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The introduction of forensic advisors in Belgium and their role in the criminal justice system

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ABSTRACT

Forensic advisors (FA) at the National Institute for Criminalistics and Criminology (NICC), generalists in forensic science, act as an advising body to the magistrate to improve communication between the various parties involved in the investigation: magistrate, police and crime scene investigators, and forensic experts. Their role is manifold, but their main objectives are to optimise trace processing by selecting the most pertinent traces in the context of the case and by advising magistrates on the feasibility of forensic analyses in particular circumstances in regards to the latest technical advances.

Despite the absence of a legal framework governing their role and involvement in judicial cases, the demand for their services has increased over the years. Initially, forensic advisors were called for complex homicide cases. Due to the proximity with the Public Prosecutor's Office, the types of offences for which their expertise was sought have become more diverse (mainly including robbery, burglary and sexual assault cases), leading to a diversity in the types of cases handled by the forensic advisors (complex, simple and review).

In many of the cases they are requested for, in addition to consulting on the best analytical strategy, forensic advisors also assume the role of case coordinator regarding the seized objects and their respective analyses. Indeed, in the majority of cases treated by the FAs, two or more types of expertise have been requested and performed, either at the internal laboratories of NICC or at external laboratories.

This paper explains the role of the forensic advisors in Belgium, the path that let to their current status and problems encountered.

1. Introduction

The investigation and prosecution phases of the criminal justice system are under pressure from multiple sides. Investigators and prosecutors, constrained by procedural rules, need to deliver rapid results (i.e. identify suspects, verify statements, specify the circumstances of the crime) while financial pressure restricts the resources available to achieve these results [1,2]. While providing a significant contribution to the judicial inquiry, the practice of forensic science is strongly affected by these constraints often resulting in costly and time-consuming stages of analysis [3,4]. Among the several decision nodes, the triaging decision – distinguishing traces that should be collected or analysed, and which not – is particularly important when handling large quantities of traces with limited resources [5–10]. The triaging step includes the distribution of personal and financial resources to the cases where forensic science can make the greatest difference. The contribution of forensic science to the investigation is conditioned by different stages of the decision-making process, such as the decision to proceed to an investigation at a scene, to collect and to analyse traces [11–13]. As the question of efficiency and effectiveness of forensic science is increasingly of interest due to these pressures, this decision-making phase becomes the focus of trace processing.

At the National Institute for Criminalistics and Criminology (NICC) in Belgium, forensic advisors (FAs) act as an advising body to the magistrate in order to improve communication between the police investigators, forensic experts, magistrate and front-line forensic practitioners. Due to the increasing complexity of the scientific techniques applied to trace processing and the lack of knowledge of several personnel groups (and especially decision-makers) concerning these developments, it was considered necessary to add a multidisciplinary partner to act as mediator and translate the judicial needs to potential analyses and the scientific results to the magistrate. Forensic advisors

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are generalists of forensic science, with a broad understanding of the potential contribution of traces and a sound scientific background. The aim is to provide assistance in developing the best strategy to support the investigation, with emphasis on the most useful traces to be submitted for analysis given contextual information [14]. The advisor can advocate and reject the need for analytical analyses [15], without the prejudice of commercial bias. This role allows the selection of traces to be analysed to be based on their potential usefulness in terms of information provided to the case [16,17].

This role of forensic advisor is innovative and unique in its structure (regarding the judicial system in Belgium) – full-time scientific support within the Department of Justice. It is assumed that this role improves the end-to-end process of forensic science practice (having an overview from the scene of crime to the production of evidence for court), especially the investigation and prosecution phases of the judicial inquiry. Forensic advice has always existed, but typically is assigned to the crime scene investigator at the time of the investigation and/or the forensic expert at the time of the analysis of the trace. The primary task of the forensic advisor, as implemented in Belgium, is to advise on the possibility of forensic analyses, without performing practical analyses or crime scene investigation first-hand. The forensic advisor has specific training to perform this function, covering a broad generalist knowledge in forensic science.

Similar practices have been developed in other countries: in England with the development of the National Crime Faculty [18], in France with the case coordinator [19], the Netherlands [20], Finland, Sweden and in Germany. In the Netherlands, an additional function of forensic consultants has been established at court level to improve the understanding of forensic science and the scientific reports of trial judges. To the authors' knowledge, few scientific publications exist about the role and usefulness of the case coordinators. However, during the first and second International Case Coordination meetings held respectively in The Hague, Netherlands in 2016, and Helsinki, Finland in 2017, bringing together case coordinators from these countries, it could be determined that their primary role is the coordination and monitoring of traces. Their involvement in a case does not necessarily arise from the request of a magistrate and the advice given is never the subject of an official expert report. In a subsequent study, the scope, role and function of these European forensic advisors will be determined. It has already been noted that the position within the judicial system affects these factors.

A preliminary study based on the assessment of forensic advisors of the impact of their duty and on the perceived benefits from magistrates and forensic experts has highlighted the usefulness of this role for the legal system [21]. The objectives of this paper are to present the role of the forensic advisor as devised in Belgium, to highlight the emergence and legal constraints of their implementation and to focus on the growing demand through descriptive statistics of their case requests.

2. Emergence of the role

Following the involvement of an expert who adopted the role of forensic advisor in a high media profile case of the disappearance of two girls, a working group was set up in 2008 to reflect on the definition and role of a forensic advisor for subsequent cases. This working group consisted of investigating judges and members of the Office of the Public Prosecutor of Brussels, the Federal Police (investigator and crime scene unit), forensic experts and a criminologist. Questions concerning the timing of the involvement of the forensic advisor and their potential tasks in specifying the content of the requisitions directed to the forensic experts or in improving the readability of the experts' reports were reflected on and discussed [22].

A pilot project was launched in Brussels in 2009. This involved the assistance of magistrates by a forensic expert from the NICC from the beginning of certain judicial investigations. The forensic advisor participated in the debriefing sessions of the magistrate, police investigators, crime scene investigators, pathologists and experts in a total of fifteen homicide investigations with unknown offenders.

The general perception of the working group regarding the participation of the first forensic advisor was overall positive, taking into account factors such as better use of resources with emphasis on pertinent analyses and their priority [22]. It was recommended that magistrates be given access to forensic advice from the onset of a case investigation. In addition, the working group defined the role of the forensic advisors. The NICC opened a forensic advisor position in 2009. Due to the increasing demand and to meet the needs of the entire Belgian territory, the service further developed in 2012. In 2014, two additional forensic advisors were appointed. This time, the aim was to increase the proximity of the forensic advisors in the Public Prosecutors' Office. The forensic advisors were relocated to the offices of the Public Prosecutor in several judicial districts (Brussels, Antwerp, Liege). It should be noted that a judicial district may be composed of several divisions.[1] At present, the team consists of 5 forensic advisors: four full-time forensic advisors and the head of the team, supported by administrative staff (two full-time positions).

3. General framework

The criminal justice system in Belgium is an inquisitorial system. Initially, when an offence is committed, Public Prosecutors search for all relevant information with the help of both federal and local police. Where important means are to be used (e.g. seizure, telephone surveillance) the prosecutor may call upon an examining magistrate who then conducts an inquiry. The examining judge conducts investigations into serious crimes or complex inquiries. They are independent and separate from the Office of Public Prosecutions which is under the supervision of the Minister of Justice. The NICC is also part of the Department of Justice. The police work under the supervision of the magistrate but are part of the Department of Interior. As such, in judicial inquiries, the police have no autonomy. Crime scene investigators are requested by the magistrate and submit the objects and traces gathered at the crime scene at the magistrate's registry, who will determine whether to proceed with the analysis of the traces. If applicable the magistrate will send a nominative request to a specific expert.

During the initial intervention of the FAs, no legal framework existed and even to date, the legal status has not been clearly defined independently of the service's development. Several initiatives, however, can be highlighted, including respective amendments and a circular regarding DNA trace processing set up by the college of the General Prosecutors.

In the first amendment of the law governing the DNA identification procedure in criminal cases, the proposal was to place the forensic advisors under the direct supervision of the General Prosecutor and to allocate one in each judicial area, which is within the jurisdiction of a court of appeal [23]. It is stated further that the definition of the forensic advisors themselves lies with the King (executive authority) responsible for the adoption of the application rules. In the 4th amendment, it is suggested to make it a requirement on the Public Prosecutors to discuss with a forensic advisor when they need to designate a DNA expert (analysis of traces and references and sampling of references from suspect and non-suspect persons) [23]. Both amendments were not ratified due to several issues: (1) the responsibility for sampling of references lied with the magistrate and not with the forensic advisors, (2) the amendment only included the Public Prosecutors without considering the investigating judges, and (3) to oblige the intervention of the forensic advisors seems excessive, as the magistrates needed to keep their initiative and liberty to decide on their implication given the case and their assessment given their own experience. Contrary to the

[1] Forensic advisors were attached to a fourth district, Charleroi, but this service has been discontinued. In total, 6 divisions of the 4 districts are affected by this delocalisation.

attempt to place the forensic advisors under the direct supervision of the General Prosecutor, it is the initiative of the NICC, supported by the working group, and the development of the practices that explain the current position at this national forensic institute.

In the 2013 circular of the college of Public Prosecutors regarding DNA analysis [24], the procedures regarding processing of biological traces are explained and regulated, however are not mandatory. The examining magistrate (Public Prosecutors and investigating judges) have three "tools" at their disposal to assist them in choosing the objects for further processing and traces for analysis: (1) a list of matrices that can yield useable profiles, (2) contacting the police officers involved in the case as well as the forensic unit and (3) to consult with a forensic advisor from the NICC who can contribute to "*determining the necessary expertise in a case and in prioritising, among the inventory of available traces, not only biological traces but considering also all other possible trace analysis, which might be more beneficial. In collaboration with tactical police, investigation needs can be translated to demands of scientific expertise. In this sense, the forensic advisor creates a bridge between the judiciary world, praising casuistry or casuistic reasoning, and the world of expertise belonging to the exact sciences*".[2]

This circular is the only official document that mentions the forensic advisors and their assisting role to the author's knowledge. The document centres on biological traces and the analyses required, it also emphasises the multidisciplinary approach of forensic advisors when conceiving and formulating their advice. Indeed, in order to contribute in a valuable way, FAs have to consider all available information from different sources on which to base their decision. This multidisciplinary approach results from their adaptation to the demands of the magistrates, helping them to monitor all the objects, traces and results in the case.

4. In practice

4.1. Categorisation of workload

The forensic advisor interacts with the magistrate, police, crime scene unit and the laboratory experts to assist them with the selection of traces and to develop the best strategy for forensic testing. They also give essential advice to experts regarding the case allowing them to make informed choices regarding sampling and techniques applied, the expected utility of the results (pre-assessment) and finally the interpretation of the results in the context of the case.

The service is requested at different time points in an investigation. Some cases are designated to FAs from the onset of the investigation simultaneously with the involvement of the judicial actors. In other circumstance the involvement only begins during the investigation whereby they are asked to provide further leads, taking into account the analyses carried out so far. For some cases, the complete case file is available, while, in others access to only specific elements of the investigation to establish an advice are examined. In practice, a categorisation was made according to the type of work: (1) simple, (2) complex, and (3) review cases. This categorisation, which reflects the everyday work of the forensic advisors, is based on several criteria: the type of request, the importance of the case in terms of number of records and reports and/or type of expertise, the invested work (time, number of contacts, meetings, etc.), the type of report to be produced. It emphasises the diversity of the different cases handled.

- A **simple** case can generally be processed within minutes to a day. The request is made mainly through personal/informal communication and the report is delivered orally or by a brief written statement (such as email) to the magistrate, without a formal meeting. A simple case may consist of:
  - a specific, precise question regarding the feasibility of a type of expertise,
  - selection of objects for subsequent processing (mostly DNA analysis),
  - a proposition for a specific request,
  - a complete forensic advice but given in a case with a limited number of police and crime scene investigation records and seized objects,
  - a demand for the explanation of existing scientific reports.
- **Complex** cases generally involve a high amount of invested time. The forensic advisor is preferably involved from the start of the investigation, taking into account newly acquired information and returning real-time analysis progress. A formal judicial request is desirable and the reports are delivered in written form (with the exception of urgent cases where an oral feedback can be given at first) including a summary of the case and the proposed analyses with the related requests for analysis. A complex case may consist of:
  - ○ a broad or holistic forensic advice, prioritisation of trace analyses,
  - ○ a large number of police records and seized objects,
  - ○ many points of contact, regular feedback to all involved parties. Cases involving a high degree of communication, information exchange and interaction with different parties,
  - ○ urgent/time-sensitive matters,
  - ○ coordination of expertise and organisation of multidisciplinary examination,
  - ○ out-of-the-box situations, necessitating alternative thinking on how to handle seized objects.
- **Review** cases are generally the most time-consuming cases (spread over months). As with complex cases, a formal judicial request is necessary. However, the involvement of the forensic advisor occurs when the police investigation has reached an impasse, and all leads remain inconclusive. The advice is often reported by a presentation given to all parties summarising the possibilities of forensic expertise, followed by a written report consisting of the summary of the case, the scientific reports, and the forensic advice with the suggested requests for additional analysis. The review cases may consist of:
  - ○ a complete overview of the case,
  - ○ a summary of the results of serial cases,
  - ○ the synthesis of the results from previously performed analyses,
  - ○ the suggestion of new analyses, taking into consideration the scientific development regarding existing techniques and/or methods (mainly DNA analysis),
  - ○ the suggestion of additional analyses on items not previously considered, in general or regarding a specific (in-depth) type of expertise.

4.2. Data

The collected data is based on the flow of a case file through the service of the forensic advisors as described in the previous paragraphs. The data used to create the following figures was extracted from the operational database of the NICC. The pre-processing of the data was done with Microsoft® Excel and Tableau® Desktop was used to visualise the data.

Some case files consist of several criminal events. These can either be counted as one big case or as several distinct cases. In this study, the

[2] *Translated from French*: Ce conseiller aide les magistrats à « déterminer les expertises légales nécessaires dans un dossier et apporte son concours lors de l'inventaire des traces disponibles, non seulement lors du choix des traces biologiques à analyser en priorité, mais également lors de l'examen de la priorité à accorder aux autres types de traces, priorité qui est. parfois supérieure aux analyses ADN. En concertation avec les services de police tactique, les questions liées à l'enquête peuvent ainsi être traduites en demandes adressées aux experts judiciaires. De cette manière, le conseiller forensique crée un pont entre le monde juridique qui prône la casuistique et le monde de l'expertise qui relève des sciences exactes » [24].

basic unit considered is the case as it is handled by the forensic advisor. A series of cases, linked together by police investigation, and handed to the forensic advisor simultaneously will generally be considered as a whole. Whereas, when the events in the case are too complex or not linked by the magistrate prior to the forensic advice, several reports will be drafted, thus the events are counted separately. For example, an important case in 2016, which occupied all 5 forensic advisors full-time for three weeks with two forensic advisors following up over months after the events, was counted as one complex case.

The year of the case is related to the year of the first intervention of the forensic advisor regarding the criminal event – hence, it does not necessarily correspond to the year of the criminal event itself (this is especially relevant for review cases). Moreover, often, several years after the first involvement of the forensic advisor, a new question about the same criminal event can be directed to the forensic advisor ("re-opened cases"). In this case, no new cases are opened in the database and are therefore not accounted for.

5. Results and discussion

5.1. Workload

A preliminary study, based on the appreciation from forensic advisors of the impact of their duty and on perceived benefits from prosecutors and forensic experts, has highlighted the usefulness of this role for the justice system [21]. In addition, the ever-increasing demand for support from forensic advisors to cases confirms the predominantly positive perception. Indeed, the overall workload has increased since the start in 2009, with a decrease in 2016 (see Fig. 1), and its geographical distribution is spreading throughout Belgium (see Fig. 2). Due to the increasing demand, the number of forensic advisors has grown over the years.

By 2015, the number of cases handled by the forensic advisors increased. The office of the public prosecutor in Brussels consigned roughly 40 home invasion cases for forensic advice (see the increase in robbery and burglary cases in 2015 – Fig. 1). This mission was facilitated by the delocalisation of the forensic advisors to the Public Prosecutor's Office. As a result of the increased proximity, a higher number of cases were submitted for the expertise of forensic advisors (see Fig. 3). The increase can be observed mainly for simple and review cases, while complex cases remain stable. In the initial project defining the role of the forensic advisor, complex murder cases constituted the type of cases to be submitted for expertise to the forensic advisors [22]. Fig. 1 illustrates that homicide cases represent their core business, however the forensic advisors are now being requested for other offence types, for example, robbery cases. The increase in the number of homicide cases handled by forensic advisors in 2014 compared to 2013 has increased (Fig. 1). This can be attributed to the increase in staff and the corresponding increase in availability for these case reviews. Complex cases have been, and continue to be, the main activity of forensic advisors while the increase in proximity has led to an increase in the diversity of case types, as well as an increase in the number of cases handled by forensic advisors (see Fig. 3). The presence at the Public Prosecutor's Office allowed a new accessibility and a new type of personal contact between the magistrate and an expert. Moreover, this privileged contact has evolved to entrust the forensic advisors with a different type of request presenting a set of different problems.

In addition to these types of cases, the number of review cases, often involving hours of continuous work for several months, continues to increase. In such cases, their expertise is particularly appreciated in the preparation of a synthesis report giving an overview of all analyses carried out and their results as well as the presentation of technical developments and the suggestion of more advanced techniques. This included linking cases of murder, robbery, etc. which, each in itself, were as vast as one review case, thus substantially increasing the workload.

The number of cases processed in 2016 has decreased compared to 2015. This slight decrease can be explained by the saturation of the workload of forensic advisors (for instance by the impact of several important cases) and the continuous training of the magistrate due to

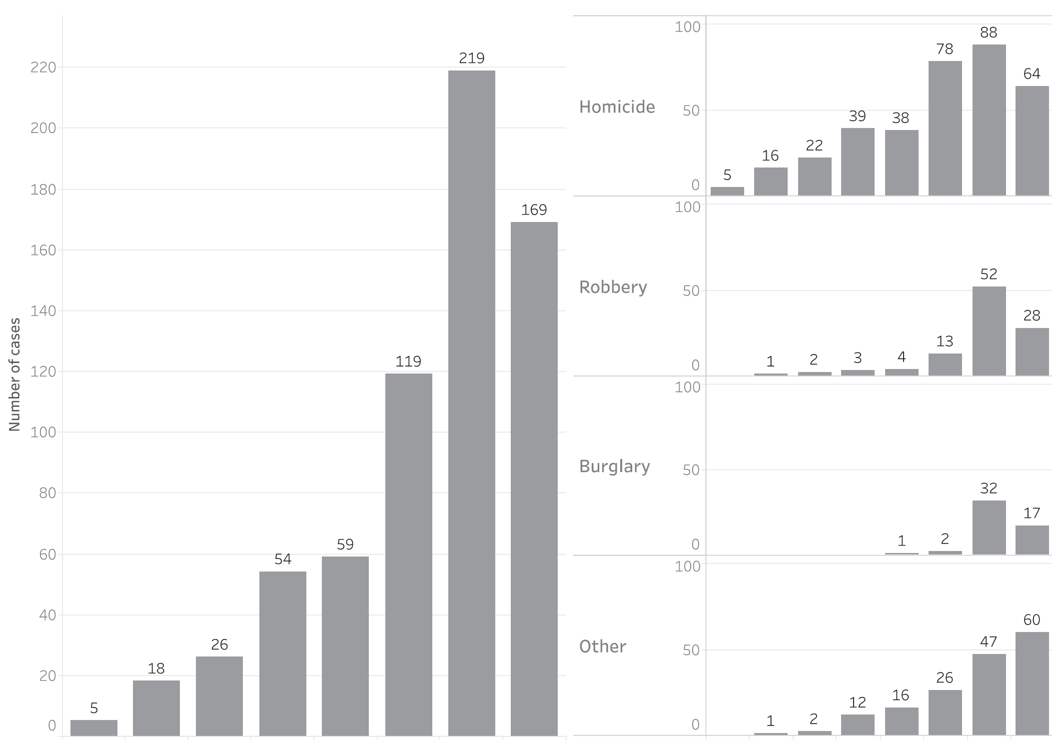

Fig. 1. Left: Workload of the forensic advisors from the start of the service in 2009 to 2016. Right: Workload split up by the type of offence from 2009 to 2016. The types of offences contributing to the category "Other" are mainly rape and aggression. The legal qualification of the case is attributed by the magistrate responsible of the case.

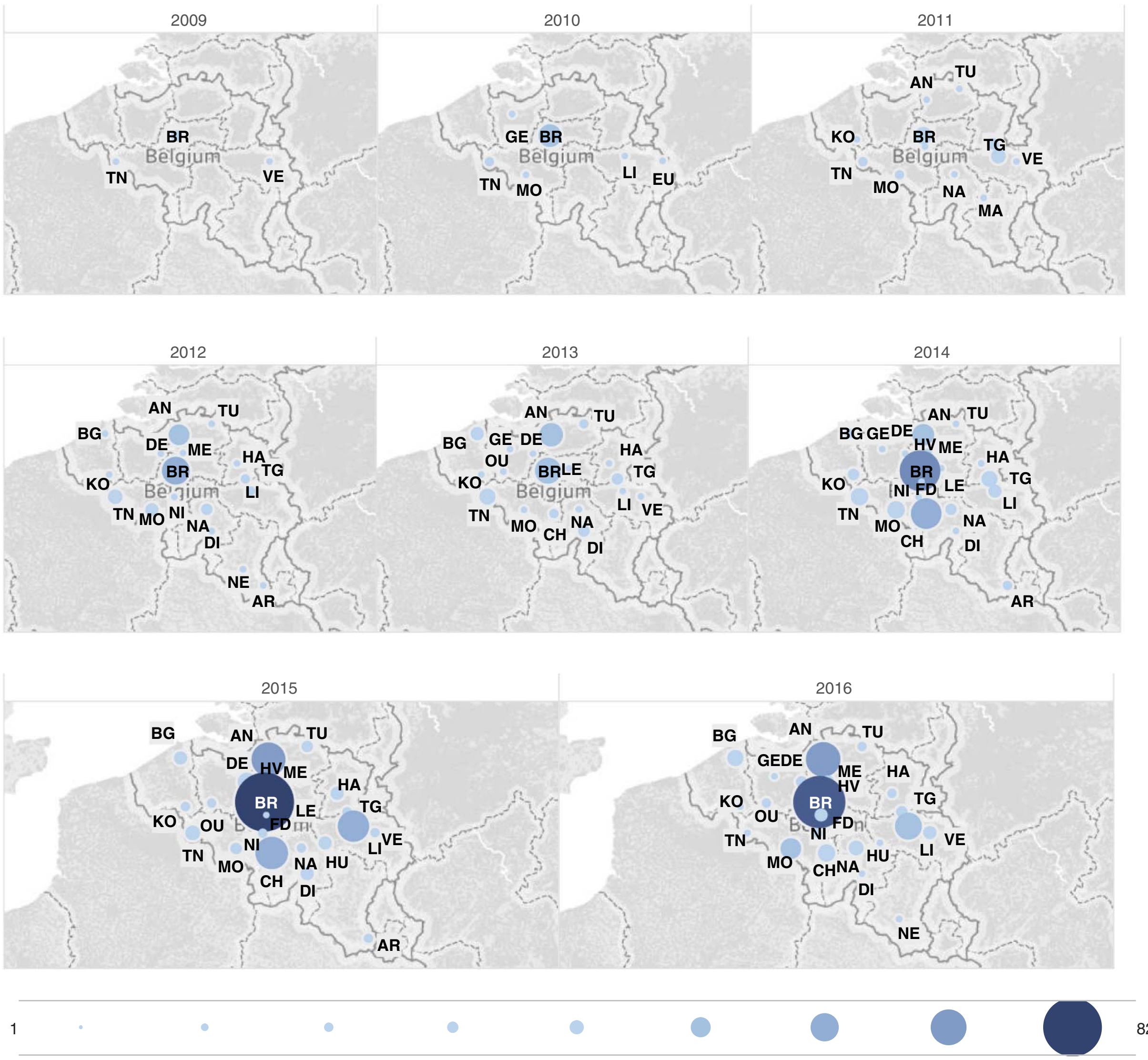

Fig. 2. Geographical distribution of the workload from the setup of the service in 2009 to 2016.

the explanations given by the forensic advisors in previous cases. In addition, the number of “re-opened” cases is constantly increasing.

The data may present several uncertainties when extracted from the administrative database, which is not designed for analysis. Some cases are not recorded in their database, resulting in underestimates of their actual workload. Indeed, some interventions seem so minor that no case is opened in their repository, especially in so-called simple cases and due to their “walk-in” nature. Notwithstanding, they should be taken into account to the extent of their overall workload. The number of cases alone does not appropriately reflect the actual workload of the forensic advisors. Thus, the categorisation in *simple*, *complex* and *review* cases has been implemented.

5.2. Type of expertise performed in FA cases

When a forensic advisor is involved in a case, it is often a complex case involving several types of expertise. In many cases, the seized objects are also searched for fingermarks. Given that the forensic advisor does not control any aspect of this type of expertise, either for the analysis of shoe marks and tool mark or for autopsies (moment of analysis, decision whether to analyse, type of analysis performed), these analyses are not accounted for in this study. However, since the NICC is not the sole provider of forensic analyses in Belgium, it was necessary in many cases to complete the types of expertise performed in the cases by external laboratories. To do this, the forensic advisors were asked to add the types of expertise to the cases, as no such case file is created internally. This procedure is prone to error as it relies on the information given to forensic advisors and the processing of traces after the implication of the forensic advisor (of which the forensic advisor may not be aware if the analyses are performed in an external laboratory).

Furthermore, the number of cases with a certain type of expertise may be misleading as it is not representative of the actual number of analyses of this type of expertise that were performed in the case nor of the number of analysed traces. However, it shows the need for a case coordinator within the NICC when several disciplines are involved in the case or even have to be applied on the same object.

In roughly a third of FA cases, one type of expertise was requested and performed; DNA analysis is the main type of expertise (see Fig. 4). However, in roughly 300 cases, more than one type of analysis is performed, and the predominance of DNA analysis decreases. The multidisciplinarity of their cases influences their role, in the way that they act as trace processing coordinator in order to decide on the sequence of collection of traces on the same object or to ensure the flow of the object through the different laboratories within the NICC or external laboratories.

Approximately 160 cases are not represented in Fig. 4. In many

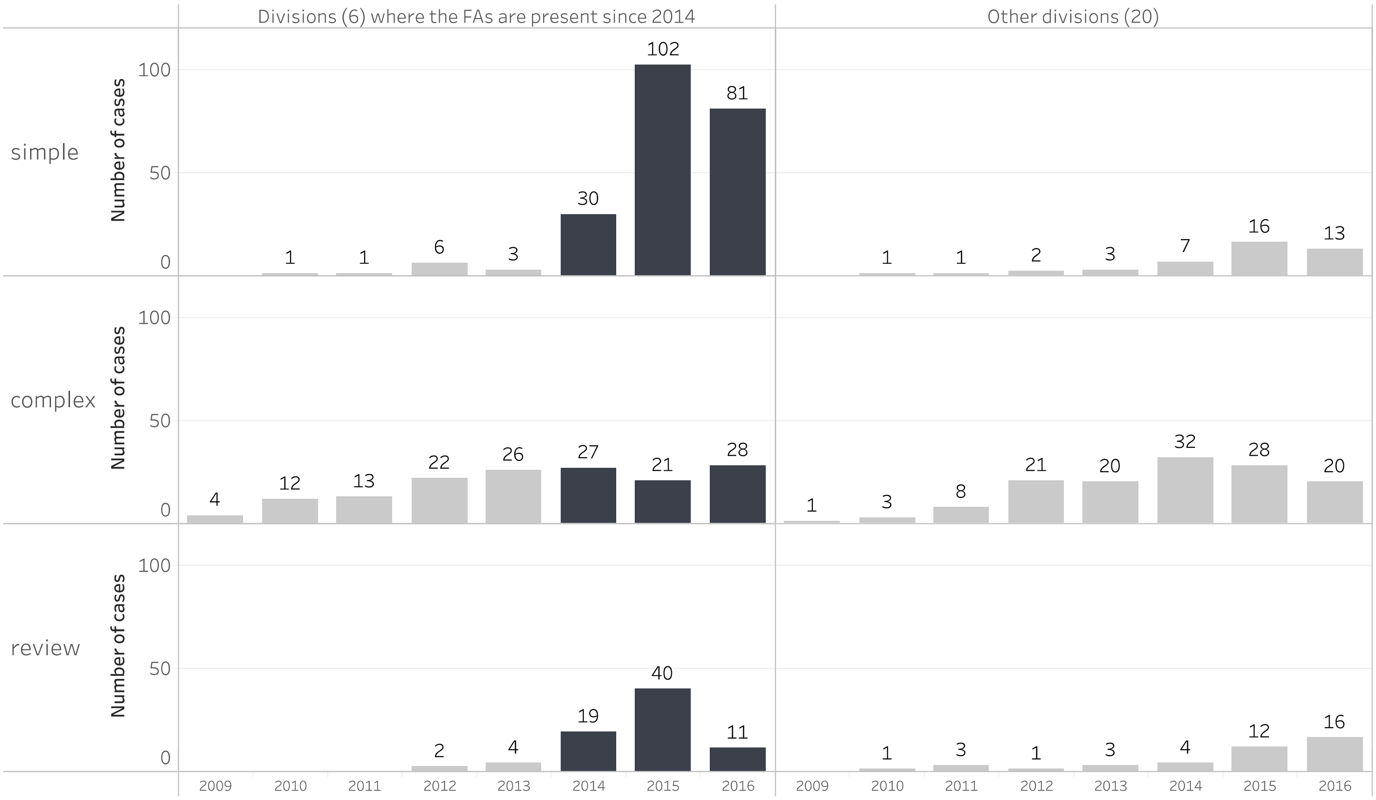

Fig. 3. Comparison of the number of cases handled in divisions where the forensic advisors are present at the Public Prosecutor's Office (PPO) (present in 6 divisions) since 2014 to the number of cases handled in divisions without this presence (not present in 20 divisions) from 2009 to 2016. The highlighted bars represent the cases handled by the FAs since their presence in the 6 divisions; a clear increase in cases handled since the delocalisation can be observed.

cases, no object was collected at the crime scene, thus no expertise could have been performed. The advice can then be on the collection procedure. Alternatively, the forensic advisor is not aware of an analysis performed, has given advice against an analysis in the case, or an analysis will take place after this study. Cases with a particular type of analysis, such as an analysis performed at the laboratory of the defence for unknown or potentially dangerous liquids, are also included in this group.

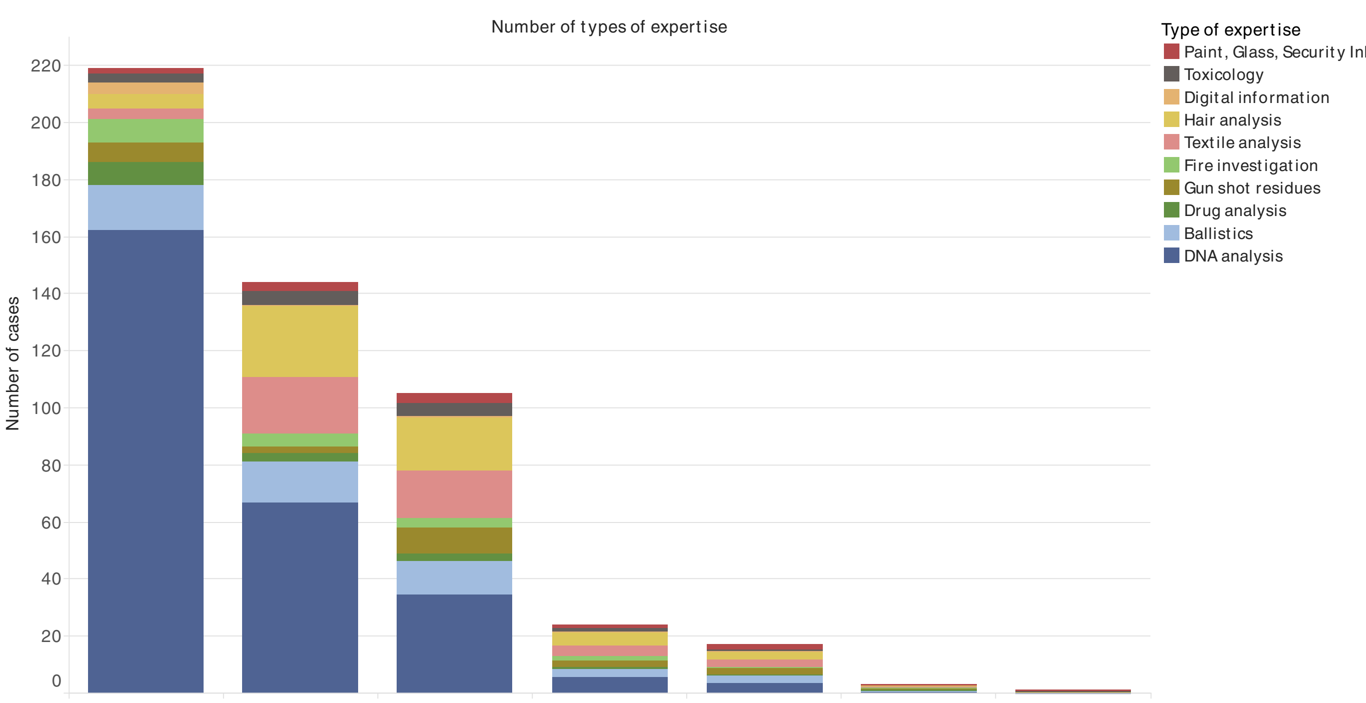

Fig. 4. Number of cases handled by the forensic advisors with 1,2, …,7 types of expertise since the development of the service. Types of expertise highlighted in different colours.

Of the 444 cases with DNA analysis, approximately 48% of the DNA analyses were performed at the NICC, while in 38% of cases, DNA analyses were performed by external laboratories, and in 14% of cases both in-house and external laboratories performed the analyses. In some cases, the advice of the FAs includes a suggestion from the laboratory to be mandated (especially for special analyses). Similar to the analytical strategy in general, the final choice of the laboratory rests with the magistrate. This highlights the case coordination task of the forensic advisors, within their institute as well as with external laboratories.

6. Conclusion

A new role, forensic advisor, has been introduced in 2009 at the National Institute for Criminalistics and Criminology, Brussels. Forensic advisors facilitate the communication between magistrates, responsible for all judicial inquiries and police and crime scene investigators on the one side and experts on the other. Following to the initial framework of the role of forensic advisors, *complex* cases were the main type of case handled by the forensic advisors at the start of this function at the NICC. The increase in *simple* cases in 2015 can be attributed to a batch of home invasion cases transferred all at once to the FAs by the Public Prosecutor's Office in Brussels. Indeed, the increase in proximity favors the visibility and availability of this service. The increase in number of cases handled over the years shows a consistent demand on the side of the magistrates for the use of this service.

Regardless of the demand, no legal framework exists or has been developed situating the service of the forensic advisors in the Belgian criminal justice process. This absence of a legal framework as well as the institutional position presents some difficulties, which add to the misunderstanding or lack of comprehension of their role and function by magistrates (their main “client”). The lack of official recognition, paired with the absence of a definition of the specific legal role, make the forensic advisors, in the eyes of several actors, a non-legitimate partner [25]. The type of request – through official requisition or informal question of advice – leads to different visibility and weight in the case file: it can be either an expert report in a structured manner, a detached document stating the advice, a copy of an email, or even solely the citation of their intervention in the investigator's record. Within the NICC, the forensic advisors are establishing a standardised working procedure, in terms of information needed to give advice and the form of the reports. More detail regarding the diversity of their working procedures is subject of ongoing research.

The position of the forensic advisors within an institute with laboratories at its disposal in numerous fields of expertise raises the fear of exclusion of private laboratories or even the sole consideration of the NICC as analysis laboratory, spreading an image of commercial salesman of the forensic advisor. Considering these perceptions, it is natural that each novelty raises doubts with the traditional actors, particularly those with related competencies. However, the practice of the forensic advisors shows that in many cases where they intervened, analyses were performed in external laboratories. In addition, the federal technical and scientific police laboratories perceive a situation of competition or even a challenge of their competences as the judicial actor specialised in material trace processing. As forensic advisors are aware of this situation, they can adapt their communication, which is a great part of their work.

In general, the contribution of the forensic advisors is perceived positively by the magistrate having worked with the FAs (personal feedback), which is also corroborated by the increasing trend in requests for this service. Despite this positive development, no meticulous study has been conducted thus far to deconstruct the essential aspects of this particular role, to assess its true potential and to advocate a framework for the implementation of this role in different operational environments. A project currently undertaken at the NICC focuses on exactly these issues. The contribution of the advisors is of particular interest, however, also of particular difficulty as the question arises of which indicator to use for the assessment of their performance: economical factors, added-value of the analyses proposed in the case, number of analyses missed, the added-value of the coordination, etc. Thus far, no feedback is obtained after the forensic advice was delivered; it is even possible that the forensic advisors are not necessarily kept informed of the analyses actually carried out, not to mention the potential added-value to the case of their suggested analyses. In addition, the influence of the advice of the forensic advisor on the decision to analyse a trace and the analytical strategy are part of ongoing research.

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