PMRM Overview and Privacy Management Analysis Tools Development

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“Smart” and Privacy

- **Smart Grid**: “A **smart grid** is a modernized electrical grid that uses analog or digital information and communications technology to gather and act on information, such as information about the **behavior of suppliers and consumers**, in an automated fashion, to improve the efficiency, reliability, economics and sustainability of the production and distribution of electricity.”

- **Smart City**: “A city can be defined as ‘smart’ when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life…through **participatory action and engagement**….. Online collaborative sensor data management platforms are on-line database services that allow sensor owners to **register and connect their devices to feed data into an online database for storage and also allow developers to connect to the database and build their own applications based on that data.**

- **Smart Phone**: “A **smart phone** … is a mobile phone with more advanced computing capability and connectivity than basic feature phones.”

- **Internet of Things**: “The Internet of Things (IoT) refers to **uniquely identifiable objects** and their virtual representations in an Internet-like structure. Today …IoT… is used to denote **advanced connectivity of devices, systems and services** and covers a **variety of protocols, domains and applications.**”

(Definitions: Wikipedia)
“Your phone is constantly gathering what app developers call signals. These could be your commuting habits, which the phone can glean from its internal GPS, often within a few feet. Your phone could also gather your meetings, your future trips, your friends and family, your favorite sports team, the type of news you usually read and even things like your heart rate. Things really get interesting when the apps that gather these signals start to be predictive. When that happens, your phone can start anticipating your needs, interests and habits ....”  Examples: Google Now, Cortana, EverythingMe, Mynd, EasilyDo....”

“Contextual is a whole world,” said Ami Ben David, co-founder of the company EverythingMe. “We’re going to start looking at computers as being smart, as having infinite computing power and infinite access to databases, and therefore able to talk to us and give us what we want.”


*Smart*: How do We Design in Privacy?
Understanding “Smart” Applications and Designing in Privacy

• Gaps
  o Discontinuity between policies and technology
  o Speed to market – innovation
  o Complexity and scale
  o Lack of standards
  o Privacy Focus: macro or micro?

• Work Underway in OASIS
  o OASIS PBD-SE Technical Specification (under development)
  o OASIS PMRM Committee Specification v1.0 and use case work
  o XACML Profiles

• Emerging Tools
  o “Privacy by Design Use Case Template”
    • Derived from PMRM and PbD technical committee collaboration
Privacy Use Case Template as Tool Supporting Privacy by Design

• Provides all stakeholders associated with the specified software development project within an organization a common picture and a clearer understanding of *all* relevant privacy components of the project.

• Can expose gaps where PbD analysis has not been carried out where implementation has not been initiated or completed.

• A tool to map privacy policies, requirements and control objectives to technical functionality.

• Facilitates the re-use of knowledge for new applications and the extension of Privacy by Design principles more broadly throughout an organization.

• Where code must bridge to external systems and applications, a standardized template will help ensure that Privacy by Design principles extend to the transfer of personal information across system and organizational boundaries.

• A standards-based use case template can reduce the time and cost of operationalizing PbD and improve the quality and reusability of documentation.
PMRM v1.0 Methodology Designed to Make Possible Analysis of Complex Use Cases

Use Case Description & High-Level Privacy Analysis
- Application and Business Process Descriptions
- Applicable Privacy Policies
- Initial Privacy Impact or Other Assessments

Detailed Privacy Analysis
- Actors and Systems
- Domains and Domain Owners
- Roles and Responsibilities
- Touch Points and Data Flows
- Incoming, Internally-Generated, and Outgoing PI
- Inherited, Internal, and Exported Privacy Controls

Functional Services Necessary to Support Privacy Controls
- Agreement
- Usage
- Validation
- Certification
- Enforcement
- Security
- Interaction
- Access

Risk and/or Compliance Assessment

Develop Privacy Architecture

Technical Functionality & Business Processes Supporting Selected Services

Privacy Management Analysis

Iterate

Implementation
PMRM-Based Template Benefits

• Provides an inventory of Privacy Use Case components and the responsible parties that directly affect software development for the Use Case

• Segments Privacy Use Case components in a manner generally consistent with the OASIS PMRM v1.0 Committee Specification

• Enables understanding of the relationship of the privacy responsibilities of software developers vis-à-vis other relevant Privacy Use Case stakeholders

• Bring insights to the privacy aspect when moving through the different stages of the privacy lifecycle and across interconnected applications

• May be extended to address predicates for software developers (training, privacy management maturity, etc.)

• Does not specify an implementer’s SDLC methodology, development practices or in-house data collection, data analysis or modeling tools

• Valuable as a tool to increase opportunities to achieve Privacy by Design in applications by extracting and making visible required privacy properties

• Enables Capability Maturity Model analysis for an organization
Privacy Use Case Template

Privacy Controls
Services
Functions

Title
Category
Description

Privacy Use Case
for Privacy Management Analysis

PI/PII and Policies
Domains, Owners, Roles
Data Flows and Touch Points
Systems

Application
Data Subjects
Template Helps Address Challenge of Mapping Privacy Analysis to Software Development Lifecycle Processes

SDLC Graphic Source: Wikipedia Commons
PMRM Template
Privacy Management Analysis (PMA)

Policies, Controls and Supporting Services/Functions

Baseline Information

Use Case Title

Use Case Categorization

Use Case Description

Applications associated with Use Case

Applications and Data Subjects

Technical, Managerial and Boundary Data

Data Subjects

PI/PH Legal/Reg

Domaine and Owners

Data Flows and Touch Points

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Baseline Information

Use Case Title

A short descriptive title for the use case

ACME Insurance Company Vehical Data Tracking for Reduced Premiums
Baseline Information

Category of Use Case

e.g. Application categories such as “Online Banking” or Model categories such as “Two Domain”.

Mobile-Vehicular
Baseline Information

Use Case Description

High-level synopsis of the use case.
Applications and Data Subjects

Applications associated with Use Case

Relevant applications and products where personal information is communicated, created, processed, stored or deleted and requiring software development.
Applications and Data Subjects

Data subject(s) associated with Use Case

Include any data subjects associated with any of the applications in the use case.

- The registered Insured person associated with the vehicle VIN
- Other drivers designated by the vehicle owner
The PI and PII collected, created, communicated, processed, stored or deleted within privacy domains or systems, applications or products.

- per domain, system, application or product depending on level of use case development
- including incoming, internally generated and outgoing PI

- Registered driver name, Account Number, VIN
- Registered driver contact information
- Linked vehicle operational data
- Linked vehicle time and location data
- Linked evaluation assessment and summary information
The policies and regulatory requirements governing privacy conformance within use case domains or systems and links to their sources.

- Government(s) regulations
- Vehicle Manufacturer privacy policies
- Telecom Carrier privacy policies
- Insurance Company privacy policies
- Data Subject Consent preferences
- Specific policies governing apps (e.g., “Data Communications to Manufacturer”)
- Links to policies ....
  - http://acmeinsurancegroupinc.biz/vehicle privacy/
  - http://HudsonCarCompany.biz/privacy_vehicle....
• **Domains** - both physical areas (such as a customer site or home) and logical areas (such as a wide-area network or cloud computing environment) that are subject to the control of a particular domain owner.

• **Domain Owners** - the stakeholders responsible for ensuring that privacy controls and functional services are defined or managed in business processes and technical systems within a given domain.

  *Note: Identifying stakeholders is essential for clarifying the intersection of privacy requirements and software development.*

• **Roles** - the roles and responsibilities assigned to specific stakeholders and their relationship to systems within a specific privacy domain.
Domain 1: Hudson Motor Company’s Vehicle Communications Data Center, Vehicle Owner’s Web Portal and Backend Data Collection Application

Domain 1 Owner: VP, Vehicle Manufacturer’s Vehicle Communication and Data Division

Role: Application design, development, content, testing, integration testing with external systems, and adherence to corporate security and privacy policies, management of raw datasets of vehicle information.
• **Touch points** - the points of intersection of data flows with privacy domains or systems within privacy domains

• **Data flows** – data exchanges carrying PI and privacy policies among domains in the use case
Technical, Managerial and Boundary Data Systems supporting the Use Case applications
Control - a process designed to provide reasonable assurance regarding the achievement of stated objectives

- per specific domain, system, or applications as required by internal governance policies and regulations
- including inherited, internal and exported privacy controls

Outgoing PI
(Name, account number, driving pattern and assessment summaries)

Exported Control
AR-3: Requirements for Contractors

Incoming PI
(Driving patterns and assessed risk linked to VIN)

Inherited Control
DM-1: Minimization of PII
- **Service** - a collection of related functions and mechanisms that operate for a specified purpose

- **Identify Services satisfying privacy controls**

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<td>Access View and propose changes to stored PII</td>
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<td>Inherited Control DM-1: Minimization of PII</td>
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• Define technical functionality and business processes supporting selected services

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• **Inherited Control DM-1: Minimization of PII**
  • **Usage service**
    • Automated interfaces to maintain separation of data using identifier with relatively inaccessible auxiliary info
  • **Security service**
    • Role-based access control

• **Exported Control AR-3: Requirements for Contractors**
  • **Agreement service**
    • Chain-of-trust contract clause
### “Responsibilities” Table

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<th>Legal/Regs/ Policies</th>
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A Work in Process

• PbD-SE TC and PMRM TC working in parallel to develop practical standards and standards-derived tools

• Open to broader participation from business, policy and technical experts

• Contact today’s workshop speakers or email: join@oasis-open.org