



INTEGRATING FUNDAMENTAL VALUES INTO INFORMATION FLOWS IN SUSTAINABILITY DECISION-MAKING

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1. Privacy in Theory and in Practice
2. Standards and FRAND
3. Integrating Values into Innovation and Information Law, Policy, and Practice

PRIVACY IN THEORY AND IN PRACTICE

- Energy usage patterns reveal lifestyle:
 - Health issues, particularly
 - sleep
 - diet
 - exercise
 - alcohol use
 - Relationship issues
 - Child care arrangements
 - Religion
- Potentially sensitive — enable discrimination and bias

UNINTENDED USES OF ENERGY DATA

- Insurance companies
- Family lawyers
- Municipal planning
- Law enforcement
- Burglars

- Manufacturers lack expertise
- Inadequate processing power for encryption
- Devices not designed for security patches

- Consumers often unclear about function or purpose of smart meters
- Consumers may not be able to make informed decisions about privacy
 - Lack of options
 - Lack of knowledge
 - Lack of legal advice

- Will data be stored in the cloud?
- Where is 'the cloud'?
- Is it outside the European Economic Area?
- Australia not covered by Safe Harbour

- Energy data must be inter-connected
- Anonymised data can be de-anonymised

- end-to-end encryption
- separate streams for core and value-added services

'DATA PROTECTION BY DESIGN'

- Right for consumers to access, move and erase data
- Prohibition on automated profiling without knowledge or consent
- Ensure transparency:
 - Include metadata on consent (default is off), processing, sharing
 - Keep data in a personal data store with intelligent agent as safeguard
 - Provide consumers with open source software

- Secure, distinct data streams with authentication
- Personal data storage
- Privacy-preserving data mining and aggregation
- Discrimination-aware data mining
- Consumer control of granular data access
- Semantic metadata in interactive systems

PRIVACY BY DESIGN THROUGH IMPACT ASSESSMENT

- ‘Data Protection Impact Assessment’
 - EU Commission Recommendation 724/2014
 - Data Protection by Design and Data Protection by Default solutions
 - ‘Data Protection Impact Assessment Template for Smart Grid and Smart Metering Systems’
 - test phase ‘with deployment of real cases’
 - Review within two years (before October 2016)
- Article 29 Working Party on DPIA
 - Opinion 04/2013: criticised DPIA for lack of clarity, confusing risks and threats, and not linking risks and controls
 - Opinion 07/2013: DPIA improved but needs improvement and testing

- Privacy by Design: vague set of principles without methodological guidance
- Privacy by Re-Design: retro-fitting existing systems
 - Very expensive
 - Computers are designed to share, retain, index, and analyse information
 - Long-term systems may require audit trails ...
How to 'forget'?

REQUIREMENTS ANALYSIS VS LEGAL REQUIREMENTS

- **Digital rules:** **Rigid**, clearly defined in advance, strictly operationalised, difficult to change
- Contrast **legal rules:** **Flexible**, deliberately unclear, contested, malleable
- IS developers need '**requirements**': clear, complete, consistent specifications of the behaviour of a system
 - *Requirements definition:* procedural logic, data attributes
 - *Requirements prioritisation:* feasibility, cost, 'must have' versus 'nice-to-have'

- Formalising practices and knowledge is difficult
- ICT becomes embedded and entrenched infrastructure —
Need to 'Get It Right First Time'
- But Information Systems security and privacy involves
 - Risk management
 - Cost-benefit analysis
 - Trade-offs, not strict compliance
 - Incremental improvements

STANDARDS AND FRAND

- *de facto* standards
- *de jure* standards

- Intellectual property rights
- Competition/anti-trust implications & ‘patent ambush’ — for example, Commission investigation of Rambus (2007–10)
- Technical Standards Directive (98/34/EC, amended by 98/48/EC)
- WTO Agreement on Technical Barriers to Trade

- Fair Reasonable and Non-Discriminatory ...
- Perspectives on 'fair' will differ
- Discrimination may be legitimate
- Commercial priorities may overly influence the standard

INTEGRATING VALUES INTO INNOVATION
AND INFORMATION LAW, POLICY, AND
PRACTICE

INTEGRATING VALUES INTO INNOVATION POLICY

- Innovation as an ‘eco-system’
 - Creating new products and markets through ‘creative destruction’
 - At what cost?
- How do we integrate fundamental values?
 - Appropriate use of transparency, privacy, and accountability?
 - ... with nuance, balance, and flexibility
 - ... but which rights, if any, are ‘trumps’?
- Requires lawyers to understand potential and limitations of technical solutions
- Aim: greater coherence between legal aspirations and technical realities

Integrating Fundamental Values into Information Flows in Sustainability Decision-Making

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Abstract

This case study raises key questions about how lawyers can ensure that fundamental values, such as privacy and equality, can be properly integrated into information pathways and flows in energy infrastructures. As large and distributed energy projects come to rely more and more on the enabling role of information and communications technology to make massive, responsive, and individually-tailored systems possible, a detailed consideration of questions that have not been discussed by environmental lawyers until recently is necessary.

Energy usage patterns reveal lifestyle information and can highlight very sensitive issues in an individual's life: health issues (particularly sleep, diet, exercise, or alcohol use); intimate relationships and child care arrangements; or religion. Easy access to this data can enable unlawful or unfair discrimination and bias, and can be put to unintended or unwanted uses. Anonymisation is often an incomplete and inadequate response. In addition, smart grids and meters may not be secure. Consumers may not be able to make informed decisions about privacy.

Technical approaches to these problems abound. Tools like Privacy by Design are touted as providing a solution. The European Commission places particular emphasis on the idea of a 'Data Protection Impact Assessment'. Security by Design is a complementary approach, which relies on end-to-end encryption and the use of separate data streams for core and value-added services.

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However, these are incomplete responses. Privacy by Design provides a vague set of principles without methodological guidance: how do systems developers build privacy into design process? Privacy by Re-Design (retro-fitting existing systems) is very expensive. Computers are designed to share, retain, index, and analyse information — not to ‘forget’. Even ‘erasure’ is not straightforward.

Legal rules are flexible, deliberately unclear, contested, and malleable. Digital rules are rigid, clearly defined in advance, strictly operationalised, and difficult to change. The latter can easily become closed, inflexible, and unaccountable systems, containing assumptions, biases, and mistakes. Formalising practices and knowledge is difficult and there is therefore a need to ‘Get It Right First Time’. However, information systems developers do not work from laws, principles, or rights, but with ‘requirements’: clear, complete, consistent specifications of the behaviour of a system.

Innovation in products, services, and markets is often touted as essential for sustainable development. However, this process of ‘creative destruction’ should not lose sight of fundamental values, which need to be fully integrated into the thinking of entrepreneurs, policy-makers, and systems developers. This must go beyond check-box compliance or an ‘balancing’ exercise in which privacy and equality always lose, to a nuanced perspective which understands that rights are enablers of, rather than barriers to, innovation. To achieve this, lawyers must first obtain a deep knowledge of the potential and limitations of technological solutions. This can help to bring about greater coherence between legal aspirations and technical realities.