Shaping the Future of Electronic Monitoring in England and Wales

BY MIKE NELLIS

Emeritus Professor of Criminal and Community Justice in the Law School, University of Strathclyde

PROBATION INSTITUTE BRIEFING PAPER 1/17

PROBATION INSTITUTE
2 Langley Lane
Vauxhall
London SW8 1GB
☎ 0203 0533 551
admin@probation-institute.org

Preface

This Briefing Paper is the outcome of the work of the PI Electronic Monitoring Strategy Group which met for over 12 months and also ran a workshop in 2016. Thanks go to that group and the lead David Raho for supporting this work. This product is a forensic look at the many issues around new technology and electronic monitoring, drawing on an extensive knowledge base.

Professor Mike Nellis undertook the writing of this paper on our behalf and we are grateful for his persistence at bringing it to fruition. It offers an insight into many of the issues and twists and turns in policy and practice on these central issues. It draws the reader into thinking about both the potential and limitations of new technology in the management of services users who offend in the community.

The paper helped the Probation Institute develop its Position Paper 3/17 which was published in December 2017. However the principles articulated in that position paper are those of the Probation Institute and not necessarily those of the author of this paper.

I hope you will enjoy this paper.

Professor Paul Senior
Emeritus Professor of Probation Studies
Chair, Probation Institute.

December 2017

Shaping the Future of Electronic Monitoring in England and Wales

Mike Nellis

Introduction: A New Opportunity?

The privatisation of the Probation Service and the expansion of electronic monitoring (EM) were integral and related aspects of the *Transforming Rehabilitation* agenda. The envisaged futures of both were outlined, albeit in no great detail, in *Punishment and Reform* (Ministry of Justice (2012). While the privatisation of the Service – the creation of 21 Community Rehabilitation Companies and the reconfiguration of a state-based National Probation Service – proceeded apace after 2014, the planned expansion of EM under the "third contract" experienced severe delays. Absurdly high expectations were had of it in the Ministry of Justice – with the prospect of 75,000 defendants and offenders per day on EM – a figure canvassed by Policy Exchange (2012) – up from a (possibly exaggerated) existing daily figure of 15,000, by 2020. The aim was to dispense with the existing RF technology and create an all GPS-based monitoring system, using a bespoke, specially commissioned "hybrid" ankle tag that combined GPS and RF capabilities. A new delivery infrastructure, which required four companies to work together (Capita to run monitoring centres and employ staff, Astrium (supplying software) Buddi (supplying the bespoke hardware) and O2 Telephonica (supplying telephony services) was designed to facilitate this. Buddi and the Ministry of Justice fell out over the specifications of the bespoke tag, resulting in Buddi being replaced by Steatite, who were given a similar brief. The new system was due to be operational before the General Election of 2015. All that happened by that point was that Capita had taken over as national service provider from G4S and Serco, running the existing RF-based system much as it had run before.

The Ministry of Justice's approach to shaping a new vision of EM in the "third contract" was singularly undemocratic, non-consultative, indeed secretive, an exercise to which neither the Community Rehabilitation Companies nor the Probation Institute, nor sentencers – were invited to contribute despite their acknowledged expertise in reducing reoffending. The Ministry of Justice's rationale for this exclusion may simply have been that it was contemplating a level of innovation and scale of change that went way beyond anything that existing stakeholders could have imagined or desired at that point in time: in that sense the "third contract" can be understood as an attempt at "disruptive innovation", a massive transformation in offender management. Nonetheless, early and constructive prior engagement with such stakeholders, focussed on what they as practitioners and managers wanted and needed from EM may have forestalled the difficulties that the Ministry of Justice's approach ran into. As it is, the envisaged future of EM seems to have been determined by no more than a handful of senior people in the Ministry: even the think tank Policy Exchange (2012) which contributed much to the emerging new vision of EM, was unhappy with the over-centralised, and over complex approach to contracting favoured by the Ministry of Justice. Similar reservations were also expressed by Reform, another think tank sympathetic to government, in its own, later, report on EM (Lockhart-Mirams, Pickles and Crowhurst 2015).

The Ministry of Justice was responsive to criticism and on 25th February 2016 minister Dominic Raab conceded to the House of Commons that there had indeed been difficulties

with the initial EM strategy, which were now to be remedied, but confirmed nonetheless that the essentials remained as they were:

> We are committed to delivering a new generation of tags through contracts designed to encourage innovation, deliver an end-to-end system for monitoring offenders and provide for future technological developments.
>
> With this new technology we can be creative and look at how we can use satellite tags to devise new sentencing options for the courts. We want to use technology to make sure we not only deliver the punishments that society rightly expects but also improve supervision in the community and support offenders to change their lives.
>
> My colleague Andrew Selous announced to the House on 13 July last year that there had been significant problems with this programme, leading to considerable delays. As a result, we initiated a review into the programme, looking at how to get the programme back on track. This review examined progress made on the programme to date and how best electronic monitoring technology can meet our ambitions for the future, and considered the experience of other jurisdictions around the world who have developed GPS tagging schemes.
>
> Developing bespoke tags has been challenging and it is now clear that it will be more appropriate to pursue our goals using off-the-shelf technology which is already available. That is why the Ministry of Justice will be terminating our contract to develop a bespoke tagging product with Steatite Limited and will shortly begin a new procurement process for proven tags already on the market.
>
> This decision will mean we can proceed with wider changes to the way we manage the programme. We will simplify our approach in order to meet the challenges of technical and business integration and continue to drive and monitor delivery from the other suppliers
>
> https://www.gov.uk/government/speeches/offender-management

Whilst far from sufficient as a change of direction, this recognition by the Ministry of Justice that some of its initial decisions in respect of the "third contract" had been unwise, itself creates an opportunity for an overdue engagement between probation interests and those concerned with EM, untrammelled by past preconceptions, with a view to creating a more strategic vision of EM use, and better delivery systems and forms of practice than have been imagined or possible hitherto. Many aspects of the Ministry's EM strategy remains unclear, but the commitment to replacing RF with GPS technology (unwarranted by any empirical evidence) seems to remain intact. The assumptions behind this need to be challenged.

Three other recent developments further support the idea that this may be an auspicious moment for informed discussion and constructive change:

1. In February 2014, the Council of Europe (2014), issued a Recommendation delineating good practice in EM from a human rights perspective. It goes beyond the existing European Probation Rules, whose brief mention of EM states only that it must be used for rehabilitative purposes (somewhat forlornly) given that is already used for other purposes as well) and be proportionate to any offence (a less than straightforward issue given the ease with which the intensity and duration of EM regimes can be varied. The Recommendation's breadth reflects the fact that prison services, police forces and commercial organisations also manage EM projects – but there is much within it that is commensurate with probation values and it is a vital point of reference for probation interests in any contemporary debate on EM (Nellis 2014a).

2. In March 2016 an EU-funded research project (led by Professor Anthea Hucklesby of the University of Leeds) comparing the use of EM in five countries – The Netherlands, Belgium, Germany, England and Wales and Scotland – came to a close with a series of dissemination conferences in each of the subject countries. Although further academic publications will follow, five briefing papers – one for each country and a comparative paper – have been produced for policymakers, managers and practitioners.

3. In July 2017 National Audit Office (2017) produced a detailed and damning report on the failings of the Ministry of Justice's "third EM contract", whose analysis and conclusions are a vivid illustration of how badly wrong government policy-making can go when it becomes – as it was in this instance – secretive and non-consultative. The report begins by indicting the Ministry for "not doing enough" to establish the case for GPS tracking, least of all as something intrinsically superior to existing RF EM. Over a five-year period from 2012, the Ministry disregarded the need for an evidence-base and undertook no pilots. Its plans for a bespoke, world-leading "supertag" were always "too ambitious". The timescale for implementation – the phased shift to GPS was to have begun in 2015 – "was unachievable" and indeed none of the new programme's intended benefits were ever realized, despite £60m being spent by March 2017. As several observers had done at the time of the procurement, the NAO questioned the viability of the delivery infrastructure established to implement the third contract (the four companies working together, which they call "the tower model"). They criticized the Ministry for poor governance arrangements and failing to deal effectively with internal problems that arose because of the model, leading to further wastes of expenditure, including a £4.4m pay-off to Steatite once its services were dispensed with. Whilst acknowledging that the Ministry has now retrenched to a more modest, achievable and evidence-led approach to EM the NAO still consider the evolving third contract high risk, because the dubious "tower model", despite tighter controls over its operation, is still in place. The report's key line, for all those agencies and professional bodies whose voices and expertise were side-lined when a major new approach to EM was being devised by government is: "there was a lack of external scrutiny early on that would have provided opportunities to further challenge the justification for the programme" (p7). This should not be allowed to happen again: EM policy is too important to be left of the Ministry of Justice.

Hucklesby's briefing papers on England and Wales, and on the lessons to be drawn from practice in other European countries, could – if the Ministry of Justice is minded to take them seriously – be extremely helpful to ministers and civil servants in reframing their approach to EM. Crucially, however, they would be just as useful to criminal justice professionals and penal reformers in England and Wales among whom there is an urgent need for much improved understanding of what exactly the forms and potential, and the limits and dangers, of EM actually are, as well as greater engagement in policymaking about EM. To that end, the Council of Europe Recommendation and the EU research briefings should be circulated widely in the CRCs and the NPS, to become the basis of informed expertise on the potential uses of EM, which has hitherto been absent from the worldview of probation professionals, and of penal reform groups. A situation in which informed expertise on EM resides only in the Ministry of Justice, the commercial bodies involved in its delivery and a small number of right wing think tanks (and others of similar persuasion) guarantees that they will retain their dominant, driving role in debates on the future of EM. Other informed, professional voices are needed, which can challenge and contest official and commercial claims, before they solidify into orthodoxies.

Understanding Electronic Monitoring in a Digital Age

For their research in England and Wales (Hucklesby and Holdsworth (2016) interviewed a large number of people involved in or concerned about EM across a wide range of agencies. This constitutes the most comprehensive attempt to gauge opinion about the operation and prospects of EM that has ever been undertaken in this country. They write:

> Without exception interviewees expected and welcomed the expansion of EM in the future both in terms of the number of individuals monitored and the monitoring modalities. …. There was a clear confidence that EM had the potential to be a credible and cost-efficient tool to support and enhance the work of the criminal justice (and immigration) system and to reduce the use of prison (and immigration detention centres) (Hucklesby and Holdsworth 2016: unpaginated)

In the comparative briefing, Hucklesby et al (2016) make an even more focussed observation about the prevailing enthusiasm for EM: "EM has universal appeal because it fits or can be made to fit many purposes". Findings of enthusiasm and confidence about the potential of EM, and imminent expectations of its increased use similar to (if not as ambitious) as those in England and Wales were in fact replicated across three of the four mainland European countries (the Netherlands, Belgium and Scotland) involved in the research. Even in Germany, which has been a uniquely low user of EM in Western Europe, and where there is a "lack of political will to extend or continue to use EM" (Dunkel, Thiele and Trieg 2016) some respondents to the research gave consideration "to using EM to reduce pre-trial detention" Hucklesby et al 2016). While Germany remains a striking example of a modern western country where political, legal and professional factors, as well as "an ambivalent public perception" (Dunkel, Thiele and Trieg 2016) have consistently restricted the use of EM – ultimately but not entirely for reasons that a deeply rooted in German history and culture - the enthusiastic embrace of EM as a penal measure with as yet unrealised potential is widespread in Europe, beyond the countries specifically studied in Hucklesby's research.

What accounts for this? Following George Mair (2006), an early Home Office researcher of EM, Hucklesby and her colleagues are emphatic that the expansion of EM, existing and anticipated, has not been evidence-led, in the sense that its practical and strategic worth as a penal intervention, and as a means of creating viable alternatives to custody, has been proven beyond all doubt. It is not that there is no evidence about better and worse forms of EM practice, or about the impact of EM on reoffending, rather that there is insufficient evidence to justify the level of strategic investment that is seemingly been envisaged in Europe, least of all on the scale contemplated by the Ministry of Justice in England and Wales.

One way of understanding the somewhat uncritical embrace of EM is as an aspect of the broad, unreflective consumption and acceptance of digital technology in commerce, government and everyday life. In the first two decades of the 21st century multiple forms of digital technology have become normal and ubiquitous. While the scale, pace and forms of their adoption varies in particular institutional settings – education, transport, leisure etc - there was never any likelihood that criminal justice and penal practice would be untouched by them. The pinpointing of offenders' locations and movements is nowadays just a point on a spectrum of "digital traceability" on which all citizens register to a greater or lesser degree. In an ever more digitally connected world, EM can be understood as a form of "coercive connectedness", ordered by a judicial or penal authority for a particular period of time. While debate about its precise utility to penal systems is likely to continue, the general principle of it seems less and less problematic to the public. For most modern citizens (and consumers), it seems, there is an acceptable trade-off in everyday life between loss of "locational privacy" and personal convenience. As an extension of this, monitoring the movements of convicted offenders simply does not seem unethical, or as draconian a state/commercial power as it might one have done (say, to George Orwell in the mid-twentieth century) because the majority of us are more or less knowable in this way (via commercially held mobile phone data) if the state is ever minded to check-up on our whereabouts.

It is unwise to think that EM policy and practice is shaped only by the political and professional interests and dynamics within the penal system, least of all that it's adoption is only a necessary, rational response to perceived penal problems. EM is also shaped by broader developments in digital technology, the way commercial organisations devise and promote them and the way governments choose to encourage and present them. In England and Wales it should be noted that the current re-visioning of EM is taking place against a backcloth of broader government commitment to "digital public services" and should not be seen in isolation from a broader, ostensibly cost-driven, strategy of e-governance in which state and citizens will become more (and differently) connected than hitherto. These "digital first" services have the same aspirations to "transformation" as have been invested by the Ministry of Justice in EM. They are being managed from within the Cabinet Office (which also had significant influence on the Ministry of Justice's new vision of EM) and have been explained as follows:

> A new digital strategy is being developed that will be a blueprint for the next five years of digital public services and helping to drive service transformation with smart technology and data at its heart. The UK is set to lead the way in the digital era by utilising cutting-edge technologies to radically transform the way our services are accessed, commissioned and governed. (Publicity for *The New Digital Strategy: Smarter Public Services* conference: 30th June 2016)

Matt Hancock, current Minister for Cabinet Office, has rooted the idea of digital public services in an unfolding, modernizing vision:

> We must build a truly 21st century state: smarter, nimbler, more responsive and more accessible. The technology exists to do it, and the public expect it. It is our duty. (idem)

Comments such as this, commonplace in many areas of government, can give the impression that public policy should be technology-led, responsive to every new available upgrade irrespective of any other ethical, social of political considerations. Such an assumption ostensibly underpinned the Ministry of Justice's planned upgrade to an all-GPS EM system (albeit with a "hybrid" tag): as in the Policy Exchange (Geohegan 2012) report, RF EM was portrayed as obsolete, "first generation" technology that was inherently less effective than GPS (with its affordances of real-time tracking of movement and exclusion zones) was likely to be. GPS technology has many useful affordances (real-time tracking, retrospective tracking, exclusion zones and inclusion zones) and applications (including keeping men accused of domestic violence away from their alleged victims), but there is no penal case for its superiority to RF-technology, and the forms of home detention that it enables. There may be a commercial (greater profit for some companies) and technological (greater flexibility) case for all-GPS systems of EM, but these are precisely the criteria which ought not to dominate or determine any aspect penal policy-making. Penal policy-making should be based on clear ethical and empirical arguments about what works to enable desistance and reduce reoffending, foster community safety, assist offenders's rehabilitation and social reintegration and minimize the use of imprisonment. There is sufficient international evidence to show that EM-house arrest can play a part in achieving these aims – ie that can be penally valuable - on a scale that invalidates any arguments to dispense with it. It is not that hybrid GPS/RF technology could not replicate it but pure RF technology is simple and cheap in comparison, and ought not to be complicated by the addition of GPS capabilities (which have their own technical imperfections, though not to the extent that they are unviable). As Hucklesby et al (2016) pithily and incontestably put it: "Radio-frequency and GPS technologies have complementary and distinct advantages and uses".

The fact that commercial and technological aspirations can – and are - being placed at the fore of penal policymaking on EM in England and Wales is not an argument for opposing or rejecting EM as such. Such aspirations can only surface and be made to sound superficially plausible in a world which is steeped in digital technology, where it is commonplace and normal for consumers to expect constant innovation and (resources permitting) to purchase ever more sophisticated upgrades to their computers and phones. Whatever the merit of this outlook in everyday life, it has no place in penal policy-making, which must be significantly more deliberative. At the same time, the broader digital infrastructure and the opportunities that it creates for enterprising businesses to market new forms of EM, and for governments to pursue more cost-efficient means of engaging with its citizens, cannot be ignored or dismissed. Probation interests have no alternative but to engage constructively with the penal affordances of the digital era, to ensure that the forms, scale and pace of EMs development is consistent with their values, with the Council of Europe Recommendation, with progressive penal practice and with evidence of effectiveness. Failure to so engage may mean that EM is developed outwith these ethical frameworks, in ways which Probation Services may find uncongenial. This is in effect what happened with EM in England and Wales over a twenty five year period. It must not continue. To engage more constructively in debates on the future of EM – to argue with dominant players and challenge "expert" views - probation interests need to understand its forms and potential better than they have done.

Conceptualising "Electronic Monitoring"

It has been very easy for governments, sentencers and professionals to frame "electronic monitoring" within discrete and bounded narratives that suit their particular penal purposes and interests, and which give the distinct impression that its technical capabilities can only be used in a certain limited ways. Such narratives become enshrined in legislation and policy, and then become the received wisdom among practitioners as to what "electronic monitoring" is, narrowing the range of ways in which it can be imagined or used. This framing of EM has been of particular significance in England and Wales, where from the outset (in the 1990s) it was imbued by government with the ethos of a "tough punishment" and (initially at least) portrayed as a superior form of offender management to the social work ethos of the Probation Service. Unlike other European countries who adopted it at the same time, embedding it in their Probation Services (or other statutory service) and requiring it to be linked with rehabilitative measures, the Anglo-Welsh government made a virtue both of the standalone curfews that RF technology enabled, and the fact that EM was managed and delivered by a contracted commercial provider rather than the established Probation Service. For better or worse, the Probation Service (especially the National Association of Probation Officers) initially responded to this dominant narrative of EM as if it was the only possible one, resisting the idea that punitive monitoring was ethical, and critical of its delivery by the private sector, for whom EM seemed to be the community penalty of choice. Even when a younger, rising generation of probation officers and managers became more open-minded and accommodating towards EM, they still did so within somewhat narrow parameters of how it might be used.

One of the many merits of the EU-funded research is to show that, even across five European countries who have been doing EM for a similar period of time, there is no single dominant narrative about the ways in which EM can be used in practice. True, it is almost always portrayed as a "cost-effective alternative to custody", and spoken of as a "punishment" even when it is used in the context of a broadly rehabilitative measure. Within that overarching view, however, there are legal variations on the maximum number of curfew hours, the maximum duration of an EM-order, the kinds of measures it can and cannot be combined with, and the degree of discretion that probation officers have in respect of breach decisions. There is no single way to use any of the available EM technologies – the nature of the supervisory regimes that they can be used to create are not inherent in the technology itself. RF technology is sufficiently flexible to create curfews of variable length and intensity, on different days of the week, at different points in the day – it need not be, as it so often is in England and Wales, a requirement for a 7pm-7am overnight stay at home, useful as that is on some occasions. Hucklesby et als (2016) research openly encourages more creative use of RF technology; indeed creativity in EM was a major rationale of the entire project, and a comparative approach was a very effective, though by no means exhaustive, way to identify this. GPS technology is in many respects even more versatile. The commonplace public view of it is as a real-time tracking technology, but in an offender management context, this is in fact only one option, one way among several of supporting probation supervision. Inclusion and exclusion zones, of varying size and number, may be deemed more important elements, alongside continuous tracking of movements or separate from, and instead of, it.

So how does one conceptualise EM as a penal measure, in the abstract, in a way that avoids framing it in legal and policy frameworks that may have meaning in only one particular country? EM technologies, it can be said, enable judicial and/or executive authorities to restrict, regulate and enforce a suspect or offender's spatial and temporal activity (their locations, movements and schedules), at a distance, often in "real-time", potentially in a very

finely calibrated way, for periods of variable duration. Contemporary monitoring technologies focus on pinpointing offenders at fixed locations, following the trails of offenders "on the move" or alerting authorities when the perimeters of designated exclusion zones are about to be crossed – separately or in combination. These technological capabilities can be embedded in different legislative and policy frameworks, to serve different penal purposes, at the pre-trial, sentence and post-release stages of the criminal justice process. They enable the enforcement of judicial or executive requirements either to be present at a certain place at a certain time (inclusion), or to be absent from it (exclusion), and can be used on a stand-alone basis or in conjunction with other supervisory (often, but not necessarily, social work) techniques. "Movement monitoring" technologies may also be used to pinpoint and incriminate offenders at a particular crime scene (or exonerate them by showing they were not proximate to it), and have thus become of investigative interest to police officers.

"Electronic monitoring" must nowadays be understood as a generic, plural term which encompasses a range of technologies, mostly radio frequency (RF) devices and combinations of satellite and cellular telephone tracking systems to enforce either "presence monitoring" at single locations or "mobility monitoring" on a potentially anytime-everywhere basis, in either "real-time" (although this is relatively expensive) or retrospectively. Voice verification systems can (potentially) monitor presence at single or several locations, but, if the latter, not the journeys between them. Kiosk-based office reporting systems, using biometrics (usually fingerprints) as a means of user verification are also a specific form of location monitoring, used extensively in the USA since 1995, but not in Europe until the recent London pilots (Raho 2014). EM technology is not inherently – just usually - non-custodial; RF technology can be used to make prisons "smart buildings" in which the whereabouts of inmates, staff and visitors are constantly known. These are used on a small scale in the USA, Sweden and Finland, and were briefly tried in the Netherlands.

Other location monitoring technologies, or refinements of the existing ones, may develop in the future. The American Global Positioning System (GPS is in effect a brand name) will not be the only satellite-based navigation system available to customise for multiple social – including penal - purposes in years to come. Europe has been developing its own satellite navigation system, Galileo, and some EM companies are already marketing monitoring systems and devices which are compatible with both. All satellite-based monitoring systems work in conjunction with mobile telephone networks, both to augment the accuracy of the pinpointing and to upload time stamped location data to the monitoring centre. Some commentators think that E-Loran, a digitised upgrade of an older terrestrial-based navigation system for ships and aircraft may come to be seen as having technical and financial advantages over satellite-based systems. More plausible, at least to technophiles, because of its increasing ubiquity, is the harnessing of urban wi-fi networks in offender monitoring.

The potential of this was actively canvassed by Nir Shelley (2016) at the 10th CEP EM conference in Latvia in April 2016. It illustrates yet again the ease and speed with which the emergence and availability of a new digital technology can be used to suggest new directions for penal policy and offender management, without regard to its implications for lawmakers, agencies and offenders. Probation Services have good reason to resist an endlessly "innovation-centric" approach to EM, constantly chasing the next upgrade, however appealing this is to commercial organisations in the EM industry. It takes time for new practices (including technology-based practices) to bed down in any organisation, and there are (or ought to be), ethical constraints on exposing offenders and their families to untried, experimental interventions simply because they have novelty value to government or the supervising agency.

The expansion and intensification of location-monitoring systems more generally will create a climate/infrastructure in which pinpointing (and influencing) people and things is normal, cheap and easy. The circumstances under which such systems are customised for penal purposes, and the precise forms they take, will depend on the configuration of political, professional and commercial interests in different countries - on the range of voices which get to shape them - and will sometimes be mediated by transnational bodies like the CEP or the Council of Europe. It is vital, as noted above, that probation interests, specifically, play a part in shaping the way that EM is developed and used and are in a position to challenge uncongenial visions of its potential and prospects.

Contrary to much received wisdom, and much official discourse in England and Wales, EM is not an inherently punitive measure, although that is by far the commonest understanding of its penal purpose (despite its widespread use as a pre-trial measure, with unconvicted people). EM is nonetheless, inherently, a form of control, a means of regulating behaviour at a distance. Understood as such, it can be used for either punitive, rehabilitative (or merely controlling) purposes depending on the purpose, nature and onerousness of the regime it used to create. It is in its nature as a form of "automated digital oversight" to increase the likelihood of detection if violations of prescribed regulations occur, but the frequency of "checks" is programmable - by people – ranging from minute-to-minute (real-time) to every 24 hours, with every conceivable interval in between (quarter hourly, hourly etc). Similarly, whether breach attracts a swift and severe punishment is also a human choice (for policymakers, sentencers and penal practitioners) depending on whether a punitive or rehabilitative (or mix of both) model is being operationalized, and whether other factors apart from proven non-compliance with EM should be taken into account. The actual applications of EM technologies – the precise ways they are *designed* to operate - are socially constructed and there are arguably more possibilities of use than the predominantly punitive narrative allows, which provides an opportunity for creativity and considering how the tool could be deployed to support rehabilitation.

Contrary to the prevailing orthodoxies, there is no reason to regard EM as an inherently high tariff measure, and it is historically curious that short-term, stand-alone, half-day EM-curfews (the mainstay of provision in England and Wales) were ever conceived as such by policymakers (however much, in practice, sentencers used them "down-tariff"). It is mistaken too to think that GPS "mobility monitoring" is inherently more intrusive than confining, RF forms of "presence monitoring": despite the incessant oversight potentially entailed by the former it can offer an offender a greater sense of freedom and autonomy than long hours of house arrest. It is never the *EM technology alone* which determines the onerousness or proportionality or otherwise of an EM-based sanction but, again, the intensity, duration and approach of the regime that it is used to create, the restrictiveness of the spaces and schedules it is used to monitor and the measures it is or is not combined with.

The conceptualisation of EM is more complicated than it used to be because not all "EM" is now location-monitoring. Both breathalyser and transdermal forms of alcohol monitoring already exist, and although commonplace in the USA have not been widely used in Europe. Transdermal ankle bracelets detect alcohol vapours given off through the skin, and can upload periodic readings through the cellular phone network, or download accumulated data at agreed intervals at a reporting centre. Unlike earlier forms of EM, alcohol monitoring directly regulates (or prohibits) a particular behaviour – the intake of alcohol, which may have criminal consequences - rather than restricting spatial and temporal opportunities for criminal behaviour. Aligned with developments in telecare and telehealth which remotely

monitor "lifesigns", and always alongside supportive personalised interventions, behavioural monitoring may in future become more prominent with offenders exhibiting recognised health problems. As yet, drug intake – certainly polydrug intake - cannot be reliably monitored remotely in the same way as alcohol, although such technologies are in demand, and being researched. Implanted devices of various kinds are becoming ever more feasible, but unlikely to be used much with offenders, if at all, while wearable devices continue to be both compact and versatile. In an era in which ordinary citizens can use digital devices to self-monitor their health and wellbeing, the use of so-called "persuasive technology" to nudge offenders towards responsible and law-abiding behaviour will seem less and less strange in an offender context, although there will invariably be distinct technical ethical issues to address when monitoring technologies are used in criminal justice settings (Jones 2014).

Understanding The EM Evidence Base

Like all contemporary penal measures, the effectiveness of EM schemes have been evaluated, with varying degrees of independence and sophistication, in some of the (approximately 40) countries which have adopted it in some shape or form. Accumulated studies (of mostly RF-based approaches) have periodically been summarised and a picture has emerged of a measure with definite but limited utility, and no great transformational consequences for the penal systems into which it is introduced (Schmidt 1998; Martinovic 2010, Renzema and Mayo-Wilson 2005). Renzema 2012). It is significant that the Campbell Collaboration, which collates evaluations from around the world and publicises meta-analyses of the effectiveness of particular penal interventions, has yet to produce one on EM (despite two attempts) - and not only because there are still too few studies using the random controlled trial method that the Collaboration favours (see Taylor and Ariel 2012). There has been no general consensus on what the effectiveness of EM means (or might mean) and the issue has become more complicated with the advent of other technologies alongside RF, which enable new modalities of surveillance and supervision, which can presumably have different impacts. Evaluations (even methodologically sound ones) are only as good as the practical penal purposes to which particular forms of EM are put, and if those purposes have been ill-thought out, misconceived, pitched too modestly, or pitched too boldly, evaluations will not reveal all that might be possible, and produce skewed and premature judgements about EM's utility. In England and Wales, George Mair (2006), a pioneering Home Office evaluator of EM, made the further point that although the government commissioned sound research on all its EM pilots, which showed modestly positive results in terms of reduced reconvictions, the subsequent policy commitment to EM was always greater than the results warranted, suggesting that the expansion of EM had other, ideological and fiscal, drivers apart from, and perhaps despite, the evidence of its effectiveness.

In any case, the diverse technologies which now constitute EM, combined with the even more diverse programmes and contexts in which it can be embedded, together with the variety of penal cultures which exist internationally, mean that defining and measuring its effectiveness (its impact on reducing reoffending, or reducing the use of custody, or its contribution to a broader offender supervision package, to use but three possible criteria) is far more complex than, say, drug treatment or unpaid work, which have more clearly delineated functions, and are intrinsically less versatile. It is fair to say in respect of EM that no study in any one country could ever be more than *suggestive* of how EM might be used in another country, because, as the "policy transfer" literature avers more generally, the social,

legal and practical frameworks within which it can be set will always nuance the precise effects that occur in one place, with any one type of offender. As such, it is unlikely that "the effects of EM" could ever be exactly replicated cross-nationally in other than approximate ways. Nonetheless, there is sufficient evaluative research available now that is indeed suggestive of how EM might be used well, although the question of what concrete and specific purposes EM technologies might best be used for remains an open one.

Not all EM research has been undertaken with probation interests (or values) in mind, sometimes by academics or think tanks for whom the survival or evolution of the probation service is a secondary or marginal matter. Unless one takes the view that *anything* which serves to reduce offending is (or should be) acceptable to probation, it would be unwise for probation simply to "follow the evidence" on EM, for it is possible that some uses of it will be deemed cost-effective (and therefore appealing in an era of economic stringency) but not commensurate with probation values or ethics, or supportive of the institution's continued existence. Decisions to privilege humanistic interventions over technological ones (or vice versa) are ethical in the first instance, and empirical second. Historically, however, in England and Wales, the "old" Probation Service initially overdrew the incompatibility of humanistic and technological interventions, partly because they allowed the British government's preferred form and purpose of EM to be defined antagonistically towards them, rather than arguing for other, more convivial forms and purposes of EM, more integrated with social work measures and under their control, as was the case with many mainland European Probation Services. That past mistake should be avoided now: it is of vital importance that probation interests are open to innovation and involved in shaping emerging forms of EM practice, in ways that are commensurate with their values, as well as critical of forms of practice which are not. Unless EM is shaped by humanistic, people-centred interests remote surveillance could become the overriding norm in offender supervision, to which optional probation is merely added in when necessary.

What Does the Evidence Say?

The following appraisal of evidence will mostly be drawn from a recent international review of EM (Graham and McIvor 2015) which was specifically commissioned by the Scottish Government to inform its thinking about the future of criminal justice social work (as "probation" is called in Scotland) and "community justice" more broadly. It is not neutral on the matter of criminal justice social work's survival, and is grounded in the evidence-based axioms of existing good practice in work with offenders – concluding that *some uses* of EM do support this. Historically, Scotland had adopted an essentially English model of stand-alone RF EM, delivered by the private sector, in 1998, but now (quite unlike England and Wales) wants to develop a more integrated use of EM and social work, and to see it contribute more systematically to a reduced prison population (Nellis 2015) and is looking to other countries for relevant lessons. Graham and McIvor (2015) offer a selective rather than a comprehensive review of the EM literature, but touch on all the main research from the past fifteen years, highlighting both implementation processes and outcomes, for both RF and GPS EM, as well as what has been useful and difficult for probation services. The advice they offer to the Scottish Government is doubtless already familiar to many European and indeed some American probation services, but it has the merit of spelling out lessons from EM research from the standpoint of academics supportive of, rather than hostile or indifferent to, the broader social work context in which offender supervision should ideally occur.

Graham and McIvor highlight clear evidence that RF EM (for house arrest and curfews) can, broadly speaking, reduce reoffending, but there are always qualifiers. In a small US study of paroled violent offenders, Finn and Muirhead-Steves (2002) concluded that compared with

a control group, EM reduced time delays in return to prison, at least in the short term, within one year. By three years there was no difference between the groups and, playing down the short-term results, give no significant endorsement to using EM as a tool for supervising paroles. The study begs many questions about what the parolees' experience actually consisted of, but tentatively signalled one finding that has been recorded elsewhere, that EM has an effect for the duration of the monitoring period but not necessarily afterwards, and that even in the monitoring period (depending how long and onerous it is) impact may decline over time (Bonta et al 2000a; Sugg et al 2001; Renzema 2012).

In a large, much cited and influential statistical study of "community control" programmes in Florida between 1998 and 2002 – which undoubtedly portrayed EM (both RF and GPS) as too useful for probation services to turn down - Padgett, Bales and Blomberg (2006) claimed much higher levels of compliance with requirements, fewer technical violations and fewer new offenders for violent, property and drug-related offenders on EM compared to those not on EM. None of the sample were formally on probation but some of them were receiving some forms of court-ordered supportive, rehabilitative input, and the study tends not to accommodate this, or explain its significance to the findings, if any. Bales et al (2010) follow-up study in Florida, augmenting statistical analysis with some offender accounts of experience on EM, showed similarly impressive results in terms of increased compliance and reduced reoffending – GPS more so than RF - even though offenders had largely negative views of monitoring's impact on their lives in the community. Because the positive effects were to be found only over the duration of the monitoring period, and not sustained afterwards Padgett, Bales and Blomberg (2006) made a clear recommendation that monitoring periods be extended for longer, playing into then current US debates about the lifelong monitoring of released sex offenders, and begging the (very plausible) question of whether positive effects would or could in fact be sustained over longer monitoring periods. Bales et al's (2010) view that GPS had advantages over RF similarly played into ongoing US debates that tracking was an inherently superior practice to house arrest (Doffing 2009), and that RF should therefore be "upgraded" to new generation GPS, but this begs the question of whether simple, short term curfews and house arrest are perfectly suitable for some offenders some of the time, and whether a better approach to EM would use both RF and GPS.

GPS tracking has seemingly proved its worth in the context of high risk, paroled sex offenders in California. Geis et al (2012) compared two large samples of such offenders between 2006-2009, over one year of supervision: both received treatment and supervision, but one also had GPS imposed on them. Each group was compared on rearrests, reconvictions, returns to prison and compliance with parole regulations, and on each criteria those on GPS scored better, not always massively, but sufficient to give credence the additional intervention. Most significantly, offenders without GPS tracking were three times more likely to commit a sex-related violation than those with it. The researchers noted that the use of GPS increased and changed the balance of the parole officers' workload - large amounts of incoming data and frequent alerts, some false alarms had to be processed – but the staff were overwhelmingly in favour of the technology. Among the policy recommendations in the research was a reduced caseload (down to 20) for officers managing tracked high risk offenders, and the use of an independent monitoring centre to filter the datastreams so that parole officers only received important information. Button, DeMichele and Payne (2009) had been more sceptical of GPS-based supervision of sex offenders, not because of any inherent technological limitations, but because the assumptions underpinning sex offender legislation in the USA were often misconceived, privileging punishment when a more determined rehabilitative approach may have better served both offender and public interests. Certainly,

it cannot have been sensible, as happed in Florida, that monitored sex offenders were subject to such draconian residence restrictions, banning them from living near schools, playgrounds and parks, that many of them finished up homeless, a community of rough sleepers under a bridge in Miami, using a portable generator to charge their GPS device batteries (Nellis 2012). Miracle Park – a rural village for some of Florida's rejected sex offenders, some on GPS – was established by a concerned Christian minister as a solution to this enforced abjection (Allen 2014).

The use of EM to protect victims of domestic violence from whom perpetrators (suspected or convicted) have been ordered to stay away has grown steadily in the US and Europe. Exclusion zones may be placed around the victim's home, and in addition, victims may be given small portable receivers which would register the proximity of the tracked perpetrator wherever in the community they were – an approach dubbed "bilateral EM" Edna Erez et al's (2012) large scale, multi-site evaluation of this in the US concluded that GPS in particular was an effective means of ensuring compliance with court-ordered requirements, and that victims, although not without anxiety, sometimes caused by false alerts, were largely satisfied with the arrangement. The use of RF EM in this context – keeping perpetrators from victims by imposing house arrest on them – was less effective (Erez and Ibarra 2007). As with GPS tracking in a sex offender context, the technology was never conceived as a stand-alone measure, and probation services, and sometimes police forces, are almost always involved in work with defendants.

This outcome-focussed research produced, from three of the jurisdictions studied, some spin-off analyses which may from a probation perspective be the most important kind of research about EM, because it shows how the use of the technology is – and by implication can be – shaped by the prevailing culture of the penal agency which uses it. Ibarra et al (2014) show how some services operate GPS very punitively, mystify defendants and offenders about the exact degree of electronic oversight they are subject to, and are ever alert for violations which inexorably trigger rapid revocation and imprisonment. Other services take a more caring, collaborative approach to the surveillance of perpetrators, explaining the technology thoroughly, supporting and motivating them to comply and responding more flexibly to violations, depending on circumstance: the emphasis is more on completion of the monitoring period than catching the offender out and imposing a tougher sanction at the earliest moment. This demonstration that the impact of GPS technology varies according to the culture and ethos of the agencies which use it (in a domestic violence context), is probably relevant to all uses of EM, in the US and elsewhere. It shows empirically that technology itself does not determine outcomes even in ostensibly similar monitoring projects, and that while the number of frameworks in which it can be embedded are probably finite, there is certainly no single one in which it has to be packaged.

Offender perspective research has become important in EM, but while it suffers from the same problem of generalisability as EM projects themselves - offenders respond to specific, tangible and nuanced experiences of EM in particular contexts, and to the staff involved in its administration, not to a reified, abstract technology - certain common and consistent themes have emerged, at least in relation to RF EM. (Nellis 2009c). Payne and Gainey (1998; Gainey and Payne 2000), key US researchers in this field, established that EM-house arrest (in this instance, a particularly onerous variant of it) entailed socio-psychological "pains" distinct from those of imprisonment, and that it is far from the lenient and undemanding sentence that is sometimes portrayed in the media. Crucially, and to a greater extent than other community sanctions, EM affects not only the tagged individual but also other household members, emotionally and practically, and their response to the stresses

entailed can have a bearing on whether monitoring periods are completed. Outside the home the stigma of a visible, wearable ankle bracelet has sometimes been found be intimidating to offenders: the difficulties of finding or maintaining employment while wearing one is exacerbated for some, particularly when news media portray tagged offenders in disparaging terms. Overall, the core message of offender perspective research on EM is that while most offenders do find them onerous, they are largely preferred to imprisonment (not least because family ties are maintained) (Staples 2005; Martinovic 2007; Vanhaelemeesch and Vander Beker 2012; Vanhaelemeesch, Vander Beker and Vandevelde 2013)). Compliance with EM sanctions is more likely if offenders perceive them as legitimate responses to lawbreaking, and part of the challenge for professionals involved in monitoring is to identify the forms of EM and the conditions of its use, alongside other supportive measures, which most help offenders to reform and desist.

Graham and McIvor (2015) conclude from their overview of evaluative literature on EM that a sufficiently strong case can be made for its further use in Scotland, and that a more integrated approach, embedding EM in other forms of supervision and support, is to be preferred to stand-alone interventions (although these are not to be dispensed with). GPS has a place, but not at the expense of RF EM, which has proven its worth in both integrated and standalone versions (Marklund and Holmberg 2009, Hucklesby 2008; 2009) Practice from elsewhere in Europe and the USA is sufficiently effective, in particular ways and contexts, to be suggestive of approaches that might be tried in Scotland in modified, even improved form. Much of what they recommend has already been undertaken by other countries' probation services; there are no evidential grounds for thinking that probation should not, at least, experiment further with creative uses of the various EM technologies. Probation has an opportunity to influence and inform policy and regimes so that EM is used to aid desistance and improve compliance as well as control and catch those who fail to comply.

The debate on the future of EM in Scotland is quite different from the debate that is taking place in England and Wales. While it is likely that Scottish service provision will remain in the hands of a single, contracted commercial provider (currently G4S) the Scottish Government is making a determined effort to encourage a more integrated approach to the use of EM, and is open to both future administrative and legislative changes which will make it easier for, and more likely that, criminal justice social workers will own and embrace its use in offender supervision. The hoped for expansion of EM in Scotland – both RF and GPS, (and possibly transdermal alcohol monitoring) – is being linked explicitly to the issue of reducing the use of short custodial sentences. The agenda of the Ministry of Justice in England and Wales, and perhaps that of the National Probation Service and the Community Rehabilitation Companies (who may not all speak with one voice) may be different from that of criminal justice social workers in Scotland. Neither of these agendas have been particularly transparent, and a key part of the problem is that the current Ministry of Justice contract for the service delivery of EM leaves little scope for the NPS or CRCs to influence the forms of EM that the Ministry is minded to hand down to them. That is why the CRCs and the NPS must develop their own informed, evidence and principle-based, understanding of EM, so that they can engage constructively with the Ministry of Justice as to the forms and scale of EM-use that would best meet their professional needs.

The College of Policing recently commissioned a systematic review of EM's effectiveness from the UCL Department of Security and Crime Science. It is arguably the most thorough and sophisticated review of its kind in the world, using 33 evaluative studies from a range of countries (17 with quantitative data), and is likely to stand as the gold standard in this field until such time as the Cochrane Collaboration undertake a study of their own. Evidence for a reduced reoffending effect is limited, the authors say, (but not non-existent in certain

circumstances) and their most emphatic point, made by many others, is that the effect of EM in general is crucially dependent on the specifics of the technology, and the dosage, duration and manner of implementation (including stakeholder buy–in). These are obvious and unoriginal points to make but it is still good to have them stated so authoritatively, in a way which makes it marginally more difficult – but never impossible – for policymakers to ignore. One implication, which the authors themselves do not draw out, is that worldwide we have not thus far been using EM very sensibly, and perhaps expecting too much of it. On the basis of these reviewer's evidence, there is ample scope for further experimentation, but as to how they are silent. Their rather dry observation that "there is some evidence to suggest that EM works best when combined with other interventions such as therapy or counselling" (p5) is quite true, but begs the question on which their review – and the aspirations of so many policymakers - was premised, whether it was ever sensible to think that any EM technology could be penal game changer in its own right. How EM is combined with other measures, when it is appropriate to do so, and to what end – these are the questions that practitioners need to be addressing.

Good Practice in GPS Tracking?

While the existing evidence-base is important, it could be argued that there are viable models of good EM-practice, using GPS tracking, developed in England and Wales, which have not yet been incorporated in it. These were created outwith the Ministry of Justice contract. The first of these was an NHS scheme in a medium secure psychiatric unit in South London, which used short periods of GPS tracking on offenders who went on temporary leave. What began as a security consideration has now been incorporated into a therapeutic regime (Tully, Cullen, Hearn and Fahy 2015). **This practitioner-led project warrants detailed attention from the Probation Institute and the probation world: it is a model of how, in a particular context, GPS can be used well.**

The "voluntary" police GPS schemes are better known, and also warrant attention. They originated at local level, not with central government, and entailed partnerships between local Integrated Offender Management Projects and several technology providers (but mostly Buddi) who worked together to devise better ways of supervising persistent and prolific offenders released from prison. The first of these was in Hertfordshire, beginning in 2010, and approximately 25 such schemes exist now. They originated in a police desire to find more cost-effective, less labour-intensive ways of managing these offenders and using GPS-generated data to improve intelligence-gathering, but the pioneering scheme, and some of the later ones, had an explicit commitment to facilitating desistance which ought to be of significant interest to CRCs and the NPS. What follows is a schematic (and incomplete) account of the Hertfordshire scheme which highlights features of which CRCs and the NPS should take note as starting points for their own good practice.

The schemes are targeted on persistent and prolific offenders (PPOs) who have been released from prison. The traditional means of supervising such offenders (since the mid 1990s) has been "intrusive policing" – in effect, a form of harassment in which offenders are frequently followed, intermittently stopped and visited at home on a random basis. The aim of this is to convey to offenders that they are more or less under constant observation, and deeply untrusted – the worst is expected of them. Should a crime occur which exhibits the modus operandi of this type of offender, large numbers of them would be pulled in for questioning, including house searches. All this is labour intensive, time consuming and costly. For some police officers, as well as for probation officers in the IOM, it was always an unduly

negative way of working with PPOs, which gave them little incentive or opportunity to reform even if they wanted to – motivation which was, in any case, subjectively hard for officers to gauge.

Real-time GPS tracking, linked to crime scene correlation software, was seen as a cost-effective alternative to labour-intensive "intrusive policing". GPS tracking enabled almost constant monitoring of an offender's whereabouts, and was capable of pinpointing them at or near crime scenes – or not, as the case may be, obviating the need for "a round-up of the usual suspects" if a familiar type of crime occurs. The technology could *incriminate* as well as *exonerate*, and it was this "exoneration potential" which was thought likely to appeal to the PPOs who would now be able to prove, over a sustained period of time, that they were not at crime scenes. In the absence, at the time, of any legal power to include GPS tracking as a requirement in post release supervision, offenders were invited to volunteer for it. The incentive for them to do so was the withdrawal of intrusive policing, alongside intensive multi agency support to help them access services to support their rehabilitation (e.g. intensive case work, fast track to addictions, education, training and employment services) – and its reinstatement if they chose to have the tracking device removed, which, as volunteers, they were legally entitled to do. Over and above the presumed deterrent effect of "incessant oversight" on the monitored offenders, the GPS technology and its associated software, would accumulate data on offenders' movements (individual and aggregate) which – alongside other forms of intelligence gathered in the local community - could be used to understand and influence offenders behaviour, and crime patterns more generally.

It was always understood that GPS tracking alone would not create change an offender's behaviour without considerable social support to address the multiple personal problems, not least peer pressure, dysfunctional family lives, and alcohol and drug abuse that underpinned their persistent criminality, and led to frequent periods of imprisonment. And change – not just monitoring (or punishment) as an end in itself – was important to some of the police officers involved. So daily personal contact – by phone if not face-to-face - with the tracked offenders was designed into the scheme, as well as some informal peer mentoring and input from the IOM co-located probation officers. Every effort was made to ensure all staff engaged with the individual were sharing information and were operating as a team.

As expected, the GPS tracking was experienced by some of the offenders – not all - as enabling and empowering, a necessary source of self-discipline and a means of proving to "authority" – that they had not hitherto had - that they were serious in their intent to desist from crime. The sense of being constantly watched – under surveillance - was palpable – but tolerable when the alternatives were known to be worse. More significantly, freed from constant police harassment, some offenders find that wearing the tracking device gives them hope for the future and confidence that they can change their behaviour. This encourages them to take up offers of help from the probation officers in the IOM that they would not otherwise have done – constant police harassment demoralizes them and acts as a disincentive to change for the better. Probation officers were able to use information generated by the GPS in supervision to both praise and also challenge behavior e.g. the offender had been observed to visit a known local drug dealer. Some offenders were able to return home, their parents taking some assurance that the GPS tag would reduce the amount of police intrusion and collateral impact on other family members.

Because the scheme is voluntary, offenders are entitled to ask for the tracking device to be removed if they so wish. While this was initially believed to be a sign that offenders were intending to offend again, experience showed that removal requests more often occurred when offenders gave up hope and lost confidence in themselves (a job application was

unsuccessful, a relationship foundered) and saw no point in continuing in the scheme. At such a point, the IOM staff devised ways of supporting the offender to remain in the scheme and continue wearing the tracker, but if the latter remained adamant that they wanted it removed this has had to be complied with – and "intrusive policing" resumed.

Some offenders do seemingly become psychologically dependent on the tracking device, such that neither they nor their families want it removed when their planned period of monitoring comes to an end, fearing that the element of self- discipline entailed by wearing the device will be lost. The IOM has only a finite number of trackers, which need to be re-used on newcomers to the scheme, so quite apart from not wanting to encourage dependency (and to encourage autonomy) among "veterans" of the scheme, devices do have to be removed. IOM staff devised strategies for weaning people off the tracker - taking it off for a few days but promising to refit it, so that offenders could practice living without it over a series of short periods, gradually proving to themselves that they could cope before letting go of it completely.

The voluntary element of the IOM GPS schemes is seem as problematic even by some (but not all) of the police officers involved, and the Police and Crime Commissioners who have championed the schemes in general still campaign for legislation which would make the use of tracking compulsory. This may be a mistake: however accidental and arbitrary the origins of the voluntary approach, it has proved to have unforeseen strengths. It is true that not all offenders in the IOM scheme take up the offer of GPS tracking and not all who take it up succeed. Some offenders have volunteered to wear a tracker in bad faith, wanting to lose the police harassment but not seriously intending to desist from crime, but the logic of the scheme is such that it only really appeals to offenders who do wish to desist, and who see benefit in being able to prove their absence from crime scenes. But this is precisely its importance to probation (and CRCs) – and this voluntary approach should be more widely available to offenders (not just PPOs). By dint of being voluntary it is motivational in a way that a compulsory, imposed use of GPS tracking might not be; to a degree the offender has control over the surveillance process and can opt out if s/he so chooses. Voluntariness also means that those who run the scheme have to provide a high level of social support – assisted compliance – in order to sustain the offenders' motivation to continue wearing the tracking device, often through difficult periods when they might be tempted to give it up.

There is in the current IOM schemes a tension between the use of GPS tracking to support desistance and its use simply to gather and analyse intelligence. To a degree the two can coexist – police or probation officers can use knowledge gleaned from observing on-screen trails to question or counsel the offender in face-to-face meetings – but for some police officers intelligence gathering (and aggregate as well as individual analysis of movement patterns) can be an end itself. Probation are not always strong partners in the IOM schemes (sometimes for reasons to do with the transition to CRCs and the National Probation Service) and supporting desistance is not an equally strong feature of them all (whatever rhetoric may say to the contrary), and in era of continual cost-cutting it may be the most vulnerable and easily dispensed-with part of them. CRCs should seek to consolidate, strengthen and publicise – and own, separately or alongside the police – the desistance support element of these schemes, and the growing practice wisdom associated with them, before it is lost. Movement away from desistance support to pure intelligence-gathering is not inevitable – even less so if it is actively challenged – but the danger of this happening is undoubtedly real. **Notwithstanding the views of the Police and Crime Commissioners it is not clear what the overall police view on the future of IOM-GPS schemes might be – neither the Home Office nor the college of Policing own or steer them - but there are among the projects smart,**

thoughtful police officers who are concerned to see the technology used well, to support desisting offenders – and not overused. The Probation Institute should make firm alliances with such police officers, engage in dialogue with them, and seek to shape the as yet unformed, emerging view of GPS – not forgetting RF! - in the police.

Creating a space in which GPS tracking can be used voluntarily does not preclude the use of compulsory, court-ordered GPS tracking for a range of offenders where public protection considerations require it. As already noted, EM technologies are versatile, and can be embedded in a variety of different regimes, at different points on the tariff, and at other points in the criminal justice process. But even compulsory forms of GPS tracking require some degree of practical consent from an offender) if only to agree to charge the battery on a regular basis) even if legal consent is not itself a requirement. Some offenders will doubtless be interested in the "exoneration potential" of GPS tracking even if it is imposed on them compulsorily and CRCs will still need to consider how best to combine mobility monitoring and social support, with what intensity and for what duration.

The IOM schemes referred to here have not been independently evaluated (although local, as yet unpublished evaluations do exist). A proper evaluation of aims, context, processes and outcomes should be undertaken. Nonetheless, even in the absence of this, lessons can be learned from them which CRCs and NPS could usefully take on board, and adapt further themselves. Innovative and good ideas can be developed without academic input – the voluntary use of GPS tracking in IOM schemes is a good example of this. Good practice – and practice skills – can evolve from efforts to solve pressing local problems before they are subject to academic scrutiny. In the short term this must be respected – innovation might be stifled if practitioners are not free to seize opportunities as they arise, with the resources available at the time. In the medium term, however, empirical findings from innovative schemes must be sifted for inclusion (or rejection) in a professionally available evidence-base of effective interventions.

The third example of good EM practice has been the MOPAC alcohol monitoring project in London. This a predominantly punitive – but intelligent - model of EM use – using transdermal alcohol monitoring of EM use to enforce a prohibition on alcohol use for offenders who have committed crimes while drinking recklessly. It specifically excluded offenders who have alcohol dependences, but some offenders who binge drink still need help and support (Pepper and Dawson 2015). Although the CRC was not initially an active partner in the design of this project – it should have been – probation staff became involved and improved on the original conception, spreading a sense of ownership of the project across agencies and ultimately improving it. **The Probation Institute should study this project in some detail, and engage in dialogue with AMS Scram –** the tech provider to understand **more about the potential of this technology, and best practice is respect of embedding it in probation services.**

The Third EM Contract.

Since its national roll-out in England and Wales three contracts have been awarded to private companies to deliver EM, usually on a regional basis. The first 1999-2005 used Reliance, Securicor and Premier. The second from 2005-2012) used G4S (which incorporated Securicor) and Serco (formerly one half of Premier) (Paterson 2007). The third, current contract running from 2012-2018 altered the service delivery model of EM and the vision of EM itself, giving the MoJ contractual control over the major components of the service (hardware, software and telephony) rather than, as in the past, allowing one or two service providers to determine this for themselves. Capita became the single, nationwide service

provider, with Astrium (later, after a merger, called Airbus) providing the software, Buddi the hardware, and Telefonica/O2 the telephony. The cornerstone of the third contract was a move towards an all GPS-based system for the full range of offenders (not only the high risk) using a newly devised tag with both a GPS and an RF capability, so that mobility and presence monitoring could be combined in a single unit. This scheme was expected to begin roll out in late 2014, and to have achieved full roll out (replacing existing tags) by mid-2015. A series of implementation difficulties with the third contract – not least the replacement of Buddi by Steatite as hardware provider mid-way into the process – caused setbacks, and roll-out was delayed stlll further, until mid-2016 (Nellis 2014b).Subsequently, Steatite was dispensed with too – and paid a considerable, as yet unknown, sum in compensation. The Ministry of Justice has now embarked in a seemingly more modest approach to the development and delivery of EM – 8 pilot schemes and a quasi-consultative EM Advisory Group – but it is still unclear what scale they envisage using GPS on in the future.

The large scale, all-GPS vision of the third contract was significantly influenced by the right-wing think tank Policy Exchange (Geohegan 2012), which was premised on the intuition that upgrading to a tracking technology would be more effective as a means of reducing offending than RF technology, which they considered first generation, an almost obsolete form of EM. While there may well be sense in this intuition there is as yet no evidence that GPS tracking is inherently more effective that RF, and no obvious penal grounds for moves towards an all-GPS system. The move towards all-GPS also circumvents debate that others may wish to have about the proportionality of using tracking on other than high-risk offenders, although as noted above there is arguably no inherent proportionality about any EM technology – everything depends on the type and duration of *the regime* the technology is used to create. The move towards an all-GPS system may also be driven more by technological and commercial factors than by penal ones, a belief that EM is a potentially "disruptive technology" which, used on a large enough scale, will have systemically transformational consequences - and while this may well be the Ministry of Justice position (because of a commitment to "innovation" for its own sake, it is not an obvious or tenable starting point for the Probation institute. It is interesting in this respect that the House of Commons Public Accounts Committee have criticised the design of the Ministry of Justice's third EM contract for not grounding its proposals for the future of EM on a firm evidence-base.

While the Policy Exchange (Geohegan 2012) report was influential in shaping the Ministry of Justice's vision of the scale and pace at which a large-scale GPS-based system might be created, it was deeply at odds with the Ministry's determination to maintain central control over the EM contract, which seemed both excessively costly, and to leave no room for decision-making by local agencies about how EM services might be accessed and used. Policy Exchange openly favoured local commissioning by Police and Crime Commissioners (and, where necessary, allied agencies, including the then Probation Trusts), basing this on the perceived success and future needs of the "Hertfordshire Model" and its emulators elsewhere in the country. Both the then Probation Association (Fox 2012) and the then Probation Chief's Association (2012) wrote in support of local commissioning of EM, but the third contract was deemed too advanced to be altered at this point, and Policy Exchange's position on procurement was not adopted: the then Justice Minister was in any case unpersuaded of the merits of localism in this respect.

There was at the outset very little confidence in the Ministry of Justice's four-company service delivery model – compared to Policy Exchange's detailed and well-thought-out model it lacked detail and simplicity – and few people were surprised that the implementation did not go according to plan. Another centre-right pressure group, Reform (Lockhart-Mirams,

Pickles and Crowhurst 2015) has recently called for the abandonment of the current model and for a new version of local commissioning (different from Policy Exchange's), but still based on the needs and capacities of the Police and Crime Commissioner's. Reform make a devastating critique of the prevailing procurement arrangements:

> the current tender for the new national EM contract has been a disaster – from the design of the contract, through the commissioning process, to .. question marks around access and data use. Public service procurement must maximise the potential benefits and minimise the costs. It must also attempt, as far as possible, to future-proof public investment – a particularly important consideration for the procurement of technology. As it stands, the contract for the new generation of tags falls short … (Lockhart-Mirams, Pickles and Crowhurst 2015)

The question must inevitably be asked whether the manifest failings of the third contract would have occurred if the Ministry of Justice had, from the start, consulted more widely with police, probation and youth justice interests – and indeed commercial interests - *before designing it*, and if they had not been so secretive in the preliminary stages of its implementation. Not only were the existing Police and Crime Commissioners and the IOM/GPS schemes which they championed marginalized by the centralizing logic of the third contract, no clear mechanisms were created by which the upcoming CRCs could access EM services, assuming they would be interested in doing so. Such mechanisms remain absent. For this reason, the recent Reform report provides a timely new basis for thinking again about the best ways to deliver more coherent and integrated approaches to the service delivery of EM, so that it is more accessible to local agencies, and more attuned to what they need. In essence, they suggest a centralized software service, provided by the Ministry of Justice, coupled with a list of approved hardware suppliers from whom local agencies could procure the monitoring system they needed. This does not solve all problems of local agencies or hardware suppliers, but it is a marked improvement on prevailing arrangements, and a framework in which probation interests could be better represented.

Reform, however, for all it favours integrated practice models of EM, arguably overestimates how widespread EM use needs to become in offender supervision. Like Policy Exchange before it, Reform remains wedded to the idea of an all GPS-based system and to continual technological innovation in EM as if these were self-evidently desirable penal developments. They may or may not be, depending on one's ideological standpoint. The available evidence does not suggest that they are, and while that does not mean that imaginative, as yet unevidenced approaches should never be experimented with – that is after all, how innovation occurs – there seems to be no case for dispensing with RF EM (and curfews of variable hours and duration) when there is adequate evidence that this can be useful in its own right. Presence monitoring in a single location need not be replaced or superceded by mobility monitoring – there is ethical and empirical justification for using each separately, as well as for sometimes (rather than always) combining them. It is debatable that there is a compelling need to develop a new tag with both RF and GPS capabilities *for all offenders*,: it could be cheaper and simpler for those who can be managed by curfews alone simply to wear existing RF tags.

The CRCs, the NPS and Electronic Monitoring.

The CRCs and the NPC were designed-out of the Ministry of Justice's plans for the mass expansion of GPS, but were in any case too absorbed in managing the transition from the Probation Trusts to worry or complain about this. It would be appealing to suggest that the CRCs should not make the mistake of the old probation service and remain aloof from what EM has to offer – and that effectively integrating the two should now be the Probation Institute position - but it is no longer that simple (if indeed it ever was). The CRCs are not legally required to employ trained probation officers and despite being called in aggregate "the probation service" they could easily evolve into organisations very different in ethos from the old public sector probation service. The old ethos is being kept alive by dedicated and experienced staff carried over from the old service but that is not a sustainable model in the long run. The commercial organisations should be required to commit to a clear probation ethos and to conceptions evidence-based practice, but this a tall order. The CRCs are also in trouble financially because the volume of work has not matched the government promises at the time of the procurement, and faced with dwindling resources they may well be tempted to turn to cheaper machines to make savings. Current experiments with reporting kiosks seem to reflect this austerity mentality, and if and when the Ministry of Justice comes up with a strategy for EM more generally - RF as well as GPS – other forms of EM may yet be perceived as a better bet than trained probation officers to achieve short term crime reduction effects, and "payment by results".

That said, there is an evidence-base which strongly suggests that EM can sometimes be useful as a contribution to offender supervision and contribute to the over-arching ambition to reduce reoffending. It is important that the CRCs give thought of their own to how they would wish to use EM and engage with the Ministry of Justice to inform a responsive model. **CRCs should develop and communicate their views on best practice in EM, and best models of service delivery, to the MoJ.** But they should do within the framework of a firm commitment to the delivery of good probation practice in the first instance, because without this there will a temptation to over-rely on EM, backed up by human support at a much lower level than skilled, professional social workers could deliver.

The most important thing that the CRCs can do is to preserve and sustain forms of person-centred probation practice which demonstrably help offenders to desist from crime and reduce the likelihood of harm coming to crime victims. The use of EM technologies should in the main support person-centred probation practice, not be detrimental to it. This means asking how remotely monitored restrictions on location and movement can be used to support rehabilitation and desistance, not whether such restrictions are inherently superior forms of control (and potential replacements) to the face-to-face, relational interventions that are at the core of probation officers' expertise. **CRCs should explore and familiarize for themselves –** not wait to be told - **where and how various monitoring technologies –** kiosks, RAM as well as RF GPS **and transdermal alcohol monitoring - might be shaped to augment relational forms of supervision and support desistance-based practices.**

In the early days of the probation reorganisation approximately 60 staff were transferred from Capita to the NPS to streamline and improve enforcement of EM. It would be interesting to know how this has worked out - like a number of initiatives of the beginning of the reorganization, it did not go well. But getting this right – whilst important in itself, not least to the offenders who deserve procedurally fair responses to violations and breach, is a minor issues compared to the bigger picture of what needs to be got right in the relationship between probation and EM, and what it means to do probation "in the age of the smart machine".

Compared to personal, face-to-face supervision, remote monitoring technology is impersonal in its effects, but that does not mean there is never a place for stand-alone forms of EM, for some offenders, some of the time. Most modern offenders, like most modern people, can handle impersonal engagement with a useful machine without feeling demeaned. (Few of us remember, let alone would go back to, queuing inside at a bank counter to withdraw money from a [human] cashier rather than using a convenient Automated Teller Machine (ATM) in the outside bank wall). But just because impersonal engagements with computerized technology have merit and legitimacy (in offender supervision as in banking) does not mean that personal and relational services – the human touch – can simply be dispensed with. Core supervisory tasks require them, in greater or lesser degree. Offender acceptance of EM – whilst essential to the legitimacy of the penalty - does not negate all ethical qualms about the use of monitoring technologies. In probation practice, it is intelligent thought and emotional labour – showing concern, conveying empathy and respect, offering trust and encouragement, applying skills, being kind – which motivates and sustains personal change in offenders. Impersonal monitoring can serve a purpose, and offenders may find it legitimate, but even short periods of standalone EM may need some human support ("assisted compliance") if they are to be completed.

CRC's should have regard to the human rights of offenders subject to EM, and to the ethical issues more generally surrounding the use of this technology. The Council of Europe Recommendation issued in February 2014, and the follow-up handbook issued in November 2014 can help with this. The Council is strongly in favour of using EM for rehabilitative – rather than purely punitive – purposes, prefers it to be integrated with other, supportive interventions and has views on appropriate durations for monitoring. It places a strong and necessary emphasis on data protection, which it believes becomes more urgent once GPS tracking comes into use. https://nemo.strath.ac.uk/owa/redir.aspx?C=ZCQgFs-AE0SyvK-CRWoSU-xd5q0QjdIIv5QqlBsk-hYlJP31wAKF2B6LVWncMX-ydIwung2SQuI.&URL=http%3a%2f%2fwww.coe.int%2ft%2fdgi%2fcriminallawcoop%2fPresentation%2fDocuments%2fHandbook Standards - Ethics in electronic monitoring ENG.pdf It discourages the use of GPS as a purely intelligence-gathering tool by the police, in the manner that has already begun to happen in England and Wales. Significantly, the think tank Reform have taken the opposite view, seeing intelligence-gathering as integral to strategies for reducing reoffending, but without much regard to offender's rights. **Before embarking on the use of EM technologies, CRCs and the NPS should begin to reflect on their ethical implications, which are complex.** EM technologies are not just a neutral tool that can be used for good or ill, the question of whether they are used at all to replace or augment human supervision is itself an ethical question, although policy makers tend to disguise this by pretending that decisions to introduce or expand EM are based merely on technical and efficiency grounds.

If probation privatisation was working out and it looked as though a stable organizational structure was emerging, in which a reasonable probation culture could continue(/) to flourish, it would make sense for the Probation Institute to focus on making technical recommendations that would lead to better integration of EM, and maybe leave it that. But as many anticipated, probation privatisation is not working out, and voices have already been raised saying it should be allowed to fail, and the commercial model abandoned. Should that happen it is highly unlikely, in the present political climate, that government would return to an old-style statutory probation service, and in whatever comes next investment in monitoring technology may become more important than investment in the human, as it already became under Chris Grayling's tenure at the Ministry of Justice.

In the last few days Capita has announced £50 cuts as a response to a downturn in its revenues, (which it attributes to Brexit and financial retrenchment among its customers). Across is business as a whole its solution is 2000 job losses, outsourcing some work to India, and what is calls "proprietary robotic solutions" – more automation to speed up work processes and make up for reduced staff numbers (Pratley 2015). EM is only a small part of Capita's outsourcing business, but has been affected by the cuts. The Norwich EM office - formerly Serco's - has been closed and only 6 of the 150 staff working out of there have been retained. All monitoring, nationwide, is now done from Salford. Whether there were good "penal practice" reasons for changing service delivery in this way is moot – the grounds were technological (it is *possible* to monitor the whole country from one point) and commercial. The closure of this office is the end of an era for EM in Britain – The Norwich base has ben a fixture on the EM scene since the 1990s. Whether it is the start of a new era – and what forms it takes - remains to be seen. EM is eminently automatable but as yet we have no indication of what "proprietary robotic solutions" will look like in this field. That automation will have implications for traditional professions is almost certain (Susskind and Susskind 2015) - and probation will not be immune.

Conclusion.

Historically, in England and Wales the old Probation Service was never used to debating the ends or forms of EM: so long as EM was delivered by the private sector it was always easy to regard it as "someone else's business", and for policy and practice to develop on "parallel tracks". For better or worse, the old institutional divisions have now broken down – large parts of the old Probation Service are now in private sector hands, and EM itself is being contracted to a different set of commercial organizations. Yet we seem no nearer to developing an integrated service than we were when probation and EM were split between the public and private sectors. Both the right wing think tanks who have dominated policy debate on EM in recent years – Policy Exchange and Reform - who are otherwise well aligned with government policy – have, like the Police and Crime Commissioners, been critical of the form of the Ministry of Justice's third EM contract, because of its inherent unresponsiveness to the perceived EM needs of local agencies. The think tanks and the Commissioners want more devolved, localized decision making in respect of EM, which is surely in the spirit of the way in which CRCs had been expected to work. **The Probation Institute should publicly support localization, and ground-up models of developing EM, based on the successful NHS scheme, the police schemes and the MOPAC alcohol monitoring project. The current crop of GPS pilots may also lend support to a more localized delivery of service in the long run.**

At the same time both Policy Exchange and Reform, in their commitment to all-GPS systems, went way beyond what the available empirical evidence warranted, driving change forward, more on technological and commercial grounds than on properly holistic and well thought-out penal grounds. Both organisations made a number of sensible practice recommendations about the use of EM, setting themselves up as the experts, colonising the space that probation and penal reform interests should long ago have occupied, but failed to do so because they "disliked" EM, and paid no heed to the reasonable models of integrated EM use that had developed in mainland Europe since 2000. This was a damaging political mistake, a massive misjudgment by probation about the implications of digital technology in criminal justice, and a dereliction of duty to shape the way technologies are developed and used. There is in the present era no alternative to doing this. The silence of probation and penal reform interests ceded ground and authority to rightwing think tanks on EM and allowed EM to be talked up as more more politically important and central than it ought to be – tho' at a practice level it is important and useful in some degree, and cannot be dispensed

with in a digital era. If probation and penal reform interests do not shape EM technologies in ways that are commensurate with their values and aspirations they will be shaped – as they already are being - by interests inimical to probation and all it has stood for. **The task for the Probation Institute – in conjunction with the concerned police officers and penal reform groups - should be to reclaim the debate on the useful technical possibilities of EM from Policy Exchange and Reform, while at the same time supporting their critique of the Ministry of Justice contracting model.**

References

Greg Allen, "Pastor Offers Sex Offenders A 'Miracle': A New Start," National Public Radio, December 4, 2009, at:
http://www.npr.org/templates/story/story.php?storyId=121089157

Bales W, Mann K, Blomberg T, Gaes G, Barrick K, Dhungana K and McManus B (2010) *A Qualitative and Quantitative Asessment of Electronic Monitoring*. Report for the National Institute of Jusitce. Miami: Florida State University

Belur J et al (2017) A Systematic Review of the Effectiveness of the Electronic Monitoring of Offenders
http://whatworks.college.police.uk/About/News/Pages/Electronic-monitoring.aspx

Bonta J, Rooney J and Wallace-Capreta S (2000) Can Electronic Monitoring make a difference? An evaluation of three Canadian programmes. *Crime and Delinquency 46(1) 6--75*

Button D, DeMichele M and Payne B (2009) Using Electronic Monitoring to Supervise Sex Offenders: legislative patterns and implications for community corrections. *Criminal Justice Policy Review* 20(4) 414 436

Council of Europe (2014) *Recommendation CM/Rec(2014)4 of the Committee of Ministers to member States on electronic monitoring.* Adopted by the Committee of Ministers on 19 February 2014.

Erez E and Ibarra P R (2007) Electronic Monitoring and Victim-Re-entry in Domestic Violence Cases. *British Journal of Criminology* 47(2) 100-120

Erez E, Ibarra P, Bales W and Gur O (2012) GPS Monitoring Technology and Domestic Violence : an evaluation study. Washington: National Institute of Justice

Finn M A and Muirhead-Steves S (2002) The Effectiveneness of Electronic Monitoring with Violent Male Parolees. *Justice Quarterly* 19 (2) 294-312

Doffing D (2009) Is there a Future for RF in a GPS World? *Journal of Offender Monitoriing* 22(1) 12-15

Fox I (2012) Re-tender of Ministry of Justice (MoJ) Electronic Monitoring (EM) Contract from April 2013 – an opportunity in the balance? Briefing to Jenny Chapman M.P. London: Probation Association

Gainey R R and Payne B K (2000) Understanding the Experience of House Arrest with Electronic Monitoring: an analysis of quantitative and qualitative data. *International Journal of Offender Therapy and Comparative Criminology* 44(1) 84-96

Geis S V, Gainey R, Cohen M I, Healy E, Duplantier D, Yeide M, Bekelman A, Bobnis A, Hopps M (2012) *Monitoring High Risk Offenders with GPS Technology: An Evaluation of the California Supervision Programme*. Final Report. Washington. National Institute of Justice.

Geohegan R (2012) *Future of Corrections: exploring the use of electronic monitoring.* London: Policy Exchange

Graham H and McIvor G (2015) Scottish and International Review of the Use of Electronic Monitoring. Part 1- Purposes, Uses and Impact of Electronic Monitoring: Part 2 – Comparing Electronic Monitoring Technologies Edinburgh: Scottish Government

Hearn D (2013) Tracking Patients On Leave from a Secure Setting. *Mental Health Practice* 16(6) 17-21

Hucklesby A (2008) Vehicles of Desistance? The impact of electronically monitored curfew orders: *Criminology and Criminal Justice* 8. 51-71

Hucklesby A (2009) Understanding Offender's Compliance: A case study of electronically monitored curfew orders. *Journal of Law and Society* 36(2) 48-71

Ibarra P (2005) Red Flags and Trigger Control: the role of human supervision in an alectronic monitrong programme. *Sociology of Crime, Law and Deviance* 6 31-48

Ibarra P, Gur O and Erez E (2014) Surveillance as Casework: Supervsiing Domestic Violence Defendants with GPS Technology. Crime, law andSocail Change 62 417-444)

Jones R (2014) *The Electronic Monitorng of Serious Offenders: is there rehabilitative potential?* Research Paper: School of Law . Edinburgh: University of Edinburgh

Lockhart-Mirams G, Pickles C and Crowhurst E (2015) Cutting Crime: the role of tagging on offender management. London: Reform.

Ministry of Justice (2012) *Punishment and Reform: effective probation services.* London: Ministry of Justice. Cm 8334

Mair G (2006) Electronic Monitoring in England and Wales: evidence-based or not? *Criminology and Criminal Justice* 5(3) 257- 277

Mair G and Nellis M (2013) Parallel Tracks: probation and electronic monitoring in England, Wales and Scotland, in Nellis M, Beyens K and Kaminski D (eds) *Electronically Monitored Punishment: international and critical perspectives.* London: Routledge 63-81

Marklund F and Holmberg S (2009). Effects of early release from prison using electronic tagging in Sweden. *Journal of Experimental Criminology, 5(1),* 41-61

Martinovic M (2010) *The Complexity of Punitiveness of Electronically Monitored Sanctions: the western words analysis.* Saarbrucken, Germany Lambert Academic Publishing.

National Audit Office (2017) *The New Generation Electronic Monitoring Programme*. London: National Audit Office

Nellis M (2009c) Surveillance and Confinement: Understanding Offender Experiences of Electronically Monitored Curfews *European Journal of Probation* 1(1) 41-65

Nellis M (2012) The GPS Satellite Tracking of Sex Offenders in the USA. in Brayford J, Cowe F, and Deering J (eds) *Sex offenders: Punish, Help, Change or Control*. London: Routledge

Nellis M (2014a) Understanding the Electronic Monitoring of Offenders in Europe; expansion, regulation and prospects (2014). *Crime, Law and Social Change*

Nellis M (2014b) Upgrading Electronic Monitoring, Downgrading Probation: reconfiguring "offender management" in England and Wales *European Journal of Probation* 6(2) August 2014

Nellis M (2015) Underusing Electronic Monitoring in Scotland. *Journal of Offender Monitoring* 26(2) 10-18

Nellis M, Beyens K and Kaminski D (eds) (2012) *Electronically Monitored Punishment: international and critical perspectives.* London: Routledge

Paterson C (2007) Commercial Crime Control and The Electronic Monitoring of Offenders in England and Wales. *Social Justice* 34(3-4) 98-110

Payne B K and Gainey R R (1998) A Qualitative Assessment of the Pains Experienced on Electronic Monitoring. *International Journal of Offender Therapy and Comparative Criminology.* 42(2) 149-163

Padgett K, Bales W and Blomberg T (2006) Under Surveillance: an empirical test of the effectiveness and consequences of electronic monitoring. *Criminology and Public Policy* 5(1) 103-108

Pepper M and Dawson P (2015) Alcohol Abstinence Monitoring Requirement: a process review of the proof of concept pilot. London: MOPAC Evidence and Insight Unit

Pratley N (2016) Capita capitalizes on robots before new chair Powell powers in. *The Guardian* 9th December 2016.

Probation Chief's Association (2012) *Response to "The Future of Corrections: Exploring the Use of Electronic Monitoring by Rory Geohegan.* London: Probation Chief's Association

Raho D (2014) *The Curious Case of the Use of Reporting Kiosks in the UK Probation Service – Robohero or Roboflob?* Paper presented at the 6th Bi-annual Surveillance and Society conference, Barcelona 24th-26th April 2014

Renzema M and Mayo-Wilson E (2005) Can Electronic Monitoring Reduce Crime for Medium to High Risk Offenders? *Journal of Experimental Criminology* 1(2) 215-237

Renzema M (2012) Evaluative Research on Electronic Monitoring. in Nellis M, Beyens K and Kaminski D (eds) *Electronically Monitored Punishment: international and critical perspectives* London: Routledge

Schmidt A (1998) Electronic Monitoring: what does the literature tell us? *Federal Probation.* December 1998. 10-19

Staples, W. G. (2005). The Everyday World of House Arrest: collateral consequences for families and others. In C. Mele & T. Miller (Eds.), *Civil Penalties, Social Consequences.* New York: Routledge. 139-159

Sugg D, Moore L and Howard P (2001) *Electronic Monitoring and Offending Behaviour - reconviction results for the second year of trials of curfew orders. Findings 141.* London: Home Office.

Susskind R and Susskind D (2015) The Future of the Professions: how technology will transform the work of human experts. Oxford. Oxford University Press.

Taylor F and Ariel B (2012) *Protocol: Electronic Monitoring of Offenders: a systematic review of its effects in recidivism.* Oslo: Campbell Collaboration

Tully J, Cullen A E, Hearn D and Fahy T (2015) Service Evaluation of Electronic Monitoring (GPS tracking) in a Medium Secure Forensic Psychiatry Setting. The Journal of Forensic Psychiatry and Psychology 2-8

Vanhaelemeesch D and Vander Beker T (2012) Electronic Monitoring: convict's experiences in Belgium. in *Social Conflicts, Citizens and Policing.* Antwerp: Government of Security Research Paper Series (GofS) Series 6

Vanhaelemeesch D, Vander Beker T and Vandevelde S (2013) Punishment at Home: offenders' experiences with electronic monitoring. *European Journal of Criminology*