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February 2026 - The Clarus Project

The Clarus project brings together forensic scientists, academics, police, linguists, the public and other professionals across borders to understand how communication, professional culture, and decision-making influence the way digital evidence is handled.
The first part of the Clarus project has focused on identifying and reducing potential biases in digital forensic work. This includes looking at how professional background, organisational culture, and language shape the way investigators make decisions and communicate their findings.

Executive Summary for Deliverable 1.2: Maps of Forensic and Investigative Systems & Quality Control

Author: Jarmo Houtsonen

Key Points

- Bias is systemic, not just individual: it emerges from organisational structures, processes, and communication
- Information flow matters: timing, source, and framing of information strongly influence decisions
- Clear roles and accountability reduce ambiguity, error, and bias
- Language shapes judgment: inconsistent or vague terminology increases risk
- Both formal and informal communication can introduce bias and must be critically assessed
- Bias mitigation requires a dual strategy: individual training and organisational redesign
- Common vulnerabilities exist across countries, supporting shared standards and best practices

Co-funded by the European Union

This project is co-founded by the European Union's Horizon Europe research and innovation programme under grant agreement No. 101121182

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Background & Context

This executive summary of the Clarus project addresses systemic cognitive bias in digital forensics and criminal investigation. Bias is traditionally viewed as a psychological flaw, a deviation from an expected standard, or what is considered rational in a certain context. This report looks for the roots of cognitive biases in the properties of social systems that lie in organizational structures and processes, communication practices, and information flows. The research spans five European countries — Greece, Czech Republic, Portugal, Scotland, and Finland — to map national systems and identify vulnerabilities. The goal is to improve the integrity of criminal investigations by focusing on systemic conditions that predispose practitioners to biased thinking and decisions.

Methods: How we did it

The research used a qualitative, documentary-based approach, analysing official legislation, guidelines, and procedural documents on digital forensics and criminal investigation. Documents were collected using shared guidelines to support cross-national comparison.

A systemic framework inspired by Mario Bunge[1] was adopted, viewing forensic and investigative work as nested social systems. This enabled analysis of information flows, decision-making, and organisational design across national systems.

These analyses were used to develop ideal-type models of digital forensic and investigative systems. Static and dynamic models captured core structures, roles, relationships, and information flows, and were used to identify systemic vulnerabilities and inform general recommendations for system improvement.

[1] Bunge, M. (2004) Clarifying Some Misunderstandings about Social Systems and their Mechanisms. Philosophy of the Social Sciences, 34(3): 371-381. https://doi.org/10.1177/0048393104266860 and Bunge, M. (2000) Systemism: the alternative to individualism and holism. The Journal of Socio Economics 209 (2): 147-157. https://doi.org/10.1016/S1053-5357(00)00058-5.

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Key Research Findings

Bias is a systemic issue, not just an individual flaw
Possible biases in digital forensics and criminal investigations emerges from systemic conditions in which practitioners operate, not just individual procedures and cognitive processes. Communication practices, information flows, and the design of organizational structures and processes can all contribute to the emergence of bias.

Information flow design is critical to bias prevention
The timing, source, and framing of information can determine not only how it is perceived but also how it informs subsequent interpretations, judgments, and decisions. When information circulation within an organization is poorly planned or coordinated, it can create conditions for bias and error. The issue often lies not in the information itself, but in its accessibility, timing, origin, and the way it is presented, which can shape investigators' and analysts' reasoning. Bias can even arise when otherwise valid information is shared at the inappropriate time or with the wrong person.

Clear roles and responsibilities reduce ambiguity and bias
Although units typically maintain a quasi-monopoly over their core responsibilities, operational realities allow for some flexibility. Tasks such as basic crime scene processing may be delegated to patrol officers when specialists are absent, or the work is deemed simple. Such arrangements, however, can obscure accountability and heighten the likelihood of error, thereby increasing the potential for bias.

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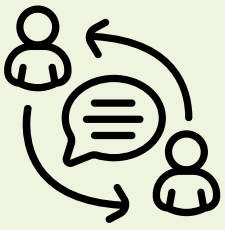
Key Research Findings - Continued

Language and terminology shape understanding and decision-making
The systemic framework highlights language as an integral element of organizational functioning, shaping how information is interpreted, and decisions are made. Inconsistent vocabulary, vague terminology, or unclear messaging can distort meaning, increase error rates, and introduce bias.

Formal and informal communication both carry risks and benefits
Information flows between forensic and investigative practitioners through both formal and informal interactions across various channels. Each mode of communication can introduce bias. Formal exchanges, though standardized, regulated, and traceable when documented, may still spread unverified information or personal opinions as facts, triggering biased thinking. Informal conversations can help clarify ambiguities but also risk introducing errors by circulating irrelevant or misleading details that influence judgment and decision-making.

Dual strategy for bias mitigation is recommended
To effectively manage and prevent bias, a dual strategy is often recommended: combining individual-level debiasing (e.g., training and reflection) with organizational redesign (e.g., structured decision-making protocols and feedback loops). Investigative and forensic organizations should foster open dialogue, prioritize data-driven over intuitive decisions, and ensure linguistic clarity to support rational thinking.



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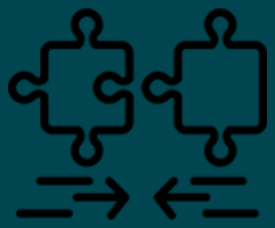
IMPLICATIONS



Bias is a systemic issue, not just an individual flaw

Managers should assess and develop systemic features — such as structured decisions and communication protocols — in addition to individual-level training to ensure consistent and unbiased practices.

Information flow design is critical to bias prevention

It is essential for agencies to design and supervise information flows and channels to guarantee clear and relevant communication across policing and forensic units.

Clear roles and responsibilities reduce ambiguity and bias

To ensure system reliability and accountability, organizations must articulate specific rules and guidelines governing task flexibility, grounded in practitioner qualifications and case demands. Comprehensive and timely documentation of all actions remains a prerequisite for system reliability.

Language and terminology shape understanding and decision-making

To mitigate these risks, organizations should promote standardized, precise terminology through training and in all communication practices.

Formal and informal communication both carry risks and benefits

Practitioners should be trained to critically assess both formal and informal information and communication. At the same time, systems must balance standardization with flexibility, ensuring agility when needed without compromising the objectivity and reliability of investigations and forensic work.

Dual level interventions to mitigate bias

A holistic bias-mitigation strategy should integrate individual-level learning with organizational redesign, promoting informed judgment and reducing systemic vulnerabilities to bias.

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