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Investigating of the Cell Phone Towers Vandalism: Perspectives of the Closed-Circuit Television

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Abstract: The paper focuses on the usage of the closed-circuit television to investigate vandalism of the cell phone towers. Vandalism of the cell phone tower causes the loss of the network connectivity to the mobile users. In the same breath, the cell phone service providers suffered financially in the restoring the vandalised cell phone towers. Cell phone towers are costly because they are built up with the metals. Furthermore, cell phone towers need fuel such as diesel to operate. In most cases criminals commit this type of crime with the intention to steal fuel and metals. However, the law enforcement agencies together with cell phone service providers can use technological aspects such as CCTV to investigate vandalism of the cell phone towers. The purpose of the paper is to determine the value of the Closed-circuit television in the investigation of the cell phone tower vandalism. The CCTV surveillance operators process images of the suspects for the investigation process. The challenges and the benefits of using CCTV in the investigation of the cell phone tower vandalism interrogated in this paper. The qualitative research adopted in this study. The non empirical study used to focus merely on the literature sources. The researcher reviewed the literature that focuses on forensic science and technology, policing technology and security management. The study reveals that crime investigators lack the knowledge in the use of CCTV to investigate the vandalism of cell phone towers. The paper recommended that crime investigators need to attend the training related to CCTV as identification techniques.

Keywords: Closed-circuit Television, cell phone towers, cell phone service providers; crime investigation and crime scene

Introduction

The Closed-circuit television is the technological aspect that can be used by police to investigate the crime. The crimes such as vandalism of the cell phone towers are committed where equipment's stolen by criminals. Also, the infrastructure of the cell phone tower is damaged. According to the MTN network, about 500 theft and vandalism events occurred in 2024, costing R33 million to rebuild damaged base stations and stolen batteries (Puchert, 2025). This represents a more than tenfold increase over the R45 million the network spent in 2023 (Puchert, 2025). In addition to costing the business a lot of money, these illegal actions prohibit communities from using the network to stay in contact and connected to one another, to work, and to emergency services. (News24Wire, 2020). The cell phone service provider Telkom also asserts that it has executed "hundreds of convictions" in the preceding six years, stating that just 523 of the 3,003 individuals detained between July 2017 and December 2023 were found guilty (Okorie, 2024). Furthermore, approximately 311 individuals are under suspicion of vandalism charges, while 1,126 alleged instances are pending trial. (Okorie, 2024). The Closed-circuit television is the technological aspect that can be used by police to investigate cell phone tower vandalism. However, the following problems can disadvantage crime investigations:

Lack of training

Investigators who lack the necessary training may fail to notice important information in CCTV film, such as small movements of vehicles, facial expressions, or activities that could be critical to the case (Burkhalter, 2022). Furthermore, insufficient instruction on how to use CCTV systems to investigate cell tower vandalism may result in overlooked evidence, incorrect film processing, and eventually, an inability to find and apprehend offenders. The efficiency of CCTV systems may be restricted in some places by poor infrastructure, such as inconsistent power or internet access (Papale, 2023).

Funds constraints

Budgets may be strained by the high expenses of setup, upkeep, and operations as well as the requirement for skilled workers to handle and evaluate video. In larger jurisdictions, this can be a substantial recurring expense (Burkhalter, 2022).

Lack of digital CCTV experts

The SAPS is devoid of qualified experts who are adept at analyzing CCTV material, including recognizing people, analyzing movements, and deciphering visual evidence (Vuma, 2025; Bolhuis, 2015). In the absence of qualified analysts, important CCTV material might be misused or misunderstood, which could result in lost chances to reconstruct crime scenes or identify suspects.

These results can be the alter of the evidence in the collection and processing stage. This can make court to decide to withdrawal the case.

Methodology

This research study adopted the qualitative research approach. The qualitative technique gives the researcher a set of guidelines for gathering and analyzing data related to the study problem (Leedy and Ormrod (2018:146). In this sense, the literature as secondary data refers to information that has been updated or reanalyzed from previously examined data, most of which were not created or generated by the researcher directly (Fouché, Strydom & Roestenburg, 2021:347. To obtain the relevant literature, the author searched databases such as Scopus, JSTOR, Research Gate, Google Scholar, Web of Science, Science Direct, Directory of Open Access Journals (DOAJ) and SABINET. Further, the research focus on the non-empirical research. The main emphasis of non-empirical research is on ideas, techniques, well-supported beliefs, and their research implications (Arrendale Library, 2025). Furthermore, non-empirical research uses introspection, conjecture, and logical argumentation; it does not use direct observation or experimentation. (Mukena, 2025). The research identifies the resolved cases related to cell phone tower vandalism from 2017-2024 in South African, Gauteng. This research can contribute to the scholars to enable to them to theorise the CCTV as a tool to investigate the vandalism of the cell phone towers, cell phone service providers such as MTN and Vodacom to save their properties such as cell phone towers to avoid the business loss and police to understand the investigation strategies in the usage of the CCTV footage to investigate cell phone towers.

Benefits of the CCTV in the Crime Investigation

The importance of closed-circuit television (CCTV) cannot be overstated, but CCTV images and audio are crucial for detecting crime, locating possible witnesses, locating and/or removing suspects, and locating possible investigative opportunities, including event timelines and additional CCTV sources (College of policing, 2024). CCTV evidence provides a multitude of information, such as the identity of those involved, the chronology of events before a crime, the methods of criminals, and any distinctive traits or identifying qualities (Matthew, 2017). CCTV can also use to track people's movements, identify license plates, detect suspicious behavior patterns, and even recognize faces to expedite the investigation process and better concentrate investigators' efforts. (InstallersPH IT Solutions, 2025). CCTV can occasionally be used as proof in court to demonstrate that a person was at a specific location or that they committed a crime (Mack, 2025).

Chain of Custody

Homeland Security Department Training Center, (2017:87) highlights that the chain of custody starts from the time when evidence recovered at the crime scene until it is presented at the court of law. In context, the original video footage should be collected and stored securely, ideally in manner that prevents unauthorised access or modification. Vallabhaneni (2016:466) advices that crime investigators to perform a chain of custody from start to end of the investigation process by following authenticating method. Epifani and Stirparo (2015:14) highlight that the most significance phases of the chain of custody are authenticating and preservation methods. Drielak (2017:134) points

out that crime investigators must be mindful about the records the dates that evidence was collected, the case number, the suspects name and a brief description of the item in practising the chain of custody. Every step in the handling process, including who accessed the footage, when, and what purpose, should be meticulously recorded.

Meaning of the Evidence

In this study the evidence refers to CCTV footage evidence as electronic evidence. Choo (2015 :1) defines evidence as the piece of information that can be mostly presented in the court of law, merely to prove cases. According to Karagiozis and Sgaglio (2005:63) "evidence is data placed beforehand in a court to prove or disprove a point of issue". Hails (2012:3) states that evidence in the court will be accepted in trial to prove or disprove merely if it is introduced formally. Before, the parties that are responsible for cases must be aware that certain evidence will be presented in the court during trial. Miller (2018:3) gives a reminder that evidence could cause more challenges in a criminal case in order to prove or disprove if it was not introduced formally in the court of law during trial. The researcher explained the CCTV evidence as electronic evidence as follows:

Electronic evidence

Zinn and Dintwe (2015:378) states that electronic evidence is defined as any data that was made, referred, received, or kept in electronic format. Lochner and Zinn (2015:91) state that "electronic evidence is data that is manipulated, stored or communicated by any man-made device, computer or computer system, or transmitted over a communication system".

To this end, the CCTV footage must have the real picture of the crime by showing the vandalised cell phone tower as crime scene. In addition, also the suspects who committed the crime. The tools that used to committed crime such as motor vehicle and screwdriver must be collected and stored to support the investigation process.

Cell Phone Tower as a Crime Scene

Lochner and Zinn (2015:58) state that a crime scene represents the location where physical evidence can be collected with the intention of prosecuting the suspect. Crime scene is for example the place where instruments that were used to commit the crime such as "explosives" are found (Shaler, 2012:13). Turvey (2017:204) further define 'crime scene' as any place where a crime has been committed. However, Osterburg and Ward (2010:91), state that crime scenes include locations to which the participants during the commission of crime travel. In context, when a cell phone tower is vandalised, it can be treated as a crime scene, requiring investigation and evidence collected by police. In SAPS, police investigate the scene, collect evidence such as footprints, tools used, or other materials, to identify and prosecute the perpetrator.

Types of Crime Scenes

Primary crime scene

Dutelle (2017:12) state that primary crime scene is the place where majority of physical evidence can be found. The criminal's involvement in the majority of his or her principal offense behaviour in the primary crime scene (Savino & Turvey, 2011:142; Chisum & Turvey, 2011: 148). Birzer, and Roberson, (2012:252) argue that the primary crime scene is the place where the suspect and victim were present during commission of crime before moving to another location that is called secondary crime scene. In this study, primary crime scene refers to cell phone tower where vandalism itself occurred at the tower site.

Secondary crime scene

Savino, and Turvey (2011:143) believe that "a secondary crime scene is location where some of the victim-offender interaction occurred, but not the majority of it." Ballard (2010:7) highlights that the place where suspect has been, either before or after the crime was committed is the secondary crime scene. Horswell (2004:03) believes that physical evidence relating to the incident may be found at the secondary crime scene. In this study, the pawnshop or scrap yard can be the secondary location, because it is where the stolen batteries and copper cable from cell phone towers can be found. Further, if the vandals used a vehicle to transport tools to the tower site, the vehicle's location before or after the incident could be a secondary crime scene. In these instances, the CCTV footage collected from the tower as the primary crime scene should be match with the evidence from the crime scene.

Forensic Investigation

The investigation of the vandalism of the cell phone tower in the use of CCTV falls under forensic investigation as it required more technology and science. Bennett and Hess and Orthmann (2017:25) define 'forensic investigation' as

the use of technology or science in the crime investigation to present evidence in court of law. In the South African context, the CCTV footage sent to SAPS forensic science laboratory for analysis purpose. Where also the footprint, fingerprint and deoxyribonucleic acid such as saliva transferred to SAPS laboratory for comparation purpose to arrested and suspect person. Becker and Dutelle (2018:7) further highlight forensic investigation is the application of the forensic science to search evidence in the crime scene. The search could involve looking for physical evidence or digital evidence on the tower equipment, and potentially obtaining warrants to access records of who may been near the tower around the time of the vandalism. Berg (2017:175) who declare that forensic investigation is where forensic scientist spends time at the lab to examine evidence that was collected at the crime scene. Turvey and Crowder (2017:1) emphasised that scientific system must be practices in the forensic investigation field, when crime investigator searches physical evidence at the crime scene. The overall aim of the search is to collect evidence that can be used to identify, arrest, and prosecute the individuals responsible for vandalism. The researcher elaborates the purpose, and the aim of the forensic investigation underneath as follows:

The objectives of forensic investigations

Becker and Dutelle (2013:17) state that objectives of the investigation are the identification and individualisation of suspects to make a possible arrest to suspect and prepare for the trial. Hess, Orthmann and Cho (2017:356) mentions that broadly, the objectives of the forensic investigation process are (1) to set up that a crime was really perpetrated (2) to distinguish and secure the suspect(s), (3) to recover stolen property, and (4) to aid the prosecution of person(s). The CCTV footage can be used to identify and individualise by providing visual evidence of the crime and the individual involves. In the Cell phone tower vandalism case, the CCTV evidence can be used to match a suspect's appearance, clothing or movements to those observed at the scene of the crime, potentially linking them to the vandalism.

The following section outlines the objectives of the forensic investigation in the CCTV footage.

Prosecution of suspect(s)

Hannibal and Mountford (2016:130) submit that the prosecutor has to assess the evidence that would be used in the prosecution process. Prosecution cannot take place without the proper evidence. Hess and Orthmann (2017:8) confirm that the objective of forensic investigator is to ensure that information and evidence obtained in the legal way in order to arrest the suspect, to "recover stolen property" and "present the best possible case to the prosecutor." In context, the CCTV footage must be obtained legally and properly authenticated to be admissible as evidence in court. In addition, Stelfox (2013:34) briefly explains that objective of forensic investigation is to collect evidence in the legal way to ensure that it is accessible to both the prosecution and the defence during trial. Monckton-Smith, Adams. Hart and Webb (2013:3) draw attention to the fact that in order for investigators to get a successful prosecution in the investigation of the case, there must be careful regulation to avoid miscarriages of justice. To end this, expert analysis of the CCTV footage may be necessary to identify subtle details or to interpret the footage evidence in the cell phone tower vandalism.

Recovering stolen property

Vermaat, Sebok, Freund, Frydenberg and Campbell, (2017: 279) mentions that there are various methods to recover stolen property during the investigation of a crime. Brandl (2017:405) highlights that the easy way of recovery of the stolen property, will be if the investing officer already identifies perpetrator. This is supported by Rose (2017:224) by explaining that the court may order the person who is having possession of stolen property not to sell that property until police officers are authorised to recover that property from him. Maraist and Galligan (2017:62) argue that the stolen property can be recovered from the purchaser who purchased the property from the perpetrator. In the cell phone tower cases, the suspects stolen the battery, copper cable, diesel fuel, generator and other support components stripped. These can be recovered at the secondary crime scene such as pawnshop, scrapyard or suspects locations. To recover stolen property in the cell phone tower vandalism, the police can use CCTV footage to follow the movements of the suspects on the footage, where police can track their path to and from crime scene, potentially revealing where they may have taken stolen property such as generator and battery.

Purpose of the Cell Phone Tower

Soler (2023:np) states that cell towers, sometimes referred to as cell sites or mobile phone masts, are buildings that contain the wireless communication equipment. Cell phone towers cover their surroundings with three distinct projection sectors, each of which covers a certain section of the service area (Digital infrastructure News, 2020: np). A cell phone's electromagnetic radiowaves, sometimes referred to as radio frequency or RF energy, are released when

a call is placed (Bureau, 2024:np). For example, Figure 1 illustrates how cell phone tower works:

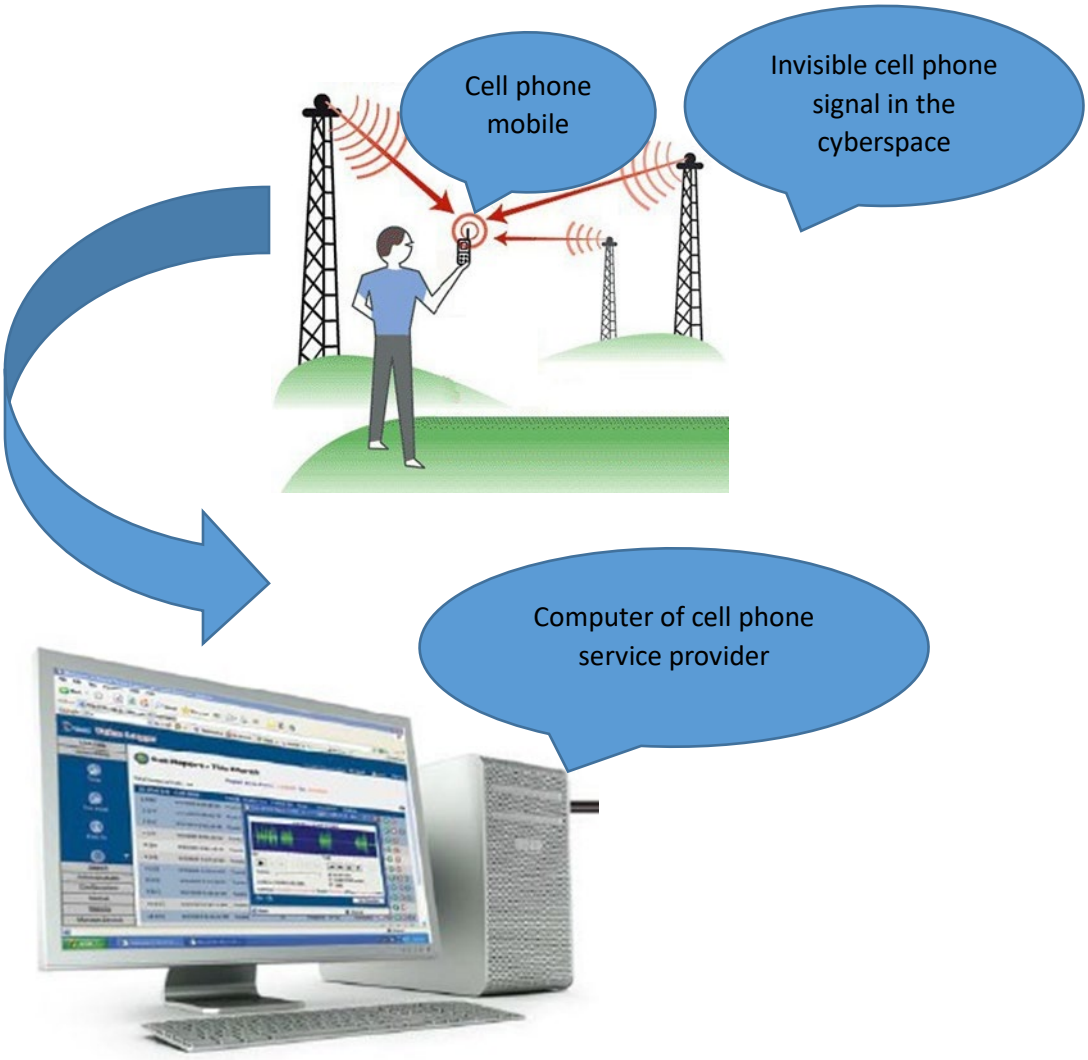

Figure 1: Cyberspace information detection using three cell phone towers, one cell phone mobile and computer of service providers.

Source: Burrell (2010); Researcher illustration (2025)

However, the purpose of the cell phone towers can be disadvantaged when the infrastructure vandalised.

Cable cutting

The criminals may cut through the cables in the cell phone tower locations using wire cutters, saws, or even large machines. Cell phone towers transmit data using a variety of cables, including fiber optic and grounding cables. Additionally, copper cables are sought after for their scrap *value.*

Equipment vandalism

This kind of vandalism can result in lost community communication, business disruptions, emergency response delays, service outages, and financial effects. On the other hand, vandalism, like interfering with electrical equipment, can cause harm or even death.

Fence breaches

Criminals are breaking past cell phone tower barriers by removing nuts and bolts, cutting through fences, or even bringing down the tower. Additionally, equipment like angle grinders and bolt cutters were utilized to cut through the fence and open the way to the location of the cell phone tower.

Legal Frameworks

Solomon, Barret and Broom (2005:76) mention that admissibility of the evidence must be sustained from the starting point of the investigation process. In this context, the chain of custody must be adhered from the collection of the electronic evidence stage. In this study the CCTV footage is the electronic or computer evidence. Provision section 15(1)(b) of the electronic communication and Transactions Act 25 of 2002(a) dealing with electronic evidence in South Africa rules. In addition, electronic Communication and Transactions Act 25 of 2002(a) has since been passed and this Act regulates matters regarding the use of electronic evidence in both criminal and civil proceedings. The Computer Evidence Act 57 of 1983 was therefore enacted to address the criteria for the admissibility of electronic evidence in criminal cases. In South Africa, the legal requirements for retaining CCTV footage related to cell phone tower vandalism primary involve balancing the need for evidence with privacy considerations under the Protection of personal information Act (POPIA) and local CCTV By-laws. The suspect can question if the footage was obtained legal or ethically.

Even though, authentic, reliability, legality and availability are legal requirements of the admissibility of electronic evidence that are considered by court (Hatch, 2008:567). According to Schwikkard and Van der Merwe, (2012:413), the court approaches section 221 and section 236 of the criminal procedure act to admissibility of the computer printouts in criminal proceedings. To end this, the CCTV footage during the investigation can be printed out to during investigation of the cell phone tower vandalism. In other hand the digital expert can present the CCTV footage in the use of projector in court. Stephenson (2014:19), digital experts are merely people who can assess and prove the authenticity of the electronic evidence. In relation to digital expert, forensic specialist from the SAPS' Technological Investigation Support Centre was the first witness called to testify against Darren Goddard by presenting the thousand images of the child pornography (Independent online (2024:np). This can also be done in the presentation of the CCTV footage in relation to the cell phone tower vandalism.

Findings

The study finds that funds constraints, lack of training and the lack of the digital CCTV expert are cracks in the usage of CCTV in the investigation of the cell phone tower vandalism. The lack of the skills for police to close the gaps give suspects more opportunity to steal the battery, copper cable, diesel fuel, generator and other support components stripped during the vandalism of the cell phone towers. The legal framework such as section 15(1)(b) of the electronic communication and Transactions Act 25 of 2002(a), Computer Evidence Act 57 of1983, Protection of personal information Act (POPIA) and section 221 and section 236 of the criminal procedure Act advocate the usage of the CCTV footage as the electronic evidence in the court of law. The qualitative research adopted in this study. Non empirical study applied where the literature was reviewed. To this end, the resolved cases related to cell phone tower vandalism used to research the study.

Recommendations

The study recommends that police from SAPS must attend the training related to CCTV footage in terms of handling and processing electronic evidence-adapting world police training strategies, the same training which international agencies are going through. Also, the SAPS must Collaborate with the external ICT service providers in terms of capture and processing the electronic evidence such as CCTV footage to avoid a backlog. SAPS must develop a course related to chain of custody in handling the CCTV footage that could comply with the South African Qualification Authority (SAQA). Furthermore, the CCTV footage manual must package the legal frameworks that are related to the electronic evidence to avoid misapplication of legal consideration when the cases withdrawal from the court of law.

Conclusion

The police officers in SAPS as main law enforcements in South Africa have the power to investigate the crime of the cell phone tower vandalism. In context, police have the power to recover the stolen battery, copper cable, diesel fuel, generator and other support components stripped that used to operate cell phone towers. Further, they have power to arrest the suspects who are involved in the cell phone tower vandalism. They must bring the suspects to court of laws in follows the legal framework such as section 15(1)(b) of the electronic communication and Transactions Act 25 of

2002(a), Computer Evidence Act 57 of1983, Protection of personal information Act (POPIA) and section 221 and section 236 of the criminal procedure Act that are advocate the usage of the CCTV footage. The chain of custody as the investigation process need to be taken in to the consideration.

Reference

Arrendale Library, 2025. *Empirical & Non-Empirical Research*. From: https://library.piedmont.edu/c.php?g=1277355&p=10411341 (Accessed 06 August 2025.

Ballard, C. 2010. *At the Crime Scene! Collecting Clues and Evidence.* Los Angeles.

Becker, R.F. & Dutelle, A.W. 2018. *Criminal investigation*. 5th edition. Burlington: Jones & Bartlett Learning.

Becker, R.F. 2013. *Underwater Forensic Investigation.* 2nd edition. Sudbury, MA: Jones & Bartlett Learning.

Berg, B.L. 2017. *Criminal Investigation.*4th edition. London: Content technologies

Birzer, M & Roberson, C. 2012. *Introduction to Criminal Investigation*. Boca Raton: Taylor& Francis Group.

Bolhuis, M. 2015. *Project: the crises in south Africa's SAPS detective capacity*. Mike Bolhuis Specialised Security Services: Pretoria.

Brandl, S.G. 2017. *Criminal Investigation*. 4th Edition. Thousand Oaks: Sage

Bureau, E. 2024. *How Do Mobile Phones Produce Electromagnetic Radiation*? Industry Solutions.

Burkhalter, M. 2022. Challenges of video surveillance and how to avoid them. From: https://www.perle.com/articles/challenges-of-video-surveillance-and-how-to-avoid-them-40193565.shtml (Accessed from 06 August 2025).

Chisum, W. J & Turvey, B. E.2011.*Crime Reconstruction*. London: Elsevier.

Choo, A.L.T. 2015. *Evidence.* 4th edition. London: Oxford University press.

College of policing, 2024. CCTV. From: https://www.college.police.uk/guidance/investigation/investigative-strategies/cctv (Accessed 06 August 2025).

Digital infrastructure News. 2020. *The Fundamentals of Cellular System Design.* Inside towers: Ponte Vedra.

Drielak, S.C. 2017. *Environmental crime trials: The Road to Reasonable Doubt.*

Dutelle, A.W. 2017. *An Introduction to crime scene investigation.* 3rd edition. Burlington: Jones & Barlett Learning.

Epifani, M & Stirparo, P. 2015. *Learning iOS Forensics*. Birmingham: Packt Publishing *Evidence.* Springfield: Charles C Thomas.

Fouché, C. B., Strydom, H & Roestenburg, W. J. H. 2021. *Research at grass roots- for the social sciences and human services professions.* 5th edition. Pretoria: Van Schaik Publishers.

Hails, J. 2012. *Criminal Evidence*. 7th edition. Wadsworth: Belmont.

Hannibal, M & Mountford, L. 2016. *Criminal Litigation 2017-2018*. 12th edition. New Jersey.

Hatch, B. 2008. *Hacking exposed linux.* 3rd edition. Emeryville, CA: McGraw Hill Osborne Media.

Hess, K. M. Orthmann, C.H & Cho, H.L. 2017. *Criminal Investigation.* 11th edition. Boston: Cengage Learning.

Homeland Security Department Training Center. 2017. *Legal Division Handbook,* 2017. San Francisco: Legal resources.

Horswell, J. 2004. *The practice of crime scene investigation. Boca* Raton: CRC Press.

Independent online. 2024. *School counsellor case: Court hears of child Porn*. IOL.

InstallersPH IT Solutions, 2025. *The Role of CCTV Cameras in Crime Prevention and Investigation.* From: https://installersph.com/the-role-of-cctv-cameras-in-crime-prevention-and investigation/#:~:text=Automated%20video%20analytics%20algorithms%20can%20detect%20suspicious%20behavior,enabling%20investigators%20to%20focus%20their%20efforts%20more%20effectively(Accessed 06 August 2025).

Karagiozis, M.F & Sgaglio, R. 2005. *Forensic Investigation Handbook. An Introduction to the Collection, Preservation Analysis and Presentation of Evidence.* Springfield: Charles C Thomas.

Leedy, P.D. & Ormrod, J.E. 2018. *Practical research: Planning and design,* 11th ed. Boston, MA: Pearson. https://doi.org/10.37074/jalt.2018.1.2.15.

Lochner, H.T. & Zinn, R.J. 2015. *Crime Scene Investigation*. Cape Town: Juta.

Mack, K. 2025. *Using CCTV Footage as Legal Evidence in Court*. From:

https://lawshun.com/article/can-cctv-footage-be-used-in-a-court-of-law

(Accessed 06 August 2025)

Maraist, F.L & Galligan, T.C. 2017. *Louisiana Tort Law*. Danvers: LexisNexis.

Matthew, P.J.A. 2017. *The Value of CCTV Surveillance Cameras as an Investigative Tool: An Empirical Analysis*. Eur J Crim Policy Res (2017) 23:441–459 DOI 10.1007/s10610-017-9341-6.

Miller, M.T. 2018. *Crime Scene Investigation Laboratory Manual.* 2nd edition. London: Elsevier Press.

Monckton-Smith, J, Adams, T. Hart, A.G & Webb, J. 2013. *Introducing Forensic and Criminal Investigation.* Los Angeles: Sage.

Mukena, 2025. *Empirical Vs. Non-Empirical Research: Differences &Amp; Methods.* Alljournals.blog – WordPress.

News24Wire, 2020. *Vandalism, theft could destroy SA mobile networks, war in Vodacom and MTN.* The citizen.

Osterburg, J.W & Ward, R.H. 2010. *Criminal Investigation: A Method for Reconstructing the Past.* London: Routledge.

Papale, P. 2023. *The role and impact of CCTV operators in contributing to efficient Practice.* New York: John Willey & Sons, Inc.

Puchert, D. 2025. *Good news for Vodacom and MTN in South Africa*. Telecoms. Raton: Taylor& Francis Group.

Rose, F. 2017. *Blackstone's Statutes on Contract, Tort and Restitution 2016-2017*. New York: Oxford University Press.

Savino, J.O & Turrvey, B.E. 2011. *Rape Investigation Handbook*. Amsterdam: Elsevier Press

Shaler**,** R.C. 2012. *Crime Scene forensics: A Scientific Method Approach*. Toronto: CRC Press.

Schwikkard, P.J & Van der Merwe, S.E. 2012. *Principles of Evidence.* 3rd edition. Cape Town: Juta Publisher.

Soler, I.J. 2023. *Cell Towers: How They Work and Why They Matter.* Cellnex: Springfield: Charles C Thomas, Publisher, Ltd.

Solomon, M Barret, D & Broom, N. 2005. *Computer Forensics Jumpstart.* San Francisco: Sybex.

South Africa. 1983. *Computer Evidence Act 57 of 1983.* Pretoria: Government Printer.

South Africa. 2002(a). *Electronic Communication and Transactions Act 25 of 2002.* Pretoria: Government Printer.

Stephenson, P. 2014. *Official (ISC)2® Guide to the CCFP CBK.* Baco Raton: Taylor & Francis Group.

Stelfox, P. 2013. *Criminal Investigation: An Introduction to Principles and Practice*. New York: Taylor & Francis Group.

Turvey, B.E & Crowder, S. 2017. Forensic Investigations: An Introduction. Amsterdam: Elsevier, Inc.

Vallabhaneni, S.R. 2016. *Wiley CIAexcel Exam Review 2016: Part 2, Internal Audit* Practice. New York: John Willey & Sons, Inc.

Vermaat, M.E, Sebok, S.L, Freund, S.M, Frydenberg, M & Campbell, J. T. 2017. *Enhanced Discovering Computers ©2017*. Boston: Cengage Learning.

Vuma, P. 2025. *The Influence of Digital Technology on Decision-Making in the SouthAfrican Police Service: A Critical Analysis.* ResearchGate.

Zinn, R.J and Dintwe, S.I. 2015. *Forensic Investigation: Legislative principles and investigative practice.* Cape Town: Juta & Co.