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AN OVERVIEW OF THE RESEARCH INTO THE EFFECTIVENESS OF ELECTRONIC MONITORING AS AN ALTERNATIVE SANCTION

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SUMMARY

The aim of this article is to offer an overview of the most recent scholarly advances concerning electronic monitoring as a measure and/or sanction, as it has appeared in criminal justice practice since the 1980s. Furthermore, the article offers guidelines for the development and further implementation of this measure in the Republic of Croatia. Electronic monitoring has been implemented in numerous countries worldwide. The general acceptance of electronic monitoring is the result of striving to reduce the prison population and reduce the high costs associated with it.

Based on the extant literature, we notice a lack of interest in the matters related to electronic monitoring in the Republic of Croatia. Both the scholars' and the professionals' interest is directed towards the functioning of the probation service, while the topic of electronic monitoring is mentioned rarely, and predominantly in the context of problematizing the entire probation system. We thus note a lack of scientific and applied written work on this very important topic, particularly in the Croatian context, where this particular alternative sanction is about to be introduced.

Planning and implementation of electronic monitoring in the Republic of Croatia form part of the reform of Croatian criminal justice system and it is thus of great importance, based on the knowledge and experience of international practice, to gain insight into the conditions necessary for the planning and introduction of electronic monitoring in the Croatian criminal justice system

Keywords: *alternative sanctions, electronic monitoring, effectiveness*

INTRODUCTION

Electronic monitoring of the criminal offenders has been in use worldwide for more than two decades, but there is a notable lack of convergence in the Recommendation on electronic monitoring

for the use of this particular type of sanction. Though it was initially used solely as a means of monitoring non-violent offenders in the community, the development of the technology has allowed for this type of sanction to be used at all phases of the criminal proceedings.

Research on the effectiveness of this sanction is common in those countries that apply the method, with its aim being the improvement of the practice of electronic monitoring and effective protection of the community.

Since the use of electronic monitoring has not yet become part and parcel of the Croatian criminal justice system, there is also a corresponding lack of interest in the topic among the scholars and professionals. With this in mind, this article offers an overview of the current research on the effectiveness of electronic monitoring, and the dilemmas, advantages, and disadvantages of the method and its application. This analysis is of particular relevance to the scholars who will be examining the effectiveness of electronic monitoring once it is introduced in Croatia, and to the practitioners who will be presented with the task of implementing this sanction. Along with these benefits, the paper also offers the necessary guidelines for the development and quality implementation of this sanction in the community.

DEFINITION AND DESCRIPTION OF THE CONCEPT OF ELECTRONIC MONITORING

In the broadest sense, electronic monitoring is a technology used in the criminal justice system in order to track and monitor the offenders. One may also define it as a programme of intense supervision in the community (Crowe et al., 2002). Ardley (2005) defines electronic monitoring as a system of house arrest aimed at tracking, controlling, and altering the defendant's or the perpetrator's behaviour. Levin (2011) defines electronic monitoring as an alternative sanction within the community and a tool of supervision in probation, which provides an alternative to imprisonment. The use of this technology has become widespread since the 1980s, as have the endeavours in conceptualizing the term. In some countries, electronic monitoring is a type of alternative sanction, while in others it is meted out as an accompaniment to another form of punishment. In the Council of Europe member states, electronic monitoring is used in the following ways, as:

- a main sanction
- an alternative sanction
- a way of implementing the prison sentence
- a condition of parole
- a condition related to dropping of charges, sentence, or the implementation of the sentence (Council of Europe Annual Penal Statistic II, 2011).

The analysis of the relevant documents indicates that the CoE members are only using electronic monitoring on rare occasions. France and Great Britain (England and Wales) are countries with the greatest incidence of electronic monitoring, and when used, it is considered the primary sanction (Council of Europe Annual Penal Statistics I, 2011; Smith, 2001). In 2009, electronic monitoring had also been used in Belgium, Denmark, Luxembourg, Netherlands, Norway, Poland, Spain, Sweden, and Switzerland. In all of these countries, electronic monitoring is used as a way of implementing the prison sentence. Additionally, Estonia and Norway had used the measure as a condition of parole (Council of Europe Annual Penal Statistic II, 2011).

In those countries that are implementing electronic monitoring in their criminal justice systems, the method is used as part of probation, i.e., probation affairs.

According to the Republic of Croatia's Probation Act (NN, 153/09), *probation is a conditional and monitored freedom of the criminal perpetrator, during which the probation officers implement such procedures that are aimed at the reduction of risk of recidivism*. According to this definition, electronic monitoring as an extra-institutional measure or sanction is probation, since it is implemented outside an institution, with intense monitoring, and the behaviour in line with the conditions of electronic monitoring is actually a condition of remaining free of imprisonment.

The tasks of probation also include those that are conducted with the goals of protecting the community from the perpetrator, his/her resocialization and reintegration in the community, by means of affecting the risk factors of criminal activity, and by taking part in the assistance or restitution to the victim, plaintiff, the victim's family, and the the perpetrator's family (Probation Act, NN 153/09)

All of these tasks of probation are also recognized and reflected in the implementation of electronic monitoring. Even though the reduction in the overcrowding of prisons, and a related decrease in the costs of the prison population to the government, is one of the main reasons for the introduction of electronic monitoring, these aims may only appear to be achieved. If no effort concerning the rehabilitation of the perpetrators is made, facilitating a long-term change in behaviour, then the end of monitoring also leads to a loss of control over the offender, which is in turn followed by a high degree of recidivism. All the tasks of probation listed above ought to be conducted for the duration of electronic monitoring, and with the aim of rehabilitating the offenders, and the aim of necessary protection of society from those offenders that may cause additional harm.

It is necessary to note that the use of electronic monitoring is possible in multiple stages, and can be implemented during the investigation, as a main or alternative sentence, or as a measure of conditional release (Brå, 2007; Ardley, 2005; Black and Smith, 2003).

CRITERIA FOR THE OFFENDERS' INCLUSION IN ELECTRONIC MONITORING

Determining the suitability, and placement of offenders in supervision by means of electronic monitoring may be based on law, judicial decisions, or decisions of relevant services. It is necessary for those who are responsible for these decisions to have a clear list of criteria for the selection of offenders into the electronic monitoring programme. The criteria for acceptance to or rejection from the programme ought to be considered in the process of making the decisions.

Table 1: Sample criteria for the inclusion and rejection of offenders into the electronic monitoring programme (Connelly, 1999; prema Crowe i sur., 2002)

Inclusion criteria	Rejection criteria
<ul style="list-style-type: none"> -no serious history of crime -desire and motivation to complete the terms of the programme -the offender is generally caring towards children and other family members -the offender's pregnancy -the offender financially supports his/her family -the offender has health care needs that are best met in the community -the victim agrees with the offender's release into the community -the offender can take part in in-community treatment (drug and/or alcohol addicts, sex offenders, abusers/molesters) -there is a reasonable expectation that the safety of the community will be preserved 	<ul style="list-style-type: none"> -significant criminal history history of violence or sex offences (current or past) -inappropriate behaviour during imprisonment history of failed in-community alternative sanctions -the offender is to stay in the community with the victim (cases of family violence, child abuse or neglect) -the existence of drug abuse or mental health issues that prevent the offender from being in full control of his/her behaviour -the victim is opposed to the offender's release into the community -the offender has advanced technical knowledge, or works for a company that deals in electronic technology

Table 1 lists the sample criteria that may influence the inclusion or rejection of offenders into the electronic monitoring process. It should be noted that there exist no correct or incorrect sets of criteria for the selection (Crowe et al., 2002; *The Electronic Monitoring of Adult Offenders*, 2006). The decision needs to be made based on consideration of individual cases, the offender's characteristics, taking into

account their personality, criminal history, success in implementing past measures (if there had been any), and assessing the opportunities for success in their social surroundings, family situations, victim(s), and the overall safety of the community. The most important element in the decision is the assessment of whether the offender is a danger to him/herself and/or the community. Some criminal justice systems (e.g. USA, New Zealand) legislated the option of utilizing electronic monitoring of violent offenders released on parole, who can be a major risk for the community. In the US, it is

possible to conduct electronic monitoring over the most dangerous offenders even after the expiration of their sentence, all with the aim of ensuring the safety of the community (Padgett, Bales and Blomberg, 2006). In some countries, however, electronic monitoring is only used as an alternative sentence or measure for those offenders that represent only a low risk to the community (Brå, 2007).

Individual assessment of the offenders and the aim of supervision through electronic monitoring ought to be the main guidelines in determining which among them are well suited for electronic monitoring, but given the variety of assessments and criteria found across countries, finding a set of universal guidelines for the final decision is exceedingly difficult (Crowe *et al.*, 2002).

The type of committed felony should also be considered in the process of making the decision on electronic monitoring. Some legal systems have set lists of categories of criminal acts for which the measure of electronic monitoring may be implemented (e.g. Sweden - non-violent crimes, if electronic monitoring is set as an alternative to a prison sentence), but the type of crime is a more important criterion when it comes to electronic monitoring as an alternative to prison, rather than in cases of it being a measure of conditional release (Schmidt, 1989; Smith, 2001; Peterson, 2007-08). However, this is not, and ought not be the only criterion for the decision on electronic monitoring. Taking into account all issues noted above, there are some categories of felonies whose perpetrators are considered more appropriate for selection into the electronic monitoring programme.

Connelly (1999; in Crowe *et al.*, 2002) list the felonies for which electronic monitoring is most commonly considered or used: fraud, breach of trust, possession or dealing of drugs, driving while intoxicated, driving without a driver's licence, driving with a suspended licence or a driving ban, theft, credit card fraud, embezzlement, gun possession, libel, and minor physical attack without a history of violent behaviour, robbery without bodily harm.

This list is dominated by non-violent crimes, but it is important to note that the list was created at a time when electronic monitoring had just been introduced in the western countries, and there had been little research on the matter, which meant that the implementation of the measure among the low-risk offenders only carried a lower level of risk for the community. As the technology developed, the potential for use of electronic monitoring expanded as well, so that nowadays even the perpetrators of violent crimes (e.g. violence in the family, sex crimes, and other) may be selected for the programme if they satisfy the remaining criteria. Nonetheless, the perpetrators of violent crimes are more commonly subject to this sort of electronic surveillance as part of parole, while those who had committed non-violent crimes are more often chosen to take part in the measure as an alternative to a prison sentence. In the latter cases, electronic monitoring most often replaces the sentences of up to a year's imprisonment.

AN OVERVIEW OF THE RESEARCH ON THE EFFECTIVENESS OF ELECTRONIC MONITORING

The evaluation studies of programmes of electronic monitoring have commenced in parallel with the spread of this technology itself. Most of this research has encountered the problems of partial implementation, problems in the functioning of the technology, and poor research design. The findings of existing studies vary.

Gendreau et al. (2000; in Renzema and Mayo-Wilson, 2005) find that there is a 10% reduction in recidivism in those studies that included the treatment in combination with primary interventions of intense supervision, including, among others, electronic monitoring. Finn and Muirhead-Steves (2002; in Renzema and Mayo-Wilson, 2005) compared a group of convicts under electronic monitoring with a group of male offenders who were facing some type of sanction to be implemented in the community, but without electronic monitoring. They found that the effectiveness of electronic monitoring, as measured by the returns to jail and recidivism in the three years following the initially noted sanction, had increased in the subgroup of sexual offenders. There, the recidivism rate was smaller in comparison with the control group, but the difference may also be attributed to the fact that the latter group had not been subject to the same level of intense treatment during the implementation of their sentence. In other words, the experimental group had had the opportunity to take part in more wide-ranging treatment than the control group had.

Bonta, Wallace-Capretta and Rooney (2000b) included two groups in their research design in order to assess the impact of electronic monitoring on recidivism: a group of offenders released conditionally with electronic monitoring, and a group of offenders on parole who had not been subject to electronic monitoring. They found that the lowest recidivism rate (26,7%) was found among the electronically monitored offenders. The rate was 33.3% for offenders on probation, and 37.9% for those who were conditionally released, but without supervision. The research period in this study was one year from the end of one's sentence. It is interesting that, when controlling for the level of risk, and the level of needs, no statistically significant differences were found among these groups. The electronically monitored group was assessed as less risky than the others, even though the intent was to place the riskier population under surveillance and in this way protect the community from new crime. The results of this research indicate that the offender's assessed risk level may have more of an impact on the probability of recidivism than the type of supervision implemented.

The research by Sugg et al. (2001; in Renzema and Mayo-Wilson, 2005) aimed to evaluate the electronic monitoring programmes among the high-risk convicts in Manchester, Reading, and Norfolk. Their results show that the rate of return to crime did not differ between the control group, the group that was sentenced to measures in the community and without surveillance, and the group which was subjected to electronic monitoring.

Similarly, Bonta, Wallace-Capretta and Rooney (2000a; 2000b) conducted a research project concerning the effectiveness of electronic monitoring with regard to the level of risk associated with the perpetrator. They concluded that electronic monitoring in combination with intense treatment contributes to a decline in recidivism in high-risk convicts, while this effect was much less prominent in the low-risk group. However, these results are not completely surprising. According to Andrews and Bonta (1998; in Bonta, Wallace-Capretta and Rooney, 2000a), the treatment applied to the low-risk offenders was deemed to have a marginal effect on recidivism. Some of the reports note that the intense treatment of low-risk offenders may in fact result in an increase of recidivism (Andrews and Bonta, 2010). This may be caused by the criminogenic impact that the high-risk offenders have on the low-risk offenders. It is necessary to adjust the treatment to the needs of the offenders, regardless of their assessed risk level. It is not realistic to expect that the same treatment would have the same effect on all groups of offenders, necessitating the proper adjustment of intervention to the needs of the offenders.

Therefore, the research on the effectiveness of electronic monitoring as a stand-alone sanction is not able to confirm a significant effectiveness of this type of monitoring in the community, when compared to the other alternative sanctions. However, it is notable that there is an impact of intense treatment and electronic monitoring when combined. Much of the research in this area has found positive effects of electronic monitoring on the success of the prescribed sanction (Sugg, Moore and Howard, 2001; Padgett, Bales and Blomberg, 2006; Bonta, Rooney and Wallace-Capretta, 1999; Burrell and Gable, 2008), but most of the projects also noted that there is no difference in post-supervision recidivism when compared to the control groups (OPPAGA Report, 2005; Stacey, 2006; Wood and Grasmick, 1999). Nevertheless, Bonta, Wallace-Capretta and Rooney (2000b) have found significant results in their research, as they confirmed that the combination of electronic monitoring and intense treatment reduce recidivism even after the treatment's end.

Padgett, Bales and Blomberg (2006) conducted a properly controlled evaluative research project which included 75,661 convicts under house arrest in the 1998-2002 period. Their results showed that the violent offenders monitored via GPS had 91.2% fewer attempts to escape than those violent offenders who were not electronically monitored. However, the key result of this project was the surprising effectiveness of electronic surveillance in preventing new crime during the monitored period. Additionally, they concluded that electronic monitoring is equally successful for all types of high-risk offenders.

Markund and Holmberg (2009; in Yeh, 2010) included 260 offenders in their study of Sweden's criminal justice system and implementation of electronic monitoring. The offenders were sentenced to a minimum of two years in prison, and were conditionally released to serve the final parts of their sentences in house arrest. They were electronically monitored, with the obligation to work or study

for a minimum of four hours a day, while forced to spend the rest of the time in their home. The finding of the project was that 26% of the electronically monitored offenders were convicted of another crime in the three years after their sentence was completed. The recidivists made up 38% of those who were not subject to electronic monitoring. Markund and Holmberg (2009; in Yeh, 2010) have also studied the nature of the new crime. Thus the rate of serious criminal offences in the electronically monitored group was 14%, and 26% in the control group. These results may suggest a significant impact of electronic monitoring on the prevention of recidivism, both during the monitoring period, and after the end of supervision. However, the question of whether the results truly stem from the fact of electronic monitoring, or from other factors that the offenders were exposed to during supervision.

The evaluations of electronic monitoring and conditional release with the measure of electronic monitoring conducted in Sweden have shown several aspects of the positive impact of electronic monitoring (Stanz and Tewksbury, 2000; Brå, 2007). The results have shown that only a couple of the offenders placed under electronic monitoring or conditionally released with the measure of electronic monitoring were actually recalled for violating the rules of the programme. Both the offenders and their family members had predominantly positive experiences with electronic monitoring, and here an increase in recidivism was not noted. Conditional release with the measure of electronic monitoring has also had a positive impact on the recidivism rate among the older offenders (Brå, 2007). Since longer-running studies have not been conducted yet, one cannot claim with certainty what the results would be after a longer period of implementation of the measure/sanction. However, the research conducted in the six months after the end of electronic monitoring has found improvements in both family relations and in employment.

Killias et al. (2010) included 240 Swiss convicts in their research, all of whom had been subject to either electronic monitoring, or another alternative measure implemented in the community. In terms of social integration, the electronically monitored offenders achieved better results than others. They were found to be more likely to marry and live in adequate financial conditions.

A significant decrease in recidivism was found in the research by National Audit Office U.K. (2006). They found a 51% recidivism rate in the first two years after the end of the sentence among those who were sentenced to alternative sanctions, while the proportion was just 12% among those subject to electronic monitoring. It is also important to note that these types of differences may be affected by a selection problem, whereby those who are considered less likely to commit further crimes are selected for the electronic monitoring programme.

According to the findings of Stanz and Tewksbury (2000) and Bungerfeldt (2011), there is a definite impact of age. It is a well-known dictum in criminology that an increase in age brings about a drop in criminal activity. Older persons are generally more mature and responsible than the youths, and are

enticed to honor the rules of electronic monitoring and avoid criminal activity due to their concern for their families, employment and reintegration in the community.

The length of time spent in the programme has also been demonstrated as a significant predictor of success. Some of the earlier work (Roy, 1995) found that longer sentences were correlated with a lack of success in implementing the programme. One of the explanations of these results may be that longer sentences were given to the persons who had committed more serious crimes, or multiple crimes, and had seen recidivism in the early stages of the programme.

The number of crimes committed by the individual taking part in the programme has also been a significant factor in explaining the success and low recidivism. The explanation behind this positive correlation is that the offences that most often got the participants into the electronic monitoring programme were related to driving while intoxicated. Thus those who were charged with this crime were also likely to be charged with driving without a licence, without registration, or insurance (Stanz and Tewksbury, 2000). While hardly comparable to multiple serious crimes, these offences still count as multiple crimes.

THE MAJOR DILEMMAS IN THE AREA OF ELECTRONIC MONITORING

There exists a whole spectrum of potential uses for the electronic monitoring technology. Its great advantage is the possibility of a reduction in the size of the prison population, as well as budgetary savings from a lesser need for new prisons and penitentiaries. It may also contribute to a lowering of the daily cost of upkeep of offenders, when compared to incarceration. Another advantage is the potential for advances in the offenders' rehabilitation, and their reintegration into the community. Electronic monitoring provides the possibility of employment for some of the offenders, depending on the purpose of the supervision. Along with all of these benefits, electronic monitoring provides more opportunities for contact with family and allows for a reduction in the negative effects of incarceration. However, wearing the device itself may be incurring some psychological pressure.

The dilemmas concerning electronic monitoring, as discussed in the literature, may be grouped into four types.

1) Privacy

The issue here is the disruption of the offender's privacy, as well as that of their family, which may present a breach of their basic human rights. All countries that have introduced electronic monitoring have also allowed for a process of selection, which includes the offender's right to opt out of the programme (Mair, 2005). If the family situation in the offender's home is not suitable for the implementation of electronic monitoring, the programme is not offered to them as a sanction. Thus,

both the offenders and the members of their households have the right to decide on the participation in the programme. If they agree to take part and replace a prison sentence with electronic monitoring, they are also agreeing to limits on the freedom of movement and limits on the activities they make partake in. (Crowe et al., 2002).

2) Net widening

One of the shortcomings of electronic monitoring as an alternative sanction is certainly the net widening of social control, or implementing electronic monitoring, as a harsher sanction, for some offenses that were previously sanctioned by supervision or probation (Fox, 1987; in Black and Smith, 2003; Renzema, 2005; Erez and Ibarra, 2007).

As noted by Ardley (2005), this problem may be interpreted in two ways:

a) as an imposition of electronic monitoring to persons that would otherwise not be considered for the programme, with the aim of ensuring safety for the community, even when their offense is not such that would warrant this type of supervision.

b) the use of electronic monitoring may result in an increase of abuse of the system, which may in turn lead to an increase in prosecution and sentencing

"Net widening" has often been mentioned in the literature as a main shortcoming of electronic monitoring (Brå, 2007; Gibbs and King; 2003a and 2003b, Bungerfeld, 2011), but it makes more sense to say that it is a result of an insufficiently organized system. The planning process of electronic monitoring ought to set the core criteria for selection, and use existing practice to determine which groups of offenders are well-suited for it. Good communication between the probation office and the court is necessary, meaning that a judge should be able to access the probation service reports, opinions, and risk assessments prior to sentencing. This type of cooperation and corresponding education of all professionals included in the process ought to limit the problem of widening of the net of social control.

3) The safety of the community

The research on public opinion concerning the offenders in the community indicates that the respondents find the community's safety as the primary concern (Electronic (Radio Frequency) and GPS Monitored Community Based Supervision, 2006; Elzinga and Nijboer, 2006). The public has little understanding for the programmes that reintegrate the convicts into the community and are guided by media and the political scene in their opinion formation. Media focus on serious crimes has resulted in a reduction of concern for personal rights and liberties of the convicts and the support for harsher sentencing.

The public responds in this manner due to a lack of information about electronic monitoring in general, and a lack of information about the offenders that are serving their sentences in the community. Along with this lack of information, additional confusion results from the conditional release of both high and low risk convicts. Those assessed as high-risk are placed under electronic monitoring, so that their risk behaviour may be supervised, while the others are included in electronic monitoring as a potential means of reintegration, as they get to return to their homes, jobs, all while supervised and supported. These efforts are aimed at assisting the offender, but also at protecting the community by means of controlling recidivism (Peto Kujundžić i Vukota, 2009).

The ability of the public to trust the courts to protect them from dangerous criminal acts is crucial. If the courts are able to ensure that the convicts are removed from places in which they may commit a new crime, the trust of the general public in the use of alternative sanctions should increase, alongside their sense of safety (Ardley, 2005).

Contemporary public opinion is most commonly affected by the media, which are in turn reporting crime in a sensationalist manner, by accentuating those details that create concern and fear in the community. Quite often, this way of reporting crime encourages citizens to advocate harsher sentences and to pressure the courts to implement them (Ardley, 2005; Moore, 2005). In this manner, a great imbalance is created, with an increasing availability of alternative sentences, and the public's increasing demand for harsher punishment.

One of the main problems related to electronic supervision is the fact that the offender cannot be physically prevented from a criminal act, so that there is always the possibility that one would be committed before the relevant services have a chance to intervene. There is also the possibility that the victim or the community would find that the offender was sentenced too leniently for the committed crime.

This problem can only partially be solved through the provision of additional information concerning the ways in which this sanction is implemented, and the criteria for inclusion in the electronic monitoring programme to the public. All information that is provided should be scientifically verified, accurate, and presented by the experts in the subject matter.

4) Social costs

A reduction of costs for the state budget is one of the primary aims of electronic monitoring. An increase in crime has also resulted in the increase in the size of the prison population, which has not been accompanied by construction of additional prison facilities, leading to overcrowding. Alternative sanctions implemented in the community are demonstrably cheaper than incarceration. In the US, house arrest under electronic monitoring costs between 5 and 25 USD per convict/day, significantly less than the 62 USD per convict/day for those in prison (Martin, Hanrahan i Bowers,

2009). The costs in Sweden exceed those in the US, but are also showing that electronic monitoring is more affordable, with the cost of 89 EUR per convict/day, while it costs 180 EUR to place an offender in minimal security penitentiary for a day (Bungerfeldt, 2011). It has been estimated that electronic monitoring has decreased the size of Sweden's prison population by 10%, and that it ought to lead to a 30% decrease in the future, which ought to result in significant savings for the state (Bungerfeldt, 2011).

A reduction of costs for the state budget is also reflected in a reduced need for new prisons. Since most convicts under electronic monitoring have the ability to be employed, pay taxes, and support their families, there should also be less of a need for the family to receive welfare support.

COST-BENEFIT ANALYSIS OF ELECTRONIC MONITORING

For many countries, the aim of introducing electronic monitoring into the criminal justice systems was to reduce prison overcrowding, but predominantly the potential to save public funds. However, it is not just the difference in costs that makes electronic monitoring financially more sound than incarceration. There is a reduction in the need to build new prisons, which is a significant saving, but there are also social costs that are mitigated by the use of electronic monitoring. However, even as the literature notes the benefits and reduced costs, some hidden costs of electronic monitoring are noted as well (Alladina 2011).

There are four categories of costs that need to be further investigated (Crowe et al., 2002):

- 1) measurable costs - expected costs, as a monetary value
- 2) non-measurable costs - costs incurred in cases of expected events which bear non-measurable costs
- 3) measurable gains - potential financial savings to be made by implementing electronic monitoring
- 4) non-measurable gains - expected, but non-measurable savings made by implementing electronic monitoring

The cost-benefit analysis is complex in this case, but it is also necessary in order to reach conclusions about the potential savings to be made by implementing this type of supervision programme. All potential costs and benefits must be taken into account prior to making the final decision on whether or not to implement electronic monitoring into the criminal justice system.

Costs

Crowe et al. (2002) suggest that multiple pieces of information must be taken into account in order to calculate the measurable costs: 1) the number of offenders who are well-suited for

supervision by means of electronic monitoring; 2) an assessment of frequency and length of use of electronic monitoring, 3) the costs of electronic monitoring equipment and support, and supervision services; 4) the personnel costs (salaries, education); 5) costs of in-community treatment.

Non-measurable costs are those that may appear under some circumstances, but cannot be predicted with certainty. For example, costs incurred by abuse of electronic monitoring may be included in this category. This applies to both technical abuse, or new felonies, since both create new court proceedings and costs, costs of stay in detention, possible costs of restitution, and cost of treatment of the victim, in case of physical injury or psychological trauma (Renzema, 2003). Another type of cost that should be mentioned here are those incurred by "net widening", since electronic monitoring might get used even in cases which would normally see the implementation of more affordable measures of supervision in the community. This would create new costs, which goes directly against the reasons electronic monitoring was introduced in the first place.

Benefits

The measurable benefits from implementing electronic monitoring can be discerned by looking into the existing costs of treating the target population, in relation to the expected costs of introducing electronic monitoring. Some examples of savings are noted by Crowe et al. (2002):

- 1) electronic monitoring in the period of investigation (detention of the suspect in their own home, rather than in custody)
- 2) conditional release from prison, which reduced the total cost of imprisonment
- 3) electronic monitoring as supplement to the treatment, which ensures the attendance and its successful completion, and subsequently reduces the costs of new treatment
- 4) electronic monitoring as means of supervision and sanctioning reduces the rate of recidivism, as well as the costs brought about by new crime.

The savings also depend on the type of electronic monitoring technology, with the costs of using radio frequencies being lower than the cost of GPS, but require that the officials' workload and overtime work be taken into account.

By introducing electronic monitoring as a replacement (complete or partial) to incarceration, a criminal justice system reduces the overcrowding of prisons and the need for the construction of new facilities, thus creating multi-million savings.

Non-measurable benefits and gains can be the result of utilizing electronic monitoring, and is observed in expected, but non-measurable savings. It is not possible to determine precisely the potential savings for the criminal justice system and the society which stem from a reduction in recidivism rates. Recidivism can be defined in different ways, so that, depending on the definition, it includes new arrests, new sentences, imprisonment for new felonies, or for technical breaches of the

terms of electronic monitoring, or some combination of above conditions (Crowe et al., 2002). Recidivism is causing additional costs, so its reduction creates significant benefits, but it is impossible to provide a reliable estimate of their monetary value. It is important to note the savings in social costs. These include the reduced costs to victims, which has already been mentioned as a non-measurable factor, but also the savings and benefits to the convict, who is able to be employed and not rely on welfare.

POTENTIAL AND GUIDELINES FOR THE IMPLEMENTATION OF ELECTRONIC MONITORING IN CROATIA

The Republic of Croatia is in the midst of a reform of its criminal justice system, as part of the reforms necessary for membership in the European Union. The aim of the reform is to implement the EU's *acquis communautaire*, and to achieve the European standards and increase effectiveness and affordability (Action plan for the development of probation in the Republic of Croatia, for 2010-2014). In line with the activities listed in the Action Plan, a Commission for electronic monitoring has been established, with the aim to formulate recommendations and guidelines for the use of electronic monitoring in Croatia. Planning the implementation of electronic monitoring, as well as the creation of guidelines for its use are the most important parts of the process of adding electronic monitoring to the tools available to the criminal justice system. At this point, electronic monitoring is a new technology in Croatia, and most of the experts in the field are not acquainted with the technology and its aims.

Apart from creating the material and technical, organizational, and personnel-related preconditions of implementation, it is also necessary to consider the preconditions related to the acceptability of electronic monitoring. These activities ought to be directed at the public, in terms of communicating the information on the effectiveness and contribution to the security of the community, and in terms of communicating the benefits to those who will be subject to electronic monitoring (i.e. less stigma and less harm, when compared to incarceration).

The guidelines for the development and implementation of electronic monitoring must include well-developed criteria for inclusion in the programme, a definition of its main purpose, the way in which the sanction would be applied (i.e. as the sole sanction, or as part of a broader sentence), and the type of technology that would be used.

One of the groups that could be suitable for inclusion in the electronic monitoring programme are those that are held in detention for the duration of the investigation. Even though the law foresees the possibility of detention in one's home for the duration of the investigation, most judges are unwilling to prescribe this measure and only rarely do so. One of the possible reasons for this is that

they are concerned about the risk to the community that the accused returns to without appropriate supervision. A part of the prison system would certainly see less pressure if the measure of detention in one's home with electronic monitoring when necessary. That way the accused would not be allowed free movement, fulfilling the purpose of detention for the duration of investigation, and the safety of the community would be preserved. According to the Guidelines concerning the procedure and implementation of investigative detention in the home (NN 65/2010), the supervision over the implementation of this measure falls in the jurisdiction of the office for probation. Here, the probation officers' work would be made significantly easier if electronic monitoring were implemented. It is important to note that electronic monitoring is not necessarily appropriate for all persons in investigative detention in their home, but only for those who are deemed to warrant such a precaution and supervision.

The second group of prisoners that make up a large portion of the prison population are those serving sentences of up to one year in prison. More precisely, the data for 1999-2008, collected by the Croatian Bureau of Statistics indicate that the most common sentence length for the period was up to six months, followed by six months to a year (Turković, 2009). In international practice, these are the categories for which electronic monitoring as an alternative to incarceration is most commonly implemented. The type of offense is also an important, but not the only criterion for determining whether electronic monitoring is appropriate as an alternative sanction. The relevant literature notes that this measure is most commonly used in the cases of offenses against property, drug abuse, and traffic offenses, as an alternative to short prison sentences.

The implementation of electronic monitoring in Croatia would allow for a greater number of conditional releases, so the offenders on parole might be a third category of offenders that can be subject to electronic monitoring. It has become clear that electronic monitoring alongside conditional release allows for the offenders' gradual return to the community after a period of incarceration. This way, the offender still has the support and assistance of the relevant services, and is given time to gradually reintegrate into the community. In this situation, an assessment of criminogenic risks and treatment needs of the convict, along with the report on the social surroundings, make for the base of the decision on the convict's eligibility for conditional release and the need for implementation of electronic monitoring. The type of felony is less relevant in the cases of conditional release with the measure of electronic monitoring in comparison with the above mentioned assessments and reports, and the success of the individual's rehabilitation programme during the period of incarceration.

The guidelines for the implementation of electronic monitoring as an alternative to prison should certainly include the development and implementation of in-community rehabilitation programmes, as these are necessary for eliciting long-term change in the offenders' behaviour. The results of

scholarly work discussed in this paper suggest that a reduction in recidivism is correlated with the offenders' participation in some of the intense treatment programmes while being subjected to electronic monitoring. It is important to note that electronic monitoring could have numerous advantages over incarceration only if its use is based on a pre-set programme for the implementation of the measure, which must include participation in rehabilitation programmes (Martinović, 2002; Šimpraga i Vukota, 2010). The implementation of the sentence in the community with the use of electronic monitoring, but without the treatment activities is not conducive to fostering permanent change. Given that the ultimate aim is to rehabilitate the offenders and reduce recidivism, and not just to achieve a reduction in the overcrowding of prisons and the costs to the budget, the use of electronic monitoring as a sole measure or sanction is unacceptable. However, the measure on its own is acceptable when applied during the investigative procedure, when the accused is placed under house arrest for the duration of the investigation. In these cases, when culpability has not been demonstrated, electronic monitoring only serves the purpose of limiting the accused's movement.

As noted above, the guidelines should include the creation of an individual plan for the completion of the sanction, regular contact with the offender, and the creation of a plan for the entire family, so that the family has full information on the functioning of the technology, the rules that apply, their own role in the supervision, and any support and assistance they may be entitled to.

The reform of the criminal justice system in Croatia has created some space for a wider use of alternative sanctions in the community, but also for the introduction of novel techniques and technologies, such as electronic monitoring. The introduction of electronic monitoring in Croatia's criminal justice system would allow for the solving of the problem of overcrowded prisons, and for more humane punishments, along with the increase of potential for in-community rehabilitation (Report on the functioning of the Probation Office for 2009, 2010). Alternative sanctions implemented in the community present numerous advantages in comparison with imprisonment, but as electronic monitoring in particular offers potential for long-term change, such as a reduction in recidivism, it is important that it is implemented in a way that allows for successful cooperation between courts, the probation service, and other relevant institutions. As this new measure is aimed at rehabilitating the offenders, the availability of community resources for its implementation ought to be ensured (Kovčo Vukadin, Rajić and Balenović, 2009; Milivojević and Tomašković, 2011).

It is not yet known when we may expect the beginning of the implementation of electronic monitoring in the Republic of Croatia. The relevant legislation (Penal Code, Criminal Process Act, Act on the implementation of the prison sentence, Probation Act, Guidelines concerning the procedure and implementation of investigative detention in the home) do foresee its use and clear the way for the implementation of the technology. However, we are not acquainted with the state of

development of guidelines, regulations and instructions that would determine the procedure and the necessary cooperation of all institutions (i.e. courts, probation service, the police) included in implementing electronic monitoring.

The topic itself has already stirred the interest of the media, most often in the cases of (in)ability to implement the measure during house arrest for the duration of investigation. It is certain that the tone with which the media will welcome the technology will depend on the media status of the person(s) that it will be applied to. Planning a media campaign that would promote electronic monitoring in Croatia is also one of the key activities that need to take place prior to the placement of the "bracelet" on the first person to take part in the programme.

REFERENCES

1. Akcijski plan razvoja probacije u Republici Hrvatskoj od 2010. do 2014. godine (2010). [*Action plan for the development of probation in the Republic of Croatia, for 2010-2014*]. Ministarstvo pravosuđa. Zagreb.
2. Alladina, N. (2011): The Use of Electronic Monitoring in the Alaska Criminal Justice System: A Practical yet Incomplete Alternative to Incarceration, *Alaska Law Review*. 28 (1). 125-160.
3. Andrews, D. A., Bonta, J. (2010): *The Psychology of Criminal Conduct*, 5th ed. Matthew Bender & Company, Inc. New Providence. NJ.
4. Ardley, J. (2005): The Theory, Development and Application of Electronic Monitoring in Britain, *Internet Journal of Criminology*. Accessed on 19 March 2013 at www.internetjournalofcriminology.com.
5. Bungerfeldt, J. (2011): The Impact of Alternative sanctions and the Electronic Monitoring. Seminar. Swedish Prison and Probation Administration Head Office.
6. Black, M., Smith, R. G. (2003): *Electronic Monitoring in the Criminal Justice System*. Australian Institute of Criminology.
7. Bonta, J., Rooney, J., Wallace-Capretta, S. (1999): *Electronic monitoring in Canada*. Ottawa: Public Works and Government Services Canada.
8. Bonta, J., Wallace-Capretta, S., Rooney, J. (2000a): A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behaviour*. 27 (3). 319-329.
9. Bonta, J., Wallace-Capretta, S., Rooney, J. (2000b): Can Electronic Monitoring Make a Difference? An Evaluation of Three Canadian Programs, *Crime & Delinquency*. 46 (1). 61-75.
10. Brå (2007): *Extended use of electronic tagging in Sweden, Report 2007:3*. The Swedish National Council for Crime Prevention. Stockholm.
11. Burrell, W. D., Gable, R. S. (2008): From B. F. Skinner to Spiderman to Martha Stewart: The Past, Present and Future of Electronic Monitoring of Offenders. *Probation and Parole: Current Issues*. 101-118.
12. Council of Europe Annual Penal Statistic I – SPACE I (2011): *Survey on Prison Population in 2009*. Aebi, M. F., Delgrande, N. Strasbourg.
13. Council of Europe Annual Penal Statistic II – SPACE II (2011): *Non- Custodial Sanctions and Measures Served in 2009*. M. F., Aebi, M. F., Delgrande, N., Marguet, Y. Strasbourg.
14. Crowe, H. A., Sydney, L., Bancroft, P., Lawrence, B. (2002): *Offender Supervision With Electronic Technology: A User's Guide*, American Probation and Parole Association. Council of State Governments. Kentucky.

15. Electronic (Radio Frequency) and GPS Monitored Community Based Supervision Programs (2006). Accessed on 19 March 2013 at <http://www.johnhoward.ab.ca/pub/pdf/monitorupdate.pdf>.
16. Elzinga, H., Nijboer, J. A. (2006): Probation Supervision through GPS, *European Journal of Crime. Criminal Law and Criminal Justice*. 14(4). 366-381.
17. Erez, E., Ibarra, P.R. (2007): Making your home a shelter – Electronic monitoring and victim re-entry in domestic violence cases. *British journal of criminology*. 47 (1). 100-120.
18. Gibbs, A, King, D. (2003a): Is Home Detention in New Zealand Disadvantaging Women and Children? *Probation Journal*. 50 (2). 115-126.
19. Gibbs, A., King, D. (2003b): Home Detention with Electronic Monitoring: The New Zealand Experience. *Criminal Justice*. 3 (2). 199-211.
20. Izvešće o radu Uprave za probaciju za 2009. godinu (2010) [*Report on the work of the Probation Office for 2009*]: Ministarstvo pravosuđa. Zagreb.
21. Killias, M., Gilliéron, G., Kissling, I., Villettaz, P. (2010): Community Service Versus Electronic Monitoring – What Works Better?: Results of a Randomized Trial. *British Journal of Criminology*. 50 (6). 1155-1170.
22. Kovčo Vukadin, I., Rajić, S., Balenović, M. (2009): Uspostava probacijskog sustava – novi izazov za Hrvatsku? [*Setting up a probation system - a new challenge for Croatia?*] *Hrvatski ljetopis za kazneno pravo i praksu*. 16 (2). 711-751.
23. Levin, S. (2011): Electronic Monitoring Overview. European Police Congress. Accessed on 19 March 2013 at www.european-police.eu.
24. Mair, G. (2005): Electronic monitoring in England and Wales: Evidence-based or not? *Criminal Justice*. 5 (3). 257-277.
25. Martin, J. S., Hanrahan, K., Bowers Jr., J. H. (2009): Offenders' Perceptions of House Arrest and Electronic Monitoring. *Journal of Offenders Rehabilitation*. 48. 547-570.
26. Martinovic, M. (2002): The Punitiveness of electronically monitored community based programs (Paper presented at the Probation and Community Corrections: Making the Community Safer Conference, Perth, Australia). Accessed on 19 March 2013 at http://www.aic.gov.au/events/aic%20upcoming%20events/2002/~/_media/conferences/probation/martinovic.pdf.
27. Milivojević, L., Tomašković, R. (2011): Sustav probacije u Republici Hrvatskoj i alternative kazni zatvora [*The probation system in the Republic of Croatia and the alternatives to incarceration*], *Policija i sigurnost*, 20, 2, 47-58.
28. Moore, R. (2005): The Use of Electronic and Human Surveillance in a Multi-Modal Programme. *Youth Justice*. 5 (1). 17-32.

29. National Audit Office (2006): The electronic monitoring of adult offenders, London U.K. The Stationery Office.
30. OPPAGA Report (2005): Electronic Monitoring Should Be Better Targeted to the Most Dangerous Offenders. Office of Program Policy Analysis & Government Accountability. Report. Accessed on 19 March 2013 at <http://www.oppaga.state.fl.us/MonitorDocs/Reports/pdf/0519rpt.pdf>.
31. Padgett, K. G., Bales, W. D., Blomberg, T. G. (2006): Under Surveillance: An Empirical Test of the Effectiveness and Consequences of Electronic Monitoring. *Criminology & Public Policy*. 5 (1). 61-92.
32. Paterson, C. (2007-08): Commercial Crime Control and the Electronic Monitoring of Offenders in England and Wales. *Social Justice*. 34. 3-4.
33. Petö Kujundžić, L., Vukota, Lj. (2009): Čemu nas je podučio prikaz probacijskog sustava u Engleskoj i Walesu. [*What have we learned from an overview of the probation system in England and Wales?*] *Hrvatski ljetopis za kazneno pravo i praksu*. 16 (1). 319-328.
34. Pravilnik o evidenciji i izvršavanju istražnog zatvora u domu. [*Guidelines concerning the procedure and implementation of investigative detention in the home*] *Narodne novine* 65/2010.
35. Renzema, M. (2003): Electronic Monitoring's Impact on Reoffending. Accessed on 12 March 2013 at <http://www.correcttechllc.com/articles/13.pdf>.
36. Renzema, M. (2005): Latest Results from the Campbell Collaboration EM Systematic Review. Accessed on 12 March 2013 at http://www.ccp-probation.org/uploaded_files/pres%20EM%2005%20renzema.pdf.
37. Renzema, M., Mayo-Wilson, E. (2005): Can electronic monitoring reduce crime for moderate to high-risk offenders? *Journal of Experimental Criminology*. 1 (1). 215-237.
38. Roy, S. (1995): Juvenile offenders in an electronic home detention program: A study on factors related to failure. *Journal of Offender Monitoring*. 8 (2). 9 – 17.
39. Schmidt, A. K. (1989): Electronic Monitoring. *Journal of Contemporary Criminal Justice*. 5. 133-140.
40. Smith, D. (2001): Electronic Monitoring of Offenders: The Scottish Experience. *Criminology and Criminal Justice*. 1 (2). 201-214.
41. Stacey, T. (2006): Electronic Tagging of Offenders: a Global View. *International Review of Law Computers & Technology*. 20 (1-2). 117-121.
42. Stanz, R., Tewksbury, R. (2000): Predictors of Success and Recidivism in a Home Incarceration Program. *The Prison Journal*. 80 (3). 326 – 344.
43. Sugg, D., Moore, L., Howard, P. (2001): Electronic Monitoring and Offending Behaviour – Recidivism Results for the Second Year of Trials of Curfew Orders. Accessed on 7 July 2013 at <https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=190283>

44. Šimpraga, D., Vukota, Lj. (2010): Probni projekt Uvjetni otpust osuđenika. [*Pilot project "Conditional Release of Convicts"*] Hrvatski ljetopis za kazneno pravo i praksu. 17 (2). 813-817.
45. The Electronic Monitoring of Adult Offenders (2006): National Audit Office. London.
46. Turković, K. (2009): Okviri reforme sustava kaznenopravnih sankcija u Republici Hrvatskoj. [*The framework of penal sanctions reform in the Republic of Croatia*] Hrvatski ljetopis za kazneno pravo i praksu. 16 (2). 809-841.
47. Wood, P., Grasmick, H. (1999): Toward the development of punishment equivalencies: Male and female inmates rate the severity of alternative sanctions compared to prison. *Justice Quarterly*. 16 (1). 19-50.
48. Yeh, S.S. (2010): Cost-benefit analysis of reducing crime through electronic monitoring of parolees and probationers. *Journal of Criminal Justice*. 38 (5). 1090-1096.
49. Zakon o probaciji. [*Probation Act*] Narodne novine. 153/09. Accessed on 11 May 2013 at <http://www.zakon.hr/z/234/Zakon-o-probaciji>