through the involvement of the legal teams and the relationship rebuilt through effective communication. The importance of communication and engagement with vendors in both avoiding and resolving issues was raised by a number of the respondents. Others noted that while they had developed strong relationships with a particular large vendor, when the vendor reorganised its structure the personnel changed and the relationship with the organisation deteriorated.

Integration and Configuration

A number of Forces indicated that they had developed bespoke systems with component parts provided by different vendors. One respondent noted:

"…there have been problems about compatibility so we spent a long time on the technical design for the platform…".

Others indicated that, while they were using one key vendor to supply the mobile environment, a key challenge was to maintain compatibility with existing core Force systems provided by other suppliers. This was seen as particularly problematic when the Force needed to update systems and was seen as creating additional cost, as one respondent noted:

"…we upgraded our core intelligence system in Force, we had to get [X] to essentially rewrite their application to maintain compatibility and so we had some issues from that. It's an ongoing game of catch-up, I guess".

A further issue raised was supplier lock-in and transitioning from one provider to another. This was seen as both a time consuming issue to resolve and a costly one, which could lead to problems in maintaining senior stakeholder support.

"…we upgraded our core intelligence system in Force, we had to get [X] to essentially rewrite their application to maintain compatibility and so we had some issues from that. It's an ongoing game of catch-up, I guess".

Change Management

In 2004 most Forces recognised that the provision of mobile technologies on a large scale could lead to cultural change. However, very few Forces had any specific change plans in place which explicitly attempted to incorporate the effects of mobile technologies. A small number of Forces indicated that their deployment of mobile technology was 'a part of something quite a bit larger' and would be dealt with within a larger programme of change, thus not requiring any specific attention. However, in 2004 and 2006, in most cases, we couldn't identify any real input into, or from, the larger programme of change to deal with issues around mobility.

In this following section we report on the Force responses in 2017 to the influence of technologies and their attempts to manage change focusing on organisational culture, organisational structure, supervision, and stress and technology.

Organisational Culture

In our 2004 and 2006 studies, a number of respondents recognised that organisational culture influenced their mobile technology implementations. Few, however, indicated that they had focused on cultural change as an explicit element of their implementation plans. For some, such as the North Wales Police Project Aquarius, in 2004 the use of mobile technology was reported to be part of a larger technological roll out which was designed to support, rather than, challenge existing cultural values. Aquarius was reported to focus on empowering and enabling officers, as one respondent indicated:

"…they have a considerable degree of autonomy, they take responsibility for how they resolve things. We say, here are the tools and technology, we trust you - get on with it".

This was reflected in the fact that, in 2006, we observed very few attempts by Forces to use the deployment of mobile technology to radically to change the way they worked. Rather, the technology seemed to be used to reinforce existing ways of working.

In a very small number of Forces, however, there was an expectation that work processes would need to change and work cultural values would change. In Forces where significant change had been attempted the importance of both senior officers and sergeants in supporting and managing cultural and process change was recognised. This was encapsulated by one IT manager who commented:

"Even when the officers had the technology, it was a problem keeping them out of the station. Key to overcoming this was a decent Sergeant who would ask them – Why are you back in the station? Why are you using your desk terminals to fill out those reports? Get back out on the road."

In 2017 organisational culture was described by most respondents as a significant barrier to implementation. The following is typical of the responses provided:

"As I mentioned earlier it's the cultural aspect of change rather than the technical aspect of change, I think it's been a constant running battle and will be forever, actually".

A number of respondents noted that they saw police culture as being particularly resistant to change:

"So policing, as you're probably aware, has a very, very strong culture and within that culture, there can be quite tight knit groups that will not want to buy into change, technology changes, working practices, how they've done things".

A number of respondents indicated that the culture in their Force was intrinsically risk-averse and inherently conservative. One respondent stated:

"…if someone is standing on top of a bridge wanting to jump or there is a huge car crash or a bomb, there is literally no organisation better armed in terms of its culture and its people to instantly respond and fix that problem. What we're less good at doing is looking ahead, looking at the bigger picture and embarking change and one of the reasons for that is we like stability."

In other Forces the culture was described in much more positive manner as they stated officers were engaging with the change process and had 'enthusiastic' and 'can-do-cultures'. The concept of a can-do-culture was described in both a positive light as an enabler of change but was also presented as a barrier to change. It was suggested that because of the very nature of the 'can-do-culture', if the technology is seen as slowing officers down they will attempt work-arounds, or revert to past practice, instead of using the technology as initially intended.

Generational differences were noted in response to technology; this was linked to wider societal cultural values in relation to technology use, for example:

"We've got new recruits who just pick up the tablets and go and work with them and understand it…"

Equally, older officers were often seen as more resistant to the use of technology:

"…we do have officers …who don't even have a personal mobile phone so to give them something like this, they're going to resist straightaway."

Older and senior officers were also seen as a barrier to deployment,

"…if you have a senior member of a shift who decides he doesn't like it and he's not going to use it …you find that the rest of the shift, no matter how good they are or how much they want to use it, they will also not necessarily resist but they will fall into line with that senior officer."

Finally, the importance of a collective culture was also seen as a barrier to change, particularly in relation to the use of mobile technology to move towards longer out-of-station deployments for officers and consequent reduction in the amount of time spent co-located with team members. One respondent stated:

"there is a culture of wanting to be part of a team and wanting to see the rest of your team. There's a human nature wants you to go back and see everyone…".

Another indicated this was one of the most significant issues that they faced when deploying, noting that they were piloting a project:

"to get frontline sergeants to actually take one of these devices and go out

and stay out for the day, but it's been interesting, the cultural indications of the first month or so of that kind of pilot, aren't very positive in terms of still migrating back to the station… it's something we're working quite hard to overcome at the moment."

The responses to this question, however, on the whole also pointed to attitudes rather than deeper cultural values. Thus, for example, when one respondent was asked about culture he replied by noting that officers in his Force were unconvinced about efficiencies, performance data, and reliability, and were sceptical both about the ability of the Force to deliver and about the motivation for the implementation of technology. While this may reflect deeper cultural values this may be best described as organisational climate rather than culture. Where a more negative climate was seen respondents pointed to 'change fatigue' and sense-making processes by officers based on their experience or perception of failed IT implementations. One respondent described this as follows:

"Well people then lose faith in it, so you take a laptop out and it doesn't work, then you don't bother taking it out the next time. You take it out, you get half way through a long statement and the system crashes, the next time you're just going to hand write it on a piece of paper. So they lose faith quite quickly and then revert back to the old ways of working."

We also asked if the culture was changing as a result of the implementation of mobile technology use. Of the 31 respondents to this question 84% (26 respondents) indicated that it was, compared to 16% (5 respondents) who indicated that it was not. Of those who felt that it was changing, many pointed to the implementation of mobile technology as an enabler for a larger process of work redesign and associated cultural change. One responded that it was *"Changing slowly! It's a massive, massive thing for the cops, for our new staff, for our new starters…"* Other Forces took a more organic approach both to the deployment and associated culture change. One respondent posed the question:

"is our culture changing in [X Force] because of mobile data? - of course it is, absolutely it is, but I haven't done and we haven't deliberately done a cultural change initiative. What we are doing is giving people the freedom and the ability for people to work the way we want them to work and actually, do you know what, the way they want to work themselves."

We asked the respondents if any cultural change initiatives had been undertaken in anticipation of changes brought about by the technology. Of the 38

respondents to this question 66% (25 respondents) indicated that they had and the remaining 34% (13) indicated that they hadn't. Of the 13 Forces that hadn't, 12 Forces indicated that they were planning an initiative.

Many Forces linked cultural change initiatives to training, however, others described separate cultural change approaches. One respondent noted that they had developed a team of uniformed change agents and provided them with detailed information on use:

"We have a team …uniformed officers who we describe as engagement officers, their job is to build a support network amongst the uniformed staff including training up super users, subject matter experts, to support people in their use and basically what we've also done in the background to the mobile piece is we've built a business intelligence environment as part of a wider programme, which reports on device usage, device downtime, that kind of stuff and then we feed that back to our uniformed engagement officers who then engage with the rest of the business, in terms of there appears to be an issue in this particular team."

A number of Forces saw cultural change being achieved through the training provided to new recruits:

"…we introduced mobile devices into probationer training so from Day 1, they're being trained on a mobile device so it's just bringing that into business as usual within the Force and their standard way of working and then officers realise, 'to do my job I need to be able to use this device' ".

Organisational Structure

In 2006 very few Forces indicated that they were contemplating structural change as a result of innovations in communications technologies and mobile technology. However, most did see potential for far-reaching change in the structure and organisational processes of the organisation. The responses were, however, characterised by their diversity.

Similarly, in 2017 the responses to questions about the extent to which the use of mobile technology would lead to changes in organisational structures provided a very mixed response. Some Forces indicated that mobile technology was being used by senior officers to drive change to organisational structures, was seen as an enabling factor which allowed organisational change to occur, or would inevitably lead to change. Others took the view either that the organisational structures would not be influenced by the deployment of mobile technology, or that the structures of the business would drive change in use of the mobile technology. One respondent provided a radical vision for the way in which his Force would be restructured:

"you don't need police stations, everything you've thought about your business can change – it's up to you on how you do that. …I think mobility will be transformative."

The respondent, however, clarified this vision by pointing to the importance of senior management support in achieving this vision noting that realising their vision would be possible *"…only with and if the senior leaders want this"*. Another provided a similar view, however, indicated that they felt that change would occur organically as the Force deployed and explored the capabilities of mobile technologies:

"Yes, probably more organically than a formal change, we already spoke about estates changing and other bits and pieces changing with it, I think it will happen piece by piece and bit by bit".

Equally, another respondent noted that:

"The mobile technology is an enabler for that so if I think about it we've already as a Force restructured … so the mobile hasn't brought that about, that was already brought about and mobile is just assisting with that".

A number of respondents indicated that mobile technology was only one of a number of technologies which enabled the development of new organisational structures.

Changes to organisational structures included:

- Moving from a geographically bounded approach to policing to borderless response;
- Borderless investigation across a region of collaborating Forces;
- Creation of satellite stations or police hubs;
- Flatter organisational structures; and
- Closure of police stations.

Responses to this question also included mention of changes to work processes including the implementation of agile working or changes to supervisory roles. In the following section we turn to one of the key work activities within policing: supervision. This is an area in which we expected to see significant change and in other organisational settings is strongly influenced and influenced by organisational culture(s), structures and technology.

Supervision

In 2004 we noted that Forces reported different views on the role of supervisors and the extent to which mobile data would enable changes to where, when and how supervision took place and the amount of supervision that would be needed. Many indicated that supervisors would move from the police station and far more supervision would occur in the field. In 2006 the Metropolitan Police, for example, reported developing a set of vehicles designed to function as mobile offices for supervisors, particularly during incident management, giving them access to back office systems while also allowing them to be in place at, or near to, the areas where support may be required.

The issue of the role of supervisors was, however, contested. As mentioned in Allen, Norman, *et.al*, (2018), in some Forces mobile technology was linked to the concept of officers having greater autonomy. In these Forces the view was expressed that officers could become self-directed, empowered officers working in a high trust environment:

"They are trained, they have a good kit, they should be sensible people, and they should have the autonomy. That's always been my style – I'll support you, back you up, even if you're wrong I will support you 110%. But if you get it right– fantastic."

The information flows needed for this to happen are concerned both with what the officer needs to do, and the information that will allow them to do it effectively. An alternative view was that the mobile technology should be used to allow greater monitoring and control of officers:

"I want something that will tell me where this person is and what they are doing, I can then monitor their effectiveness. I can track them – instead of having them disappear into the mist of patrol. It's a bit Big Brother, but it's proper use of equipment to determine that our officers are deployed appropriately."

Some Forces indicated that they took a strong position against officers having what they perceive as the latitude to act in an independent manner, with one Force commenting that they would see increased autonomy as 'a degradation of command and control'. Another note of caution was sounded by some Forces with regard to the line between autonomy and isolation. A typical comment on this issue was:

"...we've done trials about getting people out on the beat - but with more time spent in isolation there is a penalty to be paid. People in isolation can act dangerously or be in danger, there's a fine line between. First there's the social contact – but also, you could be out of

touch with our messages, you could be too autonomous. We recognise this."

In 2017 we asked respondents if supervision within the Force had changed because of the deployment of technology. 28 of the 44 Forces responded to this question. Of these 71% (27 Forces) indicated that it had changed. Respondents also indicated that changes to supervision were required to gain the benefits from technology implementation.

"I think there's a supervisory level barrier as well which is once you start rolling out mobile technology, then supervision has to be different …when you move mobile devices out there and we're starting to see it, supervisory approach needs to be fundamentally different."

The primary reason given was that mobile technology had made work activity more transparent allowing greater surveillance and control. As one respondent noted:

"…there's an ability for greater scrutiny around what officers are doing because it's on the shared system, the core police work that is done by officers on their devices can be reviewed by any person of a rank higher than them, so it enables supervisors to have a better oversight of what their staff are doing and it also enables managers, when they have those one to one meetings, to discuss performance, training and development opportunities, what they're seeing the officers are doing."

A number of Forces pointed to the deployment of dashboards and other analytical tools which would aggregate data about the performance of officers:

"What this does bring with it is a reporting suite that allows our supervisors to have direct performance information in terms of what their teams are doing."

Respondents also suggested that they wanted to change the way in which their supervisors worked. This included moving them out of the office:

"…we're trying not to have our supervisors sitting behind desks checking. You actually want them to be out and about, being able to access that data at their fingertips."

Others argued that they wished to move to remote supervision using, for example, video conferencing tools:

"Yes – where we are when we supervise. We'll be moving away from face to face meetings and much more remote supervision. Because of that we will be focussing much more on outcomes rather than being busy, and also the suite of information that our managers look at is going to evolve quite significantly."
The view was put that there needs to

be a significant change not only in the approach to supervision, but in the total approach to policing.

Others noted that the deployment of mobile technology had led to a requirement for supervisors to spend more time in the office as they now had to process more digital data and required a desktop computer:

"*…it is a bit more office based, because as long as the officers have synced the devices, everything you need, like statements and everything like that you need to be at a desktop to be able to pull all that off. You can't get that from the device. I can't be out and about and get that, but at the same time it makes it easier, because if someone is going to Court and we need 6 or 7 pocket notebook entries or we need statements, they are on the system.*"

Stress and Technology

In 2004 and 2006 the issue of technostress was not raised in any substantive manner by the respondents. In our 2017 study we asked the respondents if they had noticed whether officers had displayed signs of stress as they adapted to the use of mobile technologies at work. Of the 35 respondents who answered this question 57% (20 respondents) indicated that they had, compared to 43% (15 respondents) who stated they had not.

A number of respondents commented that while they saw stress in officers, this was as a result of wider organisational changes and that it was difficult to identify a causal link between the mobile technology and higher levels of stress. Others stated that they had mitigated this problem by not mandating the technology. One respondent stated that the technology had been deployed for over 18 months and in that time:

"…it has never been mandated… Here' the device, here's the new way of working, you choose which you would like to do" and what happens is …you generate a momentum from the users themselves rather than mandating it."

Another Force indicated that they had taken a similar position allowing people time to adjust to the technology and as a result they saw:

"just impatience and excitement". In this Force this approach was, however, time-limited, and they expected higher levels of stress as they forced compliance:

"But if I go round locking police station doors then they'll have to use it. Some of the messages that we do is that once you've left the station in the morning then the doors will be locked, unless you come back with a prisoner or got a really valid excuse to be back at the police station." Another reported *"There will come a time when the carrot and stick, maybe the stick has to come in. But at the moment we're not there yet. The bottom line is if we've invested in technology to make efficiencies, it's an element of, 'Well you need to embrace it'."*

Of the Forces that indicated that they saw signs of stress many noted that this was temporary and reduced as officers became used to the technology. This was linked to initial end-user resistance. *"Well there was initial resistance, anger towards it, weariness, sort of a negative side to it."* The primary reasons were identified as influencing stress were systems failure and officers lacking the training or skills to be able use the technology.

We noted that officers became used to routines and practices which were

reliant upon the use of the technology. When the system failed officers were unable to access these processes and perform their role as expected. As one respondent noted:

"Yes I've heard stories! Some staff will very quickly give up when a piece of technology doesn't work in the way which they anticipate or think it will, and I've heard all sorts of stories with technology being thrown across the room, phones being thrown against a wall, so I do hear those occasionally. I think it's just a stressful environment. When you've worked from 4 in the morning when you want a bit of technology to work and it doesn't, technology gets the brunt of it."

One respondent noted that this could occur when the systems had embedded and was relatively mature *"when the technology doesn't work the way they want it to, they get very short-term stresses".*

Supporting Implementation

In the following sections we explore force responses to two ways in which issues with implementation can be addressed: training and inter-force sharing of information, practice and experiences.

Training

In 2004 almost without exception those interviewed felt that the training provided to support mobile technology implementations could have been either better designed for the purpose or more extensive. Some Forces had divisional technology training officers who provided the training and support, but in other cases no such local support existed. In 2006 we noted that, in many cases the training and education with regard to mobile technology was tacked onto change strategies or delivered in inflexible ways. In 2017 we asked respondents if their Force had any specialised technology training programmes which they offered to staff. Of the 39 Forces that responded to this question 59% (23 respondents) indicated that they had and 41% (16 respondents) indicated that they hadn't. The approaches used by the different Forces differed significantly and included:

- rolled out on a department by department basis using specialised IT trainers;
- a one or two day course initially for all new users;
- short videos for self-learning;
- blended approach with classroom and e-learning;
- digital coaches, *"we had the operational cops who were all digitally savvy, given a little bit of extra training themselves, put out onto teams with officers";*
- an initial course and refresher courses;
- divisional champions;
- using a mixture of e-learning as well as a classroom assessment; and,
- 'floor walkers' from the ICT training department in the police stations in the initial phases of implementation.

In the Forces that didn't provide training the view was that the technology should be intuitive and that officers should be able to use and deploy the technology rapidly. As one respondent stated:

"No. To add to that, very deliberately. The principle here has been you all have mobiles and you completely know how to use them, and I'm absolutely not going to put out a solution with any sort of training or briefing whatsoever. In fact what we've done is a bunch of YouTube clips on how to set your own phone up. We're shipping empty phones to officers, just like you and me might get from Carphone Warehouse, and saying set it up yourself,

do all the passwords and all the codes, and get it all up and running and then use it."

Another approach, in a specific Force, was to provide video materials which the officers could access in their own time. These were developed in-house:

"There is a selection of 10 to 11 videos of how to get the best out of your device. We haven't got any fancy online learning course or anything."

This respondent indicated that most of the videos were no longer than 30 seconds with the longest being 3 minutes. A number of Forces noted that they invested significant amounts of resource into training officers. One noted:

"Yes, well everybody who gets a mobile device is getting a whole day's training on it, whether they're fully conversant smartphone users or not…"

Many indicated that the reason that they had invested in training was less to ensure technical competence and more to promote cultural and process change.

"No officer gets a piece of kit unless they do five hours of technical training on the apps themselves. But to be fair, a lot of that training is around culturally behaviourally how we expect you to behave, rather than this app does this, this app does that, because it's all fairly intuitive."

Respondents also indicated that training sessions were seen as an opportunity to change officers attitudes towards the technology and describe expected behaviours:

"At every training session there will be a member of the project team there to answer some of the questions (such as why it has taken so long) and knock out any negativity there might be in the room, and try and enthuse the 12 people at each of the trainings session". A number of Forces raised the importance of providing training to middle and senior managers… *"middle managers were left out a bit and they didn't understand what it was."*

We also asked the respondents if users had been involved in the training. Only 21 Forces responded to this question. Of these 90% (19 Forces) indicated that they had done so.

"Yes, so as part of the mobile rollout, we provided everyone with a two day training session which was done by police officers, it wasn't done by an IT company, it was done by frontline cops who were in the core team."

Sharing Practice and Experiences

In 2006 we noted that while Forces were sharing information about implementation processes and had formed a National Mobile User Group to support change, there were significant barriers to information sharing. We noted that a key one of these was:

"…secrecy and desire to control information flows about mobile implementation present in some Forces and by some key individuals" on occasion motivated by a *"…mismatch between the reality of their implementations and the publicity. In the majority of the Forces that seemed reluctant to share experience it seemed to because they feared that there was a concern that there activities would be curtailed by central government who would attempt to force a 'single–size-fits-all technological solution'."*

In 2017 we explored with respondents whether or not they shared best practice and information between Forces. The respondents indicated that this was a particularly important process and that a lack of resource meant that they were forced to look to peer-support rather than buy in knowledge from consultants: *"We are all quite down to the bare bones to be honest with you, especially in IT as the demand increased because of the austerity. You don't want to hire consultants when you've just got rid of staff, so if you can flex and use other people as resources on a quid pro quo basis… it's about working smarter together rather than isolated and bordered."* Respondents pointed to a range of ways in which this occurred. These included:

- Polka;
- User forum for Airwave;
- Police ICT Council;
- User groups developed by particular vendors;
- Discussion at the UK Technology Forum;
- Reciprocal visits both to other police Forces and public sector organisations;
- Bilateral agreements to share with specific Forces based on collaborative development of common systems; and
- Cross regional meetings.

Respondents indicated that visits to other Forces and organisations were particularly useful:
"Well at the moment, I'm visiting Cheshire, the Norwegian national police Force, the Danish National Police Force

and the Swedish National Police Force. I've also got the RAF visiting us…"

Respondents spoke of being open and particularly willing to share:

"We are very welcoming to other Forces, we've built a mobile solution with X at great time and great expense over the last 18 months so other Forces can procure that off a framework, and reuse the same technology which has stood up in their data centres, so we did it for us but with other Forces in mind too. We also share experiences with other Forces, about which apps we can share, so we are very open to it and keen to leverage it where we can."

Respondents also pointed to the importance of informal communication one noted:

"…we have a list of the managers of the mobile projects and I make sure the highlight report is shared amongst them."

Another respondent noted, *"we attend meetings where I will get linked in with people who are using similar technology and through skype and instant messaging, you can find contacts in other Forces. So you can ask direct questions."*

While these results suggest a much more open community they also suggest that the community does not look to a single authoritative source for information or collation of knowledge. This suggests that there is a risk that the key lessons are not shared effectively, especially in organisations with a high turnover of senior staff and often short term memories of organisational issues.

Conclusion

The results from the 2017 study indicate that UK Police Forces are experiencing, and have experienced, a range of significant tactical and strategic challenges when attempting to successfully implement mobile technology. It is clear that mobile technology has significant impacts on many aspects of policing practices and processes: policing culture, organisational structure, relationships and supervision, as well as wellbeing and work related stress. A consistent message is that organisational culture was described by most respondents as a significant barrier to implementation and approximately half of the Forces were addressing this issue through cultural change initiatives. Organisational structures, in many cases, were seen as being changed by the implementation of mobile technology in conjunction with other technologies and business change initiatives. Others took the view organisational structures were so resistant to change that they couldn't be changed and instead would play an important role in determining the use of technologies.

A critical process in any organisation is the supervision of work activity. In 2004 we noted that Forces reported different views on the extent to which mobile technology would enable changes to where and when supervision took place, and the amount of supervision that would be needed. In 2017 27 Forces indicated supervision within the Force had changed because of the deployment of technology. Again, however, the ways in which this had changed differed significantly between Forces. In the 2017 study we asked respondents if they had noticed officers display signs of stress as they adapted to new technologies at work. 20 respondents indicated that they had. The answers to this question provided insight into the different ways in which Forces have introduced mobile technologies to their workforce. This was reinforced by the respondents approach to training. In 2017 23 respondents indicated that they had specialised technology training programmes which they offered to staff. The approaches used by these Forces, however, differed very significantly.

Finally, in 2006 we noted that the significant barriers to the processes of inter-force information and knowledge sharing about implementation processes were largely informal and limited. In 2017 the respondents described a much more open community. They also indicated that the community did not look to a single authoritative source for information or collation of knowledge.

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