Opening data in Higher Education Institution

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Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. (source: wikipedia)
Reasons to open data

• Finnish government encourages public sector to open their data for services and new business development, and utilization of information.

• Combining with other public data can create new value.

• New markets and innovations from and around the data.

• Services made by users, user-driven Innovation!
Benefits for the organization & end users

• New usage for the data

• Organizations reputation for opening data to others

• Transparency

• Democracy

• Better services for the users
Benefits for the business

• Dispersed development, multiple suppliers

• Everyone can create new apps combining schedule info, lecture info, staff info and so on.

• Rapid development through multiple independent developers

• Competition increases development activity
Architecture
Opening data in Helsinki Metropolia University of Applied Sciences - case examples
Case examples

Services

Datasources
Case example: Found!

- Search engine for studies
- Uses Elastic search
- Lightning fast search
- Facets for classification
Case example 'Schedules'

- Schedules for students
- Information from courses
- Integration to Exchange and Google calendar
Case example 'Mobile services'

- Uses responsive design - not limited to single OS
- Uses open data
  - schedules
  - reservation info
  - lunch menus
  - transportation info
  - library services
Case example 'Ihana'

- Touch screens in every campus lobby
- Interfaces created using responsive design
- Uses multiple service interfaces located in different systems
Ongoing project 'Schedules with indoor positioning technology'

- Student project
- Uses open data from schedules
- Combines indoor positioning technology with schedule information
- Help students to find next classroom with lecture information

Works in mobile devices
Steps for opening data in higher education institution
Opening data in higher education institution

- Decision to open data
- Determine
  - where the data is currently stored, what are the master data sources, what data is already public
  - how is the data structured
  - what data could and should be published
  - architecture which will be used to publish data
- Implement, create necessary services and publish them
- In general: when creating new systems, think SOA. Create reusable services instead of system specific solutions.
- Open services = Open data
Live demo

Found!

Ihana
Thank You! Further information:
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Internal Service Layer

- All core / in-house services and integrations are deployed on the internal service layer
- Only trusted internal applications have access to these services directly
- No caches, everything is real time
- No complex authentication or authorization mechanisms that might be expensive performance-wise
Public Service Layer

- The public service layer is used to republish (proxy) services from the internal service layer to the public Internet and allows us to:
  - modify the original services: e.g. strip all write methods from the public service interfaces
  - aggregate services: e.g. providing access to data from a number of internal services as a new simple interface
  - publish services in a different schema: e.g. for a specific 3rd party integration / data transfer
  - cache data to minimize load on the internal service layer and databases
  - authenticate and authorize the users of the services
    - for identifying users and possibly to provide different interfaces/methods based on authorization
Search Services with Elastic Search

- Elastic Search is a flexible and powerful open source search engine base on Apache Lucene
- Almost any action can be performed using a simple RESTful API
  - perfect for our SOA architecture!
- With Elastic Search we create search indexes based on data stored by any number of services
  - searching is really fast since the search engine index is queried instead of the database(s)
  - possibility to use *facets* and other advanced features
- Used both by the Internal Service Layer and Public Service Layer
  - can be used to create extremely fast read only interfaces for *open data*!