

Smart Prison: the preliminary development process of digital self-services in Finnish prisons¹

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Abstract

This article is about the preliminary development process of digital self-services in the Criminal Sanctions Agency in Finland. Finnish prisons are known for providing high-quality and stable conditions for prisoners, but they are falling behind in digitalization. The Smart Prison project (started in 2018) develops digital services for prisons and its primary mission is to introduce self-service devices in the new women's prison opening in October 2020. The needs and opinions of both staff and prisoners regarding their current digital services and the new self-service system were studied by means of surveys and service design workshops. According to the results, more digital services are needed and both staff and prisoners have a positive attitude towards self-service devices in cells. However, concerns were raised about the security and functionality of these devices, especially among the staff. The staff prefers digital services inside prison that make work processes smoother, whereas outside services are seen as risks. The prisoners, however, see the outside services, such as video and phone calls and access to various websites directly from the cell, as most important. The focus of development should be on information security, compatibility with other services and training. The purpose of digitalization in prisons should be seen as a way to assist rehabilitation and reduce recidivism in a more cost-effective way than by only providing limited "live" services inside prison. We will discuss the need for management of change in the prison culture and possible resistance to digital services in light of the divided opinion between prisoners and staff about digital services. The Smart Prison concept and (digital) service design model are part of the new general prison concept of Finnish prisons. Furthermore, we will address the role of digitalization in implementing this new concept based on a service design model and the international recommendations for good prison treatment. Lastly, we discuss the future of the Smart Prison concept and its expansion to all closed prisons in Finland. This development is linked to broader digitalization

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efforts in Finnish social services, especially among services targeted to marginalized populations that require special attention with regard to web service accessibility.

Keywords: digitalization, prisons, Smart Prison, digital services, service design

1. Introduction

1.1. Previous Research on Prison Digitalization

Several countries are using and developing prison digital self-service systems, and this development can be seen as part of a broader digitalization or even smartization trend in services and environments, culminating in so-called ‘smart cities’ (Knight & Van De Steene, 2017a). The development of digital self-services is one of the latest innovations to be brought to the prison environment, and there are already several prisons in Europe that provide self-service systems for prisoners. Research in the field of prisoners’ digital services is still limited, but the results of such studies have been promising so far. Self-service systems can reduce the strain caused by imprisonment, reduce disciplinary incidents, improve relations between staff and prisoners and reduce adjudications and re-offending (McDougall, Pearson, Torgerson & Reyes, 2017). Digital solutions as means to improve learning have been found to be beneficial also in prisons (Hopkins & Farley, 2015). The use of this kind technology has been argued to increase a prisoner’s sense of autonomy, life management and self-esteem (McDougall et al., 2017, Knight 2015). Digitalization affects interactions and relations between staff and prisoners, staff roles and the whole prison culture (Knight & Van De Steene 2017a; Knight & Van De Steene 2017b). Thus, the impact of digitalization is much larger than just “providing more services” to prisoners.

The controversy here is that traditionally, the prison as an environment has restricted the same opportunities for communication, learning and achieving that the new technology is trying to support (Knight & Van De Steene, 2017a). Questions of security and concerns of misuse of online services arise when considering bringing self-service devices to prisons. Initial surveys on public opinion about prisoners’ access to digital technology also highlight this fear. However, possible benefits (purposeful activity, rehabilitation during prison time and efficiency savings) are also being raised (Knight & Hadlington, 2017). Digital projects in prisons should start small, be based on careful needs analysis and use interorganizational networking (Knight & Van De Steene, 2017a). Ideally, successful digital projects manage risks, make full use of the benefits of digitalization and produce measurable

results of effectiveness. Using the concept of smart cities to create Smart Prisons would be ideal, but a lot is still required to attain this level of digital services in prisons. However, since many public services are already on their way to this level of digitalization, prisons should not fall behind as institutions that aim to protect civil security and rights as much as or even more than many of the other currently digitally more advanced institutions in Finland such as schools, hospitals and some social services.

1.2 Preliminary Digitalization in Finnish Prisons 2015 – 2018

The digitalization of prison services is a recent phenomenon also in Finland. Before 2015 video conference devices were already widely used in prisons as a means to contact other officials like hearings with police, jurisdictions and social care. Digital means as a possibility were first stated in the Imprisonment Act in 2006: “*For special reasons, the prisoner may be authorised to communicate outside the prison by means of electronic communications, telecommunications or any other technical connection of this kind, unless such communication endangers the security of the prison (Chapter 12 section 9).*” However, it was only in 2015 when the Imprisonment Act and Remand Imprisonment Act was amended and enabled prisoners specifically to be given permission to:

- **send and receive e-mail messages** for an important reason related to the maintenance of outside contacts, subsistence, or attendance to work-related, educational, judicial, social or housing matters or for another corresponding important reason (*Imprisonment Act chapter 12, section 9 and Remand Imprisonment Act chapter 8, section 7 a*)
- use the **internet** for an important reason related to his or her subsistence or attendance to work-related, educational, judicial, social or housing matters or for another corresponding important reason, a prerequisite for granting permission in a closed prison is that the prisoner's access to other websites than those determined in the permission is appropriately blocked (*Imprisonment Act chapter 12, section 9 a and Remand Imprisonment Act chapter 8, section 7 b*)
- communicate with his or her close relatives or other close persons via **video connection or other suitable technical means of communication** where the participants have an audio and visual connection with each other; in order to maintain outside contacts or for another important reason, the prisoner may also be allowed to communicate with some other important

person in this manner (*Imprisonment Act chapter 13, section 13 and Remand Imprisonment Act chapter 9, section 10*)

Considering that these legislative changes enabling and requiring the development of digital services for prisoners were introduced as late as in 2015 and comparing it to the general level of digitalization in Finland around the same time (e.g. social and health care services), it can be said that digitalization in prisons has fallen 10–20 years behind the “outside” society. This is not surprising considering the special restrictions prisons as penal institutions inevitably have. However, at the same time the prison concept was in general developing towards more rehabilitative and integrative practices. In particular, increasing the use of digital services was seen as a means to achieve the aim to provide prisoners equal access to services in society following the normality principle and good prison practice.

The Criminal Sanctions Agency (CSA) finalised the minimum legislative requirements for digital services during 2015–2018. This system was developed, and its support and acquisition were centralized in collaboration with the CSA’s Central Administration Unit (Prison and Probation), the Finnish Government ICT Centre (Valtori) and a third-party service provider. Valtori provided the devices and the support for the system, and the third-party service provider supplied the networking solutions. Configuring restrictions in the system was a complicated task because of the openness of the Internet. By restricting the system to a specific number of webpages (white list), the system would struggle, because webpages are usually linked to each other internally and externally. The restrictions would make using the system impossible. On the other hand, restricting access to inappropriate webpages (blacklist) would make the system highly exposed to hacking and misuse. The third-party service provider made a system that only allowed access to a specific list of webpages but allowed access links from inside the webpages. This firewall is customizable to the prisons’ needs and also allows video calls through the system.

This development lead to the current situation where all units (prisons and probation offices) are provided with devices for joint client use over a *secured Internet connection* (whitelisted websites), *Skype* for communication with friends, family and other third parties (with a special permission and under surveillance) and in some prisons also the *Moodle* platform for e-learning (for high-school courses). Every prisoner in Finland has the right to request for permission to use this system under supervision. The permissions are granted by the prison director and the prisoners have to specify in their application why they need to use the Internet, Skype or Moodle. E-mails can only be sent and received via each prison’s general “prisoner e-mail” address. Received e-mails are printed and

delivered to prisoners by the staff. There is also an appointed ICT contact person in every unit (prison and probation) and they work in collaboration with the Central Administration's ICT department to provide user support and guidance on system usage. The current system has proven to be easy to control in prisons but before the Smart Prison project CSA didn't have a full understanding of the extent and nature of the services prisoners are mainly using on these devices. However, it can be concluded that the Finnish prisons were digitalized to some extent in 2018 as a result of these implementations.

1.4 Digitalization by the Smart Prison Project 2018-

Before the Smart Prison project started in 2018, there had been previous projects to digitalize prisons further by finding solutions for digital self-services that can be used directly from cells. The idea for this was adopted from other European prisons that were using self-service devices (e.g. certain prisons in the UK and Belgium). However, from the start of the new project, the purpose was to develop a new Smart Prison concept based on the renewed general prison concept of the CSA. The process of building the new Hämeenlinna prison for women had started in collaboration with the Senate Properties and their partners², and services for women prisoners were being designed based on the newly adopted *service design model*. The Smart Prison project took as its objective to implement the first Smart Prison in Finland, which meant that this new women's prison would have a self-service device in every cell (100 cells) for the personal use of each prisoner. The services on this device would include management of daily activities and communications inside prison (prisoner – staff – prisoner contacts) and limited Internet access (white list) to civil services, officials and friends and family (by video calls). The purpose of these digitally provided services is to enable access to social, educational and other rehabilitative services and to encourage prisoners to learn digital skills. The system is designed to support the new overall prison concept that views the prison as a (digital) *learning environment for life without crime* and to follow the overall strategic targets of the CSA to network and integrate prisons into the normal services of the society (normality principle) and to reduce recidivism by providing more accessible services that meet the prisoners' needs – including accessible and smooth digital services.

² The Senate Properties is the work environment partner of the Finnish government.

The idea to bring digital services inside the cell also arose from needs and challenges related to the current digital systems in our units. It had already become clear that jointly used devices fulfilled the minimum requirements of the new legislation but didn't support genuine and active use of these services by prisoners, and since their use was not personalized, many services remained inaccessible to prisoners. Therefore, the second objective of the Smart Prison project is to increase and develop digital services in all our units and to provide more training (in digital skills) to both staff and prisoners.

Finland has always taken a rehabilitative approach to prisoners. Smart Prison not only follows this concept but also takes it to a next level by modernizing the means of rehabilitation (e.g., digitalisation). The benefits of digitalisation include saving staff time and reducing costs. Furthermore, the results can be measured in participation in rehabilitative programs and other rehabilitative practices, overall security and wellbeing in prisons and maybe in recidivism, as previous research on prison digitalization suggests. If the results from Hämeenlinna prison are good, the intention is to expand the Smart Prison concept to all closed prisons.

2. Objectives

The objectives of this study were to find out staff's and prisoners' 1) opinions and experiences of the current state of digital services in prisons and 2) opinions and expectations of the new self-service systems. Our primary intention was to use these preliminary results to draw some conclusions about how to further develop digital services for self-service devices but also about how to proceed with the prison digitalization process in general. We considered it to be necessary to engage staff and prisoners as early as possible in this development process for the purposes of management of change – the further digitalization of processes and services in all prisons in the future.

The preliminary results were used as a basis for the *proof of concept (POC)* of new self-service devices during spring 2019 and to determine the requirements for the future self-service provider. The results were used by the project team and CSA's senior specialists to redefine the Smart Prison concept and the new *Digital Service Map* for the Hämeenlinna prison based on the service design model. We wanted to know whether the existing self-service devices on the market would suit the needs of staff and prisoners and whether there were some uncovered needs and services that would

be considered “must have” or “nice to have” in the system. Since we intended to carry out the POCs with both women and men prisoners, we were interested to discover possible gender-based differences and women-specific needs and services in particular, because the first Smart Prison will be for women prisoners only.

The aim was to use the results to find out what kind of further knowledge and training is needed for both staff and prisoners to proceed with the digitalization. We also wanted to explore how the purposes of the CSA’s strategy with regard to digital services could be managed in the future, considering the inevitable challenges that digitalization poses in special and secured settings like prison environment. Analysis of risks, requirements, costs and benefits was needed to manage the implementation of digitalization into prisons’ rehabilitative practices and overall prison culture.

3. Methods

The methods used in this study were surveys and workshops based on the service design model. The surveys and workshops were carried out in the Hämeenlinna women’s prison and Turku men’s prison during November 2018 (three online questionnaires) and February–April 2019 (two workshops in both units). The target prisons were chosen because the first POCs of self-service devices were held in these units in May–June 2019.

3.1 Questionnaires to staff and prisoners

One online questionnaire was sent by e-mail to the staff of both the Turku and Hämeenlinna prisons. One questionnaire was only sent to the ICT contact persons of all the units. Altogether, the questionnaires were sent to 370 staff members. The third questionnaire was distributed to a selection of 100 prisoners in both units (of a total of 200 prisoners) and collected by appointed prison officers. The questionnaires to the staff in general and the ICT contact persons were carried out to get a general idea of how useful the current digital devices and services are considered to be and how well they are used, and to examine the expectations and opinions of the respondents regarding the new self-service system and the Smart Prison project in general. In the questionnaire to the ICT contact persons, the

questions focused in more detail on the use of the current digital services (the white list and Skype calls) than the general questionnaire for the staff. The purpose of these surveys was to gain a better understanding of what services are used in the prisons and what kind of services could be needed in the future. The prisoner survey was carried out to achieve better understanding of how prisoners view their current digital devices and their usability in prisons and what specific needs they have with regard to the self-service system, in particular what services they hope to have so that we can strategically develop the services based on genuine prisoner needs.

3.2 The workshops and service design model

The workshops used the service design model to engage staff and prisoners in the planning process of new self-service devices. The planning process involved group tasks and discussions and interviews with participants of the workshops. Our main objective was to identify specific needs of both staff and prisoners concerning the new self-service device and digital services in general. The service design model enabled us to make the whole process more collaborative and human-centered – and hopefully the final product more functional. These workshops were also meant to function as information events of sorts: to bring the project closer to its end users and to show them what kind of systems are already available on the market and what we have learned about them so far. The staff event was open to all staff. The joint event for prisoners and staff included those prison wards that were going to participate in the POCs.

Besides presenting the Smart Prison project and some of the self-service devices on the market, we used the service design model as a basis for planning in our workshops. The service design model can be defined as the design and development of the components of a service in order to improve its quality and the interaction between the service provider and its customers (see Parker & Heapy, 2006). So far, the service design model has mostly been used in the business world. In our new model for planning services for prisoners, the prisoners are seen as customers or end users of digital services. In short, service design is about how to make a service meet the customers' needs, and while applying this model to digital services, we refer to this process as 'digital service design'. In addition to carefully considering the needs of the customers, it is also important to understand their abilities and general psychosocial and cognitive skills, especially in the case of special groups such as prisoners, who may have various cognitive, neurological and other psychological and physical difficulties.

Before the surveys and workshops took place, we had already been able to use the results of a statistical and service design based analysis of the prisoner population and their needs in the overall planning process of the Hämeenlinna prison by CSA in collaboration with the Senate Properties and its partners. On the basis of these analysis, the prisoners were divided into different customer segments – prisoner subgroups – with different service needs and risk factors by applying the principles of service design. The four major segments were formed according to prisoner's (1) *ability level* (related to physical and psychological health, substance abuse and other factors effecting abilities) and (2) *basis for changing attitudes* (related to motivational level to desistance / life without crime). In this way the four major segments were: (1) *good ability level – poor basis for changing attitudes*, (2) *good ability level – good basis for changing attitudes*, (3) *poor ability level – poor basis for changing attitudes* and (4) *poor ability level – good basis for changing attitudes*. It was concluded that all the subgroups should find services and digital services tailored to their needs from the selection of services offered in the new prison.

In these analysis by CSA, the Senate Properties and its partners, seven different categories reflecting core rehabilitation-related issues were identified. These categories were: (1) *Substance abuse and addictive behaviour*, (2) *Criminal thinking and values*, (3) *Social and everyday life skills*, (4) *Education and vocational skills*, (5) *Health and well-being*, (6) *Social relations /family and parenting skills* and (7) *Reintegration into society*. All effective services and digital services can be grouped into these categories and be used as a 'service map' which allows the staff and the prisoners to determine together the services that would be the most useful for each individual prisoner during their prison time. Since there already was a general service map for the new women's prison, we were able to use this model as a basis for our workshops for planning digital services.

In the workshops, we presented the service map to the participants (a total of 38 staff members and 25 prisoners) and asked them to start brainstorming what kind of digital services they would like to see in each of category on the service map. Each group worked on one or two of the seven rehabilitation-related categories grouped according to the service map model. Thus, we extended the service design model and use of services to digital services (digital service design), namely to create a preliminary digital service map for the new prison and to provide a basis for possible new digital services for all units. At the end of the workshop, every group presented their work, after which a joint discussion followed.

Successful service design creates more effective and user-friendly services, motivates customers to use these services and increases the use of the services. The aim of the Smart Prison project is to increase the use of digital services so that the self-service devices will not be left unused or be only used for entertainment without a broader rehabilitative purpose. Therefore, the use of surveys and workshops for both prisoners and staff was considered to be of great importance for achieving the targets of the project.

4. Results

4.1 The surveys

Of the 370 staff members, only 45 answered the questionnaire (12%). The low survey response rate can be caused by a lot of reasons (see Discussion). The majority (59%) of the staff respondents thought it would be a good idea to have a self-service device in the cells. Those who viewed it positively said that prisoners being more autonomous would save staff resources and paperwork. The staff preferred services that facilitate the management of daily activities *inside prison*, such as messaging/requests, canteen services, studying platforms (e.g., Moodle) and account balance services (management of personal funds). Services extending *outside prison*, such as Skype and telephone calls didn't gain much support. Moreover, the staff anticipated risks of misuse of devices and possible "passivating effects" on prisoners. They also worried whether learning to use the device and teaching it to others (to prisoners and/or other staff members) might be problematic also in light of the staff's level of digital skills. The majority (85%) preferred the device to be fixed in place in the cell instead of being "portable", possibly because the former was regarded as the more secure option as the latter. Overall, the staff was content with the services and functionality of the current system but found support to be lacking. The permission application process was also perceived to be hard and to reduce prisoners' motivation to apply to use the system. The video call system (Skype) was perceived to be good and functional.

The questionnaire to the ICT contact persons only consisted of open-ended questions. The answers given to these questions revealed that in general, ICT contact persons thought that the current devices

were being used actively and that the white list services offer many possibilities for handling social, health care and educational issues. Skype and Moodle were considered to function well. Prisoners' motivation to use digital services and learn digital skills was evaluated positively. However, the respondents felt that training related to the current system and the monitoring of the system were time consuming for the staff. The permission procedures for the use of the devices and the lack of functional support from Valtori were seen to reduce prisoners' device usage activity and to be time consuming for the staff. It seems that the ICT contact persons and staff in general hold positive views of self-service devices because the current system involves problems that prevent smooth, active and independent use of devices. The existing system was seen to support rehabilitative purposes, but many said that faster, more flexible and more personal use would support rehabilitation even more. The aims of the Smart Prison project were thus seen as "going in the right direction".

Of 200 prisoners, 87 answered the questionnaire (44%). The great majority of them (96.7%) wanted to have a self-service device in their cell. The prisoners preferred messaging/requests and canteen services like the staff. They were also interested in health care services (92%), other rehabilitative services (87%), studying possibilities (82%) and library services (80%). The results show that men prisoners were slightly more interested in having digital self-services in the cell than women prisoners, and more interested in ICT training during prison time. Compared to the staff's responses, the prisoners also wanted services that extend outside prison, such as direct access to the Internet from the cell and online communication possibilities (video and phone calls). Especially online communication inside and outside prison was a high priority.

In view of the future implementation of the self-service system, an important result is that despite the legislative amendment of 2015, most of the prisoner respondents (80%) had never used the devices for digital services that are currently available in prisons (laptops that are usually placed in separate class rooms, libraries etc.). Only 20% knew that there already was a system that they could use for digital services. The prisoners were also of the opinion that the procedure to get the permission to use the devices was difficult (a request must be submitted that states the reasons for use and the permission is given by the prison director for a fixed time period only). The majority of the staff (more than 70%) answered that they had never had to instruct prisoners in the use of these devices.

The surveys revealed that digitalization was not sufficiently organized or implemented: in practice prisons still didn't follow the guidelines permitted by the legislation, and there was still inequality between prisoners in access to digital services as well as a lack of appropriate and nationwide support for the use of digital services. In light of these results, it is even more important to allocate enough time and resources to the training and preparation of both staff and prisoners with regard to both the new system and the existing system, since in the first phase in 2020, only the new women's prison will pilot the Smart Prison concept. Meanwhile, the need for digital services and digital skills remains in the existing units.

4.2 Feedback from the workshops

The workshops confirmed the overall positive views of staff and prisoners about the Smart Prison project and the self-service systems in cells. Given a chance to participate in the planning process, the participants together discussed expectations and risk factors. Prisoners' high expectations seemed to collide with staff-reported risk factors to some extent. Compared to staff opinions, prisoners' needs seemed to be more "entertainment oriented": opportunities to listen to music, watch videos and read books were seen important. Possibilities for outside contacts through calls, video calls, social media and e-mail were of interest to prisoners but seen as risks by the staff. We made it clear that access to social media wouldn't be possible and explained the idea behind secured white list services. The results are understandable, considering that prisoners still spend most of their time in cells and are looking for ways of having something to do. Music, movies and e-books can be meaningful activities and motivate prisoners to use other types of digital services too. The prisoners also preferred laptop devices over tablet devices, possibly because of the former have better typing possibilities and wider screens than the latter.

Staff questions were focused on security questions and possibilities of misuse. They considered it important that the devices are "simple enough" to use. Personal use was seen important but also as a risk if prisoners, for example, blackmail each other for usernames / passwords and misuse them for criminal and other purposes (e.g. take money from another prisoner's account). The staff viewed digitalization as a potential challenge for their own work: on the one hand, they expected digitalization to increase their workload and bring new kinds of work tasks, on the other hand they

expressed fears of staff cuts due to prisoners becoming more independent and services being digitalized, e.g. coming to a larger extent from outside prison. They were also concerned about whether face-to-face contact between staff and prisoners would diminish with digitalization – since positive and genuine interaction between staff and prisoners has lately been increasingly emphasized in the CSA's strategy and as part of best practices.

In addition to the discussions, we used the service design model as a basis for collaboration in the workshops on designing digital services for the new system. Based on the service map, we were hoping to find out what digital services we could find for all the seven rehabilitation-related themes. All groups very easily came up with ideas for digital services and referred to existing services on the white list and the available self-service products that were presented to the participants in each workshop (three different vendors' devices and services). It was considered important that also non-Finnish prisoners would find enough services and language options in the system. In addition to entertainment services (e-books, videos, music, white listed websites for different hobbies etc.), health care and family services were considered important, especially among women prisoners. Self-help websites and digital materials were of interest, too, as well as advisory materials for independent studies and for searching for jobs and housing. Possibilities to learn new languages and skills (including everyday life skills needed in the prison environment, such as cleaning, cooking and physical skills such as gym training tips) independently with the help of digital material such as videos were mentioned too. The possibility to contact prison staff (a health care specialist, studying counsellor, psychologist, social worker etc.) online was also considered important. The staff was also interested in how flexibly the system could be integrated into other systems and how various new applications could be added to the system to further improve it and tailor it to prisoners' individual needs. A brainstorming session such as this seemed to inspire the participants to see more benefits than risks in the system and enabled them to identify ways to make the most use of it. This was an ideal result, as it engaged the staff and the prisoners to take actively part in the development of the new system and in managing change.

5. Discussion

5.1 Resistance to change and divided opinion between staff and prisoners

The low staff response rate raises many questions. It might be that the development of digital services still seems a bit distant to the staff in the current prison circumstances, considering that the use of the current devices is low according to the surveys. This, however, is in contradiction with the ICT contact persons' opinion that the use of the services is active but not as smooth or independent as it could be (which would increase their use). However, we stress that the sample examined in this study was small and therefore only preliminary conclusions can be drawn from it.

The low response rate might also point to resistance to change and seeing digitalization as a threat. Questions of security and misuse of digital services were discussed in the workshops and especially prison officers viewed these questions as important. Possible changes in work tasks, insecurity about one's own ability to assist prisoners with digital services and a fear of cuts in staff resources because of digitalization emerged in the surveys and workshops.

Even though the law was changed in 2015 to enable digital services to be provided to prisoners, awareness of the "digital rights" of prisoners and their concrete opportunities to use digital services varies from unit to unit and this puts prisoners in different units at an unequal position with regard to digital services. Without assistance from the staff, many digital services remain inaccessible to a large part of prisoners, as currently seems to be the case in some units. The biggest challenges for the Smart Prison project seem to be committing staff and prisoners to using digital services and to seeing the mutual benefits and potential for a better prison culture. Without proper implementation of the concept and training, there is a risk that the new self-service devices also remain underused or unused like the current systems in some units. Bringing the devices to cells should make the threshold of use a little lower and highlight the benefits, which include saving time and resources and making prisoners more independent. This kind of a new system unavoidably affects the whole prison culture and interactions between staff and prisoners. Implementing digitalization / smartization requires management of change.

To facilitate active use, the selection of digital services must be broad enough and digital interaction between staff and prisoners (messaging etc.) fast enough. It is also important to remember that what prisoners want is somewhat different from what they need from the viewpoint of rehabilitation. Self-service devices should promote prisoners taking responsibility of their own lives while enabling rehabilitative interaction between staff and prisoners. Digitalization is not likely to reduce interaction between staff and prisoners, which was one of the concerns of the staff, but rather change its content and means (more digital interaction and more assistance in the use of digital services to prisoners by the staff).

Considering the special circumstances of the prison environment with regard to security and restrictions of freedom, it is not surprising that the opinion is divided between the staff and the prisoners. The staff's opinion is comparable to the initial results on public opinion about prisoners' access to digital technology, which highlighted many of the same fears and benefits as our study (Knight & Hadlington, 2017). If, in the future, it can be proven and experienced that the benefits of digitalization (like purposeful activity and rehabilitation during prison time, efficiency savings and better integration into society) exceed its risks, there is hope that self-service devices and the Smart Prison model will eventually be expanded to all closed prisons in Finland. Further studies and experiences of use are probably needed for this to be accomplished.

5.2 Smart Prison concept and digital service design

The results of this study enabled the Smart Prison project team to redefine the Smart Prison concept and further develop digitalization in all our units. Since the majority of the staff and prisoners wanted self-service systems in cells and their needs were aligned with the key digital services identified by the project team members based on their experiences, experiences from other countries and previous research, we can say that migration towards self-service systems and increased use of digital services is welcomed and even needed. Our results were also comparable with some previous studies on prisoner digitalization and confirmed our expectations of what is needed in the future.

Because our purpose was to use these preliminary results as part of the planning process of POCs for the self-service device and as a basis for how the new Smart Prison's services should be selected and organized, we continued the development process during Spring–Autumn 2019 by organizing two POCs in two prisons, namely the same units where the surveys and workshops were conducted. We were able to gather more information on further requirements before starting the tender process at the end of the year 2019. The Digital Service Map, produced by using our experiences from workshops, questionnaires' results and the service design model, was further refined in these POCs. Using the feedback gathered in the POCs, the Smart Prison project team and the Legal Register Center (LRC)³ were able to prepare the tender documents, the requirements for the new system to be implemented in autumn 2020. As a result of this process the future Digital Services Map for the new prison was defined in collaboration with CSA's senior specialists, including services for all seven rehabilitative categories of the original service map. Examples of these services include various *e-consultancy and self-help materials for rehabilitation, digital skills courses, Basics of Artificial Intelligence -course and other e-learning possibilities, online meetings with close ones and self-services to help management of daily affairs inside prison (like purchases and messaging). Teaching digital skills to prisoners will be an important part of the new Smart Prison concept, and CSA will collaborate with an NGO-partner to arrange the preliminary course. In the new Smart Prison all prison staff will give digital guidance daily to prisoners for the use of self-service system.*

The results of this study also brought the project team to a situation where it was necessary to start simultaneously developing digital services for all units and for the new Smart Prison. Introducing the new services designed in the workshops in CSA's other units, to be used alongside the existing devices, has begun. This way, the white list selection has broadened and the use of new services for e-consultancy services with officials has increased. This way, all prison units get to prepare for future smartization. CSA took into further consideration the fact that we have different prisoner segments that have different needs also regarding digital services. Women, foreigners, young and elderly and cognitively disadvantaged prisoners all have their specific needs. Smart Prison project arranged nationwide digital guidance training for staff to prepare them for future digitalization. The preliminary Digital Services Map defined in the project in collaboration with senior specialists in CSA includes all the services that can be used from prisoners' joint use devices currently.

³ The Legal Register Center (LRC) serves as the IT service center of the Ministry of Justice's administrative branch, developing and maintaining various information systems.

At the same time, it became more evident that the new Smart Prison will function as a pilot environment for new innovations and digital services. Even though effective use of digital services does not necessarily require a personal device for every prisoner, it became clear from our results that personal devices can tackle the problems that now exist in the current system. In order for the services to be used as much as possible and for prisoners to have equal opportunities to use them as other citizens (inevitable prison- and prisoner security-related restrictions excluded), the devices should be located in the cells. The full rehabilitative and other benefits of digital services can only be achieved through this change in prison design. Digital services enable prisoners to use their prison time in a meaningful way and prepare effectively online and on time for their release in collaboration with social, health care, housing and vocational services. The biggest risk is not that the security of these devices fails but that we are not able to take full advantage of the possibilities that digitalization offers to prisoner rehabilitation.

Nowadays in the CSA, the development of new digital services and practices is as important to our rehabilitative purposes as the development of any other general “best practices”. The accessibility of all services can be improved and extended by digital solutions and various outside collaborators (both authorities and NGOs) can be better utilized in these efforts. It is part of the CSA’s strategy to network and integrate into the normal services of society – something that in a modern society is not possible from within prison without access to digital services. Having access to services digitally might be the only way to guarantee equal service availability. Furthermore, reintegration into a digitalized society cannot be done unless prisoners learn digital skills already during their prison time. Digitalisation must be seen as an important means to fulfil the strategical and societal purposes of the CSA.

5.3 Expanding of Digitalization by Smart Prison Concept (2021-)

CSA’s intention is to expand the Smart Prison concept to all closed prisons if the concept yields positive results in the Hämeenlinna pilot starting 1st of October 2020. The result of the Smart Prison tender was announced in July 2020, and the Smart Prison project is currently developing and implementing the smart system and concept in collaboration with LRC and the winning vendor. Furthermore, the Finnish Institute of Health and Welfare has launched a project called DigiIn – “Towards socially inclusive digital society: transforming service culture”. As part of this project,

Laurea University of Applied Sciences will carry out a case study of the Hämeenlinna Smart Prison by using ethnographic methodology, observing and interviewing staff and prisoners. The intention is to analyze the impacts of digital services on prison culture, the prison staff's work practices and on the relations between prisoners and staff. Also the possibilities and challenges posed by digital services on rehabilitation will be studied. These results will benefit the design of digital services for prisons and provide insight into the needs of those at risk of digital marginalization (prisoners and other psychosocially disadvantaged and marginalized populations). In the future, CSA hopes to be part of an exemplary digitalised prison system that other prison systems can follow.

In addition to Hämeenlinna, three new prisons will be opened in 2020–2022. At the same time, the prison concept and prison design and building will be further developed to meet the modern standards of effective rehabilitative work in prisons. The challenges and possibilities first studied in Hämeenlinna will guide the development of these other prisons. The more independent and interactive the digital self-services can be made, and the more “invisible” prison walls can become through digital means without taking security risks, the better for rehabilitation. Learning digital skills and using digital services in a smart prison prepares the prisoner to use these skills and services in a smart society – the threshold between the prison environment and the civil environment will always be a challenge for a released prisoner. A lot frustration typically arises from inability to tackle this threshold. If this frustration can be avoided or addressed by supporting the prisoner's feeling of self-efficacy in their daily affairs and duties, the possibility for a life without crime improve. Digital skills and services can be a means to support self-efficacy and on-time tackling of problems. At the same time, a high threshold to digital services, a lack of skills training and services that are difficult to access with basic skills, pose risks of further frustration. The EU's new Web Accessibility Directive refers to this problem and demands accessible digital services and self-services inside prisons, too. In Finland, many NGOs are developing digital services for marginalized populations and are campaigning for digital rights to be recognized as civil rights and for the provision of digital skills training and opportunities to use digital and smart devices for everyone regardless of their social status.

One of the most important current strategies of the CSA is to further increase and develop these digital services. The lack of digital skills itself is a risk factor for marginalization because many public services have already gone through a digital transformation in Finland (banks, social services and many authorities). Digitalizing and smartizing Finnish prisons will be part of the larger

digitalization process of public services in Finnish society. Schools, hospitals and many other public services are already undergoing this development and prisons are to follow in their footsteps. Smart Prison project's goal is a genuinely digitalized / smartized prison that provides at least 10% of its services digitally. Among the future challenges of CSA will also be the implementation of prisoner e-mail system, new offender management system and finding smart solutions for probation work too. Last but not least, there will be the challenge of applying artificial intelligence solutions in prison security, client management and practices.

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