



PHIN XForms Question Framework

Background

Public health agencies use multiple forms for data collection in their daily practices, such as disease surveillance, outbreak investigation, and emergency responses. Those forms, developed and used by various entities, are not typically standardized, which can be problematic especially for a large scale event that involves multiple states and organizations.

For instance, responses to Hurricane Katrina demonstrated difficulty of data aggregation, especially at the federal level, due to disparate forms used by various entities for data collection. Such haphazard data need more time for cleaning and management, which can hinder timely decision making.

Thus, collecting common data via standardized questions tied to vocabularies and version control of forms will allow public health agencies to nimbly respond to an emergency and to share data with other jurisdictions.

Purpose

The purpose of the project is to create a framework to facilitate the definition and distribution of standardized forms for public health practices based on a library of reusable, standard encoded questions.

Approach

Data/Information Models: A metadata model is defined for persistence of internal form structures and related information. Additionally, metadata from a draft PHIN (Public Health Information Network) information model are extracted for use in appropriate tagging of question answers to be collected. These models are integrated with the vocabulary service repository to create the form definition environment. In combination, they provide the building blocks used in form definition. This framework is prototyped in a pilot project.

XForms: Questions and Question Sets are arranged within a user interface to represent a sectioned form. That representation is transformed into an XForms for distribution and use as a data collection instrument. XForms is an emerging Web form technology that allows the creation of device-independent forms. When fully realized, this technology will allow a single form to be rendered on any browser-enabled device that supports XForms. Then a single form definition can be used for data collection using a laptop computer, a hand held PDA, or even printed to paper for manual data recording.

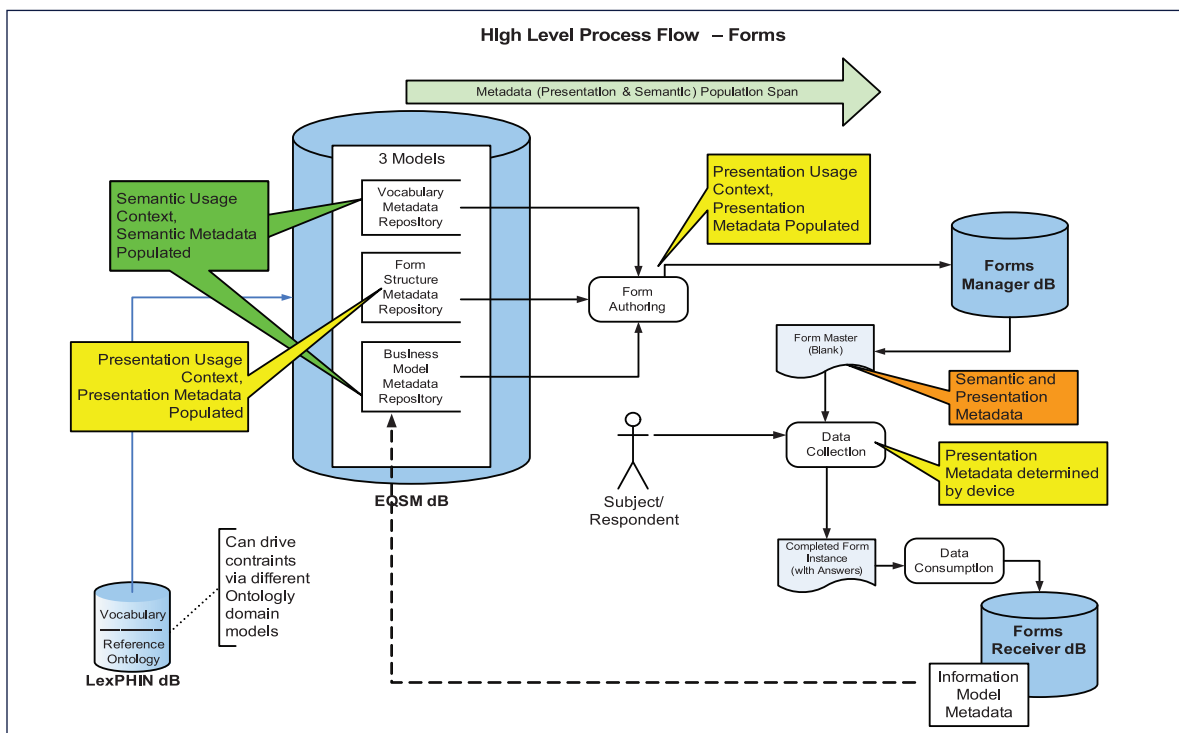


Core Components

- A. Question Repository** - A question repository is derived from actual public health forms used by states and local health departments for selected Nationally Notifiable Conditions. Concepts and value sets for questions are bound to standard vocabularies. The form structure and common data element are extracted to support metadata driven by usage context populated through the workflow process of question creation, business object composition and placement in a form section.
- B. Data Models** – The information model includes structures for metadata about (1) the form parts and pieces such as questions with answer value sets, question sets, and form segments, (2) the data collection forms built from those components, and (3) default bindings to a generic Public Health Information Model.
- C. XForms Framework** – An XForms framework utilizing a model-view-controller (MVC) pattern is the implementation technology used to bind the questions set vocabulary to the public health forms, collect and validate form data and submit forms for processing.

Future Plans

- Create a Graphical User Interface to author XForms based on a Question Repository
- Ontology-driven question search capabilities
- Library of reusable, version-controlled forms
- Definition of Public Health Document Architecture



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