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Regulating Covert Investigations In Data-Saturated Environments: Toward Normative Governance

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【Abstract】

This article examines how covert investigations are transformed in digitally mediated, data-saturated environments and explores the implications of this shift for the legal regulation of investigative practices. Moving beyond conventional doctrines, the study reconceptualizes covert investigation as an ontological and epistemic process, emphasizing how interaction, access, and informational conditions shape the production and interpretation of evidence.

The article argues that the traditional distinction between undercover operations and entrapment no longer serves as a stable analytical framework in contemporary investigative environments. As investigative access increasingly depends upon interaction and participation, the boundary between detecting criminal conduct and contributing to its evidentiary emergence becomes more contingent and context-dependent. This development generates forms of normative instability that challenge the adequacy of existing legal categories.

To address these challenges in data-saturated environments, the article develops a normatively constrained analytical framework that integrates ex

ante orientation, process-based documentation, interactional accountability, and ex post reviewability. Rather than relying solely on categorical distinctions between permissible and impermissible conduct, it seeks to structure how investigative practices are evaluated, documented, and subjected to review.

The study concludes that the regulation of covert investigations must progressively shift from the control of discrete acts to the governance of investigative processes. In digitally mediated environments, the legitimacy of investigative practices depends not only on compliance with legal rules but also on the transparency, accountability, and reviewability of the processes through which evidentiary significance is produced and interpreted.

I. Introduction

The rapid expansion of digitally mediated environments has fundamentally transformed the conditions under which criminal investigations are conducted.[2] In particular, covert investigative practices—long recognized as essential tools for addressing concealed and networked forms of criminal activity—have taken on renewed significance in the context of online interactions, encrypted communications, and platform-based exchanges.[3] Since certain forms of crime become increasingly inaccessible through conventional investigative methods, the use of covert techniques has become not only more prevalent but, in many instances,

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2) Brayne, Sarah. "Big Data Surveillance: The Case of Policing," *American Sociological Review*, 82(5), 2017, pp. 977-982.; Johnson, R. A., & Rostain, T. "Tool for Surveillance or Spotlight on Inequality? Big Data and the Law," *Annual Review Law and Social Science*, Vol. 16, 2020, pp. 453-454.

3) Grabosky, Peter, & Urbas, Gregor. "Online Undercover Investigations and the Role of Private Third Parties," *International Journal of Cyber Criminology*, 13(1), 2019, pp. 38-41.; Sanders, C. B., & Sheptycki, J. "Policing, Crime and 'Big Data'; Towards a Critique of the Moral Economy of Stochastic Governance," *Crime, Law and Social Change*, 68(1-2), 2017, pp. 1-3.

functionally indispensable for modern law enforcement.[4)]

At the same time, however, the transformation of investigative environments raises deeper conceptual questions, and challenges, that extend beyond the traditional doctrinal evaluation of legality or admissibility.[5)] This article argues that covert investigations in digitally mediated, data-saturated environments can no longer be adequately understood through conventional legal frameworks alone. Rather, they must be examined as practices embedded within broader processes of interaction, access, and information production, which reshape the very nature of what it means to "investigate."[6)]

At stake, therefore, is not merely the permissibility of particular investigative techniques, but the ontology of investigation itself.[7)] Traditionally, investigation has been understood as a process of detecting pre-existing criminal conduct, in which law enforcement identifies and gathers evidence of acts that have already occurred.[8)] In digitally mediated environments, however, this assumption becomes increasingly difficult to sustain. Investigative practices often involve direct participation in communicative or transactional settings, where interaction is not merely a means of observation but may constitute a condition for the emergence of evidentiary material.[9)]

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4) Brown, Cameron S. D. "Investigating and Prosecuting Cyber Crime: Forensic Dependencies and Barriers to Justice," *International Journal of Cyber Criminology*, 9(1), 2015, p. 61.

5) Murphy, Brendon. "Regulating Undercover Policing: Subjects, Rights and Governmentality," *Critical Criminology*, 28(1), 2020, pp. 65-66.

6) Wexler, Rebecca. "Privacy Asymmetries: Access to Data in Criminal Defense Investigations," *UCLA Law Review*, 68(1), 2021, PP. 212-215 & 246-248.; Brayne, S. "The Criminal Law and Law Enforcement Implications of Big Data," *Annual Review of Law and Social Science*, Vol. 14, 2018, pp. 293-294.

7) Johnson, R. A., & Rostain, T., *Op. cit.*, pp. 455-457.

8) Casey, E. 「Digital Evidence and Computer Crime: Forensic Science, Computers and the Internet」 (3rd edn.), Academic Press, 2011, pp. 188-189 & p. 193.

9) Završnik, Aleš Z. "Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings," *European Journal of Criminology*, 18(5), 2021, pp. 627-728 & 634-636.; Grabosky, P., &

In this context, the distinction between undercover operations and entrapment becomes increasingly unstable.[10] While the former has conventionally been justified as a legitimate means of detecting concealed criminal conduct, and the latter has been treated as an impermissible form of inducement, the boundary between these categories is no longer easily maintained.[11] In digitally mediated environments, investigative interaction itself may generate the very evidence used for prosecution, thereby complicating the conceptual basis upon which the distinction has historically rested.[12] This article does not aim to collapse the distinction between undercover operations and entrapment, but to demonstrate that the stability of this distinction can no longer be assumed under contemporary investigative conditions.

Existing legal analyses of covert investigations have primarily focused on determining whether particular investigative practices fall within the categories of permissible undercover operations or impermissible entrapment.[13] While this distinction continues to serve important doctrinal functions, the rapid transformation of

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Urbas, G., *Op. cit.*, pp. 41-47.; Brown, Cameron S. D., *Op. cit.*, p. 71.

10) Hadjimatheou, Katerina. "Neither Confirm Nor Deny: Secrecy and Disclosure in Undercover Policing," *Criminal Justice Ethics*, 36(3), 2017, p. 280 & pp. 282-284.

11) Murphy, B., *Op. cit.*, pp. 65-67.

12) Vogel, Benjamin (ed.). 「Secret Evidence in Criminal Proceedings: Balancing Procedural Fairness and Covert Surveillance」, Duncker & Humblot, 2021, pp. 4-7.; Grabosky, P., & Urbas, G., *Op. cit.*, pp. 41-44.

13) For foundational literature analyzing this binary distinction, see ***Sorrells v. United States***, 287 U.S. 435, at 441-442 (1932) (First recognizing the entrapment defense in U.S. federal courts and drawing a line between permissible undercover detection and the instigation of crime).; ***Jacobson v. United States***, 503 U.S. 540, at 548-549 (1992) (Reaffirming that undercover agents may not implant a criminal design in the mind of an otherwise innocent person).; For a comprehensive theoretical overview of the moral and legal boundaries between acceptable proactive policing and impermissible inducement, see Ashworth, A. "WHAT IS WRONG WITH ENTRAPMENT?" *Singapore Journal of Legal Studies*, The 40th Anniversary Issue, 1999, pp. 293-299.

digitally mediated investigative environments increasingly exposes its analytical limitations. Traditional doctrines struggle to account for the fluid, ongoing nature of cyberspace surveillance, where the act of detection is no longer a discrete event but a continuous process of information generation.[14)]

As investigative practices become embedded within continuous interaction, platform mediation, and data-saturated informational conditions, questions concerning how investigative processes shape the emergence and interpretation of evidentiary material become equally significant.[15)] These developments provide the principal motivation for the present study, which seeks to move beyond conduct-based doctrinal classifications by developing a process-oriented framework for the normative governance of covert investigations in data-saturated environments.

The foregoing analytical limitations are closely associated with the emergence of what may be described as "data-saturated environments,"[16)] in which vast quantities of information, layered

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14) Marx (2002) diagnoses this shift — from discrete, localized investigative interventions to continuous informational monitoring — by arguing that modern digital surveillance transcends traditional physical barriers and operates through continuous, low-visibility data collection rather than isolated events. [See, Marx, G. T. "What's New About the New Surveillance? : Classifying for Change and Continuity," *Surveillance & Society*, 1(1), 2002, pp. 12-14.]; Similarly, Hildebrandt (2016) highlights the conceptual and analytical limitations of conventional legal frameworks, demonstrating how positive law and state regulatory agency struggle when confronting the algorithmic infrastructure of a data-driven society. [See, Hildebrandt, M. "Law as Information in the Era of Data-Driven Agency," *The Modern Law Review*, 79(1), 2016, pp. 24-28.]

15) Regarding how investigative processes actively construct rather than merely discover facts, Kruse (2015) demonstrates that forensic and digital artifacts do not simply "speak for themselves"; instead, their very emergence and interpretation as legal evidence are inseparably shaped by the socio-technical and legal practices of investigators as cases move through the criminal justice system. [See, Kruse, C. 「The Social Life of Forensic Evidence」, University of California Press, 2015, pp. 1-5 & 22-25.]

16) In this article, a "data-saturated environment" denotes an investigative context where the

interactions, and platform-mediated dynamics shape both the availability and interpretation of evidence.[17] Within such environments, investigative access is not simply a matter of locating information, but of navigating, selecting, and engaging with complex informational structures.[18] As a result, investigative practices increasingly operate through processes that are epistemic as well as procedural, raising questions concerning how knowledge is produced, filtered, and ultimately translated into legally relevant evidence.[19]

Against this backdrop, this article proposes a normatively constrained [analytical] framework for understanding covert investigations in contemporary data-saturated environments. Rather than prescribing rigid prohibitions or endorsing unrestricted investigative discretion, the framework seeks to structure how covert investigative practices should be evaluated, documented, and subjected to review. In doing so, it aims to reconcile the operational necessity of covert techniques with the need to preserve procedural fairness, accountability, and the integrity of the investigative process.

This article proceeds as follows. Following this introduction, Section Ⅱ establishes the conceptual foundations of investigation, shifting the analytical focus from doctrinal classifications to the underlying "ontology"[20] of investigative practices. Section Ⅲ then

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continuous availability of digital data shifts the burden of proof from uncovering hidden information to filtering, interpreting, and prioritizing a vast data stream.

17) Johnson, R. A., & Rostain, T., *Op. cit.*, pp. 453 & pp. 455-457.; Brayne, S. (2017), *Op. cit.*, p. 977 & 989 & 991.

18) Sanders, C. B., & Sheptycki, J., *Op. cit.*, p. 2 & pp. 4-5.

19) Wexler, R., *Op. cit.*, p. 212 & pp. 246-248.; Casey, E., *Op. cit.*, p. 193.

20) The term "Ontology" is used by the Author to reflect the underlying assumptions concerning what investigation fundamentally is. The ontological inquiry developed in this article focuses on whether investigation is to be understood primarily as a process of detecting pre-existing criminal conduct or as a process that may participate in the production and interpretation of evidentiary realities.

examines how digitally mediated environments transform investigative conditions, emphasizing the role of interaction, access, and data saturation. Section Ⅳ analyzes the resulting instability in the distinction between undercover operations and entrapment. Section Ⅴ identifies the normative risks associated with these developments, including the expansion of investigative access and the potential for the construction of prosecutable conduct. Section Ⅵ proposes a normatively constrained framework designed to guide the evaluation and governance of covert investigations under these conditions. The article concludes by reflecting on the broader implications of these transformations for the future of criminal procedure.

This article does not seek to provide a doctrinal critique of any particular statutory regime or investigative practice. Rather, while informed by contemporary developments in the Korean legal and investigative context, it aims to develop a broader conceptual and normative framework for understanding and governing covert investigations in digitally mediated, data-saturated environments. In this respect, the proposed framework is intended to serve as a conceptual foundation for future doctrinal refinement, institutional development, and empirical research concerning the changing nature of contemporary investigative practices.

Ⅱ. Conceptual Foundations: The Ontology of Investigation

1. The Traditional Conception of Investigation

In conventional legal doctrine, criminal investigation is generally understood as a process of detecting and reconstructing events that have already occurred.[21] Investigative activity, in this sense,

21) Osterburg, J., Ward, R., & Miller, L. 「Criminal Investigation」(8th edn.). Taylor and Francis, 2019, pp. 5-6 & 253-280.

is oriented toward the identification of pre-existing criminal conduct and the subsequent collection of evidence sufficient to establish legal responsibility.[22] This understanding presupposes a relatively stable distinction between the occurrence of a criminal act and the institutional processes through which that act is discovered, documented, and presented in legal proceedings.[23]

Within this framework, the role of the criminal investigator is typically characterized as one of observation and verification.[24] Even where investigative techniques involve elements of deception —such as undercover operations—their justificatory basis rests on the assumption that such techniques merely facilitate access to ongoing or concealed criminal activity, rather than contributing to the creation or transformation of the conduct in question.[25] Accordingly, the legitimacy of investigative practices and methods has been evaluated primarily in terms of their conformity with procedural safeguards, including requirements of authorization, proportionality, and evidentiary admissibility.[26]

The present study is firmly anchored in the existing legal frameworks governing covert investigations and entrapment under contemporary criminal procedure.[27] While contemporary statutory provisions and

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22) Stelfox, Peter. 「Criminal Investigation: An Introduction to Principles and Practice」(1st edn.), Taylor and Francis, 2013, pp. 4-7.

23) Burton, M., et al. 「Sanders & Young's Criminal Justice」(5th ed), Oxford University Press, 2021, pp. 1-7 & 11-23.; Ashworth, A., & Redmayne, M. 「The Criminal Process」(4th edn.), Oxford University Press, 2010, pp. 1-13.

24) Newburn, Tim. 「Handbook of Policing」(2nd edn.), Routledge, 2009, pp. 404-464.; Starushkevych, A. "Criminal Investigation Methods according to Hans Gross: Past and Present," Theory and Practice of Forensic Science and Criminalistics, 34(1), 2024, pp. 171-174.

25) Joh, Elizabeth E. "Breaking the Law to Enforce it: Undercover Police Participation in Crime," Stanford Law Review, 62(1), 2009, pp. 160-164.; Grabosky, P., & Urbas, G., *Op. cit.*, p. 39 & pp. 41-42.

26) Ashworth, A., & Redmayne, M., *Op. cit.*, pp. 91-97.; Murphy, B., *Op. cit.*, pp. 65-67.

judicial doctrines undeniably dictate the immediate legal standards for assessing permissible investigative conduct, the analytical framework developed in this article does not seek to supplant these foundational principles. Instead, it aims to augment them by systematically addressing the structural conditions under which investigative practices unfold within digitally mediated, data-saturated environments.

This traditional conception reflects a "detection-oriented" model of criminal investigation,[28] where the epistemic function of policing remains largely passive. Under this paradigm, evidence is assumed to exist independently of the investigative process; the role of law enforcement is merely to locate, extract, and present it within a structured legal framework.[29]

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27) This traditional conduct-based understanding is likewise reflected in the South Korean legal framework governing covert investigations. The Supreme Court of Korea has consistently relied upon a conduct-based distinction that legitimizes opportunity-providing undercover operations while prohibiting investigative practices that induce criminal intent in otherwise law-abiding individuals. [See, Supreme Court of Korea, May 31, 2007, ***2007Do1903*** (2007도1903: Holding that an investigation constitutes unlawful entrapment only when law enforcement employs trickery or artifice to implant criminal intent in an otherwise innocent mind.)]; More recently, however, contemporary Korean scholarship and institutional policy analyses have begun to question the adequacy of this reactive and conduct-based framework in digitally mediated investigative environments. Rather than relying exclusively upon the traditional dichotomy between permissible undercover operations and impermissible entrapment, recent discussions increasingly call for process--oriented regulatory governance capable of addressing the structural characteristics of data-saturated investigative settings. [See, National Assembly Research Service, "Balanced Design of Expansion and Control in Covert Investigations," *Issues and Perspectives*, Issue No. 2488, 2026, pp. 1-4.]; The analytical framework developed in the present study is thus intended as a conceptual contribution to this broader normative development.

28) The Author uses the term "detection-oriented model" as an analytical concept describing the conventional understanding of criminal investigation as a process of discovering and reconstructing pre-existing criminal conduct. The concept is introduced for analytical purposes and serves as a point of contrast with the interaction-based conception of investigation developed in this article.

29) Casey, E., *Op. cit.*, pp. 188-189.; Wexler, R., *Op. cit.*, p. 220 & 224.

2. Investigation as an Epistemic and Constructive Process

Traditionally, undercover investigations have been understood as investigative practices designed to detect ongoing criminal activity without fundamentally altering the nature of the conduct under scrutiny. Conversely, entrapment has generally been regarded as impermissible governmental inducement that engenders or substantially contributes to criminal conduct that would otherwise not have occurred. This classical distinction therefore pivots upon the degree to which state participation merely uncovers existing criminal behavior or actively instigates its occurrence.[30)]

While the detection-oriented model has long provided a foundational framework for understanding investigative practices, it becomes increasingly inadequate in contexts where access to relevant information depends upon active engagement with communicative and transactional environments.[31)] In such contexts, investigation cannot be reduced to the passive discovery of pre-existing facts; rather, it operates through processes that are inherently epistemic and, at times, partially constitutive of the evidentiary landscape.[32)]

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30) This doctrinal distinction finds its authoritative roots in [U.S.] Supreme Court jurisprudence, which draws a sharp line between permissible undercover detection and the illicit generation of crime. In ***Sorrells v. United States***, 287 U.S. 435, at 441-442 (1932), the Court established that undercover operations are permissible when they merely afford opportunities for the commission of an offense, whereas entrapment occurs when government officials implant the disposition to commit the crime in the mind of an innocent person. Elaborating on this traditional conceptual boundary, Marcus (2023) underscores that the classical defense hinges precisely on whether state conduct uncovers a pre-existing criminal design or actively instigates a novel offense. [See, Marcus, Paul. 「The Entrapment Defense」(5th edn.), LexisNexis, 2023, §1.04 & §2.01-2.03.]

31) Ferguson, A. G. 「The Rise of Big Data Policing: Surveillance, Race, and the Future of Law Enforcement」, New York University Press, 2017, pp. 34-39.

32) Valverde, Mariana. "Jurisdiction and Scale: Legal 'Technicalities' as Resources for Theory,"

From this perspective, investigation may be understood as a structured process of knowledge production.[33] It involves not only the identification of relevant information, but also the selection, filtering, interpretation, and contextualization of data within complex informational environments.[34] The investigator's role thus extends beyond observation to include forms of interaction that shape the conditions under which information becomes visible, intelligible, and legally meaningful.[35]

This shift is particularly evident in digitally mediated environments, where access to information and data is often contingent upon participation in communication networks, platform-based interactions, or role-specific exchanges.[36] Under such conditions, investigative engagement may function as a necessary precondition for the emergence of evidentiary material.[37] Interaction, in other words, is no longer merely a means of accessing evidence, but may constitute part of the process through which evidence is generated and rendered actionable.[38]

Notably, this characterization does not imply that investigation

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Social & Legal Studies, 18(2), 2009, pp. 143-148.

33) Lynch, Michael, et al. 「Truth Machine: The Contentious History of DNA Fingerprinting」, University of Chicago Press, 2008, pp. 39-45.

34) Ferguson, A. G., *Op. cit.*, pp. 65-71.

35) Valverde, M. 「Chronotopes of Law: Jurisdiction, Scale and Governance,」(1st edn.), Routledge, 2015, pp. 96-101.; Johnson, R. A., & Rostain, T., *Op. cit.*, p. 455 & 457 & 464.

36) Nissenbaum, H. 「Privacy in Context: Technology, Policy, and the Integrity of Social Life」, Stanford University Press, 2010, pp. 127-133.

37) Paraschiv, Carmen S. "Criminal Investigation and the Incidence of AI in the Collection and Management of Digital Evidence," RAIS Conference Proceedings (March 2026), *Research Association for Interdisciplinary Studies*, 2026, pp. 218-222.; Brown, Cameron S. D., *Op. cit.*, p. 67 & pp. 70-71.

38) The Author uses the term "evidentiary generation" to describe situations in which investigative interaction functions as a constitutive element in the emergence of evidentiary material rather than merely a means of accessing pre-existing information.

invariably creates crime.[39] Rather, it suggests that the boundary between detection and construction is mediated by the structure of the investigative process itself.[40] Thus, the epistemic dimension of investigation—how knowledge is produced and validated—becomes central to understanding its legal and normative implications.[41]

Conceptualizing investigation as an epistemological process yields implications that extend far beyond theoretical abstraction. If evidentiary meaning is not merely discovered but progressively constructed through investigative interaction, digital selection, documentation, and interpretation, then the primary locus of criminal procedure needs to shift from the legality of isolated investigative acts to the integrity of the processes through which evidentiary meaning is produced.[42] From this perspective, criminal

39) The argument advanced in this article does not suggest that investigative practices necessarily generate criminal conduct. Instead, it emphasizes that investigative interaction may influence the conditions under which conduct becomes evidentially visible, interpreted, and legally characterized. The focus of the analysis is therefore on the production of evidentiary knowledge rather than on the creation of criminality itself. For discussions of investigative mediation and the production of evidentiary knowledge, see Marx, Gary T. 「Undercover: Police Surveillance in America」 (University of California Press, 1988); Ericson, Richard V. 「Reproducing Order: A Study of Police Patrol Work」 (University of Toronto Press, 1982).

40) The distinction between “detection” and “construction” is employed in this article as an analytical device for examining the extent to which investigative practices participate in shaping evidentiary realities.

41) “Epistemic dimension of investigation” is used by the Author to emphasize that investigative legitimacy depends not only on evidentiary outcomes but also on the processes through which knowledge is produced, validated, and rendered legally meaningful.

42) Elaborating on this paradigm shift within procedural governance, Summers (2023) demonstrates that criminal evidence and proof are inextricably connected to institutional rules of fair trial, meaning that public acceptance of legal verdicts hinges on safeguarding the structural integrity of the entire evidence-production process rather than vetting isolated investigative acts. Consequently, as investigative practices increasingly transition

procedural safeguards are demanded not simply to restrain state authority, but to preserve the transparency, reviewability, and accountability of evidentiary construction itself.

3. The Ontological Question: Detection or Construction?

The foregoing discussion gives rise to a more fundamental question concerning the ontology of investigation: whether investigative practices are to be understood as mechanisms for detecting pre-existing criminal conduct, or as processes that may, under certain conditions, participate in the construction of prosecutable acts.[43)]

This question is not merely semantic. It bears directly on how legal systems conceptualize the relationship between state action and individual conduct, particularly in contexts where the line between observation and participation is not clearly delineated.[44)] Where investigation is assumed to be purely detection-oriented, the normative focus tends to be placed on the regulation of access—whether investigators are authorized to obtain certain forms of information.[45)] By contrast, where investigation is understood as potentially constitutive,[46)] attention must also be

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into complex, data-driven environments, contemporary procedural safeguards must adapt to ensure the holistic transparency and reviewability of the evidentiary construction. [See, Summers, Sarah J. "The Epistemic Ambitions of the Criminal Trial: Truth, Proof, and Rights," *Revista Internacional Sobre Razonamiento Probatorio*, 4(1), 2023, pp. 257-264.]

43) Joh, Elizabeth E., *Op. cit.*, pp. 164-167.

44) Simon, J. 「Governing Through Crime: How the War on Crime Transformed American Democracy and Created a Culture of Fear」, Oxford University Press, 2007, pp. 43-45 & 112-115.; Pickering, A. 「The Mangle of Practice: Time, Agency, and Science」, University of Chicago Press, 1995, pp. 5-12.

45) Kerr, O. S. "The 4th Amendment and New Technologies: Constitutional Myths and the Case for Caution," *Michigan Law Review*, 102(5), 2004, pp. 840-845.

46) The Author uses the term "constitutive investigation" to explicate investigative practices that may influence the conditions under which evidentiary realities emerge, stabilize, and

directed toward the structure and effects of investigative interaction itself.[47]

In digitally mediated environments, this ontological distinction becomes increasingly difficult to sustain.[48] The conditions under which information is produced and exchanged are often inseparable from the modes of interaction through which investigators engage with suspects or networks.[49] As a result, investigative practices may influence not only the availability of evidence, but also the form and trajectory of the conduct that becomes subject to legal evaluation.[50]

Accordingly, the central challenge is not to definitively classify investigative practices as either detection or construction,[51] but to recognize that contemporary investigative environments render this distinction contingent and context- dependent. The stability of traditional categories can no longer be presumed, and legal analysis must therefore account for the dynamic interplay between investigative action and the formation of evidentiary reality.[52]

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become legally actionable.

47) Nathan, C. "Liability to Deception and Manipulation: The Ethics of Undercover Policing," *Journal of Applied Philosophy*, 34(3), 2017. p. 373 & pp. 384-385.

48) Ferguson, A. G., *Op. cit.*, pp. 82-87.

49) Nissenbaum, H., *Op. cit.*, pp. 127-135.

50) Aliaga, C., et al. "Would you Steal me a Like? Undercover Operations in Digital Environments within the Peruvian National Police," *CEUR Workshop Proceedings*, 2025, pp. 158-160.

51) As previously noted, the distinction between detection and construction is employed here as an analytical framework rather than as a rigid doctrinal classification. The purpose is not to replace existing legal categories but to illuminate the changing conditions under which investigative practices operate in digitally mediated environments.

52) The term "evidentiary reality" is used by the Author to refer to the body of facts, interpretations, and legally relevant meanings that emerge through investigative processes and subsequently become subject to legal evaluation.

4. Implications for Legal Analysis

Reframing investigation as an ontological and epistemic problem has significant implications for legal analysis.[53] It shifts the focus away from isolated doctrinal categories and toward the structural conditions under which investigative practices operate. Rather than asking solely whether a particular technique is permissible, the inquiry must consider how investigative processes shape the production, interpretation, and evaluation of evidence.[54]

This perspective also underscores the limitations of legal frameworks that rely exclusively on *ex ante* authorization or *ex post* admissibility as mechanisms of control.[55] While such mechanisms remain important, they do not fully address the ways in which investigative interaction itself may influence the evidentiary record.[56] Consequently, additional forms of normative constraint—particularly those that operate at the level of process, documentation, and reviewability—become necessary.[57]

Finally, by foregrounding the ontology of investigation, this approach provides a conceptual foundation for understanding the

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53) The analysis developed in this article treats criminal investigation not merely as a procedural activity, but as a process through which legally relevant knowledge is produced, interpreted, and validated. The ontological and epistemic dimensions of investigation are, therefore, central to understanding its normative implications.

54) Sullivan, G. "Law, technology, and data-driven security: Infra-legalities as method assemblage," *Journal of Law & Society*, 49(S1), 2022, pp. S34-S38 & S43-S45.; Wexler, R., *Op. cit.*, pp. 214-215 & 222-224.

55) Kerr, Orin S. (2004), *Op. cit.*, pp. 839-847.

56) The analysis developed here suggests that investigative legitimacy cannot be evaluated solely by reference to formal authorization or evidentiary admissibility. Attention must also be directed toward the interactional processes through which evidentiary realities emerge and are subsequently interpreted.

57) The concept of "normative constraint" is used in this article to refer to mechanisms that structure and review investigative practices throughout the investigative process, rather than solely at its beginning or conclusion.

normative tensions that arise in subsequent sections of this articl e.[58] In particular, it sets the stage for analyzing how the distinction between undercover operations and entrapment becomes increasingly unstable in digitally mediated environments, and why this instability necessitates a rethinking of the frameworks through which covert investigative practices are governed.[59]

Ⅲ. Digital Transformation: From Observation to Interaction

1. Digitally Mediated Environments and Investigative Conditions

The conditions under which criminal investigations are conducted have undergone a fundamental transformation with the proliferation of digitally mediated environments. Communication, exchange, and coordination primarily occur within platform-based infrastructures, where interactions are structured, recorded, and algorithmically mediated.[60] These environments are not merely new venues for criminal activity; they actively shape the forms, visibility, and accessibility of conduct subject to investigation.[61]

In such contexts, the traditional 'spatial' and 'temporal' assumptions underlying investigative practice are significantly

58) The "ontology of investigation" serves as an analytical foundation for understanding how investigative practices shape, and are shaped by, the conditions under which evidentiary knowledge is produced.

59) Crucially, the argument advanced in this article rejects rigid categorical distinctions. While Temkin (2008) proposes a shift from status-based to conduct-based ethical evaluation, the present analysis extends this insight by directing attention to the epistemic and interactional conditions under which evidentiary realities emerge. [See, Temkin, Barry R. "Deception in Undercover Investigations: Conduct-Based v. Status-Based Ethical Analysis," *Seattle University Law Review*, 32(1), 2008, pp. 123-126.]

60) Van Dijck, J., Poell, T., & De Waal, M. 「The Platform Society: Public Values in a Connective World」, Oxford University Press, 2018, pp. 1-11.; Aliaga, C., et al., *Op. cit.*, pp. 158-159.

61) Zuboff, S. 「The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power」, PublicAffairs, 2019, pp. 195-201.

altered.[62] Criminal conduct may unfold across distributed networks, transient interactions, and pseudonymous identities, often leaving traces that are fragmented, context-dependent, and embedded within larger streams of data.[63] As a consequence, investigative access is no longer a matter of locating discrete events or objects, but of navigating complex informational ecosystems in which relevant signals are interwoven with vast quantities of unrelated or ambiguous data.[64]

2. From Access to Engagement: The Role of Interaction

A defining feature of digitally mediated environments is that access to relevant information frequently depends on active engagement rather than passive observation.[65] Unlike traditional investigative contexts—where evidence may be physically located, seized, or observed—digital environments often require criminal investigators to participate in communicative or transactional processes in order to gain access to meaningful information.[66]

This shift from access to engagement fundamentally alters the structure of investigative practice.[67] Criminal investigators may

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62) Brown, Cameron S. D., *Op. cit.*, p. 58 & pp. 80-81.; Nissenbaum, H., *Op. cit.*, pp. 127-135.

63) Brayne, Sarah. 「Predict and Surveil: Data, Discretion, and the Future of Policing」, Oxford University Press, 2020, pp. 23-30.; Goodison, S. E., Davis, R. C., & Jackson, B. A. 「Digital Evidence and the U.S. Criminal Justice System: Identifying Technology and Other Needs to More Effectively Acquire and Utilize Digital Evidence」, National Institute of Justice (NIJ) / RAND Corporation, 2015, p. 1 & 7 & 15.

64) For the purposes of this article, a "data-saturated environment" refers to investigative contexts characterized by the continuous generation, accumulation, and availability of digital data, where the primary challenge lies not in information scarcity but in the selection, prioritization, interpretation, and contextualization of information. [Note: The concept is used by the Author as an analytical framework for understanding contemporary investigative conditions.]

65) Aliaga, C., et al., *Op. cit.*, pp. 156-164.; Ferguson, A. G., *Op. cit.*, pp. 82-88.

66) Brayne, Sarah (2020), *Op. cit.*, pp. 23-31.

assume particular roles within a network, initiate or respond to communications, and participate in exchanges that are necessary to elicit or observe relevant conduct.[68] In doing so, they do not merely uncover information that exists independently of their involvement; on the contrary, their participation may influence the conditions under which such information emerges.[69]

Accordingly, interaction becomes an integral component of investigative methodology.[70] It is through interaction that informational pathways are opened, contextual meanings are established, and evidentiary material becomes available for subsequent analysis.[71] This does not imply that investigative engagement is inherently problematic, but it does suggest that the epistemic status of the resulting information cannot be understood independently of the processes through which it was produced.[72]

3. Data-Saturated Environments and Investigative Asymmetry

The structural shift in, and transformation of, investigative

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67) The transition from access to engagement is used in this article as an analytical framework for describing how digitally mediated environments transform the conditions under which investigative information becomes available.

68) Brown, Cameron S. D., *Op. cit.*, p. 67 & pp. 70-71.

69) The present analysis suggests that investigative participation may affect the conditions under which information becomes visible, intelligible, and evidentially relevant, even where the underlying conduct is not generated by the investigation itself.

70) In this article, "interaction" is used not merely to depict communication between criminal investigators and investigative subjects, but to capture the broader processes through which access, meaning, and evidentiary relevance are produced within digitally mediated environments.

71) Lynch, M., et al., *Op. cit.*, pp. 182-189.

72) The epistemic status of investigative information depends not only upon its content, but also upon the processes through which it is generated, contextualized, and validated. Accordingly, evidentiary assessment must take account of the interactional conditions under which information emerges.

conditions is further accentuated by an increasingly data-saturated environment.[73] The volume, velocity, and variety of digital information available within contemporary platforms present a dualism of opportunity and constraint for investigative practice.[74] While this data abundance amplifies the capacity to discern patterns and anomalies, it simultaneously imposes critical burdens of selection, prioritization, and interpretation.[75]

In this context, investigative activity is characterized by a series of filtering decisions: which data to access, which interactions to pursue, and which signals to treat as relevant.[76] These decisions are often shaped by technological affordances, platform architectures, and algorithmic processes, as well as by institutional priorities and resource constraints.[77] Therefore, the production of evidentiary knowledge becomes contingent upon a complex interplay between human judgment and systemic structures.[78]

This dynamic also generates forms of investigative asymmetry.[79]

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73) The concept of a "data-saturated environment" builds upon the Author's earlier work on investigative judgment, which examined how contemporary investigations increasingly operate under conditions of informational abundance and interpretive complexity rather than information scarcity. See, Choi, Justin J, & Jun, H. "Investigative Judgment in Data-Saturated Environments: Toward a Normatively Constrained Framework for Decision-Making," *Criminal Investigation Studies*, 12(1), 2026, pp. 241-245.

74) Brayne, S. (2017), *Op. cit.*, p. 989 & pp. 991~993.; Ferguson, A. G., *Op. cit.*, pp. 15-24.

75) Goodison, S. E., Davis, R. C., & Jackson, B. A., *Op. cit.*, p. 1 & 7 & 15.; Brayne, Sarah (2020), *Op. cit.*, pp. 46-53.

76) The analysis developed here suggests that investigative decision-making in data-saturated environments increasingly depends upon filtering mechanisms that determine which forms of information become visible, actionable, and evidentially relevant.

77) Van Dijck, J., Poell, T., & De Waal, M., *Op. cit.*, pp. 29-37.

78) The production of evidentiary knowledge should be understood as emerging from the interaction between human judgment, technological systems, organizational priorities, and platform-specific informational structures.

79) The notion of "Investigative asymmetry" captures structural inequalities in access to information/data, interpretive capacity, and decision-making authority among investigators,

Certain actors—particularly those who control or design digital platforms—may possess privileged access to data, metadata, and interactional histories that are not readily available to investigators or defendants.[80] Conversely, criminal investigators may exercise significant discretion in determining how to engage with and interpret available information.[81] These asymmetries complicate the evidentiary landscape and raise questions regarding transparency, accountability, and the fairness of investigative processes.[82]

4. Interaction as a Condition of Evidentiary Emergence

Taken together, these developments point to a critical shift in the relationship between investigation and evidence.[83] In digitally mediated, data-saturated environments, evidence is not simply discovered as a pre-existing entity; it often emerges through processes of interaction, engagement, and interpretation.[84] The act of investigation becomes intertwined with the conditions under

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platform operators, investigative subjects, and [criminal] defendants. Similar concerns regarding informational inequality, evidentiary access, and procedural imbalance have been explored by the Author in the context of digital platform data governance. See, Choi, Justin J., & Lee, S. H., "Digital Platform Data Breaches and Procedural Inequality: Rethinking the Role of e-Discovery in Korea in Light of the *Coupang* Customer Data Leak," *Seoul Law Review*, 33(4), 2026, pp. 123-129.

80) Zuboff, S., *Op. cit.*, pp. 199-208.; Johnson, R. A., & Rostain, T., *Op. cit.*, pp. 456-457 & p. 467.

81) Brayne, Sarah (2020), *Op. cit.*, pp. 97-104.

82) This analysis contends that investigative asymmetries jeopardize more than just access to information/data; they also undermine the transparency, accountability, and reviewability of the investigative process itself.

83) The developments discussed in this subsection collectively indicate a shift from a detection-oriented conception of investigation toward a model that recognizes the interactional conditions under which evidentiary knowledge emerges.

84) Evidentiary emergence, as examined here, is the process through which information becomes identifiable, interpretable, and legally actionable within investigative contexts.

which evidentiary material is generated and rendered legally meaningful.[85]

This shift has significant implications for how investigative practices are conceptualized and evaluated. If interaction is a necessary condition for the emergence of evidence, the boundaries [or distinctions] between observation, participation, and influence become increasingly blurred.[86] Investigative conduct, therefore, must be assessed not merely by its ability to access information, but by how it actively shapes the informational and behavioral contexts from which that evidence emerges.[87]

Importantly, this does not suggest that all forms of interaction amount to the creation of evidence or conduct.[88] Rather, it highlights the need for a more nuanced analytical framework capable of accounting for the degrees and modalities of investigative engagement.[89] Such a framework must recognize that the evidentiary significance of information is fundamentally

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85) The term "evidentiary emergence" refers to explain situations in which evidentiary weight/significance arises through processes of interaction, interpretation, and contextualization rather than through the simple discovery of pre-existing facts.

86) Rather than viewing investigation as a process of passive data retrieval, the present analysis emphasizes how investigative conduct may intervene in and reconfigure the contexts through which evidentiary significance emerges. Accordingly, the distinction between observation, participation, and influence is employed as an analytical framework for evaluating varying degrees of investigative engagement in digitally mediated environments.

87) Lannier, S. "Infiltrating virtual worlds. The regulation of undercover agents through fundamental rights," *Criminal Evidence Theory*, 10(3), 2024, pp. 20-28.; Choi, Justin J, & Jun, H., *Op. cit.*, pp. 241-247. [Note: The analysis in this article contends that investigative conduct must be evaluated not only by its success in accessing information but also by its influence on the conditions that render such information evidentially significant.]

88) This perspective does not imply that investigative interaction inherently creates criminal conduct or evidentiary material. Instead, it highlights how such interaction can shape the circumstances that render conduct and information evidentially significant.

89) Temkin, B. R., *Op. cit.*, pp. 123-126.

inseparable from its production process, which is itself embedded within broader technological and institutional structures.[90]

While investigative participation routinely shapes or influences evidentiary development in conventional settings, digitally mediated environments introduce qualitative differences. Crucially, these differences arise from the convergence of continuous interaction, platform mediation, algorithmic visibility, persistent digital traces, informational asymmetry, and data ubiquity, which collectively transform not merely the volume of available information but the structural conditions under which evidentiary meaning emerges.[91]

Consequently, the central concern of this article is not investigative participation per se, but the interactional and informational architecture that increasingly governs how evidentiary meaning is generated, stabilized, interpreted, and ultimately subjected to legal evaluation within contemporary investigative environments.

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90) The framework developed here recognizes that evidentiary meaning is shaped not only by the content of information but also by the technological, institutional, and interactional conditions through which information is produced, interpreted, and validated.

91) Exploring how digitally mediated spaces/environments alter the foundational infrastructure of legal proof, Casey (2011) notes that digital evidence is never a pristine reflection of historical fact, but is instead fundamentally mediated and structured by the underlying software architectures and communication platforms where interactions occur. [See, Casey, E., *Op. cit.*, pp. 25-32.]; On the qualitative transformation driven by the convergence of data ubiquity and informational asymmetry in modern policing, Ferguson (2017) argues that systemic algorithms do not merely aggregate greater volumes of data but fundamentally reshape the structural conditions under which reasonable suspicion and evidentiary relevance materialize. [See, Ferguson, A. G., *Op. cit.*, pp. 131-138.]; Furthermore, regarding the unique challenges that algorithmic mediation poses to the interpretive integrity of criminal evidence, Wexler (2018) demonstrates how automated systems and platform mechanics create structural informational asymmetries that complicate the traditional evaluation of evidentiary significance in criminal trials. [See, Wexler, Rebecca. "Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System," *Standford Law Review*, Vol. 70, 2018, pp. 1372-1377.]

5. Transition to Normative Instability

The transformation of investigative conditions described above provides the structural foundation for the normative challenges examined in the following section.[92] In particular, the centrality of interaction, the complexity of data-saturated environments, and the emergence of investigative asymmetries do not merely complicate investigative practice; they reconfigure the very conditions under which such practices are to be normatively assessed.[93]

Under these conditions, traditional doctrinal distinctions—developed within a detection-oriented model of investigation[94]—become increasingly difficult to sustain without reconsideration of their underlying assumptions.[95] Where investigative access was once understood as the primary locus of legal control, the shift toward interaction and engagement introduces new layers of complexity; the investigative process now affects the very emergence, form, and evidentiary significance of the conduct at issue.[96]

Among these doctrinal distinctions, the boundary between

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92) The preceding discussion has demonstrated that contemporary investigative environments are increasingly characterized by data saturation, interaction- dependent access, and structural asymmetries in terms of informational and interpretive authority.

93) The present analysis suggests that the transformation of investigative conditions affects not only operational practices but also the normative criteria through which such practices are evaluated.

94) The concept of a "detection-oriented model" is employed in this article to characterize legal frameworks that presuppose a stable distinction between pre-existing criminal conduct and the processes through which such conduct is discovered and documented.

95) Stoykova, Radina. "The Right to a Fair Trial as a Conceptual Framework for Digital Evidence Rules in Criminal Investigations," *Computer Law & Security Review*, Vol. 49, 2023, pp. 9-10.

96) As investigative engagement becomes increasingly central to evidentiary emergence, legal evaluation must account not only for access to information but also for the interactional conditions under which information acquires evidentiary significance.

undercover operations and entrapment occupies a particularly central position. Historically, this demarcation has served as a critical normative safeguard, delineating permissible investigative deception from impermissible inducement.[97] However, as contemporary investigative practices shift from observation toward engagement, and from access toward participation, the conceptual foundations of this distinction are increasingly called into questio n.[98] In digitally mediated environments, where interaction may serve as a constitutive condition for the production of evidentiary material, the line between detecting and shaping conduct becomes increasingly blurred.[99]

The significance of this shift lies not in the collapse of existing legal categories, but in the growing instability of the assumptions that sustain them.[100] The question is no longer simply whether a given investigative act falls within one category or another, but whether the categories themselves remain adequate to capture the dynamics of contemporary investigative practice.[101] The following section examines this instability in greater detail, focusing on how digitally mediated environments complicate the normative

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97) Nathan, Christopher, *Op. cit.*, pp. 384-385.; Joh, Elizabeth E., *Op. cit.*, pp. 164-165.; Aliaga, C., et al., *Op. cit.*, pp. 156-164.

98) While traditional legal scholarship often presupposes a relatively stable distinction between undercover operations and entrapment, the present analysis contends that this boundary is increasingly contingent upon the dynamics and structural effects of investigative interaction.

99) The distinction between detection and construction becomes increasingly tenuous when investigative participation serves as a constitutive condition for evidentiary emergence rather than a mere conduit for evidentiary access.

100) For the purposes of this article, “normative instability” denotes not the collapse of legal categories, but the gradual erosion of the underlying assumptions that have historically sustained their doctrinal coherence and practical applicability.

101) The analysis developed here shifts the focus from static categorical classification toward the [functional] adequacy of legal concepts for governing investigative practices in digitally mediated environments.

foundations of covert investigative practices and challenge the coherence of the distinction between undercover operations and entrapment.[102]

Ⅳ. The Blurring Boundary: Covert Investigation and Normative Instability

1. The Classical Distinction and Its Normative Function

The distinction between undercover operations and entrapment has long occupied a central place in the legal regulation of covert investigative practices.[103] Traditionally, undercover operations have been framed as a permissible form of investigative deception, predicated on the assumption that they enable law enforcement to detect ongoing or concealed criminal activity without distorting the nature of the conduct under investigation.[104] Entrapment, by contrast, has been treated as an impermissible form of inducement, in which the state is understood to have crossed the boundary from detection into the creation or instigation of criminal behavior.[105]

This distinction performs an important normative function.[106] It serves not only to limit the scope of permissible investigative

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102) This article does not seek to conflate undercover operations with entrapment. Rather, it aims to demonstrate that the doctrinal stability of this distinction can no longer be taken for granted in investigative environments characterized by interaction-dependent access, data saturation, and evidentiary emergence.

103) Hay, B. "Sting Operations, Undercover Agents, and Entrapment," *Missouri Law Review*, 70(2), 2005, pp. 387-388.; Marx, Gary T., *Op. cit.*, pp. 35-42.

104) Bronitt, Simon. "The Law in Undercover Policing: A Comparative Study of Entrapment and Covert Interviewing in Australia, Canada and Europe," *Common Law World Review*, 33(1), 2004, pp. 35-37.; Joh, Elizabeth E., *Op. cit.*, pp. 161-162.

105) Carlon, A. "Entrapment, Punishment, and the Sadistic State." *Virginia Law Review*, 93(4), 2007, pp. 1087-1094.; Temkin, B. R., *Op. cit.*, pp. 123-130.

106) Marcus, Paul. 「The Entrapment Defense」(5th edn.), LexisNexis, 2023, pp. 3-10.

conduct, but also to preserve the conceptual separation between state action and individual culpability.[107] By maintaining that criminal liability must be grounded in conduct attributable to the defendant rather than manufactured by the state, the doctrine of entrapment operates as a safeguard against the overreach of coercive authority.[108]

At its core, therefore, the distinction rests on an implicit ontological assumption: that there exists a meaningful boundary between the observation of pre-existing conduct and the inducement or construction of new conduct.[109] It is this assumption that enables legal systems to differentiate between acceptable and unacceptable forms of investigative participatio n.[110] Yet whether this assumption remains viable in digitally mediated environments is a question that has garnered relatively little theoretical scrutiny.[111]

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107) See, ***Jacobson v. United States***, 503 U.S. 540 (1992), at pp. 548–553 [Emphasizing the need to preserve the distinction between government detection of criminal conduct and government inducement of criminal behavior.].; Chiao, V. "Policing Entrapment," *Manitoba Law Journal*, 44(1), 2021, pp. 307-312.

108) Notably, modern scholarship emphasizes that such state-manufactured crimes fundamentally challenge the integrity of the criminal justice system and the state's moral standing to punish. [See, Hill, Daniel J., McLeod, S. K., & Tanyi, A. "The Concept of Entrapment," *Criminal Law and Philosophy*, 12(4), 2018, pp. 542-546.; Frampton, T. Ward. "Predisposition and Positivism: The Forgotten Foundations of the Entrapment Doctrine," *Journal of Criminal Law & Criminology*, 103(1), 2013, pp. 131-133 & 142-146.]

109) The distinction between undercover operations and entrapment presupposes the existence of a meaningful boundary between detection and construction. For the purposes of this article, this boundary is understood not as a fixed doctrinal line, but as an ontological assumption concerning the relationship between investigative action and criminal conduct.

110) Hodgen, Gage G. "Resuscitating the Entrapment Defense: A Statutory Approach," *Columbia Journal of Law and Social Problems*, 55(1), 2021, p. 116. [Note: The arguments advanced here indicate that the normative significance of this distinction lies in its ability to maintain a conceptual boundary between the state's detection of crime and its active participation in generating criminal liability.]

111) Instead of taking this distinction for granted, the analysis developed here examines

2. Structural Tensions in Digitally Mediated Environments

In digitally mediated environments, however, the conditions that sustain this distinction are increasingly strained.[112] As discussed earlier, investigative access in these environments is often contingent upon active engagement in communicative or transactional exchanges. Investigators may assume roles, initiate interactions, and engage in exchanges that are necessary to elicit or observe relevant conduct.[113]

Under these conditions, the investigative act is no longer external to the conduct under examination.[114] Instead, it becomes embedded within the interactional context through which the conduct unfolds.[115] The investigator's presence, responses, and strategic choices may influence not only the availability of information, but also the trajectory and form of the conduct itself.[116]

This embeddedness gives rise to a structural tension.[117] On the

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whether its underlying assumptions remain tenable in contexts defined by interaction-dependent access, evidentiary emergence, and data saturation.

112) The present analysis demonstrates that the assumptions sustaining the traditional distinction between undercover operations and entrapment become increasingly tenuous as investigative environments shift toward interaction- dependent access and evidentiary emergence.

113) Ferguson, A. G., *Op. cit.*, pp. 82-88.; Nathan, C., *Op. cit.*, pp. 384-386.

114) Rather than treating investigative activity as an external mode of observation, this analysis views it as constitutive of the interactional conditions through which evidentiary realities emerge. [See, Stoykova, R., *Op. cit.*, p. 3 & pp. 10-12.]

115) The concept of "interactional embeddedness" captures situations in which investigative conduct forms part of the communicative environment through which relevant conduct becomes observable and legally meaningful.

116) Instead of viewing investigative influence as an exception, this analysis highlights how investigative choices condition the environments in which evidence is produced and interpreted.

117) Importantly, structural tension identified here arises from the growing entanglement of investigative participation and evidentiary emergence within digitally mediated environments.

one hand, investigative participation is often necessary to access otherwise concealed forms of criminal activity. On the other hand, such participation may blur the line between uncovering conduct and shaping it.[118] The distinction between observation and inducement—central to the classical differentiation between undercover operations and entrapment—thus becomes increasingly difficult to sustain as a stable analytical boundary.[119]

3. From Detection to Interaction: Reconfiguring the Boundary

The shift from observation to interaction described above has significant implications for how the boundary between undercover operations and entrapment is to be understood.[120] In traditional settings, this boundary could be conceptualized in relatively linear terms: investigators either discovered conduct that existed independently of their involvement or impermissibly induced conduct that would not otherwise have occurred.[121]

In digitally mediated environments, however, this linear model becomes inadequate.[122] Investigative interaction may function as a necessary condition for the manifestation of conduct that is latent,

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118) Hodgen, Gage G., *Op. cit.*, p. 103 & 115. [Note: The core concern is not that investigative participation inevitably generates criminal conduct, but rather that it shapes the conditions through which such conduct acquires evidentiary significance.]

119) The present analysis suggests that the boundary between observation and inducement is less a fixed doctrinal limit than a contingent analytical construct whose stability remains tethered to the structure of investigative interaction.

120) The analysis developed here indicates that the normative weight of the distinction between undercover operations and entrapment hinges increasingly upon how investigative interactions are conceptualized and evaluated.

121) Marcus, P., *Op. cit.*, pp. 23-31.; Bronitt, Simon., *Op. cit.*, p. 17 & 26.

122) While the linear model presupposes a relatively stable separation between investigative action and criminal conduct, such a distinction erodes when investigative participation becomes constitutive of the interactional conditions through which conduct is rendered observable and evidentiary.

contingent, or context-dependent.[123] Rather than inducing entirely new behavior, the criminal investigator's role may be better understood as activating, channeling, or stabilizing conduct within a particular interactional framework.[124]

This does not collapse the distinction between permissible and impermissible investigative practices, but it complicates the basis upon which that distinction is drawn.[125] The question is no longer simply whether the investigator caused the conduct to occur, but how the structure of interaction contributed to the emergence and evidentiary characterization of that conduct.[126] Accordingly, the boundary between detection and construction becomes less a fixed line and more a function of degrees, contexts, and modalities of engagement.[127]

The present argument does not suggest that investigative interaction is unique to digitally mediated environments. Investigative participation has long constituted an important feature of conventional undercover operations. The distinctive characteristic of digitally mediated investigation instead lies in the

123) The term "manifestation" refers to explain the process through which latent or context-dependent conduct becomes observable within a particular interactional environment.

124) Instead of viewing investigative participation through the narrow lens of causation, this analysis highlights its role in shaping the conditions under which conduct becomes articulated, stabilized, and evidentially significant.

125) Far from suggesting that all investigative interactions are normatively equivalent, this perspective emphasizes the need for analytical frameworks capable of critically evaluating diverse forms and degrees of investigative engagement.

126) Stoykova, R., *Op. cit.*, pp. 9-12.; Nathan, Christopher, *Op. cit.*, pp. 384-385. [Note: This article shifts the analytical focus from whether investigative action caused the conduct to how investigative interaction conditioned, or contributed to, the emergence and evidentiary construction of that conduct.]

127) For the purposes of this article, the distinction between detection and construction is understood not as a binary opposition but as a continuum shaped by varying degrees of investigative participation, interactional influence, and evidentiary emergence.

structural conditions within which such interaction unfolds. Continuous platform-mediated communication, persistent digital traces, informational asymmetry, large-scale data availability, and ongoing evidentiary accumulation fundamentally reshape not only the quantity of available information but also the processes through which evidentiary meaning is generated, stabilized, and subsequently evaluated. Accordingly, the analytical focus of the present study is directed not toward interaction itself, but toward the interactional and informational architecture that increasingly structures contemporary covert investigations.

4. Investigative Interaction and the Production of Evidence

A further implication of this shift concerns how investigative interaction mediates the production of evidence, blurring the line between discovery and constitutive production.[128] In digitally mediated environments, evidentiary material is often inseparable from the interactions through which it is generated.[129] Communications, exchanges, and digital traces acquire legal significance precisely because they occur within structured interactional settings, some of which are shaped by investigative participation.[130]

This raises important questions regarding the epistemic status of such evidence.[131] If the evidentiary record is, at least in part, a product of investigative engagement, then its interpretation cannot be

128) It highlights that the relationship between investigation and evidence is inherently contingent upon the interactional conditions through which evidentiary material emerges.

129) Carrier, Brian D., & Spafford, Eugene. H. "Getting Physical with the Digital Investigation Process," *International Journal of Digital Evidence*, 2(2), 2003, p. 5 & 13.

130) The term "evidentiary emergence" emphasizes that evidentiary weight, or significance, arises not merely from the existence of information but from the interactional contexts through which information becomes legally meaningful.

131) "Epistemic status" reflects the basis upon which information is regarded as reliable, interpretable, and capable of supporting legal conclusions.

divorced from the processes through which it was produced.[132] The legitimacy of covert investigative practices must therefore be assessed not only in terms of their outcomes, but also in terms of the conditions under which those outcomes were generated.[133]

Most importantly, this perspective does not imply that evidence obtained through covert interaction is inherently unreliable or inadmissible. Rather, it highlights the necessity of accounting for how investigative processes participate in the construction of evidentiary reality.[134] The focus shifts from a static binary assessment of permissibility toward a more nuanced evaluation of how investigative interaction structures the relationship between state agency, individual conduct, and legal proof.[135]

5. Normative Instability and the Limits of Doctrinal Categories

Taken together, these developments point to a broader condition of normative instability.[136] The formal legal binary between undercover policing and entrapment is increasingly anachronistic. It relies on a model of discrete human agency that fails to

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132) Miller, C. M. "A survey of prosecutors and investigators using digital evidence: A starting point," *Forensic Science International: Synergy*, Vol. 6, 2023, pp. 13-15. [Note: The analysis developed here treats evidentiary interpretation as inseparable from the processes through which information is generated, contextualized, and rendered evidentially relevant.]

133) This perspective shifts evaluative attention from evidentiary outcomes alone to the conditions under which evidentiary knowledge is produced.

134) The analysis here emphasizes the importance of understanding the role of investigative processes in shaping evidentiary contexts. [Note: The concept of "evidentiary reality" is used in this article to describe the body of legally relevant facts, meanings, and interpretations that emerge through investigative and evidentiary processes.]

135) Crucially, the present analysis moves beyond a static binary distinction between permissible and impermissible conduct by examining how investigative interaction configures the interplay between state action, defendant conduct, and the [resulting] production of the evidentiary record.

136) Goodison, S. E., Davis, R. C., & Jackson, B. A., *Op. cit.*, p. 7 & 15.; Murphy, B., *Op. cit.*, pp. 72-76.

account for the structural realities of digital investigation, where the state doesn't just observe crime but architecturally facilitates the environments in which it occurs.[137]

This instability does not necessarily render existing doctrines obsolete.[138] However, the instability of those distinctions signals a growing disconnect between law and investigative practice. Rather than providing clear boundaries, their application remains tethered to outdated contexts, leaving them ill-equipped to govern the systemic nature of contemporary undercover work.[139] By clinging to a rigid binary of detection versus inducement, current doctrinal categories are structurally blind to contemporary investigative realities. They lack the conceptual tools to regulate practices where the line between 'finding' evidence and 'creating' it has been erased through state participation.[140]

Accordingly, the challenge is not to abandon the distinction between undercover operations and entrapment, but to recognize its contingent and context-sensitive nature.[141] Legal analysis must move beyond rigid categorical classifications and toward frameworks capable of capturing the structural features of investigative engagement in data-saturated environments.[142]

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137) Wexler, R., *Op. cit.*, p. 215 & pp. 246-248.; Chiao, Vincent, *Op. cit.*, pp. 301-308. [Note: The traditional distinction between undercover operations and entrapment, while still formally maintained, operates under assumptions that are increasingly misaligned with the structural realities of digitally mediated investigation.]

138) Hill, D. J., McLeod, S. K., & Tanyi, A., *Op. cit.*, pp. 545-549.

139) Hay, B., *Op. cit.*, pp. 410-417.; Johnson, R. A., & Rostain, T., *Op. cit.*, pp. 455-458 & p. 467.

140) Joh, Elizabeth E., *Op. cit.*, pp. 185-192.; Wexler, R., *Op. cit.*, p. 248.

141) Temkin, B. R., *Op. cit.*, pp. 162-168.

142) Building on the Author's earlier analysis of data-saturated investigative environments, this discussion underscores a fundamental shift: the primary investigative challenge has moved from acquiring information to the strategic selection, prioritization, interpretation, and accountability of that data. Consequently, the legal instability examined here is not an isolated flaw, but a symptom of the broader structural transformations reshaping modern

6. Transition to a Normatively Constrained Framework

The instability identified in this section underscores the need for a more robust analytical approach to the regulation of covert investigative practices. If traditional doctrinal categories are no longer sufficient to capture the complexities of digitally mediated investigation, then alternative frameworks must be developed to guide normative evaluation.[143)]

The following section advances such a framework. Building on the conceptual and structural analysis developed thus far, it proposes a normatively constrained approach that emphasizes process-based controls, documentation, and reviewability. Rather than attempting to draw fixed boundaries between permissible and impermissible conduct, the framework seeks to structure how such distinctions are to be assessed under conditions where their stability can no longer be taken for granted.[144)]

Ⅴ. Normative Risks in Data-Saturated Investigations

1. Reframing Risk: From Illegality to Structural Concern

The analysis developed thus far argues that the challenges posed by covert investigations in digitally mediated environments cannot be fully captured through the binary framework of legality versus illegality.[145)] While questions of admissibility and procedural compliance remain important, they do not exhaust the range of concerns raised by investigative practices that operate through interaction, participation, and evidentiary co-production.[146)]

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investigative decision-making. [See, Choi, Justin J, & Jun, H., *Op. cit.*, pp. 252-261.]

143) Stoykova, R., *Op. cit.*, pp. 15-21.; Wexler, R., *Op. cit.*, pp. 230-238.

144) Choi, Justin J., & Lee, S. H., *Op. cit.*, pp. 152-160.

145) Hadjimatheou, Katerina, *Op. cit.*, pp. 283-285 & 292-293.

Instead, the relevant inquiry must be reframed in terms of structural risk.[147] That is, rather than focusing solely on whether a particular investigative act crosses a legal threshold, attention must be directed toward the conditions under which investigative practices shape the production, interpretation, and evaluation of evidence.[148] This shift reflects the broader transformation identified in earlier sections: as criminal investigation becomes progressively intertwined with the processes through which evidentiary material emerges, the locus of normative concern moves from isolated acts to systemic configurations.[149]

The distinctive concern addressed in this study therefore arises not from the mere existence of investigative interaction, but from the transformation of the structural conditions within which investigative participation acquires evidentiary significance.

2. Expansion of Investigative Access and the Limits of *Ex Ante* Control

One of the most salient risks concerns the expansion of investigative access in digitally mediated environments.[150] As noted in Section III, access to relevant information often requires active engagement within communication networks and platform-based interactions.[151] This necessity may lead to an expansion of investigative practices beyond traditional mechanisms of *ex ante* authorization, particularly where the boundaries of

146) Johnson, R. A., & Rostain, T., *Op. cit.*, pp. 467-468.; Stoykova, R., *Op. cit.*, pp. 10-16.

147) Rather than treating risk exclusively as the possibility of unlawful conduct, the present analysis examines structural risks arising from the interaction between investigative practices, evidentiary production, and informational asymmetries.

148) Nissenbaum, H., *Op. cit.*, pp. 127-135.; Carrier, B. D., & Spafford, E. H., *Op. cit.*, p. 10.

149) Goodison, S. E., Davis, R. C., & Jackson, B. A., *Op. cit.*, p. 1 & 7 & 15.

150) Ferguson, A. G., *Op. cit.*, pp. 63-71.

151) Van Dijck, J., Poell, T., & De Waal, M., *Op. cit.*, pp. 29-36.

investigative conduct are difficult to specify in advance.[152]

Under such conditions, conventional safeguards—such as warrants or prior approvals—may become less effective as primary tools of regulation.[153] These mechanisms are typically designed to govern discrete acts of intrusion, such as searches or seizures, based on clearly defined objects or locations.[154] By contrast, covert digital investigations often unfold as dynamic processes of interaction, where the scope and direction of engagement evolve over time.[155]

This mismatch gives rise to a structural tension between the fluidity of investigative practice and the rigidity of *ex ante* control mechanisms.[156] While authorization requirements remain normatively important, they may be insufficient to capture the iterative and adaptive nature of investigative engagement in data-saturated environments.[157] Consequently, the rapid expansion of investigative access risks outpacing the capacity of traditional legal frameworks to meaningfully constrain it.[158]

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152) Franssen Vanessa, & Tosza S. (eds). "Digital Evidence and the Cooperation of Service Providers in EU Criminal Investigations"<Part II>. In: 「The Cambridge Handbook of Digital Evidence in Criminal Investigations」, Cambridge University Press, 2025, pp. 309-346.

153) Stoykova, Adi. "Digital Evidence: Unaddressed Threats to Fairness and the Presumption of Innocence," *Computer Law & Security Review*, Vol. 42, Article 105575, 2021, p. 9.; Kerr, O. S. "Executing Warrants for Digital Evidence: The Case for Use Restrictions on Nonresponsive Data," *Texas Tech Law Review*, Vol. 48, 2015, pp. 15-21.

154) See, *Riley v. California*, 573 U.S. 373 (2014), at pp. 393-398 (recognizing that the quantity, scope, and sensitivity of digital information complicate, and therefore challenge, the application of traditional search-and-seizure doctrines).

155) Marx, Gary T., *Op. cit.*, pp. 54-60.; Goodison, S. E., Davis, R. C., & Jackson, B. A., *Op. cit.*, p. 7 & 15.

156) The central tension arises from the increasing divergence between process-oriented investigative practices and regulatory frameworks designed primarily to govern discrete investigative acts.

157) Stoykova, Adi., *Op. cit.*, p. 9.; Stoykova, R., *Op. cit.*, pp. 18-24.

158) Marchant, Gary E., Allen, B. R., & Abbott, K. W. (eds.) 「The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight: The Pacing Problem」, Springer

3. The Risk of Constructive Criminality

A second, and closely related, concern involves the risk of what may be described as constructive criminality.[159] As discussed in Section IV, investigative interaction may influence the emergence, form, and evidentiary characterization of conduct. In digitally mediated environments, where interaction often serves as a condition for the manifestation of behavior, the line between revealing and shaping conduct becomes increasingly difficult to delineate.[160]

The risk here is not that investigators intentionally create crime in a straightforward sense, but that the structure of investigative engagement may contribute, in subtle or indirect ways, to the stabilization or articulation of conduct that is subsequently treated as criminal.[161] This may occur through the framing of interactions, the provision of opportunities, or the iterative reinforcement of particular behavioral pathways.[162]

In particular, such dynamics complicate traditional assumptions about voluntariness and attribution.[163] If the conduct in question emerges within an interactional context shaped in part by investigative participation, then its normative evaluation cannot be detached from that context.[164] The concern, therefore, is not reducible to questions

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Netherlands, 2011, pp. 19-33 & 199-205.; Wexler, R., *Op. cit.*, pp. 250-258.

159) Chiao, Vincent, *Op. cit.*, p. 295 & 302 & 306.; Temkin, B. R., *Op. cit.*, pp. 145-150.

160) Marcus, P., *Op. cit.*, pp. 53-65.; Joh, Elizabeth E., *Op. cit.*, pp. 164-165 & 176-183.

161) The primary concern addressed here is not that investigative participation necessarily creates criminal conduct, but that it may contribute to the conditions through which conduct becomes stabilized, articulated, and evidentially significant.

162) Choi, Justin J., Kim, D. Y., & Choi, J. H. "Investigative Asymmetry in Encrypted Messaging Environments: Juvenile Drug Trafficking on Telegram in South Korea," *The Korean Association of Police Science Review*, 28(2), 2026, pp. 312-313.

163) Bronitt, Simon., *Op. cit.*, pp. 16-17.; Hay, Bruce, *Op. cit.*, pp. 432-438.

164) Nissenbaum, H., *Op. cit.*, pp. 138-144.; Nathan, C., *Op. cit.*, p. 385.

of inducement alone, but extends to the broader processes through which conduct becomes legally cognizable as criminal.[165]

4. Epistemic Opacity and the Problem of Interpretive Integrity

A further risk arises from the epistemic opacity of investigative processes in data-saturated environments.[166] As investigative practices increasingly involve the selection, filtering, and interpretation of large volumes of digital information, the pathways through which evidence is constructed and contextualized may become difficult to reconstruct or scrutinize.[167]

This opacity has direct implications for what may be termed "interpretive integrity": the capacity to trace, evaluate, and contest the processes through which evidentiary meaning is produced.[168] Where investigative decisions regarding what to include, exclude, or prioritize are not adequately documented or made transparent, the resulting evidentiary record may appear coherent and persuasive while obscuring the contingent choices that shaped it.[169]

The problem is compounded by the interactional nature of evidence production in digitally mediated environments.[170] If evidentiary material is generated through processes that involve

165) The issue extends beyond inducement in the traditional doctrinal sense and concerns the broader interactional processes through which conduct becomes identifiable, interpretable, and legally actionable.

166) Carrier, B. D., & Spafford, E. H., *Op. cit.*, p. 13.; Brayne, Sarah (2020), *Op. cit.*, pp. 103-111.

167) Lynch, M., et al., *Op. cit.*, pp. 182-189.; Stoykova, Adi., *Op. cit.*, p. 9.

168) As developed in the Author's previous work, interpretive integrity shifts the focus from the mere preservation of evidence to the transparency of its construction. While traditional methods prioritize the physical or digital integrity of data, this framework demands that the interpretive processes—the selection, framing, and attribution of meaning—remain contestable, traceable, and open to rigorous review.

169) Stoykova, R., *Op. cit.*, pp. 19-24.; Goodison, S. E., Davis, R. C., & Jackson, B. A., *Op. cit.*, p. 15 & 18.

170) Vogel, B., *Op. cit.*, pp. 41-49.; Wexler, R., *Op. cit.*, pp. 246-255.

both investigative participation and selective interpretation, then the absence of clear documentation undermines the ability of courts and opposing parties to assess the reliability and fairness of those processes.[171]

5. Procedural Asymmetry and the Challenge of Contestability

The risks identified above converge in a broader concern regarding procedural asymmetry.[172] In data-saturated investigative contexts, disparities may arise in access to information, control over interactional settings, and the capacity to reconstruct evidentiary processes.[173] Investigators may possess significant discretion in shaping the conditions under which evidence emerges, while defendants may have limited means to challenge or contextualize that evidence.[174]

This asymmetry raises questions about contestability, understood as the ability of parties within the legal process to meaningfully interrogate the basis of evidentiary claims.[175] Where the production of evidence is closely tied to investigative interaction and interpretive processes that are not fully visible or reviewable, the adversarial structure of legal proceedings may be compromised.[176]

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171) Ultimately, interpretive integrity rests on the premise that "evidentiary meaning is not simply found but constructed." As such, it requires a framework capable of rendering investigative choices traceable, reviewable, and accountable throughout the processes by which evidentiary significance is produced and interpreted.

172) Wexler, R., *Op. cit.*, pp. 220-228.; Stoykova, A., *Op. cit.*, p. 4 & 9 & 11.

173) Choi, Justin J., Kim, D. Y., & Choi, J. H., *Op. cit.*, pp. 314-318.

174) Brayne, Sarah (2020), *Op. cit.*, pp. 132-139.

175) "Contestability" refers to the practical capacity of parties to examine, challenge, and respond to the evidentiary claims and interpretive processes underlying legal decision-making.

176) Koenig, Alexa, & Freeman, Lindsay. "Cutting-Edge Evidence: Strengths and Weaknesses of New Digital Investigation Methods in Litigation," *Hastings Law Journal*, 73(5), 2022, pp. 1239-1248.

Importantly, this concern does not depend on any presumption of bad faith or intentional overreach.[177] Rather, it reflects the structural features of digitally mediated investigation, in which complexity, opacity, and asymmetry may arise even in the absence of improper conduct.[178] Addressing these risks therefore requires a framework that goes beyond prohibiting specific actions and instead focuses on ensuring transparency, traceability, and the capacity for effective review.[179]

6. From Normative Risk to Normative Governance

The transition from epistemological analysis to normative governance is not premised simply upon the recognition that criminal investigation involves interpretive processes. Rather, it is driven by the fact that digitally mediated environments increasingly generate structural risks that fundamentally elude conventional legal safeguards.[180]

Once evidentiary meaning is understood to emerge through ongoing

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177) Nissenbaum, H., *Op. cit.*, pp. 161-167.; Vogel, B., *Op. cit.*, pp. 53-59.

178) Yeung, K. "Algorithmic regulation: A critical interrogation," *Regulation & Governance*, 12(6), 2018, pp. 507-510 & p. 518.

179) The challenge lies not merely in preventing improper conduct, but in ensuring that the processes through which evidentiary claims are generated remain traceable, transparent, and open to meaningful review.

180) Joh (2019) argues that the rapid integration of digital surveillance and automated metrics into law enforcement creates an accountability vacuum, as traditional constitutional doctrines are poorly designed to regulate continuous, infrastructure-level data collection. [See, Joh, Elizabeth E. "Artificial Intelligence (AI) and Policing: First Questions," *Seattle University Law Review*, Vol. 41, 2018, pp. 1140-1143.]; Also, Kerr (2005) demonstrates that existing rules of criminal procedure are inherently ill-equipped to regulate digital evidence, as traditional doctrines were strictly tailored to the collection of localized, physical crime scene artifacts rather than continuous, platform-mediated data streams. [See, Kerr, Orin S. "Digital Evidence and the New Criminal Procedure," *Columbia Law Review*, 105(1), 2005, pp. 283-288.]

processes of interaction, interpretation, and documentation, the legitimacy of criminal investigation—and the rules governing it—necessarily depends not only upon the legality of particular investigative acts, but also upon the procedural integrity of the processes through which evidentiary significance is generated.[181] It is precisely this structural transformation that anchors the normative foundation for the governance framework proposed in the present study.

Against this background, the foregoing analysis underscores the need to move beyond a narrow focus on the legality of discrete investigative acts and toward a broader consideration of how investigative processes are structured and constrained.[182] The structural risks associated with expanded investigative access, constructive criminality, epistemic opacity, and procedural asymmetry cannot be adequately addressed through existing doctrinal categories alone.[183]

What is required is a framework that operates at the level of process rather than outcome—one that structures how investigative practices are conducted, documented, and evaluated over time.[184]

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181) To explain why legal analysis must transcend the narrow question whether isolated police conduct complied with formal legal requirements and instead evaluate the integrity of the entire evidence-production process, Picinali (2013) uses legal epistemology to show that fact-finding is not a matter of simply "discovering" a proposition at a single point in time, but of determining what to believe about disputed facts through an ongoing process of institutional judgment and interpretation. [See, Picinali, F. "Two Meanings of Reasonableness: Dispelling the Floating Reasonable Doubt," *Modern Law Review*, 76(5), 2013, pp. 845-875.]

182) Ferguson, R. Ian, et al. "PRECEPT: A framework for ethical digital forensics investigations," *Journal of Intellectual Capital*, 21(2), 2020, p. 269 & 277.; Ferguson, A. G., *Op. cit.*, pp. 179-186.

183) Guttman, B., et al. 「Digital Evidence Preservation: Considerations for Evidence Handlers」, National Institute of Standards and Technology (NIST), 2022, pp. 14-16.; Stoykova, R., *Op. cit.*, pp. 24-29.

184) The central challenge identified in this article concerns the governance of investigative processes rather than the regulation of isolated acts. Consequently, the analytical focus

Such a framework must be capable of accommodating the dynamic and interactional nature of covert investigations in data-saturated environments, while ensuring that the principles of fairness, accountability, and evidentiary integrity are preserved.[185]

The next section develops such a framework. Building on the conceptual and normative analysis presented thus far, it proposes a set of normatively constrained principles designed to guide the governance of covert investigative practices under contemporary conditions.[186]

VI. Toward a Normatively Constrained Framework

The preceding analysis has suggested that the principal challenges posed by covert investigations in digitally mediated, data-saturated environments cannot be adequately addressed through traditional doctrinal distinctions alone.[187] As investigative practices become increasingly interaction-dependent, the normative concerns they generate extend beyond questions of legality and admissibility to encompass broader issues of accountability, reviewability, and evidentiary construction.[188]

A central implication of this transformation is that evidentiary meaning can no longer be understood as something merely discovered through investigative activity. Instead, evidentiary

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shifts from the ex post prohibition of specific conduct to the systemic structuring of the conditions under which investigative practices generate evidentiary outcomes.

185) Council of the Inspectors General on Integrity & Efficiency (CICIE). 「Quality Standards for Digital Forensics」, CIGIE, 2019, p. 4 & pp. 6-7.

186) This transition reflects a fundamental shift from the mere identification of normative risk to the active governance of that risk. It underscores the necessity of procedural mechanisms designed to embed accountability, transparency, and reviewability throughout the entire life-cycle of the investigative process.

187) Temkin, B. R., *Op. cit.*, pp. 162-168.

188) Wexler, R., *Op. cit.*, pp. 258-266.; Stoykova, R., *Op. cit.*, pp. 24-29.

significance often emerges through processes of interaction, interpretation, and contextualization that shape how information becomes legally meaningful. Building upon the Author's established framework of interpretive integrity, this approach shifts the analytical focus from the preservation of evidence to the transparency of its construction.[189] The critical question is therefore not simply whether evidence has been retained, but whether the interpretive choices through which evidentiary significance emerged remain traceable, reviewable, and open to meaningful challenge.

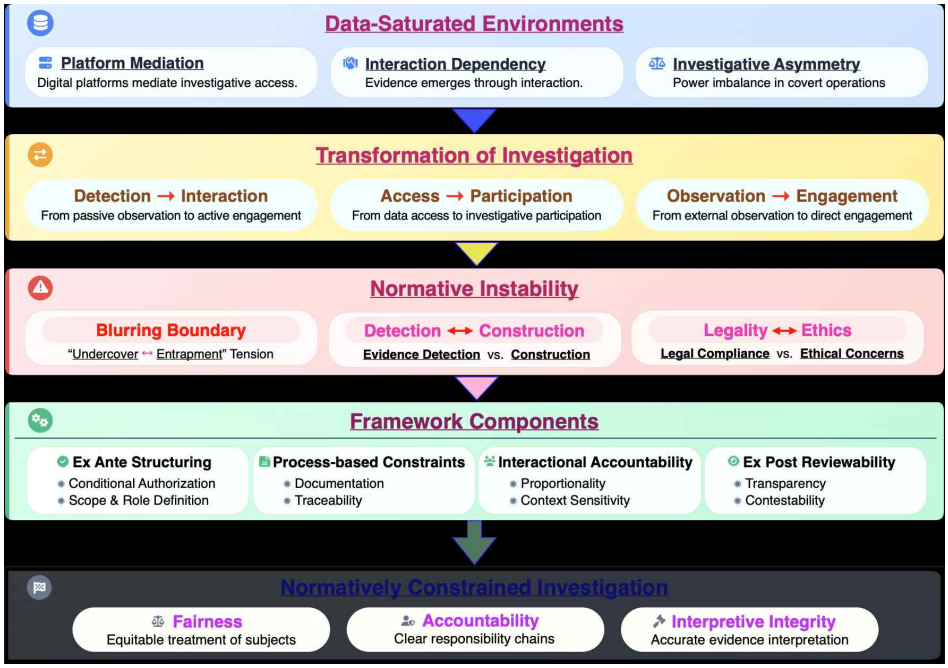
These considerations underscore the necessity of a more holistic framework of normative constraint. Rather than relying solely on the bookends of *ex ante* authorization or *ex post* admissibility review, such a framework must govern the intervening processes through which investigative practices generate, shape, and crystallize evidentiary material into legal meaning. It must therefore address not only investigative outcomes, but also the conditions under which those outcomes are produced.[190]

Figure 1 delineates the normatively constrained analytical framework developed in this study. This model conceptualizes covert investigation not as a passive process of surveillance, but as an interaction-dependent practice embedded within

189) As developed in the Author's previous work, "interpretive integrity" reorients the analytical lens from the mere preservation of evidence to the transparency of its construction. By moving beyond the static maintenance of data to address the dynamic production of evidentiary meaning, this framework asserts that the interpretive choices through which facts are filtered must remain traceable, contestable, and subject to meaningful review throughout the investigative lifecycle.

190) The framework proposed in this article proceeds from the premise that the central challenge of contemporary covert investigation lies not merely in regulating discrete investigative acts, but in governing the processes through which evidentiary significance is generated, interpreted, and evaluated.

data-saturated environments, where evidentiary material emerges through structured engagement rather than mere observation. It integrates *ex ante* structuring, process-based accountability, and *ex post* reviewability to ensure that investigative practices remain subject to normative constraint under conditions of structural instability.[191]



<Figure 1> **A Normatively Constrained Analytical Framework for Covert Investigations** [Source: Developed by the Author.]

191) The conceptual framework in <Figure 1> was independently developed by the Author as part of a broader research agenda concerning investigative judgment, cognitive access, and the governance of digital practices. It synthesizes the normative structuring of covert operations in data-saturated environments by mapping the shift from traditional observation to interactional co-production. To address the resulting normative instability, the framework proposes a multi-layered approach to accountability—integrating *ex ante* structuring, robust documentation, and interactional accountability with rigorous *ex post* reviewability. Ultimately, it provides a structured methodology for maintaining accountability, fairness and interpretive integrity even when traditional legal boundaries are in flux.

Although the analytical framework proposed in this article is designed for cross-jurisdictional application, its institutional execution, as illustrated in Figure 1, demands a multi-layered ecosystem of actors performing mutually reinforcing oversight functions.

- ☞ First, *ex ante* structuring operates through judicial authorization, prosecutorial supervision, or other independent review mechanisms, establishing conditional authorization and precise scope definitions before operations commence.
- ☞ Second, process-based constraints and interactional accountability serve as a robust internal infrastructure within investigative agencies; by mandating strict documentation and proportionality, this dual mechanism guarantees the absolute traceability of digital interactions and addresses the context sensitivity of platform mediation.
- ☞ Finally, *ex post* reviewability relies upon judicial adjudication and external oversight bodies capable of scrutinizing both the strict legality and procedural integrity of covert practices, thereby securing the ultimate systemic objectives of fairness, clear chains of accountability, and interpretive integrity of the evidentiary material.

1. From Prohibition to Structured Constraint

The preceding analysis demonstrates that covert investigations within data-saturated environments generate forms of normative instability that cannot be adequately addressed through traditional doctrinal categories alone.[192] In particular, the centrality of digital

192) The notion of normative instability developed in this article draws upon the Author's

interaction, the emergence of evidentiary co-production, and the structural risks detailed in Section V collectively undermine the utility of the rigid binary between permissible and impermissible conduct.[193] These factors reveal that traditional legal snapshots are no longer sufficient to govern the fluid realities of modern investigative engagement.

In response, this subsection advocates for a transition from prohibition-based regulation toward a model of structured normative constraint.[194] Rather than attempting to delineate fixed boundaries *ex ante*, the framework developed here seeks to organize the operational logic of covert practices—ensuring they are conducted, evaluated, and reviewed with rigor under conditions of inherent uncertainty and contextual variability.[195]

This approach does not reject existing legal doctrines, including the distinction between undercover operations and entrapment.[196] Instead, it situates such doctrines within a broader analytical structure that recognizes their contingent application in digitally mediated environments.[197]

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earlier work on investigative judgment in data-saturated environments, which emphasized the growing disconnect between traditional decision-making methods and the structural realities of contemporary digital investigations. [See, Choi, Justin J, & Jun, H., *Op. cit.*, pp. 241-247.]

193) Marcus, P., *Op. cit.*, pp. 241-248.

194) The framework proposed in this article proceeds from the premise that the primary challenge of contemporary covert investigations lies not in identifying a single boundary between permissible and impermissible conduct, but in structuring investigative practices in a manner that remains accountable under conditions of normative instability.

195) Lyle, J. R., et al. 「Digital Investigation Techniques: A NIST Scientific Foundation Review」, NIST Internal Report, National Institute of Standards and Technology (NIST), 2022, p. 10 & 37.; Vogel, B., Op. cit., pp. 61-68.

196) Hill, D. J., McLeod, S. K., & Tanyi, A., *Op. cit.*, pp. 545-549.

197) The proposed framework treats traditional doctrines as important normative reference points while recognizing that their application increasingly depends upon the interactional

2. *Ex Ante* Orientation: Conditional Authorization and Framing

The first component of the proposed framework concerns the *ex ante* structuring of investigative engagement.[198] While prior authorization mechanisms—such as warrants or supervisory approvals—remain essential, their function must be reconceptualized in light of the dynamic nature of covert digital investigations.[199]

Ex ante controls should function as conditional authorizations rather than static permissions tied to predefined acts. These authorizations must specify the scope, objectives, and permissible modes of investigative interaction.[200] This framework requires an explicit outline of the investigator's intended role, the nature of engagement, and the boundaries of interaction. [201]

Such an approach allows for flexibility while preserving normative guidance.[202] It acknowledges that the trajectory of investigative engagement cannot be fully determined in advance, but insists that the parameters of such engagement be framed in a manner that enables subsequent evaluation and accountability.[203]

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and informational conditions under which investigative practices unfold.

198) Lyle, James R., et al., *Op. cit.*, p. 10 & 37.; Ferguson, A. G., *Op. cit.*, pp. 179-186.

199) Kerr, Orin S. (2015), *Op. cit.*, pp. 15-21.; Tully, G., et al., "Quality standards for digital forensics: Learning from experience in England and Wales," *Forensic Science International: Digital Investigation*, Vol. 32, 2020, p. 2 & 4 & 20.

200) Conditional authorization refers to a form of *ex ante* control that defines the permissible scope and objectives of investigative engagement while recognizing that specific investigative interactions may evolve over time.

201) See, *Riley v. California*, 573 U.S. 373 (2014), at pp. 396-397 (Observing that digital devices contain extensive and highly revealing records of personal activity, thereby necessitating greater procedural safeguards than traditional physical searches).

202) Wexler, R., *Op. cit.*, pp. 258-266.; Tully, Gillian, et al., *Op. cit.*, p. 2 & 20.

3. Process-Based Constraints: Documentation and Traceability

The second and primary component of the framework involves imposing process-based constraints on investigative practices.[204] Given that evidentiary material in digitally mediated environments often emerges through interaction and selective engagement, the integrity of the investigative process depends on the ability to reconstruct how such material was produced.[205]

This requires systematic documentation of investigative decisions and actions, including the initiation [and progression] of interactions, the selection of targets or communication pathways, and the contextual factors influencing those choices.[206] The objective is not merely record-keeping, but the establishment of a traceable narrative of the investigative process.[207]

Crucially, traceability serves multiple functions: it enhances transparency, facilitates judicial review, and enables opposing parties to contest the evidentiary significance of the material presented.[208] By doing so, it reinforces the interpretive integrity of the investigative process, ensuring that the meaning

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203) The objective is not to predetermine every investigative action, but to ensure that investigative engagement remains structured in a manner that facilitates accountability, transparency, and subsequent review.

204) Ferguson, R. Ian, et al., *Op. cit.*, p. 269 & pp. 277-278.; Vogel, B., *Op. cit.*, pp. 68-74.

205) Guttman, B., et al., *Op. cit.*, p. 11 & pp. 14-16.; Lynch, M., et al., *Op. cit.*, pp. 182-189.

206) The importance of documentation extends beyond evidentiary preservation and includes the ability to reconstruct the processes through which evidentiary significance is generated, disclosed, and evaluated. [See, Choi, Justin J., & Lee, S. H., *Op. cit.*, pp. 127-129 & 146-147.]

207) "Traceability" refers to the capacity to reconstruct and evaluate the sequence of investigative decisions, interactions, and interpretive choices that contributed to the production of evidentiary material.

208) Stoykova, R., *Op. cit.*, pp. 25-30.

attributed to evidence remains subject to critical examination in light of its origins.[209]

4. Interactional Accountability: Structuring Engagement

The third component addresses the normative structure of investigative interaction. As previously established, interaction is not merely instrumental to an inquiry but constitutive of the evidentiary environment.[210] Consequently, the manner in which investigators engage with subjects must be governed by principled constraints.[211]

This does not entail a rigid prohibition of specific interaction types or forms.[212] Rather, it requires that engagement be governed by considerations of proportionality, necessity, and contextual sensitivity.[213] Investigative actions must be assessed by how they shape the conditions of emerging conduct—specifically, whether they risk influencing, stabilizing, or amplifying behavior in ways that obscure its attribution.[214]

Critically, this dimension of the framework recognizes that the normative evaluation of investigative conduct is inseparable from the structure of interaction.[215] The central question is not merely what evidence is produced, but how investigative engagement contributed to its emergence.

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209) See also discussions of "interpretive integrity" in Section V.4.

210) Nathan, Christopher, *Op. cit.*, pp. 373-377 & 384-385.; Temkin, B. R., *Op. cit.*, pp. 145-150.

211) Hill, D. J., McLeod, S. K., & Tanyi, A., *Op. cit.*, pp. 548-552.

212) Marcus, Paul, *Op. cit.*, pp. 265-272.

213) Interactional accountability demands that investigative engagement be evaluated not merely by its outcomes, but by the manner in which it structures the conditions of evidentiary emergence.

214) Joh, E. E., *Op. cit.*, pp. 176-183.; Nathan, C., *Op. cit.*, pp. 384-385.

215) Nissenbaum, Helen, *Op. cit.*, pp. 144-150.

Consequently, accountability must extend beyond outcomes to encompass the specific modalities and transformative effects of that engagement.[216]

5. *Ex Post* Reviewability and Contestability

The final component of the framework emphasizes the importance of *ex post* reviewability and contestability. In data-saturated investigative environments, where evidentiary material is closely tied to processes of interaction and interpretation, the capacity to retrospectively examine and challenge those processes is essential.[217]

Reviewability requires that investigative practices be structured in a manner that permits meaningful scrutiny by courts and other oversight bodies.[218] This includes not only access to the evidentiary record, but also to the underlying processes through which that record was constructed.[219] The object of review is therefore not merely the evidentiary outcome, but the procedural pathway through which that outcome was produced.

Contestability ensures that affected parties [by investigative outcomes], particularly defendants, are able to interrogate the basis of evidentiary claims.[220] This involves the ability to

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216) [Note] The focus shifts from whether investigative conduct merely accessed evidence to how the investigator's engagement structured the conditions under which that evidence attained its significance.

217) Lyle, James R., et al., *Op. cit.*, pp. 8-10 & p. 37.; Wexler, R., *Op. cit.*, pp. 258-266.

218) Vogel, B., *Op. cit.*, pp. 61-68.; Guttman, B., et al., *Op. cit.*, pp. 14-18.

219) Effective review requires not only access to evidentiary outputs, but also the ability to reconstruct the procedural pathways through which those outputs were generated. [See, Choi, Justin J., & Lee, S. H., *Op. cit.*, pp. 127-132 & 150-152.]

220) Contestability refers to the practical capacity of affected parties to examine, challenge, and respond to the evidentiary claims and interpretive processes underlying legal

question the conditions of interaction, the selection and interpretation of data, and the normative assumptions embedded within the investigative process.[221]

Together, reviewability and contestability function as safeguards against the risks of epistemic opacity and procedural asymmetry identified in Section V. They operationalize the normative commitment to fairness within a framework that acknowledges the complexity of contemporary investigative environments.[222]

6. Integrative Function of the Framework

Taken as a whole, the proposed framework is designed to operate across all stages of the investigative process. It does not replace existing doctrinal categories, but supplements them by providing a structured approach to evaluating covert practices in environments where traditional assumptions are no longer tenable.[223]

By integrating *ex ante* orientation, process-based documentation, and interactional accountability with *ex post* reviewability, the framework seeks to align investigative necessity with normative constraint.[224] Its objective is not to eliminate the use of covert

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decision-making.

221) Munjić, Janko. "From admissibility to contestability: Structural opacity, encrypted-platform evidence, and the limits of adversarial review," Journal of Criminology and Criminal Law, 64(1), 2026, pp. 85-88,; Stoykova, R., *Op. cit.*, pp. 26-28.

222) The objective is not merely to identify procedural errors after the fact, but to ensure that evidentiary claims remain open to meaningful scrutiny throughout the adjudicative process.

223) Hill, D. J., McLeod, S. K., & Tanyi, A., *Op. cit.*, pp. 552-556.; Lyle, J. R., et al., *Op. cit.*, p. 37 & pp. 40-41.

224) The framework proposed herein reconciles investigative necessity with normative accountability by governing the investigative process rather than relying solely on categorical prohibitions.

techniques, but to ensure that their deployment is governed by principles capable of addressing the structural complexities of data-saturated environments.[225]

In this sense, the framework reflects a broader shift in legal reasoning: from the regulation of discrete acts to the governance of processes.[226] It recognizes that, in contemporary investigative contexts, the legitimacy of state action depends not only on what is done, but on how it is done and how it can be subsequently understood, evaluated, and contested.[227]

Ⅶ. Conclusion

This article has examined how covert investigations are being transformed in digitally mediated, data-saturated environments, and has argued that these transformations raise fundamental questions concerning the nature and regulation of investigative practices. Moving beyond a purely doctrinal analysis, the discussion has reframed covert investigation as an ontological and epistemic problem, focusing on how interaction, access, and data conditions shape the production and interpretation of evidentiary material.

At the center of this inquiry lies the observation that the distinction between undercover operations and entrapment—

225) Vogel, B., *Op. cit.*, pp. 68-72.

226) Essentially, the proposed framework responds to a wider transformation in investigative governance: the transition from a focus on information scarcity to the management of informational abundance, interpretive complexity, and accountability inherent in modern digital environments. [See, Choi, Justin J, & Jun, H., *Op. cit.*, pp. 259-261.]

227) The legitimacy of contemporary investigative practices depends not merely upon the legality of particular actions, but also upon the transparency, reviewability, and accountability of the processes through which evidentiary significance is constructed.

long regarded as a foundational boundary in the regulation of covert investigative practices—can no longer be assumed to operate as a stable analytical framework. In environments where investigative interaction may contribute to the emergence and evidentiary characterization of conduct, the line between detection and construction becomes increasingly contingent and context-dependent. This does not render existing legal categories obsolete, but it does call into question their sufficiency as standalone tools of normative evaluation.

In response, this article has proposed a normatively constrained analytical framework designed to address the structural features of contemporary investigative environments. Rather than attempting to prescribe rigid boundaries between permissible and impermissible conduct, the framework seeks to organize how investigative practices are to be evaluated, documented, and subjected to review. By integrating *ex ante* structuring, process-based documentation, interactional accountability, and *ex post* reviewability, it aims to align the operational necessity of covert techniques with the principles of fairness, transparency, and accountability.

The implications of this analysis extend beyond the specific context of covert investigations, suggesting a broader shift in how investigative practices are to be understood and regulated in digitally mediated environments. In particular, the emphasis on process-based governance highlights the need for legal frameworks capable of addressing not only the outcomes of investigation, but also the conditions under which evidentiary realities are produced and interpreted.

At the same time, this article is subject to certain limitations. As a conceptual and analytical study, it establishes a conceptual framework but does not engage in cross-jurisdictional doctrinal

analysis or empirical examination of particular legal systems. These areas remain open for future inquiry. Specifically, subsequent research may further develop the present framework through comparative legal analysis, empirical investigation of investigative practices, and institutional evaluation within specific criminal justice systems, including South Korea.

The broader implication of this analysis is that investigative regulation must shift from controlling discrete acts to governing entire processes. As investigative practices become more deeply embedded in interactional and data-driven environments, their legitimacy depends on more than just complying with formal legal thresholds; it requires integrity in the processes through which evidentiary realities are constructed and interpreted.

Ultimately, the challenge lies not in resolving the tension between undercover operations and entrapment through sharper doctrinal lines, but in developing frameworks capable of sustaining normative judgment where such lines are inherently unstable. The central question is no longer simply *where* to draw the line, but whether the 'line' itself remains an adequate tool for governing investigative practices in data-saturated environments. What is at stake, therefore, is not merely the classification of conduct, but the fundamental meaning of investigation in the digital era.

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Covert Investigation, Data-Saturated Environments, Investigative Asymmetry, Evidentiary Emergence, Interpretive Integrity, Normative Constrained Framework.

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III. Precedents

Jacobson v. United States, 503 U.S. 540 (1992)

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국문초록

데이터 포화 환경에서의 위장수사 규율

- 규범적 거버넌스의 모색 -

최진혁*

이 연구는 디지털 시대(digitally mediated environments)의 데이터 포화 환경(data-saturated environments)에서 위장수사가 어떻게 변화하고 있는지 살펴보고, 이러한 변화가 수사행위의 법적 규율에 어떠한 함의를 갖는지 고찰한다. 특히 이 연구는 전통적인 법리 중심 접근을 넘어 위장수사를 존재론적(ontological)·인식론적(epistemic) 과정으로 재구성하고, 상호작용, 접근성, 그리고 정보 구조적 맥락(informational-structural contexts)이 증거의 생성과 해석에 어떻게 영향을 미치는지 분석한다.

연구 결과, 종래의 위장수사와 함정수사의 구별은 현대 수사환경에서 더 이상 안정적인 분석 틀로서 전제되기 어렵다는 점을 주장한다. 디지털 중심의 환경에서 수사 접근성은 관찰이 아니라 참여 및 상호작용에 의존하는 경우가 증가하였으며, 이에 따라 범죄행위의 적발(detection)과 증거적 형성(evidentiary emergence) 사이의 경계는 점차 맥락 의존적이고 가변적인 성격을 띠게 되었다. 이러한 변화는 기존 법리가 충분히 설명하지 못하는 규범적 불안정성(normative instability)을 초래한다.

이에 이 연구는 데이터 포화 환경에서 위장수사에 대한 규범적 통제 프레임워크(Normatively Constrained Framework)를 제안한다. 제안된 프레임워크는 사전적 구조화, 프로세스 기반 문서화, 상호작용적 책임성, 그리고 사후 검토가능성을 핵심 요소로 구성한다. 이는 전통적인 위장수사 규율에 내재된 허용·금지의 이분법적 접근을 넘어 수사행위가 어떤 방식으로 수행, 평가, 통제되어야 하는지를 구조화하는 데 목적이 있다.

결론적으로 현대 디지털 환경에서 위장수사 규율의 중심은 개별 수

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사행위의 통제에서 수사 과정의 거버넌스로 이동해야 한다. 결국 수사의 정당성은 형식적 적법성 뿐만 아니라 증거적 형성과 해석이 이루어지는 과정의 투명성, 책임성, 그리고 검토가능성에 의해 평가되어야만 한다.

최진혁

위장수사, 데이터 포화 환경, 수사 비대칭성, 증거적 형성, 해석적 무결성, 규범적 거버넌스 프레임워크.