



TravelSampo System for Creating Mobile Audio Guide Tours Enriched with Linked Data



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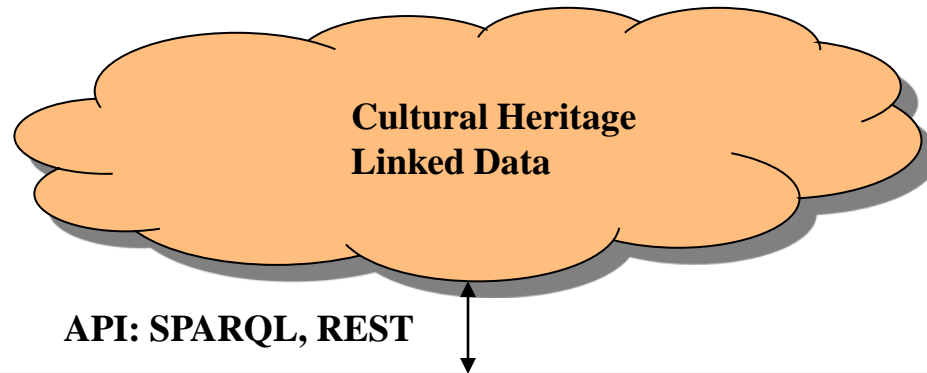
End-user's Perspective

Why TravelSampo?

End-user's Perspective

- **Richer user experience**
 - Richer content:
 - » Not only for finding POIs
 - » Additional info is created automatically based on Linked Data
 - Richer media: audioguiding, videos, virtual reality
 - Richer adaptation: Personalized, contextualized services
 - Plan > execute > reflect
- Support **all phases** of making a cultural tourism trip
- **Cross-domain content** aggregation supported
 - Different kind of content from museums, libraries, etc.
 - » E.g. events, POIs, collection items, documents, news, ...
- **Cross-language** usage supported
 - Search and recommending is based on meaning
 - » Indexing based on language-free URIs

End-user Perspective of TravelSampo



TravelSampo

Planning Phase

- POIs to visit
- Routes to go
- Events

Executing Phase

- POI info supply
- Route guidance
- Recommendations

Reflecting Phase

- More info about visited POIs
- Sharing experiences



Web Interface



Mobile Interface

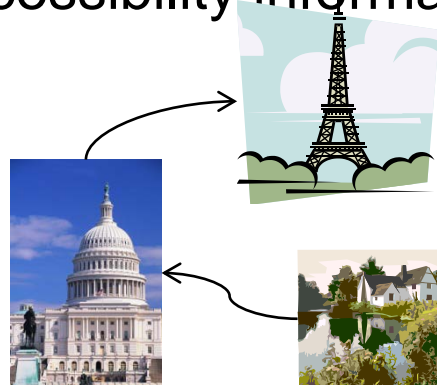


Web Interface

END USER ACCESSS

Use-case Scenario 1: Outdoors

- POIs and routes connecting them
 - GPS coordinates
 - ID tags for getting more info
 - Semantic metadata
 - Media descriptions
 - Audioguide recordings
 - Accessibility information



Use-case Scenario 2: Indoors

- Inside a POI: exhibition
 - Provide audioguide and information to mobile phones
 - Exhibits with ID tags for more info download
 - » Aggeragated data about the objects
 - » Semantic recommendations for related content



Content Provider's Perspective

Why TraverSampo?

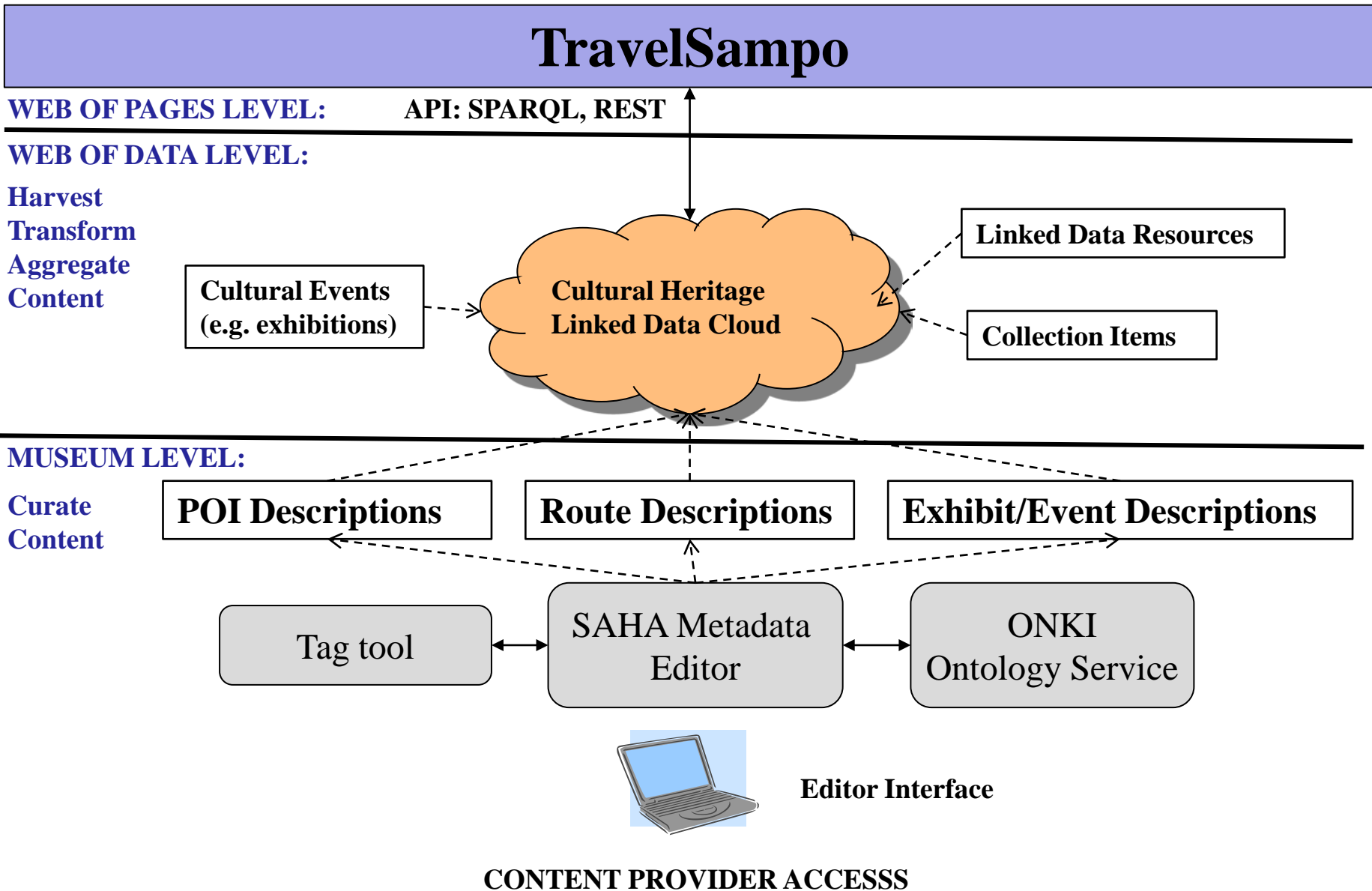
Content Provider's Perspective

- Providing more and **better content** and **experiences**
 - Fulfilling underlying mission of museums
- Attracting **more visitors** to museums and CH sites
 - Better online and guiding services -> more visitors
 - Outdoor POIs guide people into museums
 - » Visiting a statue -> "More similar works in museum X"
 - More visibility on the WWW through search engines
- **Aggregating & enriching & reusing** content collaboratively
 - Content from different organizations and data sources is interlinked and enrich each other "for free"

- Provide a **simple way to create (audio)guiding** online
 - Web-based interface for content descriptions
 - » Semantic annotations for LD
 - » Uploading images, audiofiles etc.
 - » Geotagging POIs
 - Tool for creating tags for objects in exhibitions or outdoors
 - Real-time content publishing online and in reality:
 1. Create and annotate content objects
 2. Create the tag
 3. Attach the tag to the object

- **Saving money** for museums and visitors
 - Self-made autoguiding is cost-efficient
 - » Easy/cheap to create content
 - » No special audioguide equipment is needed
 - Using the system is free for clients
 - » WLAN or flat rate mobile connection
- Avoiding vendor lock, but supporting companies
 - All software is free and open source
 - Content available from open data sources
 - Supporting commercial services, too

Content Provider's Perspective of TravelSampo



Demonstrator

Core Eight Datasets (at the moment): 10,000 points of interest and events

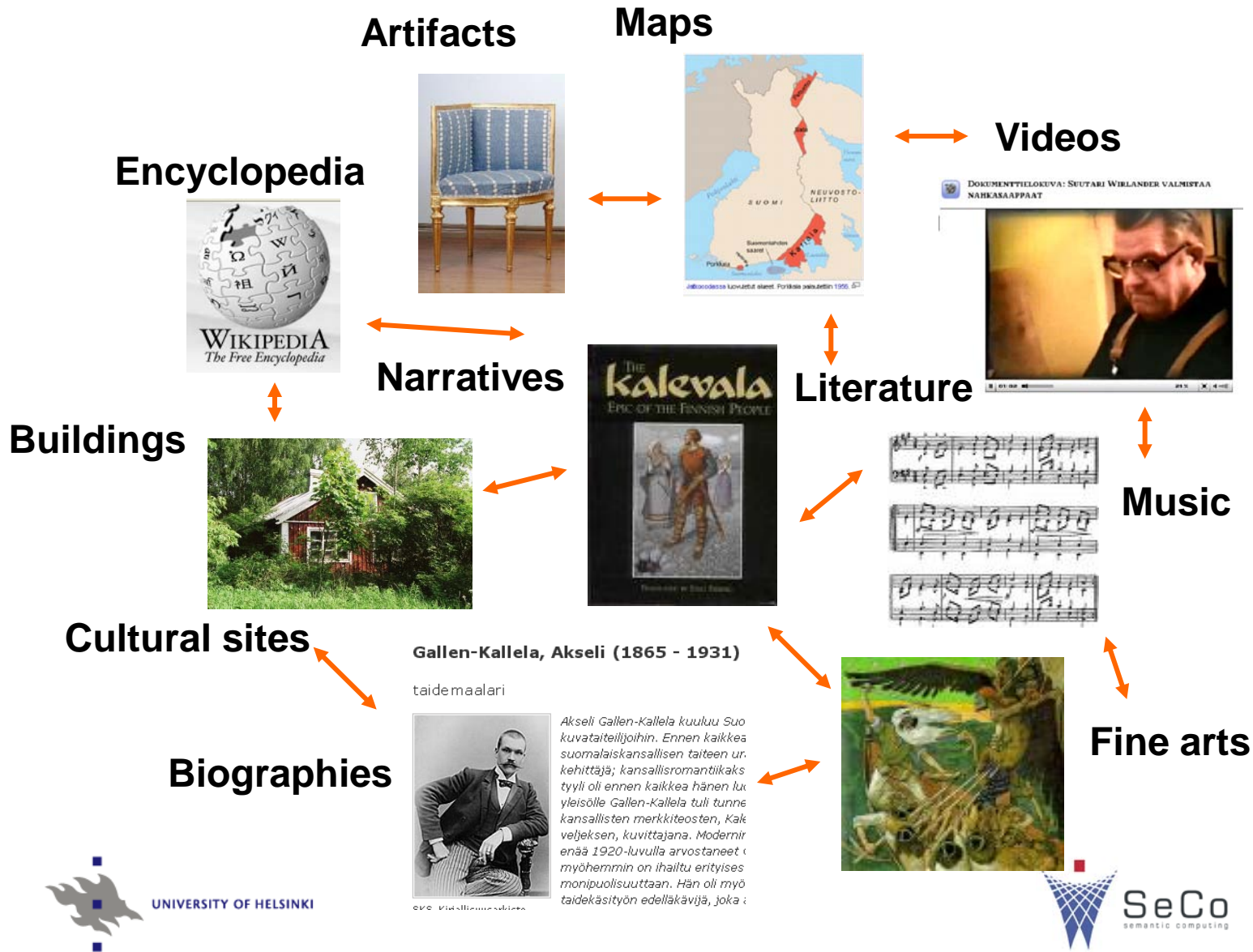
| Dataset | Description | Type of instances | Size | Linking | Updating |
|---------------------|--|--------------------|------|--|-------------------|
| RKY | Culturally significant man-made places in Finland | Places | 2000 | Small selection of places are linked by hand (mostly to people and historical events). | not updated |
| Turku 2011 | Events of the cultural capital year of Turku | Events | 2000 | All events are automatically annotated. | not updated |
| Evenemax | General events | Events | 2000 | All events are automatically annotated. | updated regularly |
| Tarinoiden Helsinki | Books, movies and music that is related to specific places in Helsinki | Books/Movies/Music | 2000 | Material is well linked inside the source but there are no links outside. | updated rarely |
| Museot.fi | All the museums in Finland and their exhibitions | Places/Events | 1500 | Events and places are not linked outside the source. | updated |
| Suomenlinna | Significant places in Suomenlinna sea fortress | Places | 250 | All places are annotated and linked by hand (people and historical events). | not updated |
| Helsinki WDC | Events of the world design capital year in Helsinki | Events | 200 | All events are automatically annotated. | updated |
| Tapiola | Architecturally significant buildings in Tapiola | Places | 20 | All places are linked and annotated by hand (people and concepts). | not updated |

All datasets in our EMO triple store: 17 million locations, from 20 different sources

Table 1. TravelSampo Data Sources

| Type | Source | Size | Example types | Description |
|-----------------------------|---------------------------------|--|--|---|
| Places of Interest | LinkedGeoData | ~3.1 million | Statue, tunnel, crossing, school, ruins, bench | Entities with non-amenity types in the RDF conversion [1] of the open mapping project OpenStreetMap |
| | DBPedia | ~432,000 | Site of earthquake, tv-mast, bridge | RDF conversion [3] of structured information in Wikipedia |
| | MJREKI | 25,343 | Hill fort, rock tomb, place of village | Finnish ancient monuments |
| | RKY | 1,850 | Manor, powerplant, cemetery, rectory | Finnish nationally cultural-historically significant milieu |
| | Espoon rakennukset | 80 | Villa, rectory, school, jugend building | Cultural-historically significant buildings in the city of Espoo |
| Espoon luontokohteet | 282 | Swamp, glacial erratic, meadow, nature reserve | Nature sites in the city of Espoo | |
| Services | LinkedGeoData | ~3.7 million | Pub, pharmacy, restaurant | Entities tagged as amenities in the RDF conversion [1] of the global open mapping project OpenStreetMap |
| | Pääkaupunkiseudun palvelukartta | 2,929← 4350 | Swimming pool, daycare, museum, child protection services | Public services provided by the cities in the Helsinki metropolitan area |
| Events | EvenemaX | ~1480← 4300 | Pub quiz, concert, exhibit | Finnish commercial cultural event aggregator |
| | Turku 2011 | ~305← 3400 | Concert, exhibition, circus | Events included in Turku's year as European culture capital |
| | Museot.fi | ~80← 140 | Exhibition | Current exhibitions at Finnish museums |
| | Agricola | ~60← 70 | Lecture, seminar, exhibition | Event-calendar of the Agricola network of Finnish historians |
| Other Place-Related Content | Tarinoiden Helsinki | 1629← 4091 | Book, music, film, fact | Fiction and facts relating to places in Helsinki |
| | CultureSampo | ~20,000← 600,000 | Poem, photograph, painting, video, skill | An integrated portal of some 30 different content types from some 20 different institutions [6] |
| | DBPedia | ~432,000← 3.6 million | Person, organization, invention, event | Every conceivable notable aspect of human existence that linked to a place |
| Places | SUO | ~800,000 | Hill, swamp, meadow, glacial erratic, area of sporting services | Finnish registry of place names |
| | SAPO | 1,261 | Administrative area | A spatio-temporal ontology of historical Finnish counties [7] |
| | GNS | ~4.2 million | Oil field, ramp, hill, abandoned police post, church, glacier | Geonet Names Server, a US government place database |
| | GeoNames | ~6.9 million | Oil field, ramp, hill, abandoned police post, church, glacier | Open database of geographical names, using the same feature codes as GNS |
| | TGN | ~895,000 | Aqueduct, mausoleum, sinkhole, earldom, Nicaraguan center, dynasty | Getty thesaurus of historic and current locations |
| Karelian places | 37,476 | Village, house | Historical places in the Karelia region of Finland and Russia | |
| Total | | ~17 million← 300 million | | |

Using CultureSampo.fi and BookSampo.fi Linked Data as a Semantic Service for Recommending



Loggin in and profile

Setting your location

MatkailuSammon mobiilikäyttöliittymällä voit seurata tekemiäsi reittejä ja saada tietoa kohteista paikanpäällä. Vierailun jälkeen voit merkitä kohteen nähdyksi, ja navigoida seuraavaalle palvelun avustuksella. Mobiilikäyttöliittymä on käytössäsi tässä samassa osoitteessa.

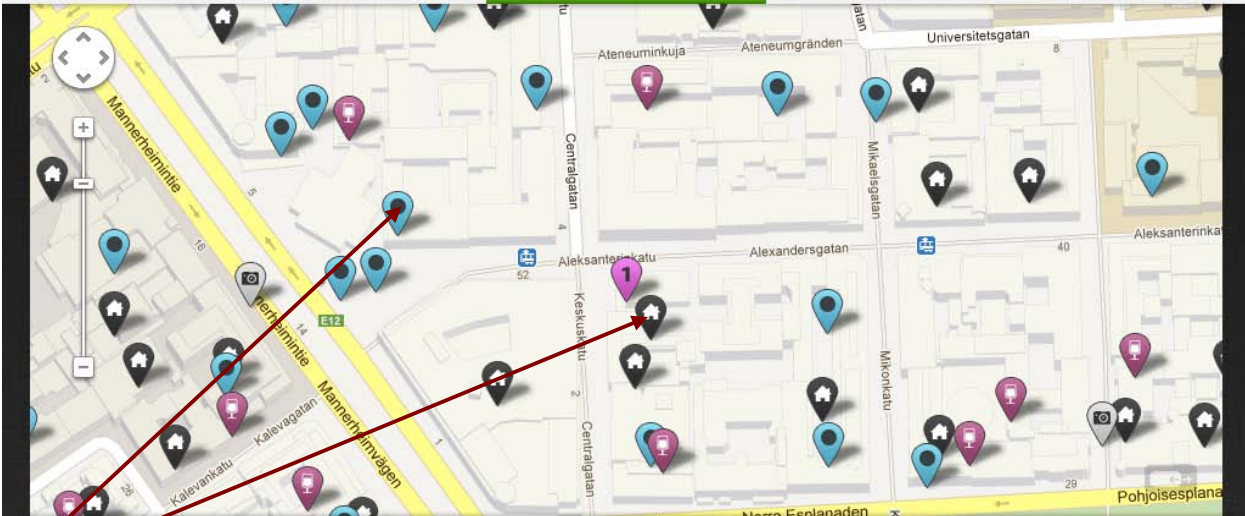
Etsi tapahtumia ja lähellä olevia kohteita asettamalla sijaintisi!

Lähtösijainti: Aleksanterinkatu 50, 00100 Helsinki

Aseta sijainti tai reitti

Päätesijainti: ei asetettua päätesijaintia

Planning Interface



Browsing places

Searching places

Search bar with magnifying glass icon

Kohteita yhteensä 203 kappaletta

- Domus Litonii 22 metriä
- Rautatalo 43 metriä
- Akateeminen Kirjakauppa 81 metriä
- Stockmann 81 metriä
- Cafe Aalto 85 metriä

Hakuasetukset

Reitit ja tapahtumalistat

- Domus Litonii
- Stockmann

Tallenna reitti

Saving places

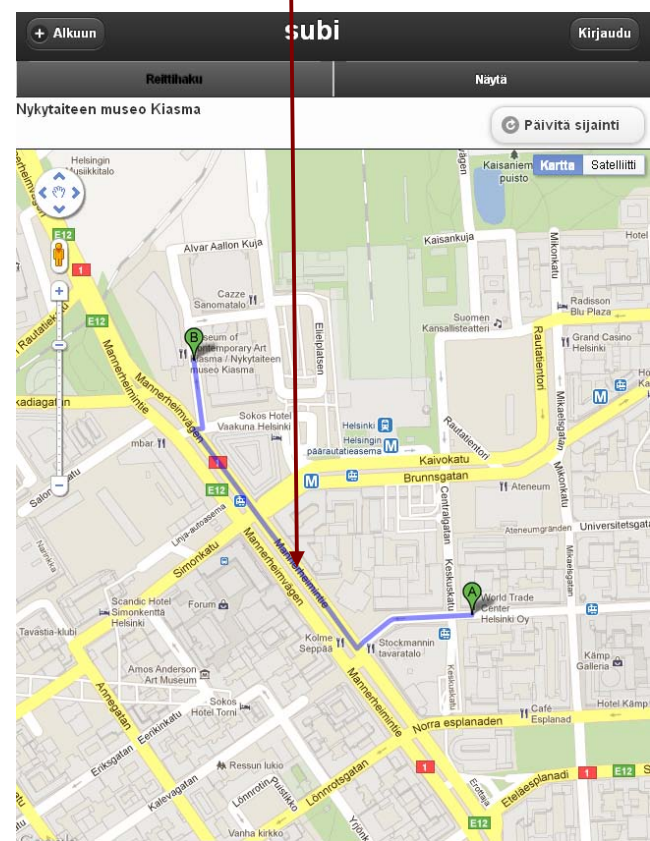
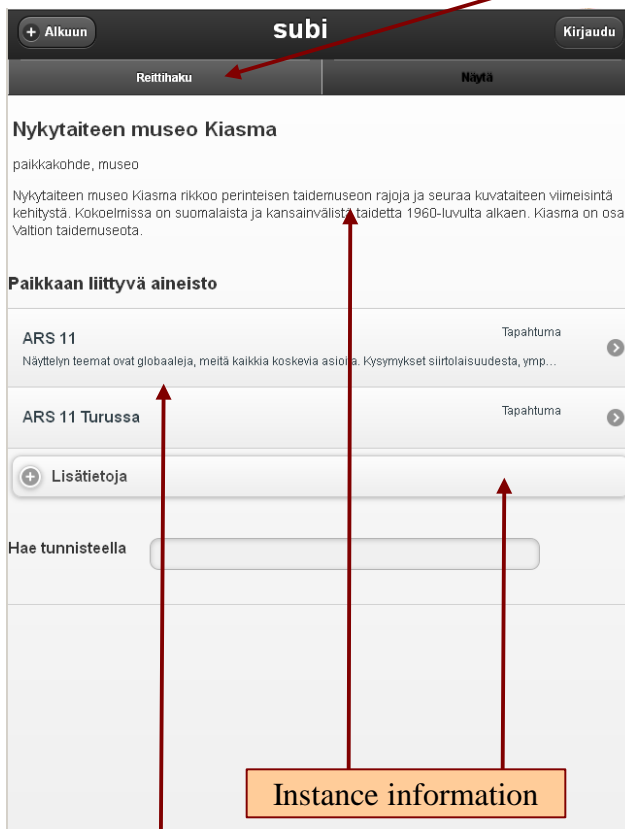
Mobile at Site Interface

Location

Profile

Searching places

Route finding



Browsing places

Instance information

Related instances

Curator Interface: SAHA Editor

SAHA3 - tapiola - Tapiolan kirkko ja seurakuntakeskus vuodelta 1965 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Mozilla Firefox Web Browser ... x How Google and Microsoft ta... x WWI Collection x SAHA3 - tapiola - Tapiolan kir... x

Back Forward Mail Reader Web Search Maps Calendar Wave Dashboard Settings Reload Stop Home Fireb

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SAHA3 | tapiola - search [about tapiola](#) [manage project](#) [fi](#) | [sv](#) | [en](#) | [rdf](#) | [HAKO](#) [HELP](#)

<http://seco.tkk.fi/saha3/ua366df4e-9084-463a-9383-dfb4268a17ae>

name

message

point of interest: Tapiolan kirkko ja seurakuntakeskus vuodelta 1965
[\[edit\]](#)



60.17767747309845, 24.80925984382634

| | |
|------------------------|--|
| description | Arkkitehtuurikutsukilpailun voitti Aarno Ruusuvoori ehdotuksellaan "Pyhät puut". Kirkon betonisten ulkomuurien rajoittamat sisätilat ovat lasisinillä näköyhteydessä toistensa kanssa. Ruusuvoori kertoi suunnitelmastaan: Kirkko ei voi kilpailla näyttävydessä helakan vaaleiden tornimassojen kanssa. Sen takia rakennus on vain tumma varjo männikön takana. Siitä on tullut ulkoa katsoen muurien sulkema oma eristetty maailma." |
| label | Tapiolan kirkko ja seurakuntakeskus vuodelta 1965 |
| latitude | 60.17767747309845 |
| longitude | 24.80925984382634 |
| place type | church |
| street address | Kirkkopolku 6 |
| subject keyword | church , parish centres |
| type | point of interest |

x

Semantic annotations using
FinnONTO ontology infra

Conclusions

- The goal: Fostering cultural tourism using Linked Data
 - Richer, contextualized end-user experience
 - Simple and cheap content publication for museums
- Comprehensive trip support
 - Planning, executing, and reflecting the trip
- Current status of work
 - Work still in progress
 - Planned release of first demonstrator: Sept 30, 2012
 - National Linked Data Finland project: work continues

- More info and publications

– <http://www.seco.tkk.fi/projects/subi>