

DIGICOR

Digitalisation in Corrections
Recidivism Reduction

Offender and Case Management System

Scenario Description



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DIGICOR Digital Scenarios

Recognising the marked resistance of European penitentiary services towards technological modernisation, the Digital Scenarios seek to directly influence senior officers and those responsible for the operational management of penitentiary settings by aggregating and disseminating innovative and evidence-based practices in the field of digital readiness in prisons.

Raising these stakeholders' awareness regarding the benefits of well-implemented digital solutions in the prison setting, namely in what concerns inmate rehabilitation, will contribute to enhancing the prison services openness towards modernisation.

Scenarios to be developed:

Inmate communications

- Scenario 1: Telephony
- Scenario 2: Videocall and video visitation
- Scenario 3: Secure e-mail/text messages/digital letters

Education and e-learning

- Scenario 4: e-learning and access to online resources

Digital self-service solutions

- Scenario 5: implementing integrated digital self-service solutions

Training and treatment using Virtual and Augmented reality

- Scenario 6: Inmate's treatment and training using VR
- Scenario 7: Officers training using VR and AR

Videoconference with courts

- Scenario 8: Implementing videoconference systems with courts

Telemedicine

- Scenario 9: Implementing telemedicine

Offender and Case Management Systems

- Scenario 10: Implementing offender and case management systems

Electronic monitoring in prisons and probation

- Scenario 11: Implementing an EM project (RFID and GPS)
- Scenario 12: Implementing an EM project (mobile phone)
- Scenario 13: Implementing an inmate monitoring system in a correctional environment

Smart Prisons and digital transformation in corrections

- Scenario 14: Implementing a "Smart Prison initiative"

Artificial Intelligence in corrections

- Scenario 15: Using AI and xAI in prisons and probation

DIGICOR Digital Scenario Form

Scenario #: 10 Offender and Case Management Systems

Problem/problems that it aims to solve:

The push for digital transformation in the public sector has delivered high gains in efficiency and effectiveness, as it does in private industry and services (Misuraca, Barcevičius & Codagnone, 2020). This process, although disruptive, has been relatively slow in more traditional, hierarchical, and complex organisations. Prison services are a paradigmatic case: often under-funded in the annual state budgets and averse to risk, they remain little modernised in most countries. Alongside the indispensable renewal of their physical infrastructure, innovation is urgently needed in the areas of process automation, data recording and analysis. On a large scale, these procedures continue to be performed manually, on paper, or with recourse to unsophisticated and obsolete computer tools. Records in logbooks or manually fed electronic programmes/forms do not keep up with the needs of reliability and accessibility that the management, analysis, and reporting required, and bring about inefficiencies, communication breakdown and uncertainty about important aspects, including the gauging of compliance with routines and norms by incarcerated persons and staff.

Some studies on public sector organisation state that the use of traditional management models with non-dematerialised and/or non-integrated *reporting* allows for information blockages within internal hierarchies, making it difficult to monitor the behaviour and performance of frontline professionals. Integrated management models, supported by advanced information technologies, provide organisational capacity for control and mitigation regarding negligence, abuse of power, and corruption (Evans, 2015). The dissemination of these models in prison systems will ensure gains in transparency and equity in decision-making that affect incarcerated persons; efficiency (better management of human, physical and financial resources, greater speed in processes); and effectiveness (quality of results) in fulfilling their mission (ensuring public safety, the rehabilitation of persons in custody and reduction of recidivism). There are also indirect benefits that include better inter-institutional coordination and better environmental practices (less paper consumption, waste reduction, infrastructure optimisation).

The **Offender Management System (OMS)** defines the information system used by prison and probation administrations, sometimes shared with professionals from other institutions that make up the criminal justice system (e.g. police, criminal investigation bodies, judges and sentencing judges) to collect, store, retrieve, analyse and make available, data, information and knowledge about offenders, that are necessary to decide about their cases while serving their sentences, in prison or community settings. It constitutes the core information system of prison administrations.

The first generation of offender management systems and jail management systems was implemented in the mid-1990s. These systems, today "legacy systems", were custom developed, based on complex and heavy databases. Outdated and far from responding to the management needs of modern penitentiary and reintegration organisations, they satisfy the basic functions of recording and consulting data for which they were originally designed, and their evolution or interaction with other more recent systems is difficult, expensive, or even unfeasible. High maintenance costs, data silos that prevent integration between modules or systems, non-compliance with recent regulations and security problems are just some challenges posed by this type of systems that persist in many countries.

The lack of systematised and integrated information in a single system on the incarcerated person and the "path" followed during the sentence (information on their procedural situation, assessments of risks and needs, participation in education, training, work, behavioural changes, conflicts and disciplinary processes, relationships inside and outside, court appearances and other procedures, medical records, information on addictions and mental health, among others) that support prison treatment and decision-making, makes the work of prison professionals and decision-makers difficult, as well as that of judicial magistrates who have to make decisions on the use of alternative non-custodial measures, security measures, treatment or early release.

Description of the solution:

An intelligent OMS should enable prison administrations to aggregate and correlate information generated at the frontline level and to make it available and use it to support decision-making (judicial and executive) and strategic planning. Integrating offender and operational data with information from other agencies in the criminal justice system will be indispensable for planning prison interventions aimed at re-socialising offenders and reducing recidivism, but also public safety (Jackson et al., 2015). In order to support the assessment process, and prison treatment and provide ongoing information on risk, needs and context (social and institutional), a system that responds to the contemporary and future needs of the criminal justice system, should include all processes that are part of the offender's journey from the beginning of the arrest until their release on parole or end of a sentence.

Expected benefits:

For the organisation and staff:

- Automation of processes and workflows
- Improve performance (time, reliability, safety and security, fairness)
- Higher accountability - auditing of times-tamped tasks and procedures
- Evidence-based decision-making
- Better allocation of resources
- Better decisions on the enrolment of offenders into programmes and activities
- Improves safety and security
- Reduces tensions between inmates and staff

For the inmates:

- Participate in programmes and activities adjusted to risk and needs profile
- Fair decision-making
- Positively affects the behaviours of inmates and significantly contributes to social reinsertion, promotes desistance and reduction in recidivism.
- Reduces tensions and conflicts between inmates

Evidence of effectiveness:

The evidence-based assessment of an offender's recidivism risk and needs is a major concern for judicial decision-makers and practitioners in the prison and probation systems. High levels of recidivism have very high social costs, as mentioned above, and reveal the inefficiency of prison and probation systems, as well as of social support systems and structures for socially vulnerable people.

The assessment of offenders and the design and implementation of specialised interventions to motivate behavioural change and modify risk factors for recidivism is therefore a key element of prison management policies and has a scope that goes far beyond security, allowing for better planning of prison intervention. Supporting judicial release decisions contributes to the reduction of the prison population and to the allocation of adequate levels of supervision in the community and is also fundamental for the adequacy of treatment programmes. In this context, the Risk-Need-Responsiveness (RNR) model has become influential internationally (Blanchette and Brown, 2006; Ward, Mesler and Yates, 2007).

Despite the progress provided by assessment methods, the complexity of predicting human behaviour persists, with important implications for prison policy and practice. The large number of situational factors that can influence violent conduct - reflecting interaction between personal characteristics, environmental influences, past and current behavioural situations, precipitating events, and sometimes chance occurrences (Bandura, 2016) make prediction difficult (Douglas & Skeem, 2005; Polaschek, Calvert, & Gannon, 2009).

From the available scientific evidence, it is possible to establish five central premises in offender assessment:

- (i) the prediction of the probability of future criminal behaviour can be quantified (with some precision);
- (ii) structured risk assessment methods are more accurate in predicting recidivism compared to unstructured 'clinical' approaches;
- (iii) contextual factors, during the execution of the sentence, in addition to static and dynamic criminological factors are important elements to consider in risk assessment;
- (iv) even if supported by evaluations, there is a high level of discretion in decision-making;
- (v) information on the level of risk and needs of offenders is of great use in deciding on offender *management* by prison and probation administrations.

A smart OMS should therefore enable risk and needs assessments to include the most relevant information, systematically, allowing precise recommendations tailored to the offender and his/her circumstances (Russo, Drake, Shaffer, & Jackson, 2017). Currently holding large amounts of data (from recording the individual characteristics of offenders, criminal profile, judicial process, their behaviour, activities and relationships while serving their sentence), prison and probation administrations will see the exponential growth in the volume of data generated by systems as diverse as real-time identification and monitoring systems, biometric recognition, smart CCTV, RFID devices, IoT systems, clinical record systems, inmate telephone communications, activity logging, judicial process, among various others. The innovation trajectory of the sector imposes the creation of a solution that ensures integration of data from multiple sources - "*data fusion*", thus ensuring the production of consistent and reliable databases, essential for analysis and predictive modelling (Pires *et al.*, 2016, 2020).

In the context of OMSs, predictive analysis can, for example, help in the projection, in the medium and long term, of the prison population or of individuals subject to non-custodial measures. An accurate projection allows decisions to be made on the planning of detention spaces, as well as the optimisation of human and technical resources, arising from the redirection to support the fulfilment of measures in the community. The identification of low-risk offenders who can benefit from community measures can contribute to the reduction of the prison population. The predictive capacity may also enable the system to recommend treatment programmes that are best suited to inmates or groups of inmates in order for them to enjoy a more effective rehabilitation and reintegration process. The multidimensional analysis resulting from data fusion

plus the predictive analysis using Artificial Intelligence (AI) contributes to the fairness of the decision by reducing the inherent subjective description and potential problems of bias or prejudice (Tollenaar, 2019), constituting a support tool - never a replacement - for the decisions of professionals and prison administrators.

In recent years the application of AI has assumed a relevant role in decision support in the most diverse areas, from medicine (Pombo, Araújo, & Viana, 2014; Matias *et al.*, 2020), to automotive engineering (Khayyam, Javadi, Jalili, & Jazar, 2019), or software engineering (Batarseh, Mohod, Kumar, & Bui, 2020), for example. There is an important body of scientific literature on the advantages of using AI solutions and criminal recidivism predictive tools as decision support in a justice context, in recidivism prevention (Lin, Jung, Goel & Skeem, 2020; Zeng, Ustun & Rudin, 2017) or even in suicide prevention (Ophir, Tikochinski, Asterhan, *et al*, 2020), as well as studies emphasising potential bias and discrimination issues (Hao, 2019). Despite this, industrial research in this area is still sparse.

Key phases of the implementation:

Phases of implementation will vary depending on the extent of the project undertaken. The list below outlines some of the key phases for a successful implementation.

- Extensive market soundings are undertaken to ensure best-of-breed solutions.
- Consideration is given to having a Proof of Concept and/or Pilot Phase to ensure that the requirements are fully understood and agreed upon.
- A comprehensive tender process is undertaken once the requirements are agreed upon.
- Buy in is obtained from Senior Management, Staff and Staff representatives through extensive engagement.
- Communication to ensure the benefits are understood by management, staff and inmates.
- A change management exercise is undertaken and local champions of change are put in place.
- Where the inmates will be charged for the calls that a cost benefit exercise is undertaken to ensure the chosen solution will both pay for itself and be fair to the inmates and their families in terms of the price to utilise the system.
- The project is carefully planned and managed from start to finish.
- Clear and agreed objectives are outlined so it is understood what success means.
- Post project reviews are undertaken.

Key success factors:

It is recommended that before undertaking any project of this type that it is understood what helps to ensure a successful project.

- Clear and clearly articulated project goals.
- A comprehensive and detailed Project plan.
- Early definition of deliverable quality criteria.
- Active senior management support with a shared vision throughout the project's life.
- A fully representative Project board in place from the start of the Project.
- Carefully planned Project implementation.
- Concise, consistent, complete, and unambiguous business and technical requirements.
- Realistic cost estimates and Project schedules.

- Early risk analysis and ongoing risk management.
- A clearly defined business process change management implementation plan.
- Proactive Project issue resolution.
- Stakeholder involvement throughout the Project life cycle.
- Defined and consistently executed Project management to minimize scope increases.
- A skilled Project Manager experienced in the execution of project management best practices.
- Execution of a formal Project development methodology.
- An experienced implementation team(s).

Key risk factors:

Key risks to note are:

- No proof of concept and/or Pilot Phase to ensure that the requirements are fully understood and agreed upon.
- Depending on the option chosen the funding requirements for the project are not agreed upon or understood.
- No clear understanding of the market options available that potentially lead to a poorly tendered solution.
- Lack of buy-in from Senior Management, Staff and Staff representatives.
- No change management and/or local champions of change.
- Systems are not properly secured leading to abuse by inmates.
- Difficulties in data migration from legacy systems to the new OMS system
- Difficulties in integration with other systems such as court, police, or inmate tracking systems, as an example.
- Lack of proper project planning.
- Insufficient engagement to ensure the benefits are understood by management, staff and inmates.
- No clear and agreed objectives for the project.

Jurisdictions in which it has been implemented:

Most countries implemented some form of inmate's record system or of Offender Management and case management systems. Countries such as Canada, Norway, Belgium, Finland or the Netherlands, are currently replacing or have recently replaced their OMS.

Specific Regulations to consider:

These will vary from jurisdiction to jurisdiction it is therefore recommended that an exercise to consider the specific regulations in your jurisdiction is undertaken as part of the pre-project planning phase.

Depending on the functionalities available, the following legislation or recommendations should be considered:

- European ethical Charter on the use of Artificial Intelligence in judicial systems and their Environment
- European Parliament resolution with recommendations to the Commission on a framework of ethical aspects of artificial intelligence, robotics and related

technologies (2020/2012(INL) European Parliament resolution of 20 October 2020 with recommendations to the Commission on a civil liability regime for artificial intelligence (2020/2014(INL))

- Coordinated Plan on Artificial Intelligence 2021 Review
- European Parliament resolution of 20 January 2021 on artificial intelligence: questions of interpretation and application of international law in so far as the EU is affected in the areas of civil and military uses and of state authority outside the scope of criminal justice (2020/2013(INI))
- **Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.**
- Regulation (EU) 2016/679 of the European Parliament and the Council of 27 April on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC
- Framework Decision (2018/1725) on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) N.º 45/2001 and Decision N.º 1247/2002/EC
- Framework Decision 2009/829/JAI on the application, between Member States of the European Union, of the principle of mutual recognition to decisions on supervision measures as an alternative to provisional detention.
- Framework Decision 2008/909/JAI on the application of the principle of mutual recognition to judgments in criminal matters imposing custodial sentences or measures involving deprivation of liberty for their enforcement in the European Union.
- Framework 2008/947/JAI on the application of the principle of mutual recognition to judgments and probation decisions with a view to the supervision of probation measures and alternative sanctions.

Estimated implementation period:

This will vary depending on the extent and complexities of the project undertaken. It is recommended that a detailed project plan is developed and agreed upon in conjunction with the selected service provider.

Estimated cost:

Depends on the size and complexity of the project.

Examples:

- The Netherlands – 26 Million euro
- Norway – 12 Million euro
- Belgium - 15 Million
- Canada (CSC, federal) – 28 Million euro

Useful resources:

Blanchette, K., & Brown, S. L. (2006). The assessment and treatment of women offenders: An integrative perspective. Chichester, England: John Wiley & Sons.

das Neves, Pedro (2023). Towards an intelligent Offender Management System. JUSTICE TRENDS Magazine, edition 10. Online: <https://justice-trends.press/towards-an-intelligent-offender-management-system/>

Douglas, K. S., & Skeem, J. L. (2005). Violence risk assessment: getting specific about being dynamic. *Psychology, Public Policy, and Law*, 11(3), 347.

Hao, K. (2019). "AI is sending people to jail and getting it wrong: Using historical data to train risk assessment tools could mean that machines are copying the mistakes of the past", MIT Technology Review, January 21, 2019.

Jackson, B., Russo, J. Hollywood, J.S., Silbergliitt, R., Woods (2015). Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector. National Institute of Justice and Rand Corporation.

Lin, Z. J., Jung, J., Goel, S., Skeem, J. (2020). "The limits of human predictions of recidivism". *Science Advances* 6, eaaz0652 (2020).

Misuraca, G., Barcevičius, E., Codagnone, C. (Eds.) (2020). Exploring Digital Government Transformation in the EU - Understanding public sector innovation in a data-driven society, EUR 30333 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21326-0, doi:10.2760/480377, JRC121548.

Ophir, Y., Tikochinski, R., Asterhan, C.S.C. et al. (2020). Deep neural networks detect suicide risk from textual facebook posts. *Sci Rep* 10, 16685. <https://doi.org/10.1038/s41598-020-73917-0>

Pires, I. M., Hussain, F., Garcia, N. M., Zdravevski, E. (2020). "Improving Human Activity Monitoring by Imputation of Missing Sensory Data: Experimental Study," in *Future Internet*, September 2020.

Polaschek, D. L., Calvert, S. W., & Gannon, T. A. (2009). Linking Violent Thinking: Implicit Theory-Based Research with Violent Offenders. *Journal of Interpersonal Violence*, 24(1), 75-96.

Russo, J., Drake, G., Shaffer, J., & Jackson, B. (2017). Envisioning an alternative future for the corrections sector within the U.S. criminal justice system. Arlington, VA: RAND.

Tollenaar N, van der Heijden PGM (2019). Optimizing predictive performance of criminal recidivism models using registration data with binary and survival outcomes. *PLoS ONE* 14(3): e0213245. <https://doi.org/10.1371/journal.pone.0213245>

Ward, T., Mesler, J., & Yates, P. (2007). Reconstructing the Risk-Need-Responsivity model: A theoretical elaboration and evaluation. *Aggression and Violent Behavior*, 12, 08-228.

Zeng, J., Ustun, B. and Rudin, C. (2017). Interpretable classification models for recidivism prediction. *Journal of the Royal Statistical Society A*, 180: 689-722. <https://doi.org/10.1111/rssa.12227>

Main suppliers:

There are several suppliers in the market. The following list serves to give examples of some of the European service providers. It is recommended that jurisdictions carry out detailed market soundings in advance of project commencement to gain an understanding of the market suppliers in their area.

- **ABILIS**
- **IPS Innovative Prison Systems**
- **MARQUIS Software**
- **Mi-Case**
- **ORACLE**
- **SYSCOM**
- **Unilink Software**
- **UNISYS**



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