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DEPARTMENT: SOUTH AFRICAN POLICE SERVICE

Report on the Economic and Implementation Evaluation of the Incremental Investment in Forensic Services

Summary Report

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Contents

Abbreviations	v
Policy summary.....	i
Executive summary.....	1
1 Introduction.....	1
1.1 Background to the intervention	1
1.2 Background to the evaluation	1
1.3 Purpose of the evaluation	2
2 Methodology.....	2
2.1 Analytical framework.....	2
2.2 Evaluation methods.....	2
2.3 Limitations of the evaluation.....	3
4 Documentary and literature review: key findings.....	6
4.1 Crime trends in South Africa	6
4.2 International review	7
5 Case studies.....	8
6 Key evaluation findings.....	10
6.1 Relevance	10
6.2 Effectiveness.....	12
6.3 Efficiency	19
6.4 Sustainability	20
6.5 Emerging impacts	21
7 Conclusions.....	23
8 Recommendations.....	25
Annexes	28
Annex 1: References.....	28
Annex 2: Existing theory of Change for the IIFS.....	29

Index of Figures

Figure 1: Revised theory of change for the IIFS	5
Figure 2: Trend of main categories of crime (per 100 000 population)	7
Figure 3: Number of crime scene examiners, 2011/12–2014/15.....	9
Figure 4: To what extent do you agree or disagree that there are sufficient crime scene examiners to meet the necessary demand?	9
Figure 5: To what extent do you agree or disagree that there are sufficient and appropriate crime scene consumables (e.g. brushes, powders and chemicals) to fulfil your duties?	10
Figure 6: Number of crime scenes where fingerprints have been lifted and identified	15
Figure 7: IIFS spending by section, 2009/10–2014/15.....	16
Figure 8: Number of entries received and analysed, biology section	17
Figure 9: Backlogs within the Division: Forensic Services (2009/10–2014/15).....	20
Figure 11: Murder cases reported, absolute terms	22
Figure 12: Rape cases reported, absolute terms	22
Figure 13: Proportion of guilty verdicts associated with forensics as a % of all guilty verdicts	23

Index of Tables

Table 1: Criminal records generated and updated	15
Table 2: Performance of ballistics section, 2011/12–2014/15	17
Table 3: Recommendations emerging from the evaluation of the IIFS.....	26

Index of Boxes

Box 1: How the NFDD is helping to solve crimes?	19
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Abbreviations

CJS	Criminal Justice System
CRIM	Criminal Record and Information Management system
CRCSM	Criminal Records and Crime Scene Management
DCS	Department of Correctional Services
DOJ&CD	Department of Justice and Constitutional Development
FSL	Forensic Services Laboratories
IIFS	Incremental Investment in Forensic Services
MTSF	Medium-Term Strategy Framework
NPA	National Prosecuting Authority
SAPS	South African Police Services
KEQ	Key Evaluation Questions
DNA	Deoxyribonucleic acid
VISPOL	Visible Policing Division
ESC	Evaluation Steering Committee
IT	Information technology
HR	Human resources
CAS	Case Administration System
NFDD	National Forensic DNA Database

Policy summary

The South African Police Services (SAPS) and Department of Planning, Monitoring and Evaluation (DPME) have commissioned an evaluation of the Incremental Investment in Forensic Services (IIFS). Through the IIFS, the SAPS received an additional R6.2 billion in funding between 2009/10 and 2014/15. This funding was made available to recruit forensic personnel, train existing staff, purchase specialised equipment, modernise systems, and fund the operations of the Division: Forensic Services.

The IIFS is one of the interventions under the Seven-Point Plan approved by Cabinet in 2007. The Seven-Point Plan seeks to build capacity in the Criminal Justice System (CJS) to tackle the high levels of crime in South Africa. Forensic Services was chosen as the focal point for the additional funding because it influences the effectiveness of subsequent investigations, prosecutions, and judicial proceedings within the CJS.

The main findings from this evaluation are as follows:

- Although crime levels have declined from their peaks in the mid-2000s, they remain unacceptably high. In 2014/15, the crime rate per 100 000 population stood at 4 086. Crime in South Africa is also particularly violent, with the country ranking among the ten countries with the highest homicide rates in the world.
- At the time of the Seven-Point Plan, there were critical shortages in the capacity of SAPS to attend crime scenes and collect forensic evidence. Furthermore, SAPS' limited capacity to analyse forensic evidence and produce timely criminal records inhibited investigations, delayed court proceedings, and hampered sentencing.
- The IIFS has addressed many of these operational constraints. The additional funding allocated through the IIFS has allowed SAPS to expand the reach of crime scene services, and improve crime scene attendance and the quality of crime scene evidence. It has also improved the availability, timeliness and quality of forensic analysis.
- As a result of the IIFS, there has been a considerable improvement in the efficiency of forensic services. Turnaround times have improved, and backlogged cases have almost been eradicated. Prosecutors also report substantial improvements in the quality of forensic evidence submitted to courts.
- Although many of these improvements are commendable, various problems and challenges have plagued the implementation of the IIFS. Weaknesses in supply chain management have delayed implementation and led to frequent stock-outs. There are also questions around whether the IIFS achieved value for money in regard to the R5.3 billion spent on goods and services between 2009/10 and 2014/15.
- The evaluation also reveals that the IIFS was not well planned and monitored. Plans focused mostly on activities, with little attention given to the detailed measurement of outcomes and impacts. Moreover, the Division: Forensic Services changed its targets and target definitions three times over the five-year period. These frequent changes not only make it harder to explain the performance of the Division, but also create uncertainty for programme managers who must strive to achieve these targets.
- Nevertheless, there are early indications that the IIFS is having a positive impact on the CJS. Across a sample of 11 crime types, the evaluation finds that the use of forensic evidence has increased in almost all crime categories. Furthermore, the evidence suggests that prosecutors are more likely to bring charges in cases where forensic evidence is present.
- Crucially, the analysis shows that the percentage of cases with forensic evidence resulting in a guilty verdict has increased. This is especially so in respect of priority crimes such as murder and rape, and suggests that forensic evidence now plays a major role in securing justice outcomes.

In general, the IIFS has made real progress towards improving the efficiency and effectiveness of forensic services. That said, improvements in a few areas would greatly enhance the performance and delivery of the IIFS, and hence the main recommendations from this evaluation are as follows:

- R.1** The SAPS and DOJ&CD must coordinate their planning and strengthen their monitoring systems to realise the benefits of the IIFS.
- R.2** The SAPS must improve its financial management processes and supply chain management practices to achieve better value for money.
- R.3** Although the IIFS has made a major contribution to the performance of forensic services, the SAPS should consider providing additional funding to sustain these gains and cope with the increasing demand for forensic services.
- R.4** The SAPS and the SITA must work together to integrate information technology systems necessary for the forensic services programme to operate efficiently.
- R.5** The SAPS must take steps to build skills, competencies, and capacity among forensic personnel, and to improve staff welfare and morale.
- R.6** The SAPS must train Visible Policing and detective services to secure crime scenes and safeguard forensic evidence. Visible Policing must monitor the implementation of crime scene procedures and national instructions.
- R.7** The NPA and SAPS must interrogate the high levels of withdrawn charges in cases where forensics is present, and develop plans to reverse this trend where appropriate.

Executive summary

Introduction and background

By international standards, crime levels in South Africa are unacceptably high and particularly violent. South Africa has among the highest homicide rates in the world. Although crime levels have declined since their peak in the mid-2000s, most households surveyed were of the view that crime has increased in their neighbourhoods. Whereas crime levels have dropped, the nature of the offences is also changing. Drug crime is on the rise, and sophisticated syndicates with the resources to evade detection run trio crimes, which include car hijacking, business, and house robberies.

In 2006, concerned with the high levels of crime, the government and big business established a working group to review the Criminal Justice System (CJS). The CJS review found that the CJS was characterised by marked dysfunction, fragmentation, blockages and obstacles. Systemic problems such as a lack of accountability, coordination, misallocation of resources and weak performance management hindered the functioning of the system. Personnel shortages in key areas such as forensic services and detection exacerbated the problems faced by the CJS. Finally, efforts to arrest and prosecute perpetrators were hindered by the lack of an enabling legislative framework that would allow the police to use fingerprints and DNA to detect offenders.

Background to the intervention

In 2007, Cabinet adopted the Seven-Point Plan. This plan outlines several reforms that can improve the efficiency of the CJS and address the blockages that prevent the system from “combating crime and reversing the unacceptable crime trends in South Africa”. Interventions contained in the Seven-Point Plan cut across three main government departments: the South African Police Services (SAPS), the Department of Justice and Constitutional Development (DOJ&CD) and the Department of Correctional Services (DCS).

Although it was adopted in 2007, the Seven-Point Plan remains relevant and underpins the interventions set out in the Medium-Term Strategy Framework. It also contributes to Outcome 3, which aspires to a country where “all people in South Africa are and feel safe” by creating a CJS that can deliver justice for citizens.

Background to the evaluation

To support the implementation of the Seven-Point Plan, the National Treasury earmarked funding for SAPS, a significant proportion of which was received by the Division: Forensic Services. This supplemental funding became known as the “Incremental Investment in Forensic Services” (IIFS).

Between 2009/10 and 2014/15, about R6.2 billion of additional funding was allocated and spent on forensic services. Of this amount, about R2.9 billion was for technology upgrades, automation and equipment. Another R2.4 billion was spent on building capacity in the criminal records and crime scene management, forensic science laboratories, and quality management functions. The Division: Forensic Services also received R868.9 million to recruit additional forensic analysts, crime scene examiners, and other forensic personnel.

Purpose of the evaluation

This evaluation assesses the extent to which the IIFS has built capacity within the forensic services programme, and whether these changes have resulted in meaningful improvements in performance within the CJS. The Terms of Reference set out the following Key Evaluation Questions (KEQ):

1. To what extent are the intended benefits of the incremental annual investment into the SAPS Forensic Services achieved?

2. Overall, how cost-effective is the incremental annual investment into the SAPS Forensic Services?
3. What is working, and what is not working, in terms of the additional investment into the SAPS Forensic Services? Specifically, what are the operational constraints and challenges during implementation of the intervention (such IT, HR, procurement, etc.?)
4. How can the effectiveness of the incremental investment in SAPS Forensic Services be improved, and what are the implications for the design of the intervention?

This evaluation covers the period from 2009/10 to 2014/15, and examines the effects of the IIFS across four provinces: Gauteng, Eastern Cape, Western Cape and Limpopo. These provinces were selected for this evaluation as they benefited from a significant proportion of the IIFS.

3 Methodology

This economic evaluation of the IIFS combines two evaluation methods: **an implementation evaluation** and **a cost-benefit analysis**. In general, an implementation evaluation examines whether an intervention has been implemented as planned, and identifies what aspects of the programme are working more or less well. The findings and recommendations from an implementation evaluation can strengthen the design of a programme, its efficiency, and its overall effectiveness. In contrast, the cost-benefit analysis examines the resources and costs used by a programme and compares them to its benefits. It is important to note that although the intention of the evaluation team was to do a full cost-benefit analysis, the lack of detailed and granular expenditure, performance and administrative data made this impossible. Instead, the evaluation team opted for a practical approach in the form of a “soft” cost-benefit analysis. This approach examines what the funding was spent on and tracks the benefits of the IIFS across the CJS value chain. The evaluation uses a combination of tools and instruments (including semi-structured interviews and surveys) to gather data. For the cost-benefit analysis, the evaluation team combined and analysed the CAS, CRIM and FSL databases across 11 crime categories.

Documentary and literature review

Empirical evidence shows that forensic evidence plays a significant and growing role in resolving criminal cases. In 1963, scientific evidence was utilised in only 1% of crimes; in contrast, almost all cases in some crime categories now see some form of forensic analysis. Evidence from the United States shows that forensic evidence on ballistics, material traces, biological and latent prints collected in 97% of homicides played a significant role in obtaining a conviction at trial, after witness testimony in non-stranger homicides. In the United Kingdom, the DNA Database has improved the ability of police services to investigate and resolve crimes. The amount and types of evidence collected are linked to the kind of crime committed. Peterson et al. (2010) reveal that evidence is more likely to be gathered and analysed for serious offences such as murder and rape compared to less severe crimes. When compared to the United Kingdom, the United States, Australia, and Botswana, the South African forensics programme, subject to the new amendments brought about by the Fingerprint Act and DNA Act, is reasonably similar to comparator countries. The key difference appears to be around the extent of decentralisation. In the United States and Australia, crime scene examiners send forensic evidence to state and local forensic science laboratories. It is only where sophisticated or advanced analysis is required that evidence is sent to central or federal laboratories for analysis.

4 Key evaluation findings

The findings of this study are organised in terms of the following five evaluative criteria: relevance, effectiveness, efficiency, sustainability, and emerging impact.

Relevance

When evaluating the relevance of the programme, it is important to assess whether its objectives are consistent with the requirements of the country, needs of the beneficiaries and

policy priorities. South Africa has among the highest crime levels in the world. Against this background, the government recognised the pressing need to build capacity within law enforcement authorities. The SAPS is at the forefront of crime-fighting efforts, and at the time of the CJS review in 2007, it was apparent that SAPS lacked the capacity to detect and investigate the high volume of crimes committed against citizens.

Forensic services were seen as one of the major bottlenecks in the system, as a result of which many crimes went undetected and un-investigated. Thus, the timing and emphasis of the IIFS was particularly relevant at the time and remains so. By accelerating investment in the upstream parts of the CJS value chain that are severely under-capacitated, the IIFS improves the police services' ability to detect crime. The downstream parts of the CJS, that is, the prosecution authorities and courts, benefit from better-quality and more reliable forensic evidence, which they use to bring charges against perpetrators, pass judgement and determine sentences.

While the rationale and need for the IIFS are clear, a key question is whether the design of the programme would achieve the policy objectives set out in the Seven-Point Plan. Overall, the evaluation finds that the design of the IIFS was logical and reasonably clear, although the theory of change was not complete. The design of the IIFS focuses on forensic activities across the different disciplines. Its emphasis on activities is appropriate, as the production of forensic evidence is very much an activity-driven function.

That being said, the link between the outputs produced by the IIFS and the outcomes intended by the Seven-Point Plan is not well articulated. Part of the problem is that the Seven-Point Plan did not set measurable targets for the outcomes. Furthermore, as the design of the IIFS was left up to SAPS, with little input from other role-players in the CJS, less consideration was given to how forensic services would benefit the downstream parts of the CJS.

Effectiveness

The objectives set out in the Seven-Point Plan are the yardsticks against which this study evaluates the effectiveness of the IIFS. The Seven-Point Plan essentially focused on two components of forensic services: criminal records and crime scene management, and forensic science laboratories. In relation to **Criminal Records and Crime Scene Management (CRCSM)**, the main challenges at the time of the CJS review were that:

- there were simply not enough crime scene examiners to attend to all crime scenes;
- the reliability of crime scene evidence was called into question in courts; and
- criminal records were not available when required by detectives, prosecutors and the courts.

Since then, the IIFS has made inroads in addressing some of these challenges. Increased personnel, equipment, and service points have expanded the reach of crime scene services and improved crime scene attendance. Between 2011/12 and 2014/15, the number of crime scene examiners grew from 759 to 1026. Of the four provinces selected for this evaluation, Limpopo experienced the highest increase in the number of crime scene examiners as part of SAPS' broader efforts to expand services to rural areas.

While the percentage of crime scenes attended rose from 52% in 2012/13 to 90% in 2014/15, this increase is mainly due to the changes in the policy on crime scene attendance. In 2014/15, the Division: Forensic Services removed certain offences such as shoplifting, common robbery, and malicious damage to property from the list of prescribed crimes that crime scene examiners had to attend. The effect of this change in policy is to reduce the time spent on collecting evidence from high-volume and low-value crime scenes and refocus the efforts of crime scene examiners on priority crime scenes.

Over the same period, the number of crime scene examiners certified as fingerprint experts declined by 0.6% across all provinces. The Western Cape has lost the most fingerprint experts, experiencing a decrease of 6.9% (31), followed by Gauteng with a decrease of 4.8% (19). The

decline in fingerprint examiners merits concern, as their expert testimony in court raises the value of forensic evidence in judicial proceedings. The IIFS has also led to considerable improvements in the volume and quality of crime scene evidence collected. Crime scene examiners report that they collect about 18% more DNA evidence from crime scenes when compared to the period before the IIFS started. Similarly, the turnaround time and availability of criminal records has improved considerably. By the end of 2014/15, 93% of all criminal records were generated within 15 days. Having up-to-date criminal records provides judges with the information they need to make the right bail and sentencing decisions.

Despite this overall improvement in crime scene management, there are still not enough crime scene examiners to cope with the volume of crimes committed. Crime scene examiners are overextended, and ration the amount of time they spend at crime scenes. Currently, crime scene examiners spend between 45 and 90 minutes at each crime scene, compared to an international norm of four hours. This trend is particularly worrying when it comes to priority crimes such as a murder and rape, where a hastily processed crime scene can affect the quality and reliability of crime scene evidence.

With regard to the **Forensic Science Laboratories (FSL)**, the CJS review found that:

- laboratories were ill-equipped and used obsolete technology;
- there were not enough analysts to perform the forensic analysis; and
- certain types of analysis such as DNA analysis were carried out only on request from prosecutors.

To overcome these challenges, the Division: Forensic Services has used the IIFS to invest in recruiting additional staff, and in modernising the technology and equipment in laboratories. The scale of the investment in technology, equipment and systems is significant. About R2.4 billion of the IIFS was allocated and spent on the FSLs. Of this, the biology section received about 65% (R1.6 billion) followed by ballistics with 17% of the total. The biology section received the largest share of IIFS within the FSL to help it to prepare for the implementation of the "DNA Act". This piece of legislation empowers SAPS to collect, use and store biological samples. In other words, it creates the legal basis to collect, analyse and profile DNA.

Internationally, the use of DNA evidence by law enforcement agencies has risen rapidly. The Division: Forensic Services has followed this trend, and since 2012 has made it compulsory for the FSLs to test and profile all biological samples collected. This decision has increased the number of entries received for DNA analysis from 54 042 in 2009/10 to 107 200 in 2014/15. Hence, it appears that the IIFS has enabled the Division: Forensic Services to expand its capacity for DNA analysis.

The increase in DNA analysis has knock-on effects on the National Forensic DNA Database (NFDD). Between 2009/10 and 2014/15, the number of profiles loaded onto the NFDD rose from 207 190 to 514 859. Over this period, the NFDD has generated leads and had some early successes in detecting repeat and serial offenders.

In light of the high levels of firearm-related crime in South Africa, a key focus of the IIFS was on developing the FSLs' capabilities for ballistic analysis. Before the IIFS, the technology used for ballistics analysis was outdated. By upgrading the Integrated Ballistics Identification System (IBIS), the IIFS has raised the identification rate from 2.4% in 2011/12 to 6.6% in 2014/15.

In relation to chemical analysis, the IIFS was well timed. Between 2009/10 and 2014/15, the volume of drug-related crime in South Africa increased by 2.5 times. Using the IIFS, the chemistry section has recruited additional personnel, and purchased additional equipment and consumables. Without the additional funding made available through the IIFS, the chemistry section would not have coped with the increasing volume of drug exhibits.

These improvements in forensic analysis have begun to benefit other parts of the CJS system. Among the prosecutors surveyed, the majority are pleased with the quality and timeliness of forensic evidence. About 73% of prosecutors said that there had been improvements in the

efficiency with which exhibits are analysed in the FSL. Another 63% of respondents stated that the quality of forensic analysis has improved. When asked about the quality of forensic support and analysis provided by the FSLs, 71% of prosecutors surveyed indicated that the forensic analyses were both appropriate and sufficient. Another 76% of respondents thought that the analysis provided does stand up to legal scrutiny. When compared to six years ago, most prosecutors acknowledged there had been significant improvements in several aspects of forensic analysis. In contrast to the feedback provided by prosecutors, some of the detectives interviewed said that they do not have sufficient time and resources to use most of the forensic evidence they receive in the investigation of crime. Severe shortages in the number of detectives and the loss of skilled and experienced detectives within SAPS are likely to diminish the benefits of the IIFS within the CJS.

Efficiency

The efficiency criterion assesses whether the outputs of a programme have been delivered on time and in an economical manner. Much of the IIFS was used to procure systems, technology, and consumables. To put this in monetary terms, about R5.3 of the R6.2 billion of additional funding passed through the procurement systems. The evaluation found that the supply chain management processes were the source of major delays. First, current procurement regulations are not well-suited to the purchase of scientific equipment and consumables, which must be validated and tested before they are purchased. Second, there is not enough capacity within the SAPS to manage the higher volumes of transactions and complex procurement processes. For example, SAPS' limited capacity to forecast demand for consumables has led to frequent stock-outs that affect the work of crime scene examiners. About 30% of crime scene examiners surveyed reported that they did not have sufficient and appropriate consumables to process crime scenes. Third, procurement processes for the acquisition of technology are lengthy and time-consuming. Large and expensive purchases of technology must go through the SAPS and SITA procurement systems. These procurement systems are not well coordinated, and are the source of continued delays. Finally, interviewees and survey respondents have raised concerns around allegations of corruption associated with the IIFS. While it is not within the scope of this evaluation to interrogate issues relating to procurement irregularities, there is nonetheless a need for SAPS to examine why these problems have arisen.

Since the inception of the IIFS, the Division: Forensic Services has changed its turnaround time targets three times. Before 2010/11, the target was set in terms of calendar days, while from 2011/12 the indicator was framed in terms of working days. In 2014/15, the Division changed its target for turnaround times again, this time to differentiate between routine, non-routine and intelligence cases. This change brings the Division in line with good international practice where laboratories distinguish between the turn-around times for different categories of casework. There is considerable variation across sections in achieving turnaround times. In 2014/15, the chemistry section analysed 50% of all entries within the targeted time, compared to the scientific analysis unit where 76% of entries were processed.

Overall, the Division has done well in reducing backlogs. Between 2009/10 and 2014/15, backlogs dropped from 47 660 to 3 304. This reduction in the backlog is a notable accomplishment for the Division, considering that over the same period, the number of new entries received (and hence the workload of the Division) rose rapidly.

Sustainability

With regards to the IIFS, sustainability examines the extent to which the benefits will continue to accrue to the Division, SAPS, and the CJS. Three factors promote the sustainability of the IIFS:

- The Division: Forensic Services has developed some capacity in planning and monitoring their activities. This provides an excellent platform for the Division to shift towards results-based planning that links activities to outputs and outcomes.

- There has been a definite improvement in the management of forensic services, which if sustained will contribute to better performance over time.
- The investment in equipment and technology will continue to yield substantial benefits in coming years.

Various factors adversely affect the sustainability of the IIFS. Forensic services do not work in isolation, and their success depends on how well other parts of the CJS function. The lack of coordination around the interventions that fall under the Seven-Point Plan undermines the effectiveness of the plan. Within SAPS, the critical shortage in the number of detectives means that forensic evidence is used less effectively and fewer arrests are made on the basis of this evidence. Equally concerning is the high level of charges withdrawn by prosecutors in cases with forensic evidence. Low morale among crime scene examiners affects their productivity and is likely to raise the turnover of the Division, threatening the overall sustainability of the IIFS. Finally, inadequate and ill-suited physical infrastructure will limit the ability of SAPS to cope with the increasing demand for forensic analysis.

Emerging impact

The proportion of cases with forensics across the 11 types of crime selected for study rose from around 4% of reported crimes in 2009 to around 6% by 2015. This period coincides with the CJS Review and accelerated investment in forensics. Similarly, the proportion of murder cases with forensics that achieved a guilty verdict increased from 36.1% in 2009 to 50.7% in 2014. For rape, this percentage rose from 71.4% to 79.9%. These trends suggest that forensics has contributed to a higher conviction rate for these priority crimes.

5 Main recommendations

The IIFS has made significant strides in addressing the operational constraints faced by the Division: Forensic Services. Nevertheless, a few changes are needed to fully realise the benefits of the IIFS. Hence, the main recommendations emerging from this evaluation are as follows:

- R.1** The SAPS and DOJ&CD must coordinate their planning and strengthen their monitoring systems to realise the benefits of the IIFS.
- R.2** The SAPS must improve its financial management processes and supply chain management practices to achieve better value for money.
- R.3** Although the IIFS has made a major contribution to the performance of forensic services, the SAPS should consider providing additional funding to sustain these gains and cope with the increasing demand for forensic services.
- R.4** The SAPS and SITA must work together to integrate information technology systems necessary for the forensic services programme to operate efficiently.
- R.5** The SAPS must take steps to build skills, competencies, and capacity among forensic personnel, and to improve staff welfare and morale.
- R.6** The SAPS must train Visible Policing and detective services to secure crime scenes and safeguard forensic evidence. Visible Policing must monitor the implementation of crime scene procedures and national instructions.
- R.7** The NPA and SAPS must interrogate the high levels of withdrawn charges in cases where forensics is present, and develop plans to reverse this trend where appropriate.

1 Introduction

1.1 Background to the intervention

By international standards, crime levels in South Africa are unacceptably high and particularly violent. Along with Columbia, Venezuela, Honduras, Costa Rica and Guatemala, South Africa has one of the highest homicide rates in the world (United National Office on Drugs and Crime, 2013). After the first decade of democracy, severe shortages in capacity and significant inefficiencies plagued the Criminal Justice System (CJS). The combination of these factors constrained the ability of the system to detect crime, prosecute offenders and adjudicate cases, and happened at a time when crime levels were on the rise. Concerned with the high crime rate, the government and big business established a working group to review the CJS.

The study found that the CJS was characterised by marked dysfunction, fragmentation, blockages and obstacles. The absence of the required integration at national level; lack of coordination structures; high levels of unaccountability; misallocation of resources; inadequate or incorrect prioritisation of projects; and incongruent objectives, measurements and performance indicators all contributed to the malfunctioning of the CJS. Widespread personnel shortages in key areas, notably crime scene and forensic experts, were also identified as a critical issue. Moreover, crime-fighting efforts were hindered by the lack of an enabling legislative framework that would allow the police to use fingerprints and DNA to detect offenders.

In 2007, Cabinet adopted the Seven-Point Plan. It outlines various reforms that seek to improve the efficiency of the CJS and address the blockages that prevent the system from “combating crime and reversing the unacceptable crime trends in South Africa”. Interventions contained in the Seven-Point Plan cut across three main government departments: the South African Police Services (SAPS), the Department of Justice and Constitutional Development (DOJ&CD) and the Department of Correctional Services (DCS).

The Seven-Point Plan remains relevant today. In 2014, the Medium-Term Strategy Framework (MTSF) reaffirmed the importance of the Seven-Point Plan and its contribution to Outcome 3, which aspires to a country where “all people in South Africa are and feel safe”.

While the Seven-Point Plan would require changes for all the role-players with the CJS, priority was given to forensic services within SAPS. The rationale for this decision was that the crime scene management, the availability of criminal records and forensic analysis are part of the “front-end” of the value chain. If these areas are not working well, it impacts adversely on the prosecution of crimes, court proceedings and sentencing. Furthermore, the Seven-Point Plan recognised that building forensic capacity would require substantial investments in equipment, technology, infrastructure, and personnel, and would therefore would need additional funding for this purpose.

1.2 Background to the evaluation

In 2009, the National Treasury earmarked funding to support the implementation of the Seven-Point Plan through the CJS Revamp Programme. Forensic services received a significant proportion of this funding. This supplemental funding became known as the “Incremental Investment in Forensic Services” (IIFS).

Between 2009/10 and 2014/15, about R6.2 billion of additional funding was allocated and spent on forensic services. Of this, about R2.9 billion was dedicated to technology upgrades, automation and equipment. Another R2.4 billion was spent on building capacity in the criminal record and crime scene management, forensic science laboratories, and quality management functions. The Division: Forensic Services also received R868.9 million to recruit additional forensic analysts, crime scene examiners, and forensic personnel.

1.3 Purpose of the evaluation

This evaluation assesses the extent to which the IIFS has built capacity within the forensic services programme, and whether these changes have resulted in meaningful improvements in performance and justice outcomes. The Terms of Reference set out the Key Evaluation Questions (KEQs) as follows:

1. To what extent are the intended benefits of the incremental annual investment into the SAPS Forensic Services achieved?
2. Overall, how cost-effective is the incremental annual investment into the SAPS Forensic Services?
3. What is working, and what is not working, in terms of the additional investment into the SAPS Forensic Services? Specifically, what are the operational constraints and challenges during implementation of the intervention (such IT, HR, procurement, etc.?)
4. How can the effectiveness of the incremental investment in SAPS Forensic Services be improved, and what are the implications for the design of the intervention?

This evaluation covers the period between 2009/10 and 2014/15 and focuses on the IIFS, that is, additional funding made available to SAPS for forensic services. Furthermore, the evaluation examines the effects of the IIFS across four provinces: Gauteng, Eastern Cape, Western Cape and Limpopo. These provinces were selected because they benefited from a significant proportion of the IIFS, and have among the highest crime levels.

2 Methodology

2.1 Analytical framework

An evaluation framework guides the conduct of this study. The evaluation framework consists of the theory of change, logical framework, and evaluation criteria. The Evaluation Steering Committee (ESC) agreed to five evaluation criteria against which this study would assess the performance of the IIFS:

- **Relevance** refers to the extent to which the objectives of an intervention are consistent with the requirements of the country, needs of the beneficiaries and policy priorities.
- **Efficiency** is a measure of how economically resources and inputs have been used and converted into results.
- **Effectiveness** assesses the extent to which the IIFS has achieved its intended objectives and whether any unintended consequences might have moderated the success of the programme.
- **Sustainability** examines the potential for sustaining the benefits of the IIFS after it has ceased.
- **Emerging impact** highlights the primary and secondary long-term effects produced by an intervention (Peersman, 2014).

2.2 Evaluation methods

This economic evaluation of the IIFS combines two evaluation methods: **an implementation evaluation** and **a cost-benefit analysis**. An implementation evaluation examines whether an intervention was implemented as planned. The purpose of an implementation evaluation is to strengthen the design of a programme, its efficiency, and overall effectiveness. A cost-benefit analysis examines the resources and costs used by a programme and compares them to its benefits.

The evaluation team used a combination of tools and instruments to gather data in this evaluation. Although the team planned for about 102 semi-structured interviews, they ended up interviewing and consulting with over 200 officials across SAPS and the National Prosecuting Authority (NPA). This process offers a valuable lesson for any future evaluation of organisations with a command and control structure. Researchers can gain access to the

interviewed official only if they follow the proper hierarchy. Within SAPS, interviewed officials were from the Division: Forensic Services, Division: Technology Management Services, Visible Policing, Detective Services, Finance, Strategic Management, and Facilities Management. Interviews were completed with the NPA and Office of the Criminal Justice System Review. Unfortunately, the evaluation team could not secure interviews with the State Information Technology Agency (SITA) and Department of Public Works (DPW). The evaluation included a structured survey administered to 41 prosecutors and 521 crime scene examiners and laboratory technicians who work in crime scene laboratories. In addition to the interviews, the evaluation team collected and analysed divisional performance and administrative data.

The evaluations included an analysis of data from three databases maintained by SAPS. The research team collected data from CAS, FSL Admin and CRIM. The analysis matched cases across all three databases on the case number, commonly known as the CAS number. These matched cases were traced from the time they were logged at a police station, through the Forensic Science Laboratories (FSLs) to the courts over a ten-year period. To our knowledge, this is the first study that follows cases from crime scenes to court to assess the influence of forensics on justice outcomes. In total, SAPS provided the evaluation team with 16 gigabytes of data. To analyse the data, the evaluation team cleaned and combined all three databases into a single database. This consolidated database enabled the evaluators to estimate various outcome indicators.

2.3 Limitations of the evaluation

As with all research, there are some methodological limitations to this evaluation. The scope of this evaluation is limited to the effects of the IIFS on the forensic services programme. It is beyond the purview of this study to make any judgements on the overall effectiveness of the forensic services programme – although it is certainly difficult to separate the effects of the IIFS from those of the baseline expenditure. To overcome this problem, the evaluation team assumes that baseline spending grew in line with inflation, and that all additional funding was channelled through the IIFS.

Although the intention of the evaluation team was to do a full cost-benefit analysis, the lack of detailed and granular expenditure, performance and administrative data made this impossible. Instead, the evaluation team opted for a practical approach in the form of a “soft” cost-benefit analysis that analyses expenditure to determine how it was spent, and tracks the benefits of the investment across the CJS. This approach to cost-benefit analysis demonstrates the *contribution* of the IIFS to justice outcomes, but cannot attribute the results of the programme to outcomes and impacts. Therefore, the emphasis on the “soft” cost-benefit analysis is on finding trends and patterns that illustrate how forensic services has influenced the CJS.

In respect of the surveys, while random and representative samples of prosecutors, crime scene examiners and laboratory technicians for the survey would have been ideal, it was not possible to sample in this way. Many police officials did not have access to a dedicated email address, and some prosecutors do not have access to computers. Based on this information, the SAPS CRCSM placed an electronic link on their website through which officials could access the survey. The ESC suggested that it might be more valuable to send the web-based questionnaire to a select group of prosecutors who deal with forensic evidence on a regular basis instead of all prosecutors.

3 Theory of change

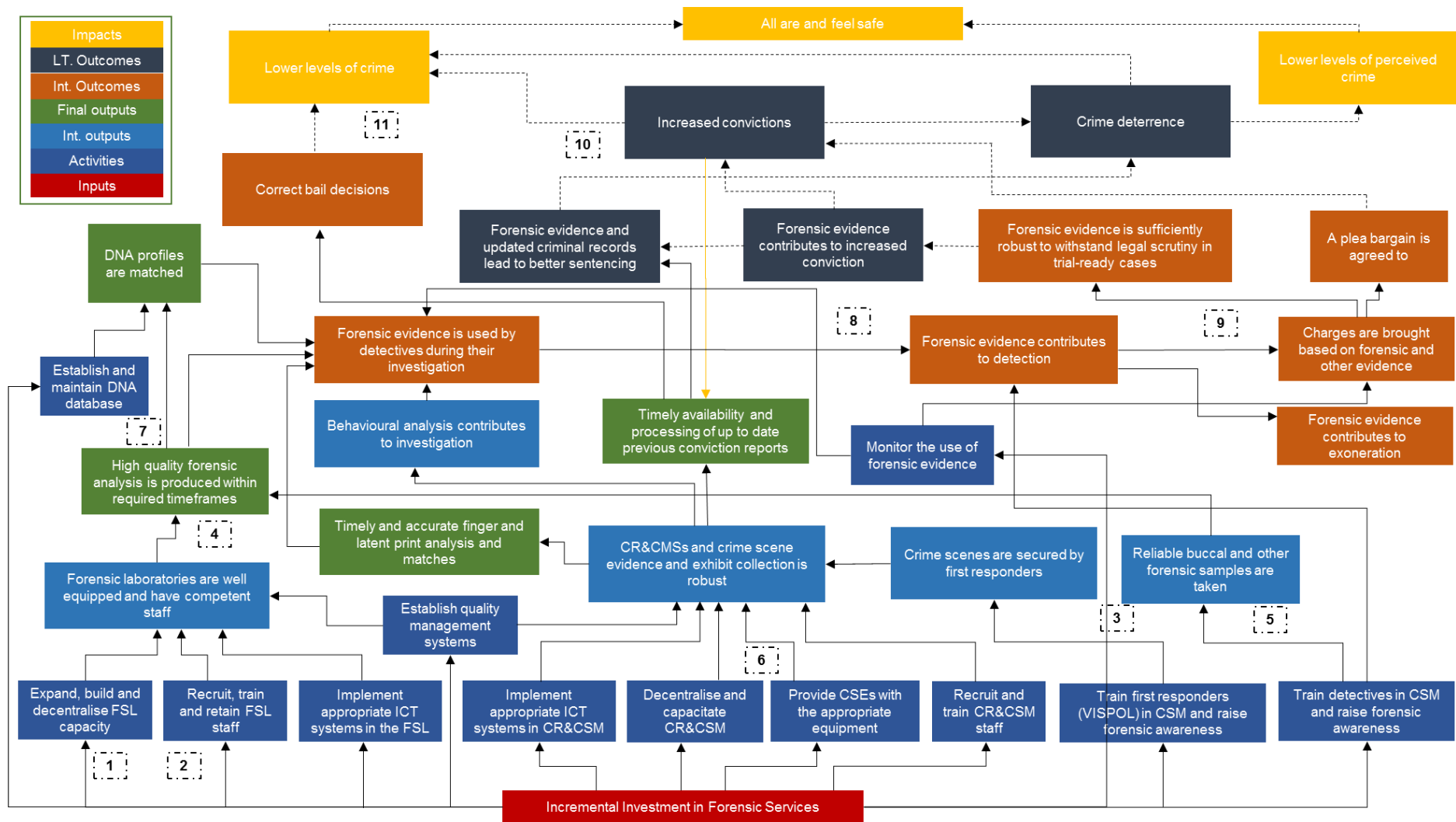
Using the documentation from SAPS and through consultations with the Division: Forensic Services, the evaluation team constructed a theory of change that demonstrates how an intervention contributes to the intended outcomes. The theory of change describes the pathways to change as follows:

- The government provided additional funding to improve the crime scene attendance, enhance the reliability of evidence collection, reduce the turnaround times for criminal records, and enhance the timeliness and quality of forensic analysis within laboratories.
- If these activities are achieved, it results in high-quality and timely forensic evidence, which in turn improves the ability of SAPS to investigate and detect crimes.
- If the offender is identified, they are then charged on the basis of forensic and other evidence. Otherwise, an equally important outcome for the CJS is that forensic evidence can serve to exonerate the innocent.
- If the case goes to court and forensic evidence withstands legal scrutiny, then it contributes to increased convictions.
- An alternative pathway arises when forensic evidence also encourages plea bargains and reduces the expense of taking a case to court.
- If forensic evidence raises the number of convictions through the courts or plea bargains, it enhances the chances that perpetrators are caught and acts as a deterrent to crime.
- Through increased convictions and crime deterrence, the IIFS contributes to the overarching goal of “all people in South Africa are and feel safe”.

This evaluation provided an opportunity to test the theory of change extensively through the qualitative and quantitative analysis. Overall, the results suggest that the theory of change is a reasonable depiction of the pathways through which the IIFS works to influence justice outcomes. As such, the theory of change needs only minor improvements (see Figure 1). That said, the SAPS made some critical assumptions in the design of the IIFS. These assumptions, as the evaluation reveals, do not always hold, which diminishes the benefits of the IIFS to the CJS. As these assumptions are the preconditions for the successful implementation of the programme, it is worth elaborating on them further:

- The IIFS assumes that trained and experienced staff will remain within the Division: Forensic Services and contribute to the development of forensic services. This assumption fails to take into account the fact that forensic analysts are scientists whose skills are in high demand from other government departments and the private sector. Consequently, some sections within the Division: Forensic Services experience high turnover rates.
- Related to this is the assumption that crime scene examiners can deal with the gruesome and violent crime scenes they work in for long periods. The evidence suggests otherwise. Crime scene examiners report being demoralised and traumatised, prompting many of them to leave the Division: Forensic Services.
- Another assumption is that Visible Policing and detective services will follow stipulated crime scene procedures to preserve crime scenes. The evaluation reveals that police first responders often do not adhere to processes, and there have been instances where evidence has been contaminated and destroyed.
- The IIFS is premised on the assumption that detectives will use forensic evidence in their investigations. One of the main findings emerging from this evaluation is that SAPS does not have enough detectives to investigate cases and use forensic leads. Hence, it is possible that forensic evidence is underutilised in the CJS.
- Finally, the programme assumes that forensic processing capacity is fixed in the short term but variable over the long term. In other words, new and fit-for-purpose forensic facilities will be built to accommodate any increase in the workload over the longer-term. This has not happened – and SAPS has not established new forensic facilities since the opening of the Western Cape laboratory. If rising crime levels continue to drive up demand for forensics, backlogs will eventually begin to increase as the Division quite literally runs out of physical capacity.

Figure 1: Revised theory of change for the IIFS



4 Documentary and literature review: key findings

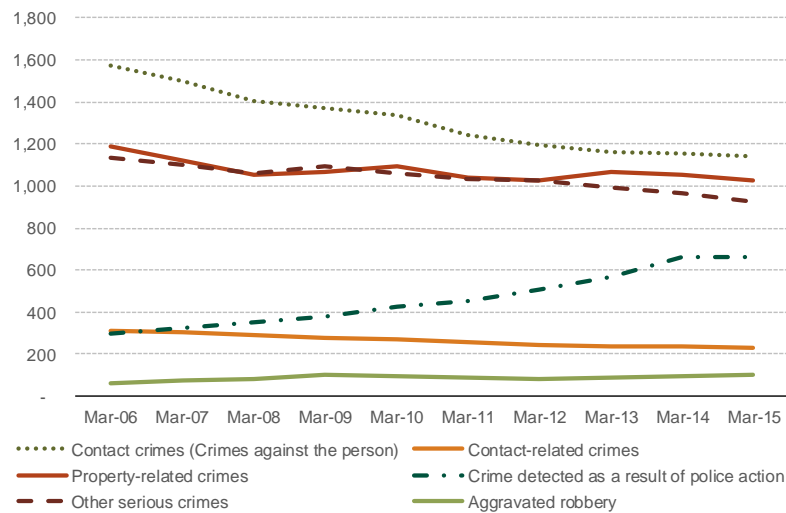
By international standards, crimes levels in South Africa are unacceptably high and particularly violent. Along with Columbia, Venezuela, Honduras, Costa Rica and Guatemala, South Africa has one of the highest homicide rates in the world. However, unlike the South American countries where homicide is linked to drug trade, murder in South Africa relates mainly to intimate partner/family-related homicide and aggravated robbery (United National Office on Drugs and Crime, 2013). Although there is evidence to suggest that crime levels had declined from their peak in 2004, the nature of offences has also changed. Drug crime is on the rise and sophisticated syndicates with the resources to evade detection run trio crimes, which include car hijacking, business, and house robberies.

4.1 Crime trends in South Africa

Between 2005/06 and 2014/15, the total number of offences recorded increased at an average annual rate of 0.3% from 2.15 million to 2.21 million, but on a per 100 000 population basis, declined from 4 509 to 4 086 over the period, at an average annual rate of 1.1%. Despite these falling crime levels, the 2014/15 Victims of Crime survey found that “most of the households were of the opinion that the levels for both violent and non-violent crimes had increased in their areas of residence during 2011 to 2014.”

In Figure 2, crimes are grouped broadly into contact crimes, property crimes, other serious offences and crimes detected because of police action. The crime data reveals some important trends in the patterns of crime and their influence on forensic services. First, contact crimes declined sharply between 2006 and 2013, levelling-off after that. Contact crimes are a key driver of demand for forensic services, as these crimes are most likely to leave forensic evidence. They are also classified as priority crimes, and therefore forensic services are more likely to be called to these crime scenes.

Second, crimes are detected because of police actions include roadblocks and searches that look for drugs, illegal firearms, ammunitions and other physical evidence. Since March 2006, the number of crimes detected because of police action has increased gradually. This rise in police action coincides with a period where the number of police officers employed in the Visible Policing Division, commonly known as Visible Policing, has grown rapidly. With more police officers on the streets, the number of illegal firearms and drugs confiscated has increased. In turn, this trend has grown the demand for forensic analysis. Finally, although the statistics show a marginal increase in aggravated robbery, many of the murders and attempted murders begin as robberies with aggravating circumstances. Thus, the small increase in this type of crime tends to mask the severity of this crime.

Figure 2: Trend of main categories of crime (per 100 000 population)

Source: (SAPS, 2015)

4.2 International review

The international review examines the empirical evidence on forensic science and its contribution to detection, investigation, and convictions. Empirical evidence shows that forensic evidence plays a significant and growing role in resolving criminal cases. While in 1963, scientific evidence was utilised in only 1% of crimes, at present in some crime categories almost all cases see some form of forensic analysis (Parker and Peterson, 1972, quoted in (Peterson, Sommers, Baskin, & Johnson, 2010, p. 187)). There is a widespread belief that forensic sciences enhance the ability of police services to detect and solve crimes, by using scientific techniques to collect, analyse and interpret critical information on when, where, how and by whom a crime was committed.

Evidence from the United States shows that forensic evidence on ballistics, material traces, biological and latent prints collected in 97% of homicides played a major role in obtaining a conviction at trial, after witness testimony in non-stranger homicides. In the United Kingdom, Werrett and Sparks (1998) quoted in (Butler, 2001) demonstrate that the ability to collect, store and match DNA to a crime scene, and to connect one crime scene to another, has improved the ability of police services to investigate and resolve crimes. It does appear that the decision to collect physical evidence depends on the type of offence. Peterson et al. (2010) reveal that evidence is more likely to be gathered and analysed in serious crimes such as murder and rape compared to less severe crimes (Peterson, Sommers, Baskin, & Johnson, 2010). With regard to serious offences, evidence collection efforts intensify when the crime is difficult to solve. These findings suggest that crime scene examiners and detectives will rely more on physical evidence to construct a theory of the crime.

To better gauge the overall efficacy of SA's forensics programme, a cross-country comparison was conducted. Four countries, namely, United Kingdom, the United States, Australia, and Botswana were selected because of the different types of forensic system they operate. Taken as a whole, the South African forensics programme, subject to the new amendments brought about by the Fingerprint Act and DNA Act, is reasonably similar to comparator countries. However, there are some differences, in particular:

- South African legislation compels authorised personnel to take fingerprint and DNA samples by way of a statutory requirement. Comparator countries typically allow for taking of samples under various circumstances such as conviction or suspicion, but these are procedural decisions rather than statutory requirements.

- South Africa's forensic laboratory structures are centralised compared to the US, which is highly decentralised. The centralised nature of South Africa's laboratories is likely to enable streamlined deployment of standards, processes, and procedures.
- Unlike the UK, which has a wholly independent forensic sciences regulator (the FSR) which performs an oversight function (albeit with no legal status), SA does not have an independent regulator *per se*, but rather relies on lab accreditation.
- Regarding policy priorities in forensics, South Africa has a focus on violence against women and children, while international comparators prioritise areas such as cyber-crime, anti-bullying and gang-related crime.
- Performance monitoring also appears to differ. South Africa sets the same turnaround target across all the laboratories, whereas in the US performance targets differ by discipline (e.g. ballistics will differ in comparison to biology), but also vary between laboratories depending on the county, city or state in question.

5 Case studies

To understand the implementation of the IIFS in different provinces, the evaluation team carried out case studies in Gauteng, Limpopo, Eastern Cape and Western Cape. The working papers that accompany this evaluation report contain an overview of the IIFS' implementation in each province.

Gauteng is the most populous province in the country. Whereas overall crime trends in the province have declined since 2004, specific categories of crime, such as aggravated robberies and burglaries, have risen since 2012. These trends are not surprising in a province which has the highest levels of urbanisation and is the economic hub of the country. However, the rise in crime, particularly property-related crime, translates into a higher demand for forensic services. To cope with the higher workload, the Crime Scene and Crime Scene Management (CRCSM) component have recruited and trained more crime scene examiners in the province. Despite efforts to increase the staff complement, 45% of crime scene examiners surveyed pointed to critical shortages in capacity.

The Western Cape experiences similar challenges, with one exception. Drug and gang-related crime are more prevalent in the province, and contribute to increases in other crimes such as murder. Drug-related offences rose by 345% between 2004 and 2015. Crime scene examiners who work in areas with high levels of gang activity report that they face the risk of injury and harm on a daily basis.

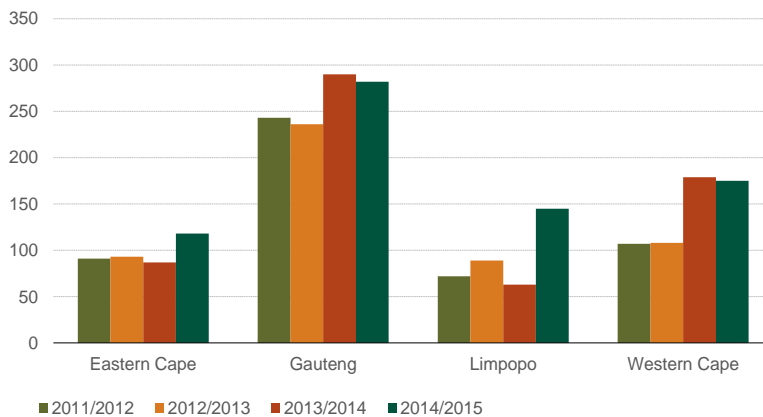
Murder as a crime is concentrated in particular communities. For instance, Mitchells Plain and Worcester police stations recorded the highest and second-highest numbers of common assault cases nationally (1 847 and 1 737 respectively) in 2015. In 2011/12, the Division: Forensic Services opened a new state-of-the-art laboratory in the Western Cape. Although the IIFS did not provide funding for the construction of the laboratory, IIFS funding has since been used to equip the laboratory and expand the array of forensic service offerings. Specific emphasis was given to strengthening the biology section within the provincial FSL and expanding capacity for drug analysis. As a consequence, the Western Cape FSL also saw the fastest growth in personnel among all provinces, growing at an average annual rate of 9% from 1184 in 2009/10 to 1876 in 2014/15.

With a limited number of crime scene examiners and long distances to cover, rural provinces such as Limpopo and the Eastern Cape have always struggled to access forensic services. In this respect, the IIFS has made an important contribution. By recruiting more crime scene examiners and purchasing more vehicles and equipment, the IIFS has expanded the reach of crime services in these provinces. Of the four provinces, Limpopo experienced the highest increase in the number of crime scene examiners because of the IIFS. Between 2011/12 and 2014/15, the number of crime scene examiners rose by 23.3%, which translates into roughly

73 new crime scene examiners recruited to the province. Over the same period, the number of crime scene examiners certified as fingerprint experts declined by 0.6% across all provinces.

The Western Cape has lost the most fingerprint experts, experiencing a decrease of 6.9% (31) followed by Gauteng with a decrease of 4.8% (19). The drop in fingerprint examiners merits concern. Fingerprint examiners provide important testimony and enhance the credibility of forensic evidence in judicial proceedings.

Figure 3: Number of crime scene examiners, 2011/12–2014/15

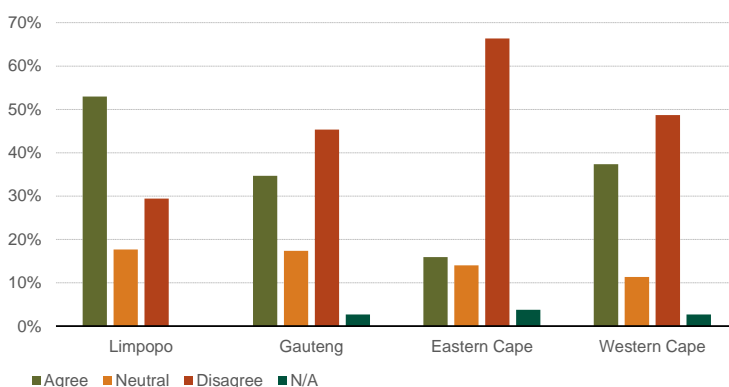


Source: SAPS

Although there have been improvements in response times, many detectives interviewed thought that it still took too long for crime scene examiners to arrive at a crime scene. In the Eastern Cape, slow response times remain a concern in rural areas given the size of the province and the poor quality of the road network. To some extent, the decentralisation of crime scene services has helped in this regard, but officials interviewed suggest that more needs to be done to expand access to crime scene services. Slow response times increase the risk that the crime scene is contaminated or evidence is destroyed before the crime scene examiner arrives at the scene.

Except for Limpopo, the majority of crime scene examiners and laboratory technicians indicated that there were not enough crime scene examiners to cope with the demand for crime scene services. To put this in numbers, 66% of all respondents in the Eastern Cape, followed by 49% in the Western Cape and 45% in Gauteng, thought that there was a shortage of crime scene examiners (see Figure 4).

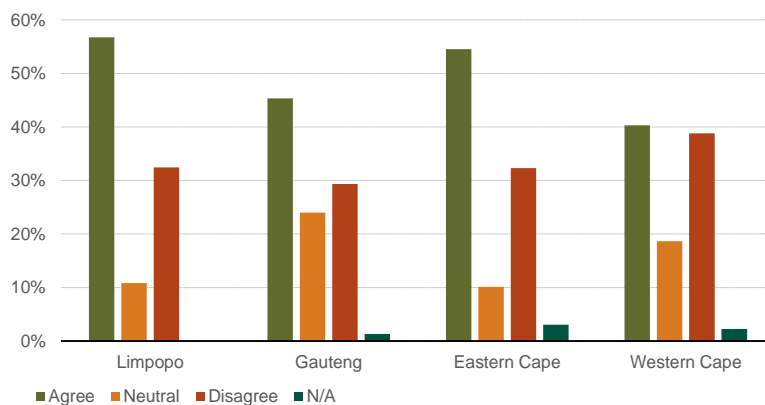
Figure 4: To what extent do you agree or disagree that there are sufficient crime scene examiners to meet the necessary demand?



Source: Crime scene examiner survey

With the funding made available through the IIFS, the Division: Forensic Services purchased new equipment for crime scene examiners. The IIFS also funded operational costs, and a large proportion of the monies went towards purchasing consumables. As part of the crime scene examiner survey, respondents were asked to rate the adequacy and appropriateness of equipment. In general, crime scene examiners were satisfied with the equipment they received. About 62% of the examiners in Limpopo compared to 51% in Western Cape reported that the crime scene equipment was sufficient and appropriate to their work. With regard to consumables, crime scene examiners expressed some frustration with the quality of fingerprint powders, delays in the purchasing of powders, and frequent stock-outs. As such, the levels of satisfaction with consumables were lower, and ranged from 57% in Limpopo to 40% in the Western Cape (see Figure 5).

Figure 5: To what extent do you agree or disagree that there are sufficient and appropriate crime scene consumables (e.g. brushes, powders and chemicals) to fulfil your duties?



Source: Crime scene examiner survey

6 Key evaluation findings

This section organises the main findings from the analysis by the DAC-OECD criteria. Evaluation criteria guide evaluators in making judgements of the programme. At the beginning of the evaluation, the ESC agreed to five evaluation criteria: relevance, effectiveness, efficiency, sustainability and emerging impact.

6.1 Relevance

The relevance criterion consists of two distinct components. The first component measures the extent to which the **objectives of the programme** align with the country's policy priorities or national development plans. The second component of relevance examines whether the **design of the intervention** was relevant and appropriate to the problem and realities faced by the country.

To check for alignment between the IIFS and national priorities, it is important to revisit the context in which the country found itself before the IIFS. By 2004, crime levels in South Africa had peaked, and the CJS faced the insurmountable task of reversing these trends. With high crime rates and rising levels of organised crime, the SAPS needed the ability to detect and investigate crimes. At the time, although SAPS had a forensic services programme, DNA analysis was done only at the request of the detective or prosecutor. Fingerprint comparisons took so long that the results often failed to make a difference to the outcome of investigations. Investigators relied mainly on witness testimony and other forms of evidence to make a case.

Around the same time, the use of DNA in forensic investigations was gathering pace internationally. Developed countries made concerted efforts to invest in forensic capacity. In

the US, forensic laboratories were decentralised from state to county level to expand the reach of forensic services.

In 2006, the CJS review found severe shortcomings and shortages in capacity within the forensic services programme. As part of the Seven-Point Plan, a recommendation was made to develop forensic capacity and capabilities. From a funding perspective, forensic services were given priority because of their position within the CJS value-chain at the coal-face of crime detection and investigation efforts.

The IIFS was designed to accelerate investment in the upstream parts of the CJS value chain. Evidence collection, crime scene management, forensic analysis and timely criminal records provide the evidence and information required to detect and investigate the offences. Forensic evidence benefits each level of the CJS.

For detectives, forensic evidence along with good investigative practices provide valuable leads for investigators. Prosecutors take forensic evidence into account when deciding on whether or not to charge a suspect. Forensic evidence can also exonerate the innocent, saving the time and effort of detectives, prosecutors and the courts. In the courts, the forensic evidence provides scientific evidence to support the theory of the crime and allows judges to make decisions on the merits of the case. Therefore, given the importance of forensic evidence in the CJS, this evaluation finds that the IIFS was relevant to, and aligned with, the national priorities.

Turning to the design of the IIFS, the intervention's logic was not clear at the outset of the programme. The activity plans developed by the SAPS did not link the forensic processes and activities to the outcomes intended by the Seven-Point Plan. In other words, these plans do not locate the position of forensic services in the CJS and specify its contribution to justice outcomes. It appears that planning for the IIFS was mainly left to SAPS, with little input from other role-players in the CJS.

The problem arises because of how the Seven-Point Plan has been implemented and coordinated. There is a disconnect between the system-level planning located within the Office for the Criminal Justice System Review (OCJSR) and the IIFS plans developed by SAPS. Originally, the intention was that the OCJSR and departments would work together to align their programmes, find solutions and coordinate their actions across the CJS. While a review of the OCJSR is beyond the scope of this evaluation, it appears that the OCJSR has its own capacity constraints, which may have impeded the institution's ability to coordinate the implementation of the Seven-Point Plan.

Another example of the effects of weak coordination on the system is found in the Integrated Justice System (IJS) modernisation programme. Falling under the purview of point five in the Seven-Point Plan, the IJS programme seeks to integrate different information and technology systems across the CJS and government more broadly. As with IIFS, funding for the IJS was earmarked by the National Treasury and allocated to SAPS. SAPS was supposed to work with the SITA to implement technology solutions. The effectiveness of the IIFS depends on having integrated technology systems and access to fingerprint databases. However, because progress on the IJS has been slow and plagued by delays, the Division: Forensic Services continues to use existing databases and technology. The lack of integration between the IIFS (point four) and IJS modernisation programme (point five) is a clear indication of the lack of coordination within the CJS that undermines the benefits of the IIFS.

The Division: Forensic Services has developed annual activity plans to guide the spending against the IIFS. On the upside, these plans have ensured that activities and processes take place as and when planned. However, there are three downsides commonly associated with this type of activity-based planning. First, activity encourages a mechanistic approach to planning that is focused on what the Division should do instead of what they aim to achieve. Second, activity planning detracts from a medium to longer-term focus. For the Division:

Forensic Services, the emphasis should be on developing medium to long-term plans that illustrate how they contribute to the CJS.

Finally, activity plans encourage the use of numerical targets and the use of input and process indicators. Output and outcome targets are used less frequently within SAPS. Currently, the emphasis is on tracking inputs and processes within the Division with little attention given to the measurement of outputs and outcomes.

One of the shortcomings of the Seven-Point Plan was that it did not set outcome targets for the CJS. Thus, as one of the objectives of the IIFS was to increase the availability of high-quality and timely forensic evidence for detectives and prosecutors, a simple measure of this objective is the proportion of cases with forensics where the prosecutors bring charges. However, as none of these outcome measures are tracked over time, it is difficult for SAPS to determine whether the IIFS has brought about meaningful changes in the CJS.

The Division's current approach to planning focuses on chasing numerical targets instead of results that benefit the wider CJS. This singular focus can be detrimental to the broader CJS. Emerging research reveals that that certain types of target can encourage perverse behaviours in law enforcement (Office of the Chief Superintendent, 2015). For example, turnaround time targets can incentivise forensic analysts to declare inconclusive or negative findings to close an entry. Therefore, turnaround times should be used in conjunction with other monitoring mechanisms such as quality reviews. It is important to mention that the Division: Forensic Services has already begun to implement some of these changes. For example, the IIFS funding has established the beginnings of a quality management function.

While there are certain weaknesses in the design of the IIFS, various positive aspects warrant further mention. The IIFS has responded to the changing patterns of crime. In response to the increasing number of ATM bombings, the IIFS was used to purchase equipment and build capacity in the explosives unit. Similarly, it contributed to building much-needed capacity to analyse DNA in response to the promulgation of the Criminal Law (Forensic Procedures) Amendment Act, Act 37 of 2013 (commonly referred to as the "DNA Act"). In many areas, the IIFS has allowed the Division: Forensic Services the flexibility to make decisions based on their needs. As a result, the Division has established new disciplines within the forensic services programme and deepened capacity in others.

6.2 Effectiveness

In the absence of an approved implementation plan, it is difficult to assess whether the IIFS achieved the objectives it intended. To overcome this problem, the evaluation assesses implementation against the theory of change adopted by the ESC.

With regards to **CRCSM**, the IIFS delivers four key results (outputs):

- Crime scene attendance is improved.
- Reliable crime scene evidence.
- Timely availability and up-to-date criminal records.
- Timely and accurate finger and latent print analysis and matches.

6.2.1 Improved crime scene attendance

In 2007, the CJS review identified crime scene attendance as one of the areas needing urgent reform. At the time, the number of crime scenes attended to by crime scene examiners was significantly lower than international best practice.

Crime scene attendance covers all activities relating to the processing of crime scenes and evidence collection. This function is performed by crime scene examiners attached to Local Criminal Record Centres (LCRCs). LCRCs render services such as the taking of fingerprints, specialised photography, drawing of plans of crime scenes, drafting techniques, facial identification, updating of criminal records, fingerprint investigations, and the collection of

forensic evidence (such as biological samples, bullets, etc.). There are 92 LCRCs countrywide, 71 of which include crime scene labs. These crime scene laboratories (not to be confused with the FSLs) process latent prints and other evidence (e.g. shoe prints) to help identify persons of interest or perpetrators.

Crime scene attendance depends on three factors: the extent of decentralisation, the number of crime scene examiners, and the volumes of crime. The total number of crime scene examiners has increased from 759 in 2011/12 to 1026 in 2014/15. Conversely, the number of fingerprint experts has declined slightly over this period from 632 to 620 over the period. Although the increase in crime scene examiners is an important accomplishment, the numbers are still lower than their 2007 levels (1 691) reported in the CJS review.

On average, crime scene examiners attended to 496 crime scenes in 2014/15 or about 14 crime scenes per week in a 35-week year compared to 916 in the previous year. This drop in crime scene attendance is the result of the decrease in the number of scenes attended and processed. The change in the number of crime scenes visited is purely the consequence of a policy change. The CRCSM component changed the prescribed list of the crime scenes to which examiners must attend. Minor offences such as shoplifting were removed from the list, allowing the CRCSM component to focus their scarce resources on priority crimes.

While the change in policy around crime scene attendance is meant to reduce the workload of crime scene examiners, many of them still work overtime. About 59% of crime scene examiners said that they worked between 1 and 10 hours overtime, while about 25% of crime scene examiners reported that they work between 11 and 20 hours over their normal time. Those crime scene examiners that attend up to 20 crime scenes per week tend to work on average 13 overtime hours, while those that attend between 41 and 60 crime scenes work an additional 18 hours per week. The analysis suggests that the more experienced crime scene examiners (recruited to the component before 2009) tend to attend more crime scenes than newer recruits.

Between 2010/11 and 2014/15, the LCRCs experienced a marginal increase in staff growing from 3 791 to 4 114, at an average annual rate of 2%. This growth, primarily funded through the IIFS, has allowed the CRCSM to decentralise capacity further by adding service points where crime scene examiners can access the Automated Fingerprint Identification System (AFIS) and other crime scene services. Service points have been established at either existing LCRCs or in so-called park homes, but no new LCRCs had been built over the period. Thus decentralisation is mostly achieved by expanding the number of service points.

Over the same period, the CRCSM component added approximately 903 vehicles to their fleet, with the larger provinces such as KwaZulu-Natal, Limpopo, Eastern Cape and Western Cape, receiving the highest number of vehicles. By expanding its fleet, the CRCSM component has extended the reach of crime scene services in semi-urban and rural provinces. This decision has improved crime scene attendance and should have reduced response times. However, since the CRCSM does not monitor response times, it is not possible to determine whether the additional examiners and vehicles have improved response times.

From the evidence collected, this evaluation surmises that access to crime scene services has expanded through increased personnel, equipment and services points. Changes to the policy around crime scene attendance have freed up the time of crime scene examiners to attend to the more serious crimes. Despite these improvements in capacity, there is a widespread perception that there is not enough capacity to meet the demand for crime scene services.

6.2.2 Reliable crime scene evidence

The reliability and quality of crime scene evidence depends on various factors including:

- The ability of first responders to secure a crime scene.
- Competency and skills of crime scene examiners.

- Availability of sufficient and appropriate equipment and consumables.

Crime scene examiners rely on Visible Policing to preserve the crime scene and protect physical evidence. However, it appears that first responders lack the forensic training and awareness to protect a crime scene. About 40% of crime scene examiners thought that the understanding among detectives and visible policing of how to secure a crime scene has deteriorated over the past six years.

Another factor that influences the quality of evidence is the competency and skills of crime scene examiners. All examiners undergo a 10-week basic training programme and have access to specialist training when undergoing proficiency tests. Concerted efforts have been made to attract scientists to the CRCSM component. In a departure from previous practice, where police officials were recruited to the CRCSM component, SAPS now hires warrant officers with degrees in natural sciences to work in the crime scene laboratory. These graduates bring the scientific expertise to the analysis of finger and latent prints, increasing the quality of forensic evidence produced by crime scene labs.

About 71% of respondents in the crime scene examiner survey agreed that they received adequate and appropriate training. Nonetheless, some respondents expressed concern with the quality of the internal training programme. They felt that the training programmes should have been subject to accreditation or quality assurance processes.

Between 2009/10 and 2014/15, the Division: Forensic Services spent R1.46 billion on technology and equipment for the CRCSM component. Approximately, 61% of this expenditure was on modernising and upgrading crime scene equipment. Spending on equipment per crime scene examiner increased from R56 518 in 2012/13 to R96 247 in 2014/15.

The majority of crime scene examiners appear satisfied with the availability and appropriateness of equipment and to a lesser extent consumables. They reported that the use of alternative light sources and high-resolution cameras have not only improved the time taken to process a crime scene but also enhanced the quality of evidence collected. These light sources are particularly useful in identifying biological evidence that can be sent for laboratory analysis.

The collection of more and better-quality crime scene evidence has knock-on effects on FSL. The total number of exhibits forwarded to the FSL for DNA testing grows at an average annual rate of 14% rising from 54 042 in 2009/10 to 107 200 in 2014/15. Crime scene examiners who joined the CRCSM section before 2009 report that they now collect DNA and other forensic evidence from 18% more crime scenes per week than before the IIFS.

6.2.3 Timely and up-to-date criminal records

Detectives and prosecutors rely on the CRCSM component to supply updated and accurate information on suspects. On average, the component generates 1.2 million records every year, 94% of which are processed with 20 days. Just over a quarter of a million records are updated every year. The Seven-Point Plan was introduced to address challenges around the availability of criminal records. Interviewed officials note that before the IIFS, the delays in criminal records stymied the efforts of prosecutors to get suspects remanded into custody or raise the bail amount. As a result of the IIFS, and in particular the increased staff in LCRCs and the Criminal Records Centre (CRC), reports are generated quickly and made available to detectives, prosecutors and judges. Between 2012/13 and 2013/14, the turnaround time target was cut from 20 to 15 days and is the main reason for the decline in the percentage of criminal records processed within the target. By reducing the turnaround time, the Division aims to encourage improvements in efficiency.

Table 1: Criminal records generated and updated

	2012/13	2013/14	2014/15
Total number of records generated	1 201 643	1 218 869	1 223 005
Total number of records generated within target	1 164 990	1 119 843	1 138 275
Total number of updates to criminal records	304 594	285 518	290 949
Total number of records updated within target	247 178	251 381	262 810
% of criminal records generated within target	97%	92%	93%
% of criminal records updated within target	81%	88%	90%

Source: DNA Economics calculations based on information received from the Division: Forensic Services

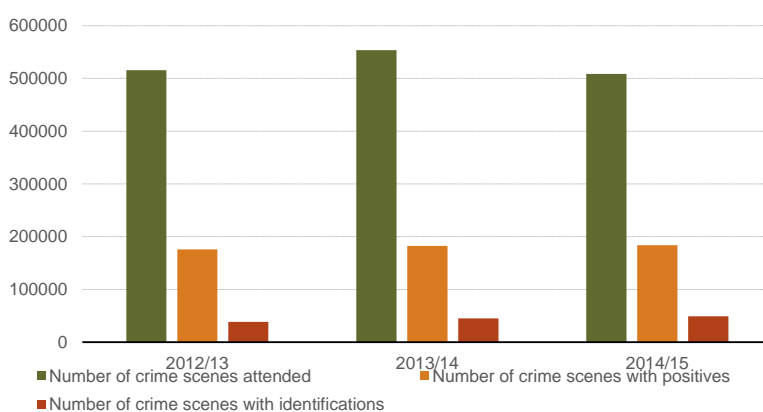
Note: In 2013/14, the target was reduced to 15 from 20 days in the preceding year

6.2.4 Timely and accurate finger and latent print analysis

Fingerprints are one of the early forensic leads on perpetrators and can exclude victims or other persons, unconnected to the crime present at a crime scene. A crime scene examiner will try to lift off the fingerprints of suspects from specific areas within the crime scene and take fingerprints of persons at the crime scene for exclusionary purposes. If these fingerprints can be analysed, then the crime scene is labelled as a “positive” result. Of all crime scenes with positive rates, the number of fingerprints matched against an existing set in a computerised database counts as an “identification”.

Both the number of positive prints lifted and identification rate has improved marginally. In 2012/13, 34% of all crime scenes attended yielded at least one positive fingerprint while fingerprints were matched to a criminal record in 22% of all cases through AFIS. The positive and identification rates improved marginally in 2014/15 because of the higher number of fingerprints matches from fewer crime scenes. The increased number of positive identifications reveals a worrying trend. Presently, the CRCSM matches fingerprints against the eight million individuals with existing criminal records. An increasing number of identifications points to rising rates of recidivism, with repeat offenders committing many of the newer crimes.

Figure 6: Number of crime scenes where fingerprints have been lifted and identified



Source: DNA calculations based on turnaround times

Note: Data for 2009/10 to 2011/12 was not available

In respect of the FSLs, the IIFS delivers two results:

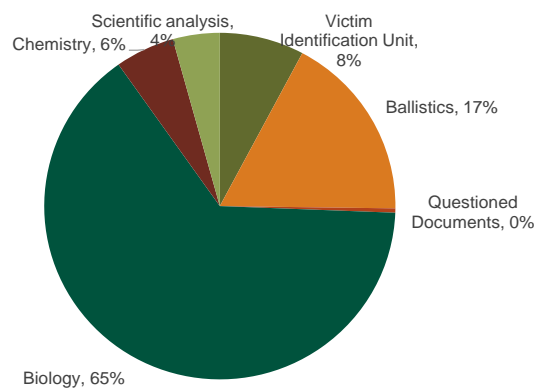
- high-quality forensic analysis within required timeframes; and
- DNA profiles are matched to perpetrators.

6.2.5 High-quality forensic analysis within the required timeframes

In respect of the FSL, the IIFS funded the majority of forensic analysts employed between 2010/11 and 2014/15. Over the period, staff in the FSL increased from 1378 to 1680, growing at an annual average of 5% and moderately faster than the CRCSM component. Within the laboratories, growth in the staff complement is driven by two sections: chemistry and biology. However, because detailed expenditure on compensation of employees by section is not available, the evaluation team could not perform further analysis.

Excluding expenditure on the compensation of employees, about R2.4 billion of the IIFS was allocated and spent on the FSLs. Of this, the biology unit receives about 65% (R1.6 billion) followed by ballistics with 17% of the total (see Figure 7). All sections benefit from investments in crosscutting technology and systems, which has been allocated in proportion to their spending. The influence of the IIFS in each of these areas differs by section. In some sections, the funding was used to automate forensic analysis, whereas, in others, it was used to establish new methods, disciplines and increase staffing. Below, the evaluation reports on the influence of IIFS on the different sections within the FSL.

Figure 7: IIFS spending by section, 2009/10–2014/15



Source: DNA calculations based POLFIN and TMS data

Biology

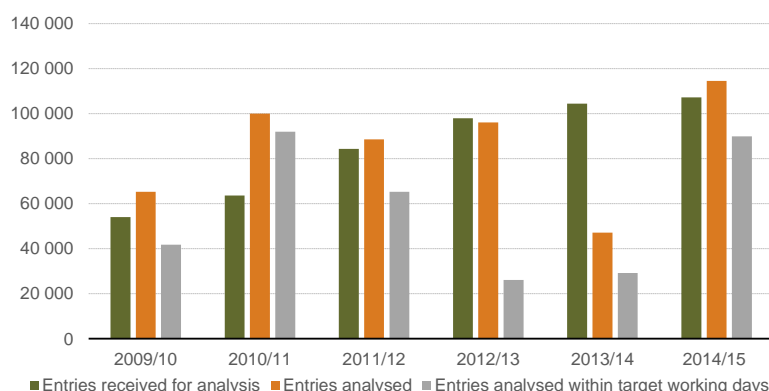
DNA analysis has gained recognition throughout the world as the most effective methods of detection. The results of DNA analysis can link perpetrators to a crime scene, or crime scenes to each other, thus, allowing law enforcement agencies to detect serial offenders. Against this background, South Africa promulgated the “DNA Act” to endow SAPS with the powers to collect, use and store biological samples. The promulgation of the Act is a key cog in the fight against crime. Before the IIFS, the FSLs’ capacity for DNA analysis was limited. Most samples underwent some form of presumptive testing but were then stored away unless further analysis was requested.

In 2012, the Division: Forensic Services changed its policy stance. From then on, laboratories would test all biological samples and establish a DNA profile. This profile was then uploaded to the National Forensic DNA Database (NFDD). Combined, the promulgation of a new Act, the change in the Division’s policy and the increasing acceptance of DNA evidence in court proceedings, have raised the demand for DNA analysis.

As the number of entries submitted for analysis increases, the ability of the FSL to meet its target tends to decline. Following the policy decision to profile all DNA samples in 2011/12, the proportion of cases completed within the timeframe drops to 27% in 2012/13. Although the recovery in 2014/15 reflects some improvement in performance, it is also due to the change in the way the turnaround target is calculated. In 2014/15, the Division: Forensic Services changed target for turnaround times to differentiate between routine, non-routine and

intelligence cases. Turnaround times are categorised into three groups: 28 days for routine, 63 days for intelligence and 75 days for non-routine cases. This change gave the biology section more time to complete complex cases, thus improving the proportion of cases completed within the targeted timeframe.

Figure 8: Number of entries received and analysed, biology section



Source: Division: Forensic Services

Ballistics

The ballistics section examines firearms and firearm-related evidence as well as tool marks. Compared to other sections within the FSL, the ballistics section experiences the slowest growth in personnel between 2009/10 and 2014/15. That said, a significant proportion of the IIFS was spent on developing and expanding the Integrated Ballistics Identification System (IBIS). Challenges within the procurement process delayed the upgrade of the IBIS, and thus the effects of the IIFS have not been fully realised over the period. However, there are emerging indications that show that the IIFS has increased the effectiveness of ballistics analysis. This hit rate, that is, the number of matches to acquired images has risen in the later years of the IIFS.

Table 2: Performance of ballistics section, 2011/12–2014/15

YEAR	2011/12	2012/13	2013/14	2014/15
Number of Hits	2012	1200	1706	1962
Number of Acquisitions	82751	67129	29079	29767
Hit rate (%)	2.4%	1.7%	5.9%	6.6%

Source: FSL Ballistics Section

Chemistry

The chemistry section spends most of its resources on drug identification cases where substances are sent to the laboratory to be analysed, weighed and classified. The workload of the chemistry is not only affected by the rapid increase in drug-related crime but also by the way in which SAPS handles these cases. Interviewed officials suggest that there is greater emphasis on arresting users of drugs found in possession of a few drugs. This approach drives up the number of exhibits sent to the FSL but does not necessarily stem the rise in drug-related crimes. For instance, in the early years of the IIFS, the chemistry section was flooded with requests to test small volumes of marijuana, until the Division made the decision not to analyse this drug. From a laboratory perspective, processing small volume and low-value exhibit takes up significant time and resources and is not cost-effective.

Given the rapid rise in drug-related crime in South Africa, the IIFS played a major role in developing forensic analysis capacity in the chemistry section. A large proportion of the funding went towards purchasing sophisticated and modern equipment capable of identifying the chemical composition of drugs (particularly newer ones) quickly. The number of drug-related entries increased at an average annual rate of 15%, marginally faster than the number of entries analysed with the target timeframe, which rose at an annual rate of 14%. It is, however, clear that without the IIFS, the increase in drug-related crime would have overwhelmed the capacity of the chemistry section.

Scientific analysis

The scientific analysis section deals with all cases that do not fall directly within the ambit of the other sections. The main change brought about by the IIFS was to decentralise some of the functions of Scientific Analysis Section to the Western Cape. The IIFS has enabled the Scientific Analysis Section to increase its personnel from 66 in 2009/10 to 84 in 2014/15, improve the competency and skills of existing staff, and purchase state-of-the-art equipment for scientific analysis. Aside from the Victim Identification Unit, this section has the highest expenditure per employee on training. It appears that the IIFS has been effective in building skills in highly specialised and niche forensic disciplines. Much of the equipment purchase with the IIFS was used to bolster the capabilities of the unit to analyse precious metals from illegal mining operations to support the efforts to SAPS to prosecute these activities.

Other disciplines

Funding from the IIFS was used to establish new disciplines in the form of the Victim Identification Centre. As the name implies, this section delivers *antemortem* and *postmortem* services to assist with the identification of unknown bodies and the recovery of remains of victims on disaster/crime scenes. Similarly, the chemical analysis sub-section in the questioned documents was established using IIFS.

Quality management

Forensic evidence is utilised in an adversarial system, where it must stand up to legal scrutiny. Effective quality assurance processes are crucial to producing the level of rigour and reliability required of forensic evidence. About R97.6 million was expended on strengthening quality management between 2009/10 and 2015/16. This funding was spent on developing standard operating procedures, capacity building workshops and raising forensic awareness. Moreover, the quality management component has led efforts to validate forensic methods needed for laboratory accreditation.

A key question for this evaluation was whether the improvements to the forensic services because of the IIFS has contributed to visible improvements in the timeliness and quality of forensic evidence provided to prosecutors. When asked about the quality of forensic support and analysis provided by the FSLs, 71% of prosecutors surveyed indicated that the forensic analyses were both appropriate and sufficient. Another 76% of respondents through that the analysis provided does in fact stand up to legal scrutiny. When compared to six years ago, prosecutors acknowledged that there had been significant improvements in several aspects of forensic analysis. About 73% of respondents said that the IIFS had enhanced the efficiency with which exhibits are analysed in the FSL. Another 63% of respondents stated that the quality of forensic analysis has improved.

6.2.6 DNA profiles are matched to perpetrators

Although the DNA Act had only become operational on 31 March 2015, the number of profiles loaded onto the NFDD has gathered pace, increasing from 207 190 to 514 859 between 2009/10 and 2014/15. The increase in DNA testing and the collection of buccal samples from arrested and convicted persons has fuelled this rapid growth in the number of DNA profiles loaded on the NFDD. Growth in the NFDD is expected to intensify over the medium term as

the legislative provisions around the taking of buccal samples are implemented, and will place enormous pressure on the biology section to analyse and profile these samples. Although it is too early to assess the influence of the NFDD on crime detection and convictions, increasing numbers of leads are generated and passed on to detectives. In 2014/15, the NFDD generated 4 075 person-to-crime scene and 3 652 crime-to-crime leads. Some of these leads have helped to identify perpetrators, and the NFDD is proving particularly effective in identifying repeat or serial offenders.

Box 1: How the NFDD is helping to solve crimes?

Serial rapist Mpho Rakgwake, dubbed the “Dobsonville Rapist”, started his criminal spree in 2007 when he was 17 years old. He robbed his victims of money and cellular phones before raping them. The successful conviction of South Africa’s youngest serial rapist began with the National Forensic DNA Database, which linked DNA from eight cases in Dobsonville, Roodepoort and Jabulani. These leads were communicated to the police task teams, established by SAPS to follow up on priority crimes. Police task teams increasingly rely on DNA leads to trace and arrest perpetrators of crime. Assisted by the Investigative Psychology Unit, detectives eventually found and arrested Mpho Rakgwake. Seven years after he began raping his victims, the “Dobsonville Rapist” was found guilty on 61 charges, including 21 charges of rape, 17 charges of kidnapping, six charges of unlawfully possessing firearms and ammunition, five charges of aggravated robbery, and six charges of robbery. He received six life sentences and 232 years’ incarceration.

Source: <http://www.iol.co.za/news/crime-courts/sas-youngest-serial-rapist-jailed-for-life-1794582>

6.3 Efficiency

Efficiency is measured in three ways within the forensic environment. First, it examines how inputs are purchased and whether the value for money has been achieved. Second, a good measure of efficiency is the changes in turnaround times. A final and important measure of efficiency is the volume of laboratory backlogs. Fundamentally, backlogs are a measure of the capacity shortfall within laboratories. When the number of entries exceeds the ability of the laboratories to process them, the backlog grows. Various internal and external factors lead to changes in backlogs. Internal factors include equipment downtime and weak management practices, whereas external factors relate to legislative and policy changes.

With large amounts of money on good and services, the evaluation looks into the efficiency of supply chain management processes and assesses whether they achieve value for money/economy. About R5.3 billion of the IIFS went towards goods and services as well as capital assets. Almost all of this expenditure went through the SAPS’ and SITA’s procurement systems. This evaluation found that that supply chain systems are relatively inefficient and characterised by slow and time-consuming processes. In some instances, current procurement regulations are not well suited to the purchase of scientific equipment and consumables.

There are also problems that arise during the procurement process that have resulted in delays in the purchase of consumables and equipment within the Division. It appears that there is limited capacity to forecast the demand for equipment and consumables, and plan for the procurement of these items. About 30% of crime scene examiners surveyed reported that they did not have sufficient and appropriate consumables to fulfil their duties. Demand forecasting should be easy enough to do based on historical information and would avoid the frequent stock-outs reported by crime scene examiners.

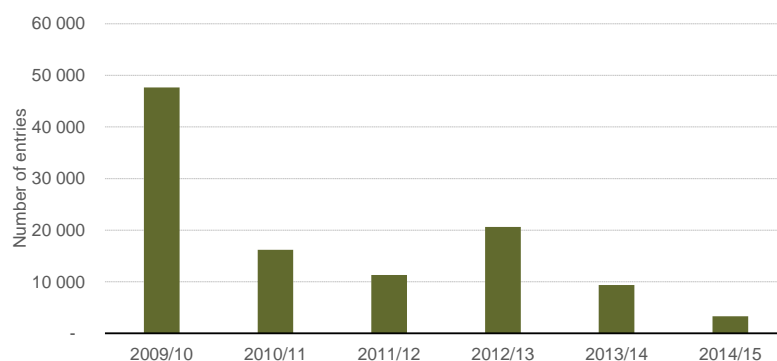
Another source of numerous delays is the bureaucratic process involved in getting internal authorisation for large and expensive purchases of technology that go into both the SAPS and SITA’S procurement systems. Interviewed officials and survey respondents raise concerns around procurement irregularities, particularly in respect of the acquisition of consumables and equipment with IIFS. While it is not within the scope of this evaluation to interrogate issues relating to procurement irregularities, there is nonetheless a need for SAPS to examine why these problems have arisen.

Regular changes to performance targets can make it difficult to track and monitor performance trends. Since the inception of the IIFS, the Division has changed its turnaround times three times. Before 2010/11, the target was set in terms of calendar days, while from 2011/12 the indicator was framed in terms of working days. In 2014/15, the target for turnaround times was changed again to differentiate between routine, non-routine and intelligence cases to align the targets with international good practice where laboratories distinguish between the turn-around times for different categories of casework. There is considerable variation across sections in achieving turnaround times. In 2014/15, the chemistry section analysed 50% of all entries within the targeted time, compared to SAU where 76% of entries was processed.

The ability to meet the turnaround time target is influenced by a number of factors including the volume of entries, complexity of the cases and experience of the forensic analysts. Using turnaround time as the main measure of performance is a blunt tool and can create perverse incentives for officials to game the system. It also explains the frequent changes made to turnaround times over the five-year period. In 2013/14, turnaround times across most disciplines within the Division were lower than planned, and in the following year, a new system of case classification and targets was introduced. One issue raised by interviewed officials within the Division was that frequent changes to performance targets can be demoralising and destabilising for employees.

Overall, the Division has done especially well in reducing backlogs. Between 2009/10 and 2014/15, backlogs dropped from 47 660 to 3 304 as shown in Figure 9. This reduction in the backlog is a remarkable accomplishment for the Division, considering that over the same time period, the number of new entries received had risen rapidly.

Figure 9: Backlogs within the Division: Forensic Services (2009/10–2014/15)



Source: Division: Forensic Services

6.4 Sustainability

Factors that promote sustainability

Sustainability examines the extent to which the benefits will continue to accrue to the Division, SAPS, and the CJS. Three factors promote the sustainability of the IIFS:

- The Division: Forensic Services has done well in establishing systems to monitor the execution of their activity plans. It monitors these business plans on a quarterly basis and takes corrective action when targets are not achieved. The combination of better monitoring and quicker remedial measures has led to a marked improvement completion of the activities and achievement of divisional targets. Thus, existing business plans and monitoring systems provide an excellent springboard for the development of a results-based implementation plan.

- There has been a definite improvement in the management of forensic services, and if this is maintained it will contribute to better performance over time. Before 2008, there were major drops in the production of forensic evidence around November and December every year. Since then, the Division has managed its workload to minimise fluctuations over the holiday periods. By doing this, the Division can operate at capacity throughout the year and supply timely forensic evidence and reports to detectives, prosecutors and courts.
- The investment in equipment and technology will continue to yield substantial benefits in coming years.

Factors that hinder sustainability

Various factors adversely affect the sustainability of the IIFS:

- Forensic services do not work in isolation, and their success depends on how well other parts of the CJS function. The lack of coordination around the interventions that fall under the Seven-Point Plan undermines the effectiveness of the IIFS.
- Within SAPS, the critical shortages in the number of detectives means that forensic evidence is used less effectively and fewer arrests are made on the basis of such evidence.
- There are also concerns about the high levels of charges withdrawn by prosecutors on cases with forensic evidence. Given the cost of producing forensic evidence, withdrawals, unless they relate to children and are in line with the prescripts of the Children's Act (No. 38 of 2015), undermine the overall effectiveness of forensic services.
- Low morale among crime scene examiners affects their productivity and is likely to raise the turnover of the Division. Contributing to this low level of morale is the loss of experienced members within CRCSM and perceptions of nepotism in promotions and appointments.
- About 16% of the amount earmarked for compensation of employees was spent on overtime. Although the spending on overtime allowed the Division to reduce the backlogged case entries, overtime expenditure is a short-term fix for a pervasive shortage of forensic analysts and crime scene examiners. This practice cannot be sustained over the long-term.
- Finally, inadequate and ill-suited physical infrastructure will limit the ability of SAPS to cope with the increasing demand for forensic analysis.

6.5 Emerging impacts

Although, this criteria was not included in the evaluation framework, the analysis revealed a number of positive trends in justice outcomes. There has been a marked increase in the percentage of charges that use forensic evidence between 2008/09 and 2014/15. This finding suggests that prosecutors are increasingly relying on forensic evidence when bringing charges against offenders. There is also some evidence to show that prosecutors prefer to bring charges based on cases where forensic evidence is present as this increases the likelihood of a conviction.

The two most forensics-heavy crime types in the sample of crimes are rape and murder. In the 2014 calendar year, 49% of murders and 74% of rapes saw some forensic analysis taking place, as opposed to the next highest of the 11 categories examined, sexual assault, where only 14% of reported crimes experienced had associated forensic analysis.

For murder cases, the analysis shows that there has been an immediate increase in forensic activity since 2009/10. This increase is across all categories of cases where forensic activity takes place including: (i) forensics, no court; (ii) forensics, guilty; (iii) forensics, not guilty (see Figure 10 and Figure 11). The increase in cases with forensics that generate guilty verdicts is encouraging. It shows that by increasing the use of forensic evidence in the case, the IIFS has contributed to increased convictions.

That said, it should be recognised that there has also been a decrease in the number of cases with no forensics where guilty verdicts are reached. As a result (and possibly because of some unresolved cases are still in the more recent years of data), the average total number of guilty verdicts has decreased slightly, from 18.4% in 2003-2008 to 17.7% in 2009-2012.

There are two possible reasons for this decline in guilty verdicts:

- Prosecutors are taking fewer cases with no forensic evidence to the court. Between 2003 and 2013, the number of murder cases with no forensics taken to court fell from 5 115 to 3 081. Similarly, the number of rape cases with no forensics taken to court dropped from 7 551 to 4 695 over the same period. Therefore, it seems that prosecutors are relying more on forensic evidence to secure a guilty verdict.
- There is a risk that some “easier” cases, which used to be resolved without the use of forensics, are now still being resolved, but with the added expense of possibly unnecessary forensics involved. This trend might reflect one of the unintended consequences of the IIFS: forensic evidence has become a substitute for detective work. It may be that fewer cases are solved without forensics because SAPS does not have enough detectives to cope with the number of cases.

Figure 10: Murder cases reported, absolute terms

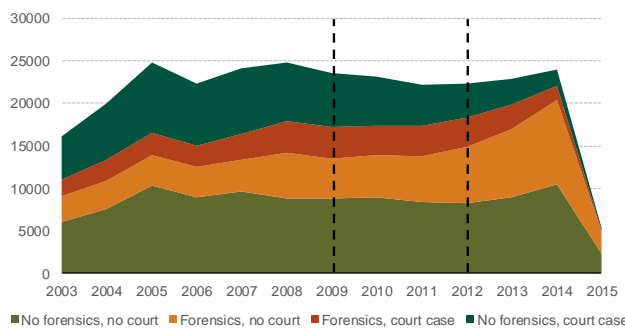
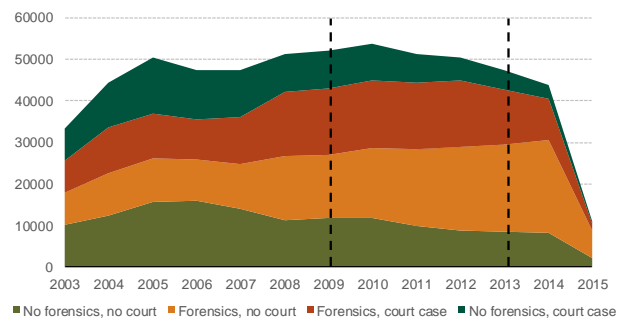
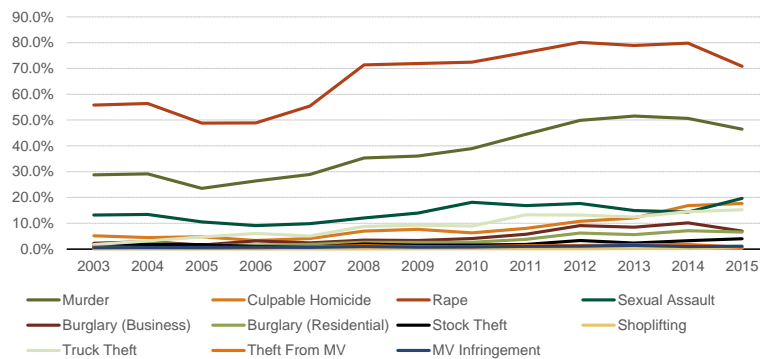


Figure 11: Rape cases reported, absolute terms



Source: DNA calculations based on CAS and CRIM

An interesting pattern emerges when looking at the contribution of forensics to guilty verdicts across all 11 crime types. Between 2008 and 2015, the proportion of cases involving forensics that achieved a guilty verdict was significantly higher in the preceding period (see Figure 12). As expected, the forensic evidence makes a significant contribution to guilty verdicts in forensic-heavy cases. Specifically, the proportion of guilty verdicts associated with forensics in murder cases increased from 28.8% in 2003 to 46.5% in 2015 and from 5.2% to 17.6% for rape crime. If the IIFS had not happened, the evaluation team posits that conviction rates would have been much lower. There has also been some improvement in conviction rates among forensic-light cases. Conviction rates among burglaries (both residential and business) have increased, albeit from a small base. This trend suggests that the IIFS has intensified the use of forensics in these types of case. In other forensic-light cases such as theft from motor vehicles and motor vehicle infringements, conviction rates remain extremely low.

Figure 12: Proportion of guilty verdicts associated with forensics as a % of all guilty verdicts

Source: DNA calculations based on CAS and CRIM

7 Conclusions

To what extent are the intended benefits of the incremental annual investment into the SAPS Forensic Services achieved?

The benefits of the IIFS arise at three levels within the CJS. The **first level** covers the direct advantages of the IIFS to the Division: Forensic Services. The extent to which the IIFS achieves the second and third round of benefits depends partly on the effectiveness of the initial investment. **Second-round** benefits include all changes brought about by the IIFS beyond the Division: Forensic Services but still within SAPS, such as the benefits of forensic evidence to detectives. The **final level** of benefits refers to the advantages of the IIFS beyond SAPS to the broader CJS.

The evaluation found that the IIFS has made inroads in addressing many of the challenges described by the CJS review. With the additional funding, the Division: Forensic Services has recruited more personnel, purchased equipment, modernised their systems and financed the operations of the Division. As a consequence of these investments, turnaround times have improved, and backlogs have declined. It appears therefore that the IIFS has expanded the reach and capacity of forensic services, as intended by the Seven-Point Plan.

Although the efficiency of forensic services has improved, there is limited evidence on the quality of forensic analysis. The Division: Forensic Services has established quality assurance processes to enhance the quality of forensic services. However, the quality of findings and results produced by analysts is not monitored through normed indicators. For example, it is unclear what proportion of chemical analyses yield a positive, negative, and inconclusive result.

Moreover, FSL Admin system records the results of the forensic analysis inconsistently, making it difficult to make sense of the data. Monitoring the quality of forensic analysis and evidence is of particular importance when using indicators such as turnaround time as a primary measure of laboratory efficiency. Numerical indicators such as turnaround times can create perverse incentives, and additional indicators are needed to counteract their effects. Nonetheless, it is important to recognise that the majority of prosecutors surveyed report that the quality of forensic evidence has improved compared to six years ago before the IIFS. They also note that these improvements have had a direct impact on their ability to obtain convictions.

Beyond the Division: Forensic Services, the benefits of the IIFS to the broader SAPS are limited by the capacity of detectives to investigate cases. The police services face a severe shortage of detectives. Whereas forensic evidence is supposed to provide the leads in investigations and information upon which to make an arrest, there are simply not enough

detectives to run down these leads. Furthermore, even leads generated from the forensic database are frequently not used by detectives. To overcome these deficits in detection and investigation capacity, specialist task teams have been established to fight priority crime. It is these task teams that follow up on leads from the Division: Forensic Services.

To summarise, the IIFS has fundamentally changed the use of forensic evidence in the CJS, and increased the proportion of guilty verdicts on cases where forensic evidence is present. These trends imply that courts place some weight on forensic evidence when making judgements on the merits of the case. It also means that cases that would have otherwise fallen by the wayside because of a lack of detection capacity are being taken to court. By expanding the availability and use of forensic evidence in the CJS, the IIFS has begun to make an important contribution to justice outcomes in the country.

Overall, how cost-effective is the incremental annual investment into the SAPS Forensic Services?

Cost-effectiveness is defined as “achieving the maximum level of output for a stated level of inputs or costs (Productivity Commission, 2013). It is measured through unit costs, although these are rough measures of cost-effectiveness. In respect of forensic services, the evaluation team estimates the unit costs of forensic analysis as the amount of resources it takes to analyse one entry. Declining units costs show improvements in efficiency, or in other words, more entries are analysed for a given level of funding. Conversely, rising unit costs should demonstrate that expenditure grows faster than entries submitted for analysis.

In 2009/10, the Division: Forensic Services spent an average of R6 480 on analysing each case entry it received. By 2014/15, the average expenditure per entry had risen to R12 515, growing at an annual average growth rate of 13.2%. Thus, the unit cost of associated with forensic analysis rises faster than inflation over the evaluation period.

If the evaluation team excludes expenditure on technology from the calculation, the average cost per entry analysed grows to R10 129, at an annual average of 11.2%. There is not enough detail in the expenditure and administrative to pinpoint the causes of this higher-than-inflation growth. It is possible that the rapid increase in operational costs is because of weaknesses in procurement practices combined with the small pool of suppliers, who have some market power.

One of the unintended consequences of the IIFS was that it made a pool of money available to the Division, without setting clear criteria for the use of the funding. Coupled with the lack of a result-based implementation plan, this has fostered a situation where the focus was on spending the CJS funding, and not necessarily always driving the best value for money from purchases or supporting best forensic practices. Nevertheless, there is some emerging evidence that to show that the investment in automation has achieved efficiency gains. For example, within the biology section, expenditure on consumables per case entry has dropped from R721.40 in 2010/11 to R686.54 in 2014/15.

What is working, what is not working regarding the incremental investment into the SAPS Forensic Services? Specifically, what are the operational constraints and challenges during implementation of the intervention (such IT, HR, procurement, etc.?)

Over the course of this evaluation, the project team found a high level of commitment within the Division: Forensic Services to achieving their targets. However, three operational constraints influence their ability to meet their objectives.

Planning and monitoring

This evaluation report discusses at length the problems with the current planning. Activity planning encourages a mechanical approach to implementation instead of genuine attempts to solve problems. Numerical targets such as turnaround times encourage “target chasing” at the expense of other priorities. This is not to say that the Division should not have activity plans

and turnaround time targets, but rather a balanced approach is needed that focuses on activities as well as outcomes. Another important lesson for the Division is that monitoring activities are not simply about monitoring targets. Monitoring is an organisational exercise that seeks to promote improvement. For example, the Division should be monitoring the number of crime scene examiners and forensic analysts who testify in court and whether their testimony contributes to a conviction. This type of monitoring provides useful information to the Division on the types of support needed for examiners and analysts to become expert witnesses.

Supply chain management

Supply chain management practices are the source of many delays within the Division and impact adversely on the delivery of forensic services. Weak coordination between the Division's procurement officials and the Office of the Chief Financial Officer are frequently cited in interviews as having negative impacts on the work of the Division. When it comes to procuring technology and systems, lengthy delays on the part of SITA have set back the implementation of particular systems.

Information and technology

SAPS operates a multiple and disparate information systems. As many of these systems are not integrated, it is hard to track the effects of forensics throughout the CJS. Inadequate levels of integration across systems entrench a narrow view of performance and success within SAPS, as each division works towards its specific objectives and targets. Consequently, SAPS has limited information on whether detectives are using the forensic evidence and leads and the extent to which forensic evidence is being utilised across the CJS.

Human resources and financial management

In relation to the IIFS, different divisions monitor and track different types of expenditure. While the Division: Forensic Services manages the spending on goods and services, TMS oversees technology expenditure, and the Office of the Chief Financial Officer handles compensation of employees. Because of this division of responsibilities, the Division: Forensic Services did not have a holistic view of how much was spent in totality on forensic services.

EQ 4: How can the effectiveness of the incremental investment in SAPS Forensic Services be improved and what are the implications for the design of the intervention?

A short-term outlook informs the current design of the IIFS. Planning is done for the year with some targets set over the medium term in the annual performance plan. Given the crucial role of the forensics services in the CJS, the IIFS should ideally be linked to a medium to long-term strategy. This strategy should outline the steps taken by SAPS to sustainably build forensic capacity in the country and leverage the gains already made through the IIFS. All additional funding made available through the IIFS should be linked to this medium to long-term plan with clear milestones for the Division and other key role-players.

8 Recommendations

Overall, the IIFS has made progress in achieving the objectives set out in the Seven-Point Plan. Nonetheless, a few changes are needed for the CJS to realise the benefits of the IIFS fully. The recommendations emerging from this evaluation are detailed in Table 3.

Table 3: Recommendations emerging from the evaluation of the IIFS

Recommendation	#	Detailed recommendations
<p>R.1 The SAPS and DOJ&CD must coordinate their planning and strengthen their monitoring systems to realise the benefits of the IIFS.</p>	R1.1	SAPS in consultation with the DOJ&CD must prepare a five-year National Forensic Strategy that sets out clear objectives, outlines the role of forensic services in the CJS, and determines milestones for the development of forensic sciences in the country.
	R1.2	The Division: Forensic Sciences must use theory of change and logical framework developed for this evaluation to develop a results-based implementation plan . The plan must include the following: <ul style="list-style-type: none"> ○ Input indicators measure the economy and value for money achieved by the IIFS (e.g. unit cost per entry analysed) ○ Activity indicators track the efficiency of operations (e.g. turnaround times) ○ Output indicators measure the quantity and quality of forensic analysis (e.g. percentage of cases that result in a positive, negative, or inconclusive result) ○ Outcome indicators quantify utilisation of forensic services across the CJS (e.g. the percentage of forensic cases that lead to a guilty outcome)
	R1.3	The Division: Forensic Services must develop a monitoring plan that identifies: <ul style="list-style-type: none"> ○ The source of information for these indicators ○ The data collection and validation protocols, including a set of rules around how the data is cleaned and analysed (in respect of CRCSM and FSL admin data) ○ Frequency of data collection
	R1.4	The Division: Forensic Services must agree to a set of targets for the next three years. The Division should not change the target or the method of measurement over this period or until the target is achieved consistently, whichever happens first.
	R1.5	SAPS must establish the statistical capacity to use the data collected by the Division: Forensic Services and Division: TMS to track and monitor the influence of forensic services on court outcomes.
<p>R.2 The SAPS must improve its financial management processes and supply chain management practices to deliver better value for money.</p>	R2.1	The SAPS should maintain a consolidated expenditure report that shows how the IIFS is spent on compensation, good, services, and technology.
	R2.2	The Division: Forensic Services, in collaboration with the Chief Procurement Officer, should diagnose the current weaknesses in their procurement system , and identify potential improvements. Specific issues to be addressed as part of this exercise include the: <ul style="list-style-type: none"> ○ Challenges in purchasing equipment and technology for forensic services. ○ Appropriateness of rotating suppliers in respect of equipment and consumables that need to be pre-tested and validated. ○ Criteria used to measure value for money. ○ Substantially above-inflation increases in the prices of goods and services. ○ Allegations of procurement irregularities and the system deficits that give rise to them.
	R2.3	The Division: Forensic Services must ensure that value for money during procurement. Specifically, the Division must establish value for money criteria that applies to purchasing decisions in the forensic environment.
	R2.4	The Division: Forensic Services must update their human resources plan with estimates of the number of, and competency of staff needed to implement the “Fingerprint Act,” “DNA Act,” and handle the increased workload arising from the changing nature and levels of crime in the country.
	R2.5	The Division: Forensic Services and the Division: TMS must prepare a maintenance plan that estimates how much funding will be required to maintain the equipment and technology procured as part of the IIFS, placing particular emphasis on those items that do not have an existing maintenance agreement.

R.3	The SAPS should consider providing additional funding to sustain these gains and cope with the increasing demand for forensic services.	R3.1	SAPS' senior management should review the staff plan of the Division and allocate additional positions to the Division, with a particular priority given to crime scene examiners and forensic analysts.
		R3.2	The Department of Public Works, in conjunction with SAPS, should assess the risk annually as required by the "DNA Act" and submit an improvement plan with recommendations on how to address the physical infrastructure needs of forensic services in order to meet the accreditation requirements.
R.4	The SAPS and the SITA must work together to integrate information technology systems necessary for the forensic services programme to operate efficiently.	R4.1	SAPS, in conjunction with SITA and the Department of Home Affairs, must set timelines to expedite the integration of AFIS and HANIS . The Division: TMS must monitor and report regularly on these deadlines.
		R4.2	The Division: TMS must collect, use and integrate data from the CAS, CRIM, and FSL admin systems to monitor the utilisation of forensic evidence and its contribution to case outcomes.
		R4.3	The Division: TMS establish systems for data integrity and disaster recovery that are aligned to best practices in line with the DNA Act
R.5	The SAPS must take steps to build skills, competencies and capacity among forensic personnel and enhance staff welfare	R5.1	The Division: Forensic Services must monitor the overtime worked by forensic analysts and examiners. Where overtime increases to harmful and unsustainable levels, the Division must review their resource allocation and establish a system to manage their staff's workloads.
		R5.2	The CRCSM component must determine the feasibility of obtaining accreditation for its training programmes . To the extent possible, The CRCSM component, together with the Division: Human Resources Management should develop an accredited programme for crime scene examiners that is recognised and registered with the South African Qualifications Authority.
		R5.3	The CRCSM component must develop a continuous professional development programme so that crime scene examiners can access refresher courses. A training needs assessment should inform any such training programme. The programme must include a mentorship component so that recent hires can receive guidance from senior crime scene examiners.
		R5.4	The Division: Forensic Services, in collaboration with Division: Human Resource Management must undertake a staff satisfaction survey and identify actions to remedy the low levels of morale in CRCSM.
R.6	The SAPS must train Visible Policing and detective services in securing a crime scene and safeguarding forensic evidence. Visible Policing must monitor the implementation of crime scene procedures and related national instructions	R6.1	The Human Resources Division in SAPS must develop and rollout training to improve the forensic awareness of Visible Policing .
		R6.2	Visible Policing must establish monitoring systems to ensure that first responders comply with the National Instruction for Crime Scene Management (NI 1 of 2015) . Deviations from compliance with the instruction must be analysed and where necessary, Visible Policing should take corrective action.
		R6.3	SAPS must address the critical shortages in detectives , which constrain the use of forensic evidence in crime investigations.
R.7	The NPA and SAPS must interrogate the high levels of withdrawn charges in cases where forensics is present and develop plans to reverse this trend, where appropriate	R7.1	The NPA and SAPS should interrogate the high levels of withdrawn charges in forensic cases, and determine if any improvement actions can be taken to reduce the number of cases with forensics that are withdrawn.

Annexes

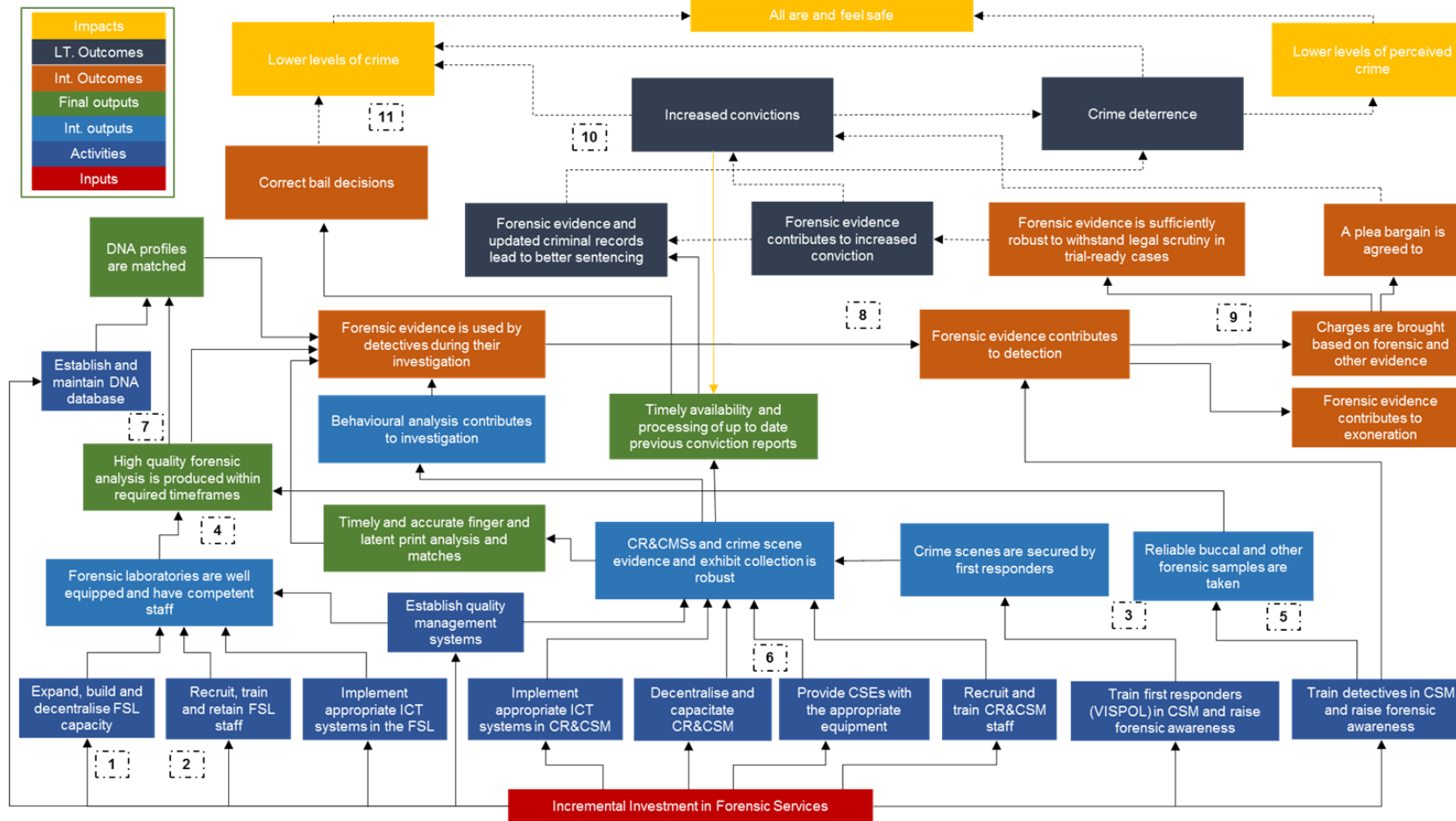
Annex 1: References

A full list of references can be found in the main report.

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Annex 2: Existing theory of Change for the IIFS



Annex 3: Revised logical framework

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
IMPACT	Lower levels of crime	National crime rate	Yes	SAPS Annual Report, Crime Statistics	Audits of Performance Against Objectives	Poverty levels, unemployment rates, economic climate and social conditions
		Change in the crimes against women, children, and other vulnerable groups reported	Yes	SAPS Annual Report, Crime Statistics	Audits of Performance Against Objectives	
		Homicide rate (per 100 000 population)	Yes	SAPS Annual Report, Crime Statistics, UNODC Homicide Report	Audits of Performance Against Objectives	
	Lower levels of perceived crime	% of people feeling safe walking alone in their area during the day	Yes	Victims of Crime Survey	Gallup Poll	
		% of people feeling safe walking alone in their area during the night	Yes	Victims of Crime Survey	Gallup Poll	
		% of households believing that the level of violent crime has gone down	Yes	Victims of Crime Survey	Gallup Poll	
LONG TERM OUTCOMES	Increased conviction rates	Change in conviction rates by type of crime	Yes	SAPS Annual Report, Crime Statistics	Audits of Performance Against Objectives	Functioning and effectiveness of the prosecution and courts
			No	Macro level time series analyses on the effect of the level of punishment on crime rates*	Impact evaluations	
	Crime deterrence	Perceptions of household's satisfied with the way courts deal with perpetrators of crime	Yes	Victims of Crime Survey	Gallup Poll	Legislation governing the level and severity of punishment Overall effectiveness of policing, prosecution and correctional services
		Recidivism rates	No	DCS annual report	CRIM	
Forensic evidence and updated criminal	Average sentence terms for priority crimes	Yes	DOJ&CD and SAPS Annual Reports	CRIM and CAS		

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
	records lead to better sentencing					
	Forensic evidence effectively contributes to conviction	Proportion of trial cases using forensic evidence where a conviction is secured (reported by type of crime)	No	Case outcomes reported by DOJ&CD	CRIM	The degree to which court officials and prosecutors understand, value and interrogate forensic evidence
INTERMEDIATE OUTCOMES	Correct bail decisions	Percentage of bail hearings where updated criminal report is made available	No	NPA monitoring reports		
		Criminal records made available within specified timeframes	Yes	CRCSM reports		
	Forensic evidence is sufficiently robust to withstand legal scrutiny in trial-ready cases	Proportion of trial ready cases where forensic analysts provide expert evidence	No	FSL monitoring reports		
	A plea bargain is agreed to	Proportion of cases with forensic evidence where a plea bargain is agreed	No	CRIM		
		Proportion of cases with forensic evidence where a child is diverted in line with the Children Act (2005)	No	CRIM/CAS		
	Charges are brought based on forensic and other evidence	Average time taken to complete a complete a trial ready case docket (by type of crime)	No	Case outcomes reported by DOJ&CD	Audits of Performance Against Objectives	
	Forensic evidence contributes to detection	Change in detection rates by type of crime (e.g. serious crime)	Yes	SAPS Annual Report	Audits of Performance Against Objectives	
	Forensic analysis is used by detectives	Proportion of cases, where evidence is submitted for forensic analysis	No	FSL Admin System	System audits	

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
	during their investigation					
	DNA database searches produce investigative leads	% of database leads provided to detectives that lead to arrest	No	FSL monitoring reports	CAS	
		% of match reports dispatched within 24 hours	No	FSL monitoring reports	CAS	
		Number of DNA exhibits expunged per annum	Yes	CJS Performance reports		
FINAL OUTPUTS	High-quality forensic evidence is produced within required timeframes	The percentage of case exhibits (entries) processed by Forensic Services within target number of days (by division)	Yes	FSL Admin System	System audits	Public awareness of forensic sciences and understanding of crime scenes.
		Proportion of entries to entries finalised	Yes	SAPS Annual Report		
		The number of backlogged cases / exhibits relative to the end of the previous year	Yes	FSL Admin System	System audits	
		Proportion of cases by discipline with a positive, negative or inconclusive result	No	FSL Admin		
		Number of forensic DNA and Ballistic investigative leads reported per annum relative to target	Uncertain	FSL Admin System Gold database and Environmental Database	System audits	
		Acceptance rate of S212 by courts as indicators	Yes	FSL Admin System		
	DNA profiles are matched	Number of DNA profile matches per annum	Yes	FSL Admin System		
	Timely availability and processing of up to date previous conviction reports	Percentage of original previous conviction reports for formally charged individuals generated within target number of days.	Yes	SAPS Annual Report	Audits of Performance Against Objectives	

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
	Timely and accurate finger and latent print analysis	Annual change in the following indicators: - Requests for crime-related fingerprints for possible identification and/or confirmation - Electronic Palm prints per annum - AFIS Fingerprint Identifications per annum - Manual Fingerprint Identifications per annum - Manual Palm prints per annum - Exhibits processed by Fingerprint Laboratory per annum - Cases processed by Fingerprint Laboratory per annum - Number of positive cases processed by Fingerprint Laboratory per annum - Number of shoe-print Investigations per annum - Number of positive Shoe-print Investigations per annum	Yes	SAPS Annual Report	Audits of Performance Against Objectives	
INTERMEDIATE OUTPUTS	CRCMSs and crime scene evidence and exhibit collection is robust	Workload per Crime Scene Examiner	No	Staff figures Crime scene attendance (From 2010 - LCRC)	CRCSM monitoring reports	
		Average scene attendance per CSE	No	CRCSM monitoring reports		
		Fingerprint identifications per 1000 crime scenes examined	No	CRCSM monitoring reports		
		DNA identifications per 1000 crimes scenes	No	FSL monitoring reports		
		Other forensic evidence per 1000 crime scenes	No	CRCSM monitoring reports		
Forensic laboratories are well equipped and have sufficient staff	No of forensic examiners per discipline Number of forensic examiners trained Overtime measured. Increase in court appearance	Yes	HR reports	Powerstats		

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
		Number of expert testimony appearances by Forensic Examiner (S212) Number of expert testimony appearances by Forensic Examiner (LCRC) Number of S212 reports issued per case Workload per FTE Forensic Examiner across the disciplines Ratio of operational forensic staff to forensic examiners	No	FSL monitoring reports HR reports	Powerstats FSL admin	
	Behavioural analysis contributes to investigation	Victim count per case (indicator) Hours spent per type of case	No			
	Crime scenes are secured by first responders	Proportion of crime scenes confirmed secured by first responders	No			
	Reliable reference (buccal) and other forensic samples are taken	Change number of buccal and reference (no differentiation before 2010) received	Uncertain			
ACTIVITIES	Expand and build capacity within FSL	Expenditure on capital equipment per laboratory	No	CJS Performance reports		
		Number of FSLs refurbished and renovated		CJS Performance reports		

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
		Percentage variation from approved equipment budget	Yes	Supply Chain Management reports, Expenditure Reports, POLFIN	Annual Financial Audit	
	Recruit, train and retain FSL staff	Number of forensic scientists recruited per annum (by level)	Yes	HR reports		The availability of a pool of qualified and suitable candidates to fill the positions within the FSL and CRC
		Expenditure on compensation of employments	Yes	BAS HR Reports	Annual Financial Audit	
		Expenditure on overtime as a proportion of total expenditure on compensation of employees		BAS HR Reports		
	Establish and maintain DNA database	Number of Forensic DNA profiles added to the DNA database relative to target	Yes	CJS Performance reports		
		Percentage of forensic DNA profiles and exhibits submitted to the FSL	Yes	CJS Performance reports		
	Establish and maintain quality management systems	Quality management component established within section	No	SANAS and SAPS Annual Report	SANAS reports, CJS Performance reports	
		Number of test methods which are accredited with SANAS	Yes	Quality Management reports		
		Planned versus total test methods accredited	Yes	CJS Performance Reports		
	Implement appropriate ICT systems to support forensic analysis	Expenditure on ICT systems relative to budget per annum	Yes	Supply Chain Management reports, Expenditure Reports, POLFIN	Annual Financial Audit	SITA has the skills and capacity to deliver system solutions promptly
		Number of systems procured and / or implemented per annum	Yes	CJS Performance reports		
		Percentage of ICT project milestones achieved	Yes	CJS Performance reports		
		System availability and performance (by type of system)	No			
		Expenditure on integration of fingerprint databases relative to target	Yes	CJS Performance reports		
		Expenditure on development of DNA database relative to target	Yes	CJS Performance reports		

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
	Capacitate and expand (including decentralise) CRCSM	Average expenditure per CSE by incremental investment programme	No	CJS Performance reports		
		Number of new LCRCs and Crime Scene Labs established and operational	Yes	CJS Performance reports		
		Number of new LCRCs and Crime Scene Labs established and operational	Yes	CJS Performance reports		
		Number of service points established	Yes	CJS Performance reports		
		Ratio of LCRCs to police stations	Yes	CJS Performance reports		
		Ratio of Crime Scene Labs to police stations	Yes	CJS Performance reports		
		LCRC per 100 000 population	Yes	CJS Performance Reports		
		Number of CSEs per vehicle	Yes	Supply Chain Management reports, Expenditure Reports, POLFIN		
	Provide CSEs with the appropriate equipment and consumables	Change in number of fingerprints accessible to SAPS relative to the end of the previous year	Yes	CJS Performance reports	Annual Financial Audit	The competence and performance of external service and product providers
		Percentage variation from approved equipment budget	Yes	Supply Chain Management reports, Expenditure Reports, POLFIN	Annual Financial Audit	
		Number of training workshops conducted Number of forensic analyst completing training relative to target per annum	Yes	Annual report, CJS Performance reports	Annual Financial Audit	
	Recruit and train CRCSM	Number of CSEs trained per annum	Yes	HR reports		
		Attrition rates among CSEs	No	HR reports		
		Number of staff trained on prescriptions of Fingerprint Act Number of staff trained on prescriptions of DNA Act	Yes	HR reports		

	Summary	Indicator(s)	Currently measured	Source of data	Means of verification	Assumptions
	Train first responders (Visible Policing) in CSM and raise forensic awareness	Number of Visible Policing personnel trained by division per annum (e.g. proportion trained in taking buccal samples)	Yes	CJS Performance reports		
		Expenditure on forensic awareness campaign relative to budget target	Yes	CJS Performance reports		
	Train detectives in CSM and raise forensic awareness	Number of detectives trained by division per annum (e.g. proportion of detectives trained in taking buccal samples)	Yes	CJS Performance reports		

