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E-JUSTICE FOR THE ITALIAN PUBLIC PROSECUTOR OFFICES

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Abstract

All around Europe, large investments have been done to project, develop and implement new information and communication technologies (ICT) in the justice sector. ICT has often been presented by policy makers to the public as a powerful tool to introduce and support changes, but also as an element of modernization *per se, as the key for "bringing the justice administration into the modern age". As recent studies seem to shows, this is not always the case. This paper study ICT innovation in the Italian public prosecutor offices (PPOs), illustrating how organizational constraints have affected the deployment of the systems. During the last 20 years, the Italian Ministry of Justice has launched a large number of projects that cover almost every task performed by PPOs. A description of the Italian judicial ICT history and of the most relevant and interesting experiences will be provided. The mix of failures and successful deployments will provide the occasion for a meaningful reflection on the innovation approaches adopted in this very complex and highly regulated environment.*

The work is based on data collected thorough a research project funded by the European Commission and through several case studies focused on specific applications and carried out through the years by the researchers of the Italian Research Institute on Judicial Systems (IRSIG-CNR). Such researches have been conducted with a qualitative interdisciplinary approach, based on direct observation of practices in action and informal interviews, coupled with an analysis of formal documentation.

Keywords: ICT innovation, technology adoption, e-justice, public prosecutor.

1   INTRODUCTION[1]

All around Europe, large investments have been done to project, develop and implement new information and communication technologies (ICT) in the justice sector. The "reasonable time" clause in article 6, paragraph 1 of the European Convention on Human Rights, and more recently the terrorism threat, have certainly increased public and political awareness over criminal justice institutions. As a result, pressure toward a more efficient criminal justice chain has consequently increased. Normative and organization reforms have been adopted in several states. The reform of the code of criminal procedure in Italy and the Judiciary Organization in the Netherlands (Act Wet op de Rechterlijke Organisatie) are just two examples. Within this general framework, ICT has been seen as a powerful tool to introduce and support changes, but also as an element of *modernization* per se, as the key for "bringing the justice administration into the modern age". European and State institutions are putting more and more attention and efforts to develop policies to address the issue. Considering the amount of resources that are being invested and the relevance of the decisions that are being taken, there is a strong need of information on potentials and criticalities of ICT solutions and practices. Unfortunately, as field research on ICT in the judicial administration is scarce (Fabri and Langbroek 2007, Fabri Contini 2003), too little is known about potential and empirical uses and innovation dynamics of ICT in the criminal justice sector.

This paper study the ICT innovation in the Italian public prosecutor offices (PPOs) analysing its history, and, more importantly, its successes and failures in light of their organization and institutional features. Italian case is interesting for several aspects. During the last 20 years, the Italian Ministry of Justice has launched a large number of projects that cover almost every task performed by PPOs. To give an idea, in 2004 Italy spent four times as much as France for ICT development in the justice sector (Source: Cepej). Furthermore, PPOs key role within the Italian criminal chain, their complex organization structure and their problematic coordination mechanisms make them very interesting subject of study. Public prosecutors are the gate keepers of the criminal justice (Guarnieri, 1995). In particular, Italian public prosecutors are entrusted by law to direct the criminal investigations and have monopoly over crime prosecution. According to the Italian Constitution and Code of criminal procedure, the public prosecutor must consider all crime notices and criminal action is mandatory (Di Federico 2001). This means that millions of cases have to be processed each year by the PPOs.

Two elements seem to be particularly helpful for explaining the adoption dynamics and results of ICT innovation efforts. On the one hand, the key organizational features of the PPOs, on the other hand, the level of adoption required by the innovation (Contini, 2006).

As organizational features are concerned, the most relevant is probably the distinction between administrative and prosecution components. These components perform different but complementary tasks using different coordination mechanisms. As the prosecution component is concerned, Italian PPOs are characterized by strong internal and external autonomy. As a consequence, the organization of each PPO varies significantly on the bases of local choices. Organisational heterogeneity of the 165 PPOs spread all over the country is increased by the different sizes of the offices (e.g. the PPO of Bassano del Grappa has 2 public prosecutors while the PPO of Naples 104) and by the different kind of crimes to tackle in each territory. Hierarchy mechanisms of coordination are quite weak. In particular, supervision and authority of chief prosecutors over the single public prosecutor is limited. This is due to the fact that Italian public prosecutors have the same guarantees of independence and autonomy as judges. As for the judges, their status is not ruled and managed by the Ministry of Justice but by the Judicial Council.[2] Considering a typical Italian prosecutorial organisation, prosecutors cannot be considered strictly part of a hierarchical structure and there are not significant mechanisms

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[1] This work benefits of several research coordinated by the Research Institute on Judicial Systems of the Italian National Research Council (IRSIG-CNR) with financial support from the AGIS Programme of the European Commission and from the FIRB programme of the Italian Ministry of University and Research.

[2] Independent from the executive and the Ministry of justice, the Judicial Council is the institution in charge of recruitment, promotion, transfers from judicial positions and has a disciplinary system for judges and prosecutors (art.105 Italian Constitution). The Council is considered the self-government body of the Judiciary, including both judges and prosecutors

of accountability for their actions or inactions. Among public prosecutors of the same office, most of the coordination is based on personal relations rather than established rules or practices. Each public prosecutor is autonomous in carrying on an investigation both in the methods used and in the costs to be afforded. In conclusion, the loosely couplings (Weick, 1976) of this component of the PPOs correspond to what Cohen, March and Olsen (1972) labelled as *organised anarchy* (Fabri, 1998; Zan, 2006).

On the other hand, the administrative component of the PPOs has the characteristics of what Mintzberg identifies as a mechanic bureaucracy. Within this component, coordination is mainly granted by the standardization of operating work processes integrated by hierarchical mechanisms. Furthermore, the personnel is under the direct control of the chief prosecutor and of the head of the administrative staff. If within each PPOs the practices of the administrative component are standardized, at the same time, such standardization tend to differ from office to office. This is due, between the other factors, to the organization autonomy of the chief prosecutors, the different characteristics of the offices and to the need to coordinate the organization of the administrative component to the prosecution one.

As the level of adoption is concerned, individual technologies improve the work of single users. If other people around the organization do not adopt it, the performance of the user is unaffected. A typical example of this is the use of word processing application for composition, editing, formatting, and printing of standard correspondence (Fabri and Contini, 2003). An administrative worker or a public prosecutor, with the use of pre-formatted documents, may reduce the time dedicated to this task. The fact that other workers do not uses such pre-formatted documents or do not uses pre-formatted documents at all make no difference. Organizational tools, instead, need to be collectively adopted by the organization to perform well. This has been subject to mixed results. When only the administrative personnel has been involved, PPOs have reached some positive result when the Ministry implemented new technologies. Finally, inter-organizational technologies, in order to produce the expected results, need to be adopted not only by the organizations but also by external actors (Contini, 2006).

As the article will show, all this elements have contributed producing a very interesting history of ICT innovation efforts and a wide range of experiences on the interaction between organization and technology in the justice administration.

The article is organized in three sections. The first section will present a description of the Italian judicial ICT history. The second section will present some of the most relevant and interesting experiences considering three different areas of technologies: basic infrastructures, case tracking and case management, and technologies for investigating and prosecuting crimes. In the conclusions, a summary assessment of this long innovation effort will be presented. To do this I will consider the main elements that have affected the development and the deployment of ICT results. Finally, some of the implications emerging from the analysis of the different experiences will be dealt with. The mix of failures and successful deployments will provide the occasion for a meaningful reflection on the innovation approaches adopted in these peculiar organizations.

The work is based on data collected thorough a research project funded by the European Commission and through several case studies focused on specific applications and carried out through the years by the researchers of the Italian Research Institute on Judicial Systems (IRSIG-CNR). Such researches have been conducted with a qualitative and interdisciplinary approach, based on direct observation of practices in action and unstructured interviews, coupled with an analysis of legislation, formal and informal documentation.

2   A BRIEF HISTORY OF ICT FOR PROSECUTOR'S OFFICES

The diffusion of ICT in Italian prosecutor's office can be divided in three main stages. The first one was characterized by a generally uncoordinated "exploration" of the possibility offered by ICT. Although there had been a "strong interest" in the use of IT in support of civil and criminal litigation at least since the 1970s, and some discussions on the subject date back to the 1960s (Di Federico,

1966), it was only from the 1980s that ICT began playing an increasingly relevant role in PPOs. The development of personal computers allowed individuals and small groups of motivated public prosecutors and administrative personnel to start tinkering with the potentials of the new tools within the PPOs. In this first stage, the lack of standards, of strategic views as well as of technological and managerial competences led to a flourishing of a number of initiatives that in many cases simply resulted in a waste of money. Even if the results in terms of outcomes cannot be evaluated as positive, there were some noticeable by-products. Judicial organizations started to 'play' with ICT. For the first time, prosecutor's offices, generally considered very conservative, were drawn into the technological innovation arena.

At the same time, between the end of the '80s and the beginning of the '90s, the awareness and interest of the public to the justice sector had been enhanced several factors such as the expansion of judicial power (Tate and Vallinder, 1995), "the growing role of international organizations such as the European Court of Human Rights, and the activism of NGOs" (Velicogna and Ng 2006), and most importantly for the case we are considering, the escalation of the Mafia phenomenon. Furthermore, the diffusions of new public management values and the idea that, "the administration of justice looks very much like an ordinary public service organization" (Fabri and Langbroek, 2000), generated an awareness that the actors operating in the criminal chain should earn their legitimacy not only by following the procedures prescribed by the law but "by providing adequate services" (ibid.). One of the consequences of this new climate was the acknowledgment of the inadequacy of the structures that until then had been responsible for technological innovation of the Ministry. A new organization and new competences were needed in order to reduce the information asymmetry with the ICT vendors, to increase the vision and strategic capabilities in the field, to design, develop, implement and manage ICT, to provide training to the end users (Contini, 2001).

The establishment in 1993 of a National Authority for ICT in Public Administration (AIPA) provided an answer to such needs. Its institution represented the end of the exploration stage. The Authority was created to promote, coordinate, plan and control the development of information systems (IS) in all the branches of public administration. Its ultimate goal was the improvement of the services supplied by the public administration to the general public through the use of ICT (Fabri, 2004). In conjunction with the institution of the AIPA, in each public administration agency was established an ICT Department. The scope of such Department was to connect each single administration with the Authority, giving also a new organizational structure to the already existing ICT units within each branch of the public administration. The creation of these institutions is an attempt to improve the ICT governance of the system. They were expected, on the one hand, to provide an impulse to the computerization of the judiciaries, on the other hand, to help a rationalization of the investments and a more efficient management of the expenses.

Within this more centralized, top-down innovation approach, strategic actions were taken to introduce legislation reforms that would enable the use of ICT within PPOs formal procedures. Furthermore, actions were taken to create technological infrastructure to support the production and exchange of both electronic data and documents, not only within the PPOs, but also across their borders in order to provide better services. At the same time, regional branches of the Justice ICT Department were created and entrusted with the day-to-day management and support specific initiatives undertaken at central level (Carnevali and Di Cocco, 2001). In few years, the capability of the Head of the Department at the Ministry of Justice, associated with the growing political interest in ICT for justice and with a consistent financial flow, changed the scenario. A consistent increase in the available resources and the new needs induced by the reform of the code of criminal procedure, by the institution of the antimafia bureaux (1992) as well as by the merger of prosecutor's offices, led to a blooming of projects. This trend was interrupted by the budget cuts imposed by the European Union stability and growth pact. The cuts meant the end of the second stage.

Since 2001-2002 the ICT for public prosecutor is living its third stage of "hard times". In this stage, budget constraints affected the development of new applications, the deployment of new case management systems as well as the integration of the systems already in use. The difficult Italian economical situation of the beginning of the new millennium, characterized by an increase in the inflation rate, reduced exports and almost nonexistent GDP growth (from 1.8% in 2001 to 0.3% in

2002 and 0.0% in 2003 Source: Eurostat), reflected in a more rigorous control of public expenditure. Also the Ministry of Justice didn't escape from such rigour. In this new climate, the most urgent issue became how to maintain PPOs basic technological infrastructures and applications, closely followed by the problem of how to guarantee a further development of such systems. The issue of new application development was particularly tricky as it was easier to cut the budget for the development and for the update of basic hardware by not launching new projects, rather than to reduce maintenance costs. Another question that had been open since a long time, but which relevance increased in this period, was how to integrate the systems of prosecutor's offices with those of the other agencies of the criminal justice chain, and foremost the police forces. An important help to manage such problems came from the European Union funds. In fact, such funds are now helping financing old and new projects. Nevertheless, as a result of the budget cuts as well as of unsuccessful projects, the current status of information and communication technologies in prosecutor's offices, even with some relevant exceptions, is very similar to the one found in the mid nineties.

3   PUBBLIC PROSECUTOR'S OFFICE TECHNOLOGIES

3.1   Basic infrastructures

Since the '90s, the ICT Department provided to each public prosecutor's office a LAN, a number of personal computer, and other technical equipments. Furthermore, all the PPOs are connected since 2000 with the Justice unified network (RUG). The RUG is a sub-network of the National public administration unified network (RUPA). Two private companies selected by the AIPA after a public bid provide the RUG services. The price list of the services offered to each single administration is established yearly after a negotiation between the AIPA and the contracted companies. Each public prosecutor, through this network has access to the National criminal record system, the legal database of the Court of Cassation, and the database of the Department of Prison, as well as to e-mail and the Internet. These services are also available to the majority of the administrative staff.

A relevant number of smart cards for digital signatures have been distributed since 2002 but they have not been used yet. In a near future, a system of *certified* e-mail, that for the Italian regulations guarantees the proper sending and receiving of the message, should become part of the services available. As far as the use of infrastructure is concerned, the data published by CNIPA show a very low (although growing) use of e-mail, especially of those exchanged within the justice sector. Even though there is a big growth of exchanges, numbers show a modest level of utilization of this service for institutional and organisational purposes. This is partially due to the fact that *simple* e-mail cannot be used for formal communications: e-mails can only announce documents subsequently sent by fax or by other traditional means. By law, for official communications it is required the use of *certified* e-mail. The central administration keeps communicating mostly by fax, rather than by e-mail. The electronic exchange of data and information among attorneys, parties and PPOs has the value of informal communication. An electronic copy of a document, attached to the e-mail, is considered "unofficial".

Video recording and video conferencing technologies provide a final example of basic infrastructure. Such technologies have been used in the Italian judicial system from the beginning of the 1990s. The Italian legislation makes it possible, during a criminal proceeding, to interview witnesses, defendants, convicted persons, and juveniles through videoconferences, when particular conditions of security or privacy arise. In particular, from 1992 a new legislative provision has made it possible to hear the *pentiti* (mafia defectors) in videoconference. While video recording systems are used almost solely for complex trials, the use of video conferencing has grown faster and is now quite widespread

3.2   Case tracking and case management

A number of different applications have been developed to support the administrative component of the PPOs organization and to automate administrative procedures. The first and most successful step has been toward the automation of repetitive and executive tasks. In this regard, automated registers (e.g. case tracking systems) are one of the technologies that have most affected the office activities.

Some of the big advantages of automated registers are the possibility of multiple synchronous data entry, the reduction in the need of entry the same data again when adjourning the file and the data retrieval functionalities. Although today they are often given for granted and well integrated in everyday practices, in many cases their introduction has been all but easy and plain. The development of these applications was often carried out locally, in many cases to meet specific and urgent business needs within specific offices, or within ad interim pilot projects.

Re.Ge., the Italian case tracker for criminal procedures developed by the Italian Ministry of Justice is a good example of all this experiences. The software evolved from a local initiative of the Turin PPO starting from 1989. It has been conceived to be used in a LAN and it can exchange electronically basic data related to the criminal cases among PPOs and Courts. Apart from its case tracking functions, the system allows the production of statistics.[3] It also ingrains some very basic functions for the automated draft of standard judicial documents. Such applications allow 1) retrieving data from *Re.Ge.* and 2) using such data to generate a limited number of structured documents in order to meet specific procedural requirements and automate the document production. In general, users seem to consider such functions as limited and not capable of meeting specific needs of their activities.[4] Case studies describing its introduction in pilot PPOs in the first half of the 1990s show a wide range of reactions, from enthusiastic adoption, to adaptation and *bricolage* attempts, to refuse and implementation failure (Di Federico et al. 1995). This variety was the result of the heterogeneous organization structures of the different offices and the attempt to use the new electronic technology in an isomorphic substitute of the paper one. At present, though, after a long effort, it is in use in all 165 PPOs attached to courts first instance.

An attempt to introduce an office automation evolution was made by the Ministry through the development of *Re.Ge. for Office Automation (or Re.Ge.4OA)*. The technology was designed not only for the administrative component of the PPO but also for the prosecution one. The application automatically generates documents the public prosecutor needs to produce during the investigation phase. It access *Re.Ge.* database but also allows the recording of further information needed for the various documents. A basic legal research system had also been integrated for the selection of the counts of indictment and the redaction of indictments. The application was supposed to speed up the redaction activity but also to improve the quality, reduce the mistakes and increase the consistency of the documents (Di Lecce, 1995). In addition, the application generates a database of all the documents that have been created. The diffusion of *Re.Ge.-4-OA*, that should have taken place in 1995-1997 resulted though in a big fiasco as public prosecutors did not use the application. At the same time, a number of local applications such as *Decise, Re.Ge. Word* and *In-fieri* softwares that support the writing judicial documents automatically populated with data extracted from *Re.Ge* were developed (Contini, 1995). Although locally successful, such applications were not supported by the Ministry of Justice.

In the effort to solve the office automation stall and to move away from *Re.Ge.*, a new case management system called *Re.Ge. Relazionale*, based on an Oracle database, was developed. Unluckily, the results do not seem to be as good as hoped. The development of the system started in 1995, but the result was presented in 2004, over 9 years later! At present it runs in the district of Turin only. On the paper, the new system should reduce maintenance costs and should increase reliability, efficiency, performance, and usability. However, *Re.Ge. Relazionale* seems to have still serious technical problems. For instance, compared to the old *Re.Ge.*, the need of the new application to access the server for each query increases the waiting time, reducing retrieval performance in a standard use. Besides, given the ICT general evolution, a reengineering project has been started to upgrade the "new" *Re.Ge. Relazionale*, moving it from a client-server architecture to a web based one. In other words, from architectural and technological points of view, the 10 years taken for the development led to a born dead system. The new application, called Re.Ge.Web, has not been piloted

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[3] On the subject see: Efficienza della giustizia: l'esempio dell'Italia, le valutazioni del Ministero. Diritto e Giustizia, 05/10/2002 and: I dubbi sui numeri della giustizia a un mese dal nuovo controllo del Consiglio d'Europa. Diritto e Giustizia, 30/10/2002

[4] On the subject see: ANM, (2005). Libro bianco sul disservizio giustizia: Inaugurazione dell'anno giudiziario, 15 gennaio 2005. Diritto e Giustizia. 15/01/2005.

yet. It represents mainly an adjournment of the architecture of Re.Ge. Relazionale in order to centralize the assistance, reduce the maintenance and upgrade costs and local customisation initiatives.

3.3 Technologies for investigating and prosecuting crimes

Another area in which ICT has been developed to support the specific needs of the prosecution component of the PPOs organization is the technologies for investigation and prosecution. The design and adoption of such technologies have always been particularly sensitive issues in Italy. Considering the arguments of Italian judges and prosecutors, moves to introduce new technologies in this area may radically affect the very nature not only of the organization of the justice administration, but, in some cases, also affect the exercise of the jurisdiction itself. For this reasons, the adoption of a new tool typically depends on the choice of the single public prosecutor to do so. Furthermore, due to their functional independence and the complexity of the task they perform, public prosecutors develop very individual working practices. This dramatically increases the complexity of the task of developing common applications as, in general, ICT tools tend to require standardization of practices.

Especially in the pre-trial phase, the roles of public prosecutors differ greatly from country to country. In some systems investigation is carried out independently by police forces that then decide if (or when) submit the case to public prosecutor for prosecution. In Italy, "the prosecutor is directly in charge of the investigation" (Tak, 2005). "The police are obliged to report every offence to the prosecutor without delay, and to inform him of the basic elements of the act, of the evidence collected and of the investigations carried out. […] Once the information has been received, the prosecutor takes the lead in the investigation and has the power to give guidelines to the police" ibidem.

An important application has been developed in Italy during the '90s to support antimafia investigations. The system has been designed to collect, manage and share data and documents regarding investigations on organized crime through secure communication lines. The application is twofold: one, called SIDDA, is running in each Anti-Mafia District Bureau (DDA), and the other, called SIDNA, is in operation at the National Anti-Mafia Bureau (DNA). Each DDA should upload a MS-Word copy of all the documents that are collected in the Anti-Mafia case folders. It is than supposed to classify each relevant investigative document and the relevant data through SIDDA. The handling of a great number of data and documents (indexing, classification and analysis) is made by specifically trained operators. Through the system, all the relevant information acquired on mafia cases should become available to the DNA. In this way the National Anti-Mafia Bureau should be able to discover points of contacts between investigations carried out by different DDAs across the country and help coordinating the activities. At the same time, the local operator can check the local and national databases to verify cross-references and search for useful data for the ongoing investigation. Although the system is working, there are some problems. In many cases, important information is not made available on time by the DDAs. This is consistent with the belief that the total secrecy of the information must be preserved during the investigation. Often, data is shared only when the investigation is concluded and the public prosecutor in charge is persuaded that there can be no leaks that may compromise it. Furthermore, word documents can be uploaded only if provided in electronic format and are not "official" true copies needed for the trial. Another problem is the way in which the data entry is carried out. The strong dependence from the human *ex ante* selection of what is relevant and should be entered in the database require an expert operator and, anyway, limit the search of investigative assumptions outside of consolidated connections and systems. Moreover, an operator can process (classify and analyse) only 4 to 10 pages per day. It is therefore an extremely expensive activity. In some cases, the documentation can become so large that an effective manual analysis becomes impossible, or would require huge expenses of time and resources. In a complex white-collar crime case, for example, over 250.000 e-mails were collected from one of the investigated hard disk. To solve this kind of problems, prosecutor offices are starting to experiment with technologies based on semantic engines. The Prosecutor Office of Turin has been successfully testing a software called *Beagle*. It is based on advanced algorithms that analyse text in natural language format and correlate the information and not just manage words like sequences of characters like the traditional search engine would. Very recently, during an informal meeting, it was mentioned that the Ministry is considering the possibility for using the system for analysing, indexing and classifying documents for

SIDDA/SIDNA substituting the human operator. At the moment though, only a small team of prosecutors uses *Beagle*.

For a smooth functioning of the investigation activity within the respect of personal rights and guarantees, an intense communication and exchange of information between public prosecutors and judges is required. When a specific action such as wiretapping, detention, search or seizure has to be taken by the authority conducting the investigation, approval from a preliminary investigation judge is generally required. ICT could clearly support such activities. Nevertheless, all centralized attempts to do so have failed so far. Furthermore, when the investigation is concluded, authorization to go to trial or to dismiss the case must be given by a judge. At present, the transmission of the paper case file (the official archive of all the documents of the case) is still required. A project is under way in order to scan the PPO's case files after the investigation has been concluded in order to make them available both to the court and to the parties for the trial phase. Also during the hearings, mainly paper-based technologies are used. As previously noticed for the documents uploaded on SIDDA/SIDNA, in general, for the trial, original true copies of the documents are required. In important cases with huge number of pages (sometimes in the order of millions), electronic copies have been used to support textual search preparing and during the hearing. Also in the case of physical proofs, only paper documents and expert analysis are generally presented and used to confront witnesses.

4   CONCLUSIONS

From the analysis of the PPOs ICT governance and the results of the technological innovation efforts, two variables seem to have a particularly relevant role: the level of adoption required (individual, organizational or inter-organizational) and the components of the organization involved (administrative or prosecution). As the paper shows, the development of *basic ICT infrastructures*, requiring individual adoption, has been probably one of the most successful efforts of the Ministry or justice. Hardware, basic software applications, local and wide area networks, some common communication standards (such as TCP-IP), video recording and videoconference technologies, are now taken for granted by both administrative and investigation-prosecution components of the PPOs.

In the case of organizational tools, when only the administrative personnel has been involved, PPOs have reached some positive result when the Ministry implemented new technologies. The example provided is the state-wide deployment of Re.Ge. in the nineties, but the adoption of other systems automating administrative procedures such as the National Criminal Record System is consistent with this idea. On the other hand, the centralized attempt to use the database for supporting typical prosecutorial tasks such as the writing of judicial documents (Re.Ge.-4-OA) was clearly unsuccessful. Only applications locally developed were used and only at local level and mainly due to personal capabilities of the application supporters to win the interest and convince the colleagues to adopt it.

An exception to this well rooted rule can be found in the field of inter-organisational technology. SIDDA/SIDNA provides the only example of top-down approach in which ICT requiring more than individual adoption has been adopted by the prosecution component of the PPOs. Even though the National Bureau still finds difficulties to get the data promptly updated, the system is in place and running. In this case, though, two specific factors seem to have played a relevant role. On the one hand, given the characteristics of the cases they deal with, public prosecutors of the DDA work in teams. Furthermore, the development and adoption of SIDDA/SIDNA took place in a very particular moment of the fight against the mafia. After the Capaci Bomb, and more so after the Via D'Amelio one, as John Dickie (2004) clearly depict, "the moral pressure on Italy's politicians to prove that they were not complicit … was irresistible". Public pressure required a strong reaction by the institutions. In a way, the successful deployment of SIDDA/SIDNA can be considered as a son of those events. In this instance, the value of independence of public prosecutors and autonomy in the selection of working tools was somewhat disregarded (even by the public prosecutor themselves) in face of the stronger need to provide an answer to the justice cry of the population. At the same time, observing the use of SIDDA/SIDNA within the PPOs, shows that this adoption has not been accepted without resistance and complaints and, at the same time, that public prosecutors do not have to use the system

as data entry is done by experts and the use of the system for investigation purposes is done by the public prosecutors on discretionary base.

As inter-organizational technologies are involved, adoption seems to become more problematic also for the administrative component of the PPOs. It is the case of electronic data interchange Re.Ge. allows between courts and PPOs. Problems related to the incorrect use of the system, and to the lack of data standardisation are still on the agenda of several offices. Organization autonomy of the offices generates procedures that are heterogeneous between offices. This hinders the coordination mechanisms based on standardization of processes that work within the single administrative component. As empirical studies shows, coordination between chief prosecutors and chief judges, and between the different procedures of the different offices has certainly not been trouble free. In several cases, reorganizations of Courts activities that involved Re.Ge. have effected the attached PPO without that the letter could do more than state its complains (and vice-versa).

To conclude, the top-down approach so far adopted by the Ministry has produced results dealing with the lower complexity of administrative individual and organizational applications, but seems to find more and more difficulties to cope with the adoption dynamics as complexity increase, and when the independence of single prosecutors is involved. On the other hand, local successes in the prosecution component that involves the use of technologies which use requires more than the individual adoption, seems to suggest that a different approach could be attempted in this area. In these cases, example and persuasion of the users seems to have been able of "turning the ephemeral contact into a relationship that has the look (and the feel) of long acquaintance" (Ciborra, 2002). Where the Ministry imposition has generated hostility and opposition to the technological guest, transmuting it in an enemy, local example has allowed the hosting PPO to evaluate the "ambiguous stranger" (ibidem) and, in some cases, to adopt it. Nevertheless, also with this approach there seems to be some problems. The unwillingness of the Ministry to desist from its top-down approach and to allow the development of local applications to support uniformity make very difficult to sustain and diffuse this kind of innovations. Furthermore, given the nature of the PPOs organization and the limited exchange between PPOs, diffusion of local initiatives outside the local level seems rather difficult. Local, uncoordinated, initiative in the exploration age has achieved quite poor results. At the same time, even if not very likely, a bottom-up attempt to develop a system similar to SIDDA-SIDNA for investigating terrorism that is presently in its initial phase could provide some useful, diverging data for future analysis.

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