# Digital Records Forensics Project

A collaboration between University of British Columbia's School of Library, Archival and Information Studies,
Faculty of Law, & Vancouver Police Department

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authenticity available concepts develop digital diplomatics

The Digital Records Forensics Project integrates archival diplomatics, computer forensics and the law of evidence to develop concepts and methods:

- to recognize records produced by and removed from complex digital systems;
- to determine their authenticity, reliability & accuracy;
- to maintain records acquired from crime scenes or created by police to pursue crime over the long term so that their authenticity will not be questioned;
- to identify & develop a new discipline of *digital records forensics*;
- to identify intellectual components of an education program.

issues knowledge law legal methodology methods original practices preservation

## Research Methods & Products:

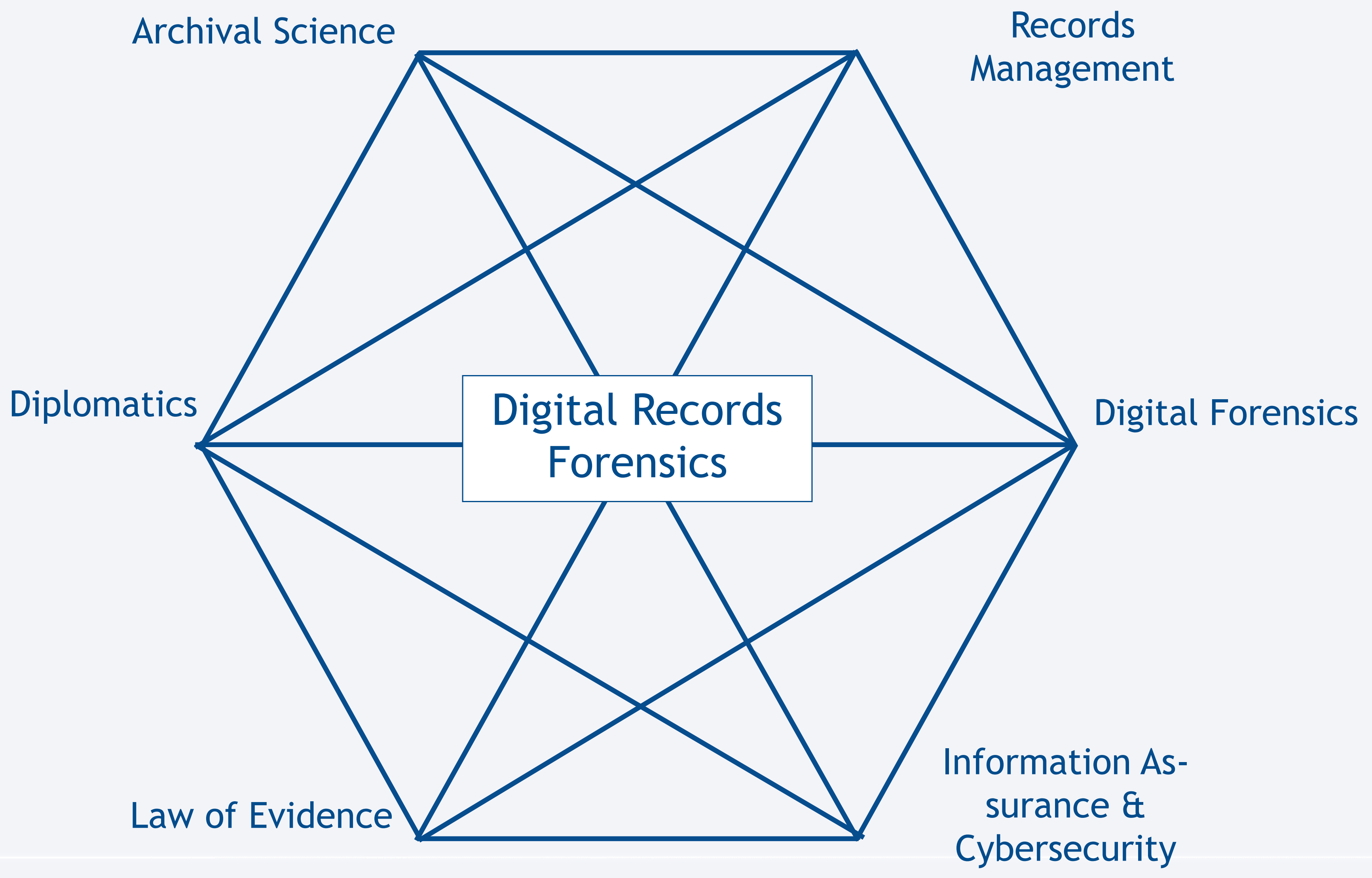
- interdisciplinary literature review - law, digital forensics, archival diplomatics
- analysis of North American case law
- interviews & questionnaires
- ethnographic study of the Vancouver Police Department
- case law database
- terminology database
- digital records forensics activity model
- white papers
- educational curricula

document electronic environment evidence

## This research benefits:

- law enforcement professionals
- the legal profession - lawyers & judges
- records professionals
- records users - journalists, scholarly researchers and citizens
- records creators - public and private sectors, individuals or organizations

preservation principles professionals purpose records



### Record types

- computer stored
- computer generated

### Where found

- hard drives
- photocopiers
- PDAs
- cell phones
- digital cameras
- swipe card logs
- appliances
- gaming systems

### Archival issues

- what is a record
- context
- authenticity
- reliability
- maintenance
- preservation

### Law of Evidence

- best evidence rule
- hearsay rule
- business exception to the hearsay rule
- Daubert guidelines
- case law v. statutory law

### Evidence Issues

- evidence
- authentication
- authenticity
- reliability
- integrity
- accuracy
- identity

### Forensics Issues

- repeatability
- verifiability
- objectivity
- transparency
- data integrity
- duplication integrity
- computer integrity
- system integrity

### Terminology

- record v. document
- information v. data
- lifecycle
- authenticity
- authentication
- classification
- privilege
- image v. copy
- preservation
- storage
- archive

### Interviews

- lawyers
- judges
- court clerks
- records managers
- police investigators
- forensics experts

### Commonalities

- chain of custody
- context
- e-discovery
- electronically stored information
- risk

www.digitalrecordsforensics.org

## Vancouver Police Department Case Study

- VPD is "ahead of the curve";
- Implementing a Storage Area Network (SAN);
- At the moment of siezure, the investigator assumes role of trusted custodian;
- There is reliance on VPD's EDRMS to make explicit all links between records.

## Preliminary Interview Data

| | Concept of digital record | Establishment of authenticity | Maintenance of authenticity over time | Challenges to authenticity & preservation | Challenges to digital records as evidence |
|---|---|---|---|---|---|
| **Archivists** | Established definition based on theory & practice | Specific requirements - identity & integrity | Critical - trusted custodian | Circumstances of creation; tampering; obsolescence | Archival theory addresses evidentiary capacity |
| **Information managers (law enforcement)** | Anything generated in electronic format | Chain of custody | Chain of command | Silos; different SW/HW; multiple creators/owners | Retention; integrated units; migration |
| **Lawyers** | Anything on digital media; context-dependent | Context; proper forensic process; source | Not an issue (interviews to date) | Process; multi-user systems | Unallocated clusters; forensic process |
| **Judges** | Any record on a computer | Authentication | Not a concern (interviews to date) | Proof of reliability | Proof of reliability; chain of custody; alterations; completeness |
| **Forensics experts** | Anything created electronically | Hash values; digital signatures; trusted 3rd party | Maintain integrity | Lack of understanding of technology | N/A |
| **Police investigators** | Archival definition (evidential value) | Provenance (source) | Chain of custody | Obsolescence; corruption; interoperability | Show chain of custody |

## Next Steps

- Complete interviews
- Develop a model of the digital records forensics process
- Conduct survey questionnaires
- Develop a series of concept papers
- Develop education curriculum

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