Summary

Digitisation in criminal justice chains

The experience in Denmark, England, Austria and Estonia from a supply chain perspective

Carolien de Blok
Aline Seepma
Inge Roukema
Dirk Pieter van Donk
Berend Keulen
Rinus Otte

This study was prompted by the wish of WODC and the Ministry of Security and Justice to obtain information about the choices made by other countries when designing, implementing and using digital data exchange in the criminal justice chain and their experiences with this. The intention is to use the study findings, if possible, as input in the further development of digitisation in the criminal justice chain in the Netherlands. Accordingly, the objective of this research project is to acquire an understanding of how some other countries tackled the design, implementation and use of digital information exchange.

Based on this and in consultation with the client, the study was set up to answer the following research questions:

- What choices were made in the selected countries with regard to four topics (namely the changes made in the organisation and working processes of the criminal justice chain partners; the partners' responsibilities, involvement, degree of control and contributions; the preconditions, safeguards and security features; and the facilities for exchanging digital dossiers between criminal justice chain partners)? And what were the reasons or arguments for making those choices?
- What positive findings are there regarding the choices made (including for individual criminal justice chain partners where relevant)? Why are these findings considered positive?
- What negative findings are there regarding the choices made (including for individual criminal justice chain partners where relevant)? Why are these findings considered negative?
- Are there indications that the choices made in the study countries help achieve objectives comparable to those defined in VPS (*Verbetering Prestaties Strafrechtketen*), the programme for the improvement of performance in the criminal justice chain? If so, what are those indications?
  The objectives formulated in the VPS programme are:
    - To deal successfully with more criminal cases
    - To have more convicted offenders actually serve their sentence
    - To try suspects more quickly
    - To punish offenders more effectively
    - To give the interests of victims a higher priority in the criminal justice chain

The basic assumption guiding this study is that working processes that are divided up among different partners in a chain constitute in principle a supply chain. We define a supply chain as all the organisations that work together on the creation of a product or service. Typical partners in the criminal justice chain are the police, the Public Prosecution Service, the courts and organisations involved in the execution of sentences, who are jointly in charge of law enforcement. This point of view underlines the interdependency of organisations as each partner in the supply chain receives from, processes and/or adds to and delivers to other partners in the chain. Coordination of supply and delivery relationships is the ultimate aim of the discipline known as supply chain management (SCM). This is a relatively new perspective for studying criminal justice chains.

Theoretical background and preliminary study

A literature study of the application of supply chain management among service providers and governmental bodies resulted in the following insights:

- At an abstract level, there are five processes that take place in all supply chains, in both production and service industries: plan, source, make, deliver and return.

- In all supply chains, organisations have to cooperate properly. This is achieved through the integration and coordination of activities and processes. Sharing information is important in ensuring successful collaboration.
- The details of how a supply chain is organised and the appropriate degree of integration and coordination for any given supply chain depend on the context, including the sector in which the supply chain operates, the organisations that make up the supply chain and the employees working in these organisations.
- IT is important in maximising supply chain performance. At the same time, applying and implementing IT can be tricky; it is crucial to give some attention at least to technical and organisational aspects such as cooperation in the supply chain, the infrastructure, IT expertise, the IT strategy and the implementation approach.

A limited preliminary study of the Dutch criminal justice chain was performed in order to get a better understanding of the typical legal working processes and to help incorporate the findings listed above into this study. The insights obtained from the literature and the preliminary study resulted in an analytical framework that combines the research questions and the theoretical findings, thus providing the foundation for the data collection - see Table 1.

Table 1 - Framework for data collection and analysis

Topics supplied by the client	Further elaboration based on SCM literature and the exploratory analysis of the Dutch situation
The changes made in organisations and working processes	Plan, source, make, deliver (return): how does the chosen approach to digitisation support the supply chain working processes and how does this differ from the situation prior to digitisation?
The supply chain partners' responsibilities, involvement, degree of control and contribution.	Who was involved in what way in planning and coordinating the digitisation process in the criminal justice chain and how might the responsibilities etc. in the criminal justice chain processes change due to digitisation?
The preconditions, safeguards and security features	Digitisation and: - The judicial infrastructure - The information infrastructure - The organisational and supply chain infrastructure
The facilities for exchanging digital dossiers	Technical facilities (connections, systems etc.) Organisational facilities (project management etc.)

Methodology

Four countries provided the empirical basis for this study: Denmark, Austria, Estonia, and England and Wales (hereinafter referred to as 'England' for the sake of simplicity). These countries were chosen on the basis of the existing literature on the use of electronic tools in European countries, interviews with Dutch experts, meetings with the client and supervisory committee, and the time available. The principal reason for choosing these four countries was that they seemed to have a relatively high degree of digitisation. An interview protocol was based on the research model. Visits were paid to the four countries in the period April-May 2014, by two researchers every time. In these visits, they conducted interviews, collected documents and observed the practices (in courts and

within the public prosecution service). Furthermore, additional desk research was carried out and a number of preparatory phone interviews were held. See Table 2 for an overview of the data collection.

Table 2 - total number of interviews, observation sessions and documents per country, and hours spent

	Interviews		Observation sessions		Documents
	number	**hours**	**number**	**hours**	**number**
Denmark	7	10	1	2	18
England	13	16	4	4	33
Austria	7	7	4	4	9
Estonia	14	16	5	4	7
Total	**41**	**49**	**14**	**14**	**67**

Results

The results per country are described in detail in the report in Chapters 4 through to 7; these results are based on the country reports in English that are included in the appendices to the report. In the summary, we have limited ourselves to giving answers to the four sub-questions and to making a number of additional observations and drawing conclusions.

Answers to research questions - comparison between results for the four European countries

1. What choices did the selected countries make with regard to the following four subjects?

1a. The changes made in the organisations and working processes of the criminal justice chain partners

The detailed results for each of the four countries show big differences in the extent to which digitisation has been achieved and organised. Two of the four countries studied, Denmark and Austria, are essentially only just starting. Both the failed projects and the projects that have been developed further suggest that there are different options: redesigning subprocesses, interfaces and/or internal processes, or more or less keeping the existing working processes or systems and concentrating on the interfaces.

Opting for an integrated criminal justice chain approach

The analysed data shows that opting for a chain approach and the associated changes to working processes and organisations at all levels is seen as important. Each partner in the criminal justice chain must be clear about this choice. In other words, each partner in the criminal justice chain will need to realise that another partner downstream in the chain has certain information requirements that the partner upstream in the chain has to help meet. This chain perspective must be encouraged. Proper management of the criminal justice chain is important in communicating and safeguarding this idea of a chain perspective. There are various options for managing the criminal justice chain: by the Ministry of Justice, by a coordinating minister (as in England), or through close collaboration between different ministries (such as in Estonia). The importance of a focus on the criminal justice

chain as a whole is also one of the lessons learned in Denmark after a digitisation project failed. The chain perspective is now taken as the starting point and will also be incorporated in the setup of future projects. Platforms that bring representatives of all the criminal justice chain partners together have been established in Denmark to encourage the partners to act in accordance with the chain perspective. This seems similar to the approach in England, where various boards have been set up in which the criminal justice chain parties meet. Projects then have to be started up on the basis of objectives for the entire criminal justice chain, and set up in such a way as to ensure the commitment and involvement of all parties. Criminal justice chain partners should also be rewarded for acting in the manner that most benefits the chain as a whole.

Although a chain perspective is a key condition for the success of digitisation in the criminal justice chain, in practice this is difficult to achieve as the various partners generally think in terms of their own organisations and hierarchies, their own objectives and their own budgets and working processes for historical reasons and because they approach it as autonomous organisations. This constitutes an obstacle to the introduction of a chain approach in the criminal justice chain.

At the operational level, a chain perspective can be fostered by opting for standardisation in the information that has to be transferred. This can be seen in England, for example, where a standard layout has been developed for dossiers that contains all the information necessary for the different criminal justice chain partners. In Estonia, the decision was made to link all the information systems and to send automatic messages whenever any particular chain partner required information or documentation from another partner. This gives a clear picture of the interdependency of partners in the criminal justice chain.

Organisation and operational work processes
Not many changes were made in the organisations of the criminal justice chain partners in the four countries as a result of digitisation. Rather, it seems as if changes in the way the justice system was organised were used as an opportunity for starting up digitisation initiatives. Digitisation did not lead to changes in the allocation of tasks to the different chain partners. However, criminal justice chain partners in the various countries did say that the links between the different partners are stronger because information is transferred more quickly, which allows more rapid adjustments to the working processes, for instance.

Specific changes to the working processes in addition to sending documents electronically include the automatic allocation of cases to the public prosecution service (England and Austria) or judges (Estonia). A striking finding is that a paper trail of documents continues to exist in all or part of the criminal justice chain in all these countries, alongside the flow of digitised documents. In Austria this is a consequence of the judges' preference to continue using paper documents while in Estonia and Denmark it is because the paper document is still legally considered to be the original document.

Other choices: objectives and IT philosophy
The success of a digitisation initiative is determined not so much by the intended goal of the digitisation as by the right IT support and project organisation, plus safeguards for the individual natures of the criminal justice chain partners. The reasons for starting up digitisation projects vary widely. The primary goals range from an emphasis on greater efficiency and a reduction in costs (England) to increasing the satisfaction of the professionals in the criminal justice chain (Austria) and improving the service to citizens through better information provision and digital access to information associated with the criminal justice process (Estonia). Different goals seem to lead to different choices in terms of the focus, method and roll-out of digitisation. Any of the underlying

goals can result in successful digitisation as long as the right IT support and project organisation are in place to achieve those goals.

The final point to be mentioned with regard to working processes is the IT philosophy and the independence of the various partners. The results seem to show that there must be respect within the working processes and their digitisation for the individual nature of the work within each criminal justice chain partner. The creation of a single solution does not make sufficient allowance for the differences between organisations. While the plan in Denmark was to replace the existing systems and Austria does not yet have a clear idea about their replacement, the chain partners in England and Estonia continue to make use of their own information systems. In England, these different systems are connected through a multitude of links. In Estonia, a single central architecture has been developed; all the existing systems are connected to this and can therefore communicate with each other. In these countries, the combination of ownership of their own systems while at the same time incorporating a chain perspective and creating dependencies and opportunities for exchanging data between criminal justice chain partners appears to have led to successful digitisation.

1b. The supply chain partners' responsibilities, involvement, degree of control and contribution

The countries studied differ in their choices regarding responsibility and control. These choices do not immediately reveal factors determining the success or failure of digitisation. In Austria and Estonia, the Ministry of Justice is responsible for digitisation projects and controls them. In Estonia, that particular ministry collaborates closely with other ministries while in Austria the Ministry of Justice operates independently of the Ministry of Interior. The public prosecution service played a key role in England, and to a lesser extent in Denmark; this criminal justice chain party took the initiative to set up digitisation projects, although a minister eventually took control in a later stage there too. Despite all the differences between countries, the public prosecution service has a central role everywhere in compiling a criminal dossier and setting the requirements in terms of form and contents. In England and Denmark, this central role seems to have resulted in a central role in starting up a digitisation process around the criminal case dossier.

In all countries, coordination with the courts and digitisation of information exchanges with the courts turns out to be difficult in practice. In England, the courts waited until digitisation had been implemented in the rest of the criminal justice chain so that they could easily link up to it. This was the case in Denmark too. In Estonia, the courts were involved in the digital exchange of information from the start. However, there too the courts' information system has only recently been adapted to allow digital processing of dossiers. The judges in Austria seem to have least need of digitisation, as is clear from the compromise that was reached between the Ministry of Justice and representatives of the courts: it was decided that the judges would keep the option of working with paper dossiers after the implementation of digital dossiers.

Project management

Given the current state of digitisation, particular attention was given to matters concerning project management. Various countries have made different choices regarding the involvement and control exercised by the chain partners and the ministries in digitisation projects. A lack of ministerial control and involvement in Denmark had a negative impact on the project to digitise the entire criminal justice system in connection with the upgrade of the police system, while on the other hand there have been successful local initiatives in Denmark (i.e. with virtually no central control). In Austria, Estonia and England, the ministry (or the minister) decided what steps to take. It was also the ministries in those countries that got the chain partners involved. The involvement of the criminal

justice chain partners in England, Austria and Estonia was guaranteed through the establishment of various combined consultative bodies and committees at different levels. It seems as if Denmark is now setting up a similar structure with broad-based supervisory committees. In Austria, the public prosecution service and courts are involved because they can give advice and make recommendations on the subjects for which the Ministry of Justice determines the policy. However, it is still ultimately the ministry that makes the choices and determines the follow-up steps. In Estonia, a large number of working groups have been set up under the direction of the various collaborating ministries, one for each phase in the development and implementation. A common factor in all these different working groups in Estonia is that there is always a combination of technical and IT specialists, end users and project organisers.

The role of the other chain partners
In this study, we restricted our research to the criminal justice chain up to and including the courts. At the same time we have shown that information exchange also takes place digitally with lawyers, in England (by means of secure e-mail), Austria (via ELC) and Estonia (via Public E-File). Considerable attention is paid to security in the facilities used for communication with the defence. In both Austria and Estonia, reduced court fees apply for digital documents to encourage citizens and lawyers to exchange information digitally; in both countries, the digital exchange of information has ultimately been laid down as a requirement by law.

The role of IT companies
Although IT companies are not criminal justice chain partners, the definition of their role is important to the success or otherwise of digitisation. It also seems to be an advantage if existing, proven systems are taken as the starting point for digitisation.

In Denmark, the external IT company was given far too great a role in comparison with the roles played by the chain parties. This was in part due to a lack of involvement and expertise among parties within the criminal justice chain. As a result the project became more of an IT project and there was both a budget overrun and disappointing performance from the IT system. England used a long-term contract so that the company being hired in had an interest in properly functioning systems. In Estonia, they used both an internal IT organisation and external companies. The latter were brought in based on the argument that this would avoid the need to develop new systems completely from scratch. If new systems are needed, they are purchased from these private companies, but they are also modified by the internal IT organisation where necessary. If a system that is needed is not available off the shelf, it is developed by the internal IT organisation. In this way, Estonia seems to be looking for a balance in the most efficient and effective deployment possible of the various parties in digitisation projects, whereby both the public-sector IT organisation and private IT companies are encouraged to work towards systems that perform well. In Austria, it is mainly the government's internal IT organisation that is involved in the development of digitisation projects.

1c. The preconditions, guarantees and security features
Although organisational, technical and legal aspects that had to be set up for digitisation were explicitly inquired about; the people interviewed emphasised organisational and project management matters in particular. This seems to show that organisational agreement and coordination are an important precondition for the success of a digitisation project, perhaps even seen as more important than the exact method of providing technical security or legal guarantees in documents that are to be exchanged digitally.

Preconditions: security

Information transfer security plays a role, but that role is not equally prominent in all countries. The context and level of digitisation in each country give a highly variable picture in terms of this aspect. A number of countries have not made their choice yet, either because the implementation of systems has been interrupted temporarily (Denmark) or because they are still in the analysis stage (Austria). England in particular has made choices based on pragmatic considerations, such as when choosing a system for storing images, but not based on security. Estonia paid a lot of attention to secure information transfer and an information exchange infrastructure has been developed for a large e-Government project: parts of the criminal justice chain have been using it since information exchange has become digital there. However, a great deal of attention is paid to the exchange of information with lawyers. As stated earlier, England uses secure e-mail for this, Austria uses a government-wide communication system and Estonia used the secure infrastructure mentioned above.

Legal provisions

Although there are specific legal provisions, they seem to differ in the level of detail. The interpretation of the law is somewhat broader in England and the changes in the requirements imposed on the criminal law dossier often turned out to fit in well, almost by accident, with a digital dossier. Estonia deliberately chose to produce a clear description, stating specifically what types of information must be digitally available for whom and how it should be handled. Austria has drawn up legislation for digital information exchange within the public services as a whole in such a way that it applies to both physical and digital information carriers. Denmark has not yet reached the stage of making amendments to the laws or other legal changes. In all countries, legislation has been amended at the moment that was required, e.g. because they ran into something that did not seem to be properly or unambiguously arranged. One condition resulting from legislation (Estonia, Denmark) and from the preferences of professionals (Austria), is the ongoing use of a criminal case dossier on paper, in particular in court. It is possible that those interviewed brought up fewer concrete matters regarding legal provisions because the courts still use paper records and did not run into legal matters that only start to play a role when a case is handled in court using only a digital dossier.

The legal framework and criminal case records

Combined with what the chain partners themselves see as the existing high level of mutual confidence, the function of the dossier in the criminal justice chain seems to affect the extent to which there is a need for certain items such as (digital) tools and guarantees.

The countries that were examined do not have any laws or conditions that have been laid down by other mechanisms regarding the authenticity, integrity and/or completeness of the information that the criminal case record should contain. This is partly caused by the role of the case records in the criminal justice chain. In Austria and Estonia, verdicts are reached based on the content of that dossier, combined with verbal evidence heard during the trial and other evidence shown. Prior to the trial, the judge will be familiar with the content of the case dossier and can prepare the questions that he wants to ask witnesses or suspects using these records. In England (and somewhat less in Denmark), the dossier plays a role particularly in the preparation of the hearing for the prosecutor and the defence. In the majority of cases, the judge is not familiar with the contents of the dossier prior to the hearing: the case must therefore be presented in full during the trial. At the same time, the confidence that the chain partners have in each other's work also seems to affect whether or not conditions ensure authenticity should be regulated by law. In Austria, for example, digital documents

that the Public Prosecution Service receives from the police are not signed, because they know that the document has come from the police. If required, the ELC system can be used to find out where a document has been sent from. England has a similar situation.

1d. Provision for exchanging digital dossiers between chain partners

Our results show that numerous options have been chosen for this point. Exchange can be realised by new systems, by links between existing systems, or by systems that were developed elsewhere and that were adapted to suit the requirements of the criminal justice chain.

In all countries, the facilities chosen aim to make sure that double entries of data are no longer needed, which will reduce errors and ensure that less (administrative) work will have to be done.

Use of existing IT systems

England has currently deliberately opted to maintain existing systems (including data definitions and data structures), at least for the digitisation of the flows between the police and the Public Prosecution Service. The final objective is to work towards a platform that can be used by everyone. Estonia has chosen to maintain existing systems, but these are linked to each other by a central approach and central database.

Integrated dossier versus document exchange

The current situation in all four countries is that all the systems and architectures that are currently used for digital data exchange are not able to exchange a complete dossier between two chain partners. All systems transmit individual documents (which may transmitted individually or together, but not as a single dossier). The next (or final) partner in the chain has to create a complete dossier from them. In England in particular, the objective is to create an integrated digital dossier that can be sorted in various ways at court (chronologically, by witness, by type of evidence, etc.) and that makes it possible to add notes; however, such a dossier does not yet exist.

Digital evidence

The evidence, or parts thereof, is increasingly available in digital form. England is aiming to create an information database in which digital evidence in the form of photos and videos is stored by the police. Other chain partners can consult this database. Initiatives such as these were not seen in the other countries.

Organisational provisions

The organisational facilities required combine a variety of the insights that have been discussed above. For example, all countries do believe that a chain is essential, but also that it is important at the same time for the parties involved to maintain existing facilities, working processes and information systems (Estonia, Austria and England). In addition, all the parties in the chain want to be involved and to have their needs and wishes reflected in systems and databases that are finally implemented (England, Austria and Estonia). This seems to argue in favour of one setup of digitisation that emphasises the organisational and IT-related interfaces and their associated legislation.

2. What are the positive experiences regarding the choices made (for each chain partner, if relevant)? Why are these findings considered positive?

It can be seen from the above that opting for chain integration and a vision that targets that integration, supported by appropriate project management, involvement and vision from ministries

and supported by broadly-based consultative bodies at a high level, contributes to the success and positive experiences of the chain partners involved.

Appropriate project management and implementation
Suitable project management and an appropriate implementation seem to contribute to a positive perception among the parties involved. In Austria for example, for the EliAs project, the testing phase, the use of flexible programming and the step-by-step rollout of the application were seen as positive.

Decentralised independence
Another positive experience seems to be that the various chain partners appreciate the possibility of choosing to retain their own work processes and systems, within the concept of a more digitised criminal justice chain. Part of this is that standardisation of the information to be transferred and the IT resources linked to it must be appropriately handled. Successful digitisation fits in closely with the wishes and requirements of the users. In a sense, Austria's (provisional) choice to focus primarily on the wishes of professionals is therefore not so very strange.

Transparency and equality through digitisation
More specific positive findings that were presented relate to the results as experienced by people who were interviewed. When technical features yield greater clarity (Estonia), more insights into cases in the chain (Estonia) or into people's own work (judges in Estonia, the Public Prosecution Service in Austria), then digitisation and the use of IT are experienced as positive. This also happens because it seems to create greater equality among the chain partners. This results in a feeling that the processes are still under the control of the professionals involved, who think this is very important. Even when cases are allocated automatically using a calculation model based on capacity and specialist knowledge for example, those involved see this as positive (the Public Prosecution Services in England and Austria, and the judges in Estonia).

User-friendliness and support by IT
User-friendliness of systems or applications leads to positive findings (Estonia, Austria), which fits in with all the literature about computerisation and digital working methods. Conditional to this is that IT must really have a supporting role and this goes for the role of the IT companies too. England and Estonia are examples of this. Giving the IT organisation involved a leading role does not fit in with this approach.

Acceptance and use
Estonia, England and Austria are positive about the extent to which the various information systems are used for digital transfer of documents and information, not so much in terms of the results when the systems were used as when the extent of their use is taken as the point of reference: the figures are increasing.

3. What are the negative experiences regarding the choices made (for each chain partner, if relevant)? Why are these findings considered negative?
The findings presented as negative are in particular about the choices made (or (lack thereof), and not so much about negative experiences with the digitisation itself.

The positive points listed in Question 2 are also immediately the negative points for project management: lack of a clear vision or failing to choose one, lack of support, lack of commitment and

only minor contributions from various high-level strata resulting in negative experiences and poor results, as well as making it too easy not to accept the solutions chosen, as the Danish case shows.

Inadequate organisation and working processes
Organisational embedding is very important for the success of digitisation initiatives. Digitisation must become part of the way that the chain operates and must not be set up as an additional working process. This prevents duplication and streamlines the working processes. On the one hand, the independence and autonomy of the professionals must be monitored. On the other, leaving existing processes entirely unchanged and transferring the original (paper-based) processes as-is into an identical digital situation (Austria and Denmark) is not successful: it fails to ensure sufficient improvement of the information exchange between organisations. It becomes even worse if the entire paper process is still retained (Denmark). Finally, communication about the chain process is important: the activities to be performed will soon be seen as unnecessary if it is not made sufficiently clear that this saves work elsewhere in the chain.

Training and education
To make sure that the implementation will be a success, it is important to pay sufficient attention to testing and training the end users. In both Austria and Denmark, a lack of support from trainers (training facilities, test environments) or a lack of training for the end users was seen to lead to negative experiences with the systems, particularly because this means that users cannot make full use of the systems that have been developed.

4. Are there any indications in the countries examined to show that the choices made contribute to the objectives of VPS (Performance Improvement in the Criminal Justice Chain)? If so, what are they?

There is not much quantitative data available
Our investigations revealed very few concrete insights on this point, because the countries being examined had little or no data in this area. People are not able to measure the results of digitisation directly, or they find it awkward to make direct (objective) links between initiatives and results within the chain. To a certain extent, as in England, the primary goal of digitisation is also cost reduction and efficiency improvements. To some extent, there are no effects because of the lack of implementation. Finally, the focus in Estonia was more on providing services for the public than it was on other effects. In Estonia, people are looking at speeding up how cases are dealt with and improving the quality, and they would like to be able to generate reports about this too. However, this capability is currently still under development and it is not (yet) possible to show what the results of the digitisation are. The VPS objectives can in fact only be seen explicitly in the new objectives in Denmark, but they have not yet been achieved there.

Positive perceptions about improvements
The experiences of those interviewed do indeed give pointers to improved performance in the criminal justice chain. As regards successfully dealing with criminal cases or allowing them to progress, there are indications in Austria that a legislative amendment (and the stricter checks resulting from it by the public prosecutors on the preliminary investigations) has led to more cases being legitimately halted and also in more cases coming to the Public Prosecution Service. In England, more cases are coming before the courts because the Public Prosecution Service is obliged to check the preliminary investigations by the police. In Estonia, computerising the completion and monitoring of criminal records has led to a better flow of information to the police and improved controls on the

punishments that have to be implemented. Automatic allocation of cases in England, Estonia and Austria is already resulting in a better-balanced distribution of cases, so that the capacity is being utilised better. In Austria, automatic allocation has progressed from assignment based purely on the available capacity to assignment based on expertise. This should result in more cases being picked up by people with the requisite specialisations, who can deal with these cases more effectively. In Estonia, the development of E-File is aimed at achieving transparency, both for the parties in the chain and for the general public. The public part of E-File gives the general public insights into the criminal cases that they are involved in. For the victims, this system then lets them see how the criminal case is progressing as well as showing them the punishment that is ultimately imposed upon the perpetrator.

Additional observations and conclusions

The study has also revealed a number of interesting themes that are somewhat outside the scope of the main questions. Nevertheless, these themes were still relevant or had an effect on digitisation in the criminal justice chains in the four countries being examined.

A digitisation backlog

The first additional conclusion is that digitisation is still poorly developed in the countries that we investigated. Neither Denmark nor Austria have achieved or done very much yet on digitisation within the criminal justice chain, although both countries have already seen a lot of developments in the field of e-Government. England and Estonia have already digitised a significant proportion of the chain, but the courts (and the judicial authorities) in England are as yet only involved in pilots. The parties involved in the chain in Estonia are all connected together and are able to exchange documents digitally with each other (as well as with the general public and with lawyers). At the same time, though, the court hearings in Estonia still use paper files (as is the case in the other countries) because the law deems these to be the originals. As a consequence, it is noteworthy that digitisation of the criminal justice chain is lagging behind digitisation in other governmental services.

The organisation and the process for digitisation

The general conclusion is that no single best way has been found for introducing or organising digitisation. Digitisation of the criminal justice chain is partially determined by aleatory events that are difficult to control, such as local initiatives between parties (Denmark), a specific problem (how to deal with unknown perpetrators in Austria), specific legislation (simplified procedures after a guilty plea in England) and the history of the country (the organisation of the system, philosophy, the role of the criminal case records, etc.). The interviews have shown that digitisation cannot always be planned; the process of digitisation in Denmark and England seems to have taken on a more organic form. This means that both successful and failed forms of digitisation sometimes seem more awkward to translate into a new situation than might have been thought beforehand. Estonia was the only country where things went very differently. From the very start, there was a clear vision of where they wanted to be in future, with requirements and conditions that the architecture under development had to comply with. The roles of the various parties in the development and implementation were also clarified explicitly beforehand in Estonia. A decision was taken, though, to develop and implement this architecture step by step over a time interval of at least a decade. The fact that Estonia is a small country with its own specific context also makes the translation to other countries trickier.

Differences in the organisation of the criminal justice chain at the level of ministries, agreement between the various partners in the chain (the police, the Public Prosecution Service and the judicial

authorities), the organisation of the various partners and the form of the criminal case records all have roles to play in how digitisation is organised or implemented. The organisation of the projects for digitisation largely determines the level of satisfaction with the results.

Objectives and results
The conclusion here is that numerous reasons and objectives have been defined for digitisation, but that these are not determining factors in success or failure. The objectives of digitisation vary greatly between the countries that were examined. England was looking primarily at cost reduction, Austria was emphasising professional support for the courts, whereas Denmark was positioning criminal law within the general context of digital government. Finally, Estonia was emphasising accessibility and service for individual members of the public. Choices such as these have had an effect on the design and structure of digitisation, in aspects such as data access and data security. Partly because of the varying objectives, but also because of the lack of suitable quantified data and material for comparison, it is impossible to make any statements about the effects of digitisation. Irrespective of the aims, we can however conclude that digitisation of the processes in the courts is very limited.

Legal restrictions
Legal restrictions only appear to play a very limited role in the countries being examined. They are generally seen as a less significant success or failure factor than the organisational cooperation between the various departments (police, Public Prosecution Service and the judicial authorities), which all of the respondents listed as crucially important.

Reflection on the study

A significant principle and an underlying assumption before starting to collect data was that digitisation in the criminal justice chain in the European countries selected would already be well advanced or even completed and implemented in practice. However, digitisation turned out to be less advanced in practice than had been expected. Although this ultimately led to fewer insights in terms of the original objectives of the study, it does allow the conclusion to be drawn that digitisation is probably more complex after all.
In our study, we went no further than the police, the Public Prosecution Service and the courts of first instance. Despite that, the study has revealed a wealth of detailed information about digitisation in the criminal justice chain. The results show that the theoretical approach used - the supply chain management angle - was relevant. It has made clear that many of the partners in the chain do not actually realise that they are part of a chain, in which they are carrying out activities for the benefit of the next link downstream. In addition, the results demonstrate that it is precisely a lack of chain integration and chain-oriented thinking in the criminal justice chain that plays a significant role in the digitisation backlog.

Like virtually any other exploratory investigation, this study has also generated additional subjects that need exploring further. The following subjects are discussed in more detail in Chapter 8:
defining development models that are appropriate for the visions and the legal systems; how to agree upon and integrate digitisation initiatives within and between the partners in the chain; the role of legal professionals in digitisation; and the integration of the desired social and operational results of digitisation.

Points for attention in digitisation

A number of practical points for attention for digitisation in the criminal justice chain (some of them rather more speculative) in the four countries examined can be distilled from the results presented.

These points for attention relate to both the chain in general and to each of the organisations involved, the setup of the project organisation, and the technical and legal preconditions.

1. Keeping an eye on the steering and coordination
In all the countries that were examined, it turns out to be important that the ministries involved have a clear involvement and vision, or must steer the activities. When multiple ministries are involved, coordination between them is extremely desirable. In addition, it is crucially important to organise the involvement and agreements between the partners in the chain properly by setting up consultative bodies at a high level.

2. Keeping an eye on the project management
It can be seen from successful digitisation projects - and possibly even more so from the failures - that a lot of gains can be made in this area. The greatest danger here is that a project will be seen principally as a computerisation or IT project rather than an organisational improvement project.

3. Chain-oriented thinking
A significant part of the steering and coordination relates to getting the partners in the criminal justice chain to think in terms of that chain. A key component of that is thinking more horizontally, along the various steps within the criminal justice chain, rather than vertically in terms of the hierarchical structure of your own organisational component. This can be encouraged at both the strategic and operational levels.

4. Starting with the quick wins
Experience from both the successful and the less successful countries teaches us that it is sensible to start with subprojects where quick wins can be obtained relatively easily in the form of cost savings, or quicker or better processes. There are various options for this: starting with a process for which very little has been defined as yet (e.g. the unknown perpetrators in Austria), or digitising the processes where efficiency gains can be made quickly and with little effort (e.g. guilty pleas in England).

5. Chain-oriented thinking from the ministries
The countries that we looked at have shown that breaking away from the vertical organisational structures is a task that has to be taken on by the Ministry of Justice, cooperating if necessary with Internal Affairs and/or a coordinating ministry. These ministries have the appropriate authority and can provide a good overview by defining overarching goals that encourage cooperation between the organisations within the chain. A corollary of this is that any goals that have been specified for each link within the chain will have to be dropped if they are not in line with the overall objectives of the chain. At the same time, some or all of the responsibility for digitisation projects must be given to the partners in the chain in order to generate commitment and create a sense of urgency.

6. Aligning the operational processes
In order to achieve changes, it seems important that the focus should be placed on the working process that takes place between the partners in the chain. Digitisation of that process is a derivative and supporting tool, rather than a goal in its own right. Putting the chain process in the middle of things also means that the partners in the chain will have to accept that the benefits will be noticeable primarily at the chain level and not necessarily within the organisations of one or all parties within the chain. Continuous alignment and agreement between the organisations is needed if a picture is to be obtained of the benefits achieved (and the expected disadvantages).

7. IT and project management expertise within the chain

Too much outsourcing and too little IT expertise and project management expertise within the chain yield projects that cannot be properly controlled. If projects are to succeed, it is important to involve the users. Professional autonomy and the associated working processes and activities are extremely important for the level of quality that can be achieved in the chain as a whole. There will be resistance if too little attention is paid to this. In addition, it is more useful to draw up concrete objectives that are to be achieved and carry out projects step by step, rather than focusing on deadlines. Choosing tried and tested systems and technology for which the market parties can offer proper help, rather than being overly demanding about what a system must be able to do immediately, seems to be important in successful digitisation initiatives.

8. Legal aspects

Differences can be seen among the various countries in the way that the criminal justice chain is organised, the role of the criminal case dossier and the agreements between the partners in the chain. It is striking that, despite the differences our study revealed in all these countries, there turned out to be no major obstacles in terms of the legal aspects or the criminal law procedures. Modifications were needed sometimes, but were not seen as problematic by the people who were interviewed. Other sources also did not show that legal aspects had proved problematic. In addition, judges in some countries seem to handle specific procedures in such a way that they are applicable to both cases in which the files are in digital form and those where they are still working with paper case files.

9. The role of IT

The results show that the role of IT is not the deciding factor in a success story, but can be one of the reasons for failures. Retaining existing systems and focusing on the links with other organisations and their IT systems has advantages over attempts to redesign the whole system centrally in one go, even when the ultimate goal is to create such a central system or platform. When choosing new systems, it is important to go for existing, working systems and tried-and-tested technology. In addition, it seems sensible to set up some kind of partnership arrangement with an IT supplier. Finally, it is wise to keep the IT systems as open and flexible as possible, so that existing and new components can be connected up to them.

10. Digitisation and the goals to be achieved

Each of the countries examined had its own underlying objectives for digitisation. The degree of digitisation and how it is used will have to be embedded in the chain in such a way that it helps achieve the objectives. The people interviewed were unable (or not yet able) to demonstrate whether the intended goals have actually been achieved in the countries we looked at. It was however clear, for instance, that transparency in the criminal justice chain can become more effective through digitisation, as long as this is designed explicitly into the chain (see Estonia). This type of consistency between the goals and the digitisation itself seems to be a major success factor.

In conclusion

Digitisation offers numerous opportunities for making improvements in the criminal justice chain, so it is reasonable to set ambitious targets for the improvements that are to be implemented. However, there is a hidden danger lurking in each and every improvement scheme of wanting to achieve everything in one go by setting up a large-scale, one-off project. The findings of this study suggest that digitisation must above all be part of an on-going or long-term improvement process that aims

for better alignment and streamlining within a chain of organisations, followed by and supported by the introduction of suitable IT. This study suggests that no single ideal approach can be put together for digitisation projects; the best approach depends on the country-specific context and the goals underpinning the digitisation. Key conditions for such schemes to succeed are finding a way to fit in with specific circumstances and small-scale improvement activities within and between partners in the chain, plus steering of the chain by the ministry, based on a vision that focuses on chain integration. Digitisation is not an end in itself here. Instead, it is a resource, a tool that works in conjunction with e.g. the legal context to assist further streamlining. Organisational obstacles, which are largely derived from habits and for historical reasons, obstruct that streamlining and therefore need to be eliminated. A key challenge then remains in finding an equilibrium between prudence about the content and professional autonomy on the one hand, versus costs, procedural agreements throughout the chain and speed on the other.