Legal Issues in Network Research: Determining Content in Web-Browsing Communications

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Determining “Content” in Internet Communications

- Unresolved issue = legal status of Internet communications as “Content” / Non-content
  - Significance of classification: major factor in determining the privacy protection it is afforded (constitutional and statutory)
  - “Content” (generally) = information concerning the substance, purport or meaning of a communication
  - Not all Inet comms classification are grey: ECPA clearly defines and protects some, e.g., email body is content)
  - Most controversial: web-browsing information categories

- Internet Communications classifications (most relevant currently)
  - Web-browsing communications:
    - URL
    - URL + search terms / identifiable file names
    - IPA of website
    - Size of information accessed / downloaded
    - Website data sent to user by server, vice versa
  - Email:
    - Body, Subject line, To/From, Size, ISP Subscriber Information

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# Internet Communications Content Risk Framework

<table>
<thead>
<tr>
<th>Inet Comm Classification</th>
<th>Current Legal Status</th>
<th>Exposure Direct</th>
<th>Exposure Indirect (Linkage)</th>
<th>Content Exposure Criteria</th>
<th>Content Exposure Risk Certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constitutional Law</td>
<td>ECPA</td>
<td></td>
<td>Supplemental Data Req’d</td>
<td>Quantity Exposed</td>
</tr>
<tr>
<td>URL</td>
<td>? (likely content)</td>
<td>?</td>
<td>Content of webpage</td>
<td>Not needed</td>
<td>no</td>
</tr>
<tr>
<td>URL + search term</td>
<td>? (likely content)</td>
<td>yes</td>
<td>Content + User’s intentions</td>
<td>Not needed</td>
<td>no</td>
</tr>
<tr>
<td>IPA website</td>
<td>? (likely not content)</td>
<td>?</td>
<td>Numbers. Maybe URL if unique to IPA</td>
<td>Couple w/ info that website small: reveal content</td>
<td>trivial</td>
</tr>
<tr>
<td>Size of Info Accessed or Downloaded</td>
<td>no</td>
<td>?</td>
<td>Numbers. Maybe URL if unique to IPA</td>
<td>Couple w/ info that files distinct sizes: content</td>
<td>trivial</td>
</tr>
<tr>
<td>Website data sent to user / by user</td>
<td>yes</td>
<td>yes</td>
<td>content</td>
<td>Not needed</td>
<td>no</td>
</tr>
</tbody>
</table>

- **Email Body**: Not needed
- **Email Subject**: Not needed
- **Email To/From**: Yes variable low
- **Email Size**: Numbers. Maybe URL if unique to IPA
- **ISP Subscriber Info**: Numbers. Maybe URL if unique to IPA
Implications for researchers:
- Legal applications and interpretations may be non-existent for certain Inet comms
- Caselaw/regulation is unpredictable in time and substance
- Legal applications and interpretations will change, not guaranteed to be consistent
- Researchers looking for guidance *now*

Possible Solution: principle-based determination of whether the communication is “content”
- “Content-Revealing” Principle*
  = content-revealing information must be treated as content
- IOW: non-content data is afforded the same privacy protection as content if it reveals the subject or purpose of the communication
- Assessing and applying to the gaps

Determining “Content” Classification of Internet Communications

- **Content-Revealing Principle** value prop:
  - Way to assess privacy risk (by classifying content and non-content) amidst grey law
  - Steeped in principle rooted in analogous and better-developed areas of the law
    - Privilege law (atty-client, doctor-patient)
      e.g. mere fact that consultation occurred can reveal patient condition
    - Physical surveillance cases
      e.g. Kyllo thermal measurement outside home (NC) revealed halide lights used to grow marijuana (content); nc → substance so deserve 4th A protection
  - Maps to Beneficence principle (minimize risk)

- **Caution:** not *automatically* guarantee level of constitutional or statutory protection … but clearer classification will weigh heavily in determining privacy protection

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Human Subjects Regulations
Application to Network Research

Ethical Issues in Network Research Workshop
May 27-28, 2009
Context

- The benefits of network traffic measurement and experimentation all derive from the value of network science empiricism. This includes a better understanding of the structure and functions of networks that comprise our critical infrastructure, such as Internet topology, traffic routing, workload prioritization, network performance, and cyber threats and vulnerabilities.
- Ethical and legal challenges inhibit access to network data or impede in vivo network experimentation for measurement and analysis, and generalize across familiar issue spaces such as cyber crime, computer systems security threats, and cyber infrastructure vulnerabilities. Effective balancing of network research utility and ethical obligations involves considering the following interests and stakeholders:
  - Network researchers pursuing scientific and intellectual freedom, and empirical knowledge that will inform business models and policies predicated on economics and usage patterns, security, and social behavior, etc.;
  - Data subjects and owners seeking the benefits of technology advancement without having to surrender control of personal information, or renounce liberties and freedom of movement in the cyber environment;
  - Network/platform owners exercising their rights in a capitalist economy to protect intellectual property, create wealth, and exercise their freedom to design and protect business and customer relationships; and,
  - Collective right of network and data owners to build and enhance the cyber networks within which norms, transactions and livelihoods are maturing.
Anchor Questions

• /1st/ Must the research be reviewed by an IRB
  – Is there an exception?
• /2^{nd}/ Can the review be expedited
• /3^{rd}/ Can informed consent / its documentation be waived
Chart 1: Is an Activity Research Involving Human Subjects Covered by 45 CFR part 46?

Start here.

Is the activity a systematic investigation designed to develop or contribute to generalizable knowledge? [45 CFR 46.102(d)]

YES

Activity is research. Does the research involve obtaining information about living individuals? [45 CFR 46.102(f)]

NO

Activity is not research, so 45 CFR part 46 does not apply.

YES

The research is not research involving human subjects, and 45 CFR part 46 does not apply.

Does the research involve intervention or interaction with the individuals? [45 CFR 46.102(d)]

NO

NO

NO

NO

NO

NO

NO

YES

BUT

BUT

BUT

Is the information individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information)? [45 CFR 46.102(f)]

YES

Is the information private? (About behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, or provided for specific purposes by an individual and which the individual can reasonably expect will not be made public.) [45 CFR 46.102(f)]

YES

Unless exempt under 45 CFR 46.101(b), 45 CFR part 46, subpart A requirements apply to the research. As appropriate, subpart B, C, and D requirements also apply.

NO

Go to Chart 2

AND

Other Federal, State and local laws and/or regulations may apply to the activity. [45 CFR 46.101(f)]
Chart 2: Is the Research Involving Human Subjects Eligible for Exemption Under 45 CFR 46.101(b)?

From Chart 1

Has HHS prohibited exemption of the human subjects research? (All research involving prisoners, some research involving children.)
[Footnote 1 to 45 CFR 46.101(i), 45 CFR 46.101(d)]

**NO**
Will the only** involvement of human subjects be in one or more of the following categories?

Research conducted in established or commonly accepted educational settings, involving normal education practices?

AND/OR

Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior?

AND/OR

Research involving collection or study of existing data, documents, records, or pathological or diagnostic specimens?

AND/OR

Research studying, evaluating, or examining public benefit or service programs?

AND/OR

Research involving taste and food quality evaluation or consumer acceptance studies?

**YES**

Exemption 45 CFR 46.101(b)(1) may apply.
Go to Chart 3

Exemption 45 CFR 46.101(b)(2) or (b)(3) may apply.
Go to Chart 4

Exemption 45 CFR 46.101(b)(4) may apply.
Go to Chart 5

Exemption 45 CFR 46.101(b)(5) may apply.
Go to Chart 6

Exemption 45 CFR 46.101(b)(6) may apply.
Go to Chart 7

No exemptions to 45 CFR part 46 apply. Provisions of 45 CFR subpart A apply, and subparts B, C and D also apply if subjects are from covered vulnerable populations.
Go to Chart 8

**"Only"** means that no non-exempt activities are involved. Research that includes exempt and non-exempt activities is not exempt.

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Chart 3: Does Exemption 45 CFR 46.101(b)(1) (for Educational Settings) Apply?

From Chart 2

Is the research only conducted in established or commonly accepted educational settings? (Including but not limited to schools and colleges. May include other sites where educational activities regularly occur.)

- **NO**
  - Research is not exempt under 45 CFR 46.101(b)(1).
  - Go to Chart 8

- **YES**

Does the research study involve only normal education practices? (Such as research on regular and special education instructional strategies, or research on effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.)

- **YES**
  - Research is exempt under 45 CFR 46.101(b)(1) from all 45 CFR part 46 requirements.
Chart 4: Does Exemption 45 CFR 46.101(b)(2) or (b)(3) (for Tests, Surveys, Interviews, Public Behavior Observation) Apply?

From Chart 2

Does the research involve only the use of educational tests, survey procedures, interview procedures, or observation of public behavior?

YES

Does the research involve children to whom 45 CFR part 46, subpart D applies?

YES

Is the information obtained recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and could any disclosure of the human subjects’ responses outside the research reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation?

YES

Research is not exempt under 45 CFR 46.101(b)(2).

NO

Research is not exempt under 45 CFR 46.101(b)(2) or (b)(3).

NO

Go to Chart 8

NO

Does any Federal statute require without exception that the confidentiality of personally identifiable information will be maintained throughout the research and thereafter?

YES

Research is exempt under 45 CFR 46.101(b)(3) from all 45 CFR part 46 requirements.

NO

Research is exempt under 45 CFR 46.101(b)(2) exemption from 45 CFR part 46 requirements.

NO

Research is exempt under 45 CFR 46.101(b)(2).

YES

Research is not exempt under 45 CFR 46.101(b)(2).

NO

Research is not exempt under 45 CFR 46.101(b)(3) from all 45 CFR part 46 requirements.

NO

Are the human subjects elected or appointed public officials or candidates for public office? (Applies to senior officials, such as mayor or school superintendent, rather than a police officer or teacher.)

YES

However, the 45 CFR 46.101(b)(3) exemption might apply.

NO

Yes

[45 CFR 46.101(b)]

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Chart 5: Does Exemption 45 CFR 46.101(b)(4) (for Existing Data Documents and Specimens) Apply?

From Chart 2:

Does the research involve only the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens? *

("Existing" means existing before the research is proposed to an institutional official or the IRB to determine whether the research is exempt.)

YES

Are these sources publicly available?

YES

Research is exempt under 45 CFR 46.101(b)(4) from all 45 CFR part 46 requirements.

NO

Will information be recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects?

YES

Research is not exempt under 45 CFR 46.101(b)(4) from 45 CFR part 46 requirements.

NO

Go to Chart 8

* Note: See OHRP guidance on research use of stored data or tissues and on stem cells at http://www.hhs.gov/ohrp/policy/index.html/#tissues and #stem, and on coded data use at #code and other information on those topics.
Chart 6: Does Exemption 45 CFR 46.101(b)(5)
(for Public Benefit or Service Programs) Apply?

From Chart 2

Is the research or demonstration project conducted or approved by the Department or Agency Head?

YES

Does the research or demonstration project involve only the study, evaluation, or examination of:

Public benefit or service programs;

YES

NO

Procedures for obtaining benefits or services under public benefit or service programs;

YES

NO

Possible changes in or alternatives to public benefit or service programs or to procedures for obtaining benefits or services under public benefit or service programs;

YES

NO

Possible changes in methods or levels of payment for benefits or services under those public benefit or service programs?

YES

NO

Research is not exempt under 45 CFR 46.101(b)(5).

Go to Chart 8

Research is exempt under 45 CFR 46.101(b)(5) from all 45 CFR part 46 requirements.*

* Note: See OHRP guidance on exemptions at http://www.hhs.gov/ohrp/policy/index.html#exempt for further description of requirements for this exemption.
Chart 8: May the IRB Review Be Done by Expedited Procedures Under 45 CFR 46.110?*

From Chart 2, 3, 4, 5, 6, or 7

Has the research been previously reviewed and approved by the IRB?

YES

Is the review a continuing review? [45 CFR 46.109(c)]

NO

Does the research involve a minor change in approved research during the (one year or less) period of approval? [45 CFR 46.110(b)(2)]

YES

Review by convened IRB is required.

NO

Go to Chart 9

NO

Does the research present no more than minimal risk to human subjects? and does the research involve only procedures included in categories 1 through 7 on the list of categories of research that may be reviewed through an expedited review procedure? [45 CFR 46.110(b)(1)]

YES

Is the research classified? [Paragraph (D) of Categories of Research That May Be Reviewed By an IRB through an Expedited Review Procedure.]

YES

Are measures in place to make risks no more than minimal?

YES

Go to Chart 10

NO

NO

Could identification of subjects put them at risk of criminal or civil liability, or be socially or economically damaging? [Paragraph (C) of Categories.]

YES

Research is eligible for IRB review through expedited procedures. Agency head may restrict, suspend, terminate or choose not to authorize an institution’s or IRB’s use of the expedited review procedure. [45 CFR 46.110(a)]

NO

NO

NO
Chart 9: Can Continuing Review be Done by Expedited Procedures Under 45 CFR 46.110?

* Note: See expedited review categories, OHRP guidance on the use of expedited review procedures and on continuing review at http://www.hhs.gov/ohrp/policy/index.html/expedited and continuing for further information on expedited review.

From Chart 8

Has the research been previously reviewed and approved by the IRB using expedited procedures?

YES

Have conditions changed such that the research is no longer eligible for expedited review (e.g., protocol change, or experience shows research to be of greater than minimal risk)?

YES

Review by convened IRB is required.

NO

Go to Chart 10

NO

Research is eligible for IRB review through expedited procedures.

YES

Has the IRB determined and documented at a convened meeting that the research involves no greater than minimal risk?

YES

NO

Have any additional risks been identified since IRB review at a convened meeting?

YES

NO

Have the research activities at this site limited to data analysis?

YES

NO

Is the research conducted under an IND or IDE?

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Category 8

(a) For this site:
Is the research permanently closed to enrollment of new subjects?

and

Have all subjects completed all research-related interventions?

and

Does the research at this site remain active only for long-term follow-up of subjects?

YES

NO

(b) Have no subjects been enrolled at this site?

and

Have no additional risks identified anywhere?

YES

NO

Category 9

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Chart 10: Can Informed Consent Be Waived or Consent Elements Be Altered Under 45 CFR 46.116(c) or (d)?**

***(Note: If subjects include children to whom 45 CFR part 46, subpart D applies, an alternative provision for waiver of parental permission might apply. (See 45 CFR 46.408(a)))***

1. From Chart 8 or 9
   - Will the research or demonstration project be conducted by or subject to the approval of state or local government officials? [45 CFR 46.116(c)(1)]
     - YES
     - Is the project designed to study, evaluate, or otherwise examine: (i) Public benefit of service programs, (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs? [45 CFR 46.116(c)(1)]
     - NO
     - Will the research involve greater than minimal risk, as defined in Section 46.102(i)? [45 CFR 46.116(d)(1)]
       - NO
       - Is it practicable to conduct the research without the waiver or alteration? [45 CFR 46.116(d)(3)]
         - YES
         - No waiver of informed consent or alteration of consent elements is allowed.*
         - NO
         - Will waiving or altering the informed consent adversely affect the subjects' rights and welfare? [45 CFR 46.116(d)(2)]
           - YES
           - Go to Chart 11
           - NO
           - Will pertinent information be provided to subjects later, if appropriate? [45 CFR 46.116(d)(4)]
             - YES
             - Waiver of informed consent or alteration of consent elements is allowed if IRR documents these findings and approves waiver or alteration.
             - NO
             - If informed consent is not waived entirely
               - NO
               - Go to Chart 11
               - YES
               - Waiver of informed consent or alteration of consent elements is allowed if IRR documents these findings and approves waiver or alteration.

* Note: See CHRP guidance on informed consent requirements in emergency research at http://www.hhs.gov/chrp/policy/index.html#emergency for further information on emergency research informed consent waiver.

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Chart 11: Can Documentation of Informed Consent Be Waived Under 45 CFR 46.117(c)?

From Chart 10

Would the consent document be the only record linking the subject and the research and would the principal risk be potential harm resulting from a breach of confidentiality? [45 CFR 46.117(c)(1)]

NO

Does the research present no more than minimal risk and involve no procedures for which written consent is normally required outside the research context? [45 CFR 46.117(c)(2)]

YES

IRB may waive the requirement for a signed consent form for some or all subjects.

AND

IRB may require investigator to provide subjects with a written statement regarding the research. [45 CFR 46.117(c)]

NO

If IRB Allows Waiver of Documentation Under 45 CFR 46.117(c)(1)

Investigator will ask each subject if he or she wants documentation linking the subject with the research. [45 CFR 46.117(c)(1)]

YES

Subject's wishes will govern whether informed consent is documented. [45 CFR 46.117(c)(1)]