June 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. This Executive Summary discusses these aspects of our work with implications for practice.

Executive Summary for Deliverable 1.3: Maps of Forensic and Investigative Practitioner Perspectives

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Key Points

- Informal exchanges can enhance speed, clarity and collaboration within the digital-forensics workflow, but they also risk introducing bias when unnecessary contextual details are shared; therefore, establishing more structured and accountable channels for advice seeking and terminology clarification would help reduce dependence on unrecorded, ad hoc communication.

- Ensuring a consistent understanding of technical terminology and preventing miscommunication remains a core challenge across the digital-forensics workflow, while the presence of trusted informal networks—familiar, knowledgeable contacts or “tech champions” who are often nearby or frequently collaborate—supports faster, more effective problem-solving but also requires safeguards to avoid introducing bias.

- Workflows in digital forensics vary significantly depending on factors such as case urgency, data volume, crime type, legal constraints and the physical proximity of teams, while persistent vulnerability areas—including miscommunication, ambiguous terminology, uneven expertise and the complexity of modern technologies—continue to pose substantial risks across the investigative process.

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Background & Context

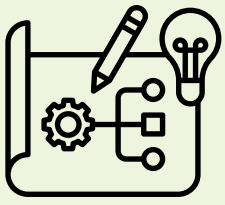
Deliverable 1.3 focusses on the perceptions of those working directly within digital forensics about interactions and communication related to their interlinked roles. The findings are intended to complement and build on those from D1.2 and to inform the findings for D1.4. Through the qualitative methods used for this part of the research, a richer understanding of how practitioners perceive and experience the system of digital forensics and criminal investigation is achieved. This provides insights into informal interactions and communication which would otherwise be hidden when focusing only on formal structures and processes described with the help of official documents.

Methods: How we did it

A diary research method was used to capture practitioner perceptions and experiences. In total, 29 practitioners were recruited across our five partner countries, from both investigation and digital forensic roles.

Each participant completed a daily diary during one working week, detailing one self-chosen communication event or interaction related to digital forensics each day. Participants were then interviewed to explore selected instances from their diary in more depth along with broader questions about communication of digital forensics in general.

Theoretically and data-driven thematic analysis on the responses drew out important new insights into these practitioners' views on interactions and communication related to their digital forensics work.



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Key Research Findings

Clarity and accuracy as central drivers for communication events

Ensuring both clarity and accuracy appears central to participants concerns when communicating with others in the system. We identified three key motivations. First, practitioners aim to reduce misunderstandings and ensure digital forensic requests and evidence reports are feasible technically, tactically and legally.

Second, participants try to ensure that complex evidence is clearly presented in court, in addition to being understandable by non-experts in general.

Finally, participants try to achieve shared understanding of terminology, both the meaning in general and what the evidence type means in the context of the investigation. Practitioners adjust language to ensure clarity among different audiences; however, oversimplification can cause misunderstandings.

"If I used very technical language, it would certainly cause problems for someone who isn't used to that kind of language" - PT6

Knowledge sharing and knowledge acquisition

The rapid development of technology and the overflow of digital evidence in criminal investigation challenges Law Enforcement agencies (LEAs) to match pace. This emphasises the importance of knowledge sharing and knowledge acquisition between digital forensics analysts and investigators.

The process-in-hand (what needs to happen when and how with a piece of evidence) is generally understood though individual expertise and reinforced through proscribed, standardised recording practices on official forms and reports. Exceptions occur when a mistake is made or training/mentoring is sought by or offered to less experienced practitioners. In these cases, informal routes are used to confer with peers or known experts.

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Key Research Findings - Continued

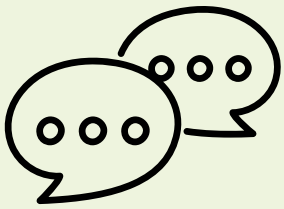
The role of Informal communication

Informal communication is an inseparable part of the digital forensic workflow. Formal instructions and guidance, from international standards to local procedures, provide essential structure and legality to the processing and reporting of digital forensic evidence.

Non-official, informal interactions intertwine this structure and are used by practitioners in several ways. First, they are used as preparatory communications, to clarify, confirm and negotiate which digital forensic approaches and measures are possible and reasonable regarding the needs and objectives of investigation.

"I communicated with an investigator today as part of a consultation to the planned liaison. This is an example of an optimal procedure where the investigator contacts us in advance, makes us aware of the planned procedure and technical requirements" – CZ05

Secondly, practitioners prefer to resolve misunderstandings and knowledge gaps through interaction with familiar, knowledgeable peers or known contacts in other teams.



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Key Research Findings - Continued

Familiarity and Proximity

The value of familiarity and proximity in supporting effective and efficient processing of digital forensics was clear in the data. Informal tone and less official routes of communication such as in-person or over the phone (not recorded) help develop these 'knowledgeable friends' and known 'tech champions' among contacts in the system. Despite this informality, these relationships remain professional and purposeful. Across teams, individuals with specific skills or competencies develop into preferred contacts, (e.g. a prosecutor who had good understanding of tech language). These contacts then become approached in first instance more often or in more informal clarity seeking communications.

"We have a direct point of contact in the fiscal's office, who we go to for cyber advice, he's like the cyber guru. So, when I spoke to that procurator fiscal two weeks ago, I pointed him to that fiscal" – UK3

Familiarity was also seen to encourage help seeking:

"Sometimes I might email them going, "I'm not actually sure what I'm doing" they might respond with, "Neither do we" or something like that, it can be a bit jokey, but then there is always a professional tone to it as well. So, they're really good at explaining things" – UK

Proximity (working in same location or close by, or close professional identity) and frequency (working together more often) can help foster this professional familiarity. Co-location of expertise groups can increase efficiency in the workflow as well as increasing understanding of other roles and competencies. It can also facilitate the informal communication noted earlier. However as noted in D1.4, such informality can also introduce bias vulnerability, for example, through encouraging sharing of unnecessary case details. Informal routes are also less accountable, since it is rarely documented nor open to audit.

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Key Research Findings - Continued

Diverse influences on processes

The process and corresponding communications employed within the workflow is highly context specific, with levels of individual discretion and diverse official process deviations throughout.

Aspects of that context include: the amount and type of data to be processed; the crime under investigation, which can impact prioritisation decisions and legal constraints; the urgency (perceived or actual) of a case or request; whether cross-border liaison is required; whether it is the prosecution or defence's teams interacting with analysts; and the physical proximity of work teams such as to the crime site or to each other.

Sources of error and bias identified by practitioners

Miscommunication, process misunderstandings and complex technologies are key vulnerability areas identified by practitioners in working with digital forensic evidence. In particular, the prevalence of technical and equivocal terminology within the field can produce misunderstandings between analysts and non-technical teams such as investigators or the prosecution.

Lack of expertise, context dependent decision making, and the requirement of non-experts to integrate technical data into investigations are identified vulnerabilities related to the process. Technology related vulnerabilities include misunderstanding/knowledge gaps; ambiguity in data from devices; and practical issues such as data overload or insufficient data management.

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FORMAL and INFORMAL Communication

In Digital Forensic Evidence Workflows

Practitioners rely on both formal and informal communication. Used effectivly together they can ensure clarity accuracy and effective processing of digital forensic evidence.

Formal Communication

Official, structured and accountable

Official Records

Standardised forms, evidence reports, case files

Guidance & Procedures

International standards, local procedures and legal requirements

Accountability

Creates an auditable trail and ensures admissibility in court

Clear roles and responsibilities

Definied lines of communication between teams and agencies

Consistency

Reinforces what needs to happen, when and how with evidence.

Primary Purpose:
Provide structure, ensure accuracy, maintain legal integrity and support court disclosure.

HOW THEY WORK TOGETHER

Informal conversations clarify and confirm details...

...which informs formal records and reports.

Formal records provide the official account and legal foundation...

...while ongoing informal communication supports understanding and continuous improvement.

Informal Communication

Flexible, relationship driven and often unrecorded

Clarification

Ask questions, confirm details, check understanding

Peer Support

Tap into ‘knowledgeable friends’ and ‘tech champions’

Faster and Flexible

Phone calls, in-person chats, emails and instant messages

Knowledge Sharing

Resolve misunderstandings and fill knowledge gaps

Building Familiarity

Proximity and frequent interaction create strong working relationships

Primary Purpose:
Clarify, negotiate and share knowledge to keep the workflow moving efficiently and effecitvely.

Benefits of Formal Communication

- Ensures accuracy and clarity for court
- Provides accountability and audit trail
- Maintains consistency and standardisation
- Supports legal compliance
- Protects the integrity of evidence

Potential Risks

- Misscommunication
- Oversimplification of complex issues
- Sharing unnecessary case details
- Lack of audit trail

Benefits of Informal Communication

- Speeds up decision making
- Resolves misunderstanding quickly
- Supports help-seeking and learning
- Builds farmiliarity and collaboration
- Increases efficiency in DF Workflows

Key Takeaway:

Formal communication provides the structure and legality. Informal communication provides the flexibility an human commection. When used wisely and together, they strengthen the digital evidence workflow.

Implications

In line with the broader Work Package 1 implications for practice, while benefits of informal communication routes such as clarification and efficiency are valuable, mitigating the risk of bias through the sharing unnecessary contextual information is equally important. Providing more formalised and accountable (documented) routes for advice seeking and terminology clarification will help avoid this risk.

Overreliance on informal interactions can reflect wider inefficiencies in the workflow, such as gaps in competency or opaque procedures. Developing the general knowledge base of non-expert investigators and legal teams regarding digital forensic evidence will lessen such dependencies.

Further, the findings here have implications for how and to what extent the tools developed within Clarus (the Clarity Checker and the Multi-Lingual Lexicon) should be integrated into digital forensic systems, where, by original design, they were intended for use within more formal routes. Consideration should be given to integrating them into future record-keeping of informal communications.

This deliverable, alongside D1.2 forms the basis for analysis of residual (un-accounted for) bias vulnerabilities reported in D1.4. In addition, the data generated is included in the corpus for developing the Clarus multi-lingual lexicon.

Full deliverable available to read by scanning the QR code below or visiting our website at: claruseu.net/project-outputs/

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