

#### Case Study: Publishing Large Collection of Artworks Using Topic Maps

Grip Studios Interactive Aki Kivelä & Olli Lyytinen 21.3.2007



## Content

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## Wandora

- Knowledge management suite based on Topic Maps
- Developed in Grip since 2000
- Applied in half a dozen knowledge publishing projects
- Desktop application programmed in Java
- Own topic map API that resembles TM4J
- Utilizes the layered topic map paradigm

Wandora http://www.wandora.net



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## Layered topic maps

- There is a need to combine several knowledge packages
- Topic merging rules make this possible
- At the same time should try to keep different sources separate
- Layer paradigm keeps topic maps internally separate but presents them to user as one merged map



## Applications of Layered TM

 Combine information from different sources, possibly third party topic maps
 Updating separate sources is straightforward because of layers
 Organize information with layers and

toggle layer visibility to only see information that is relevant



## Plug-in architecture in Wandora

- It is possible to add import, export and other features through plug-ins
- A few examples of implemented features
  - Read XTM, LTM, RDF; write XTM
  - Read metadata from images, MP3, email
  - Tools to add images to topic map and upload them to an online repository



## Wandora-Piccolo server

- Java based Apache Tomcat web application
- Piccolo is a proprietary, light weight, extendable application framework
   Can load Wandora project files directly
   Uses Apache Velocity template engine



### Velocity templates

Velocity templates are a kind of scripting language that produce the final html (or other) representation of topics

- Templates have direct access to the Java topic map classes
- Velocity only sees the merged topic map



## Caching of pages

Caching would improve performance

- However tracking changes in layered topic map is very hard
  - Topic merges and splits affect many pages
  - It isn't clear what topics are visible on a page
  - Someone else might make direct changes in the database containing the topic map



#### The Project: FNG Collections



## What? When? Who?

Large-scale topic map application to promote art collections of Finnish National Gallery

- 37000 artworks, 3600 artists
- 110 000 topics, 470 000 associations, 95 000 occurrences
- 2006-2007, Launch May 15<sup>th</sup>
- Finnish National Gallery, Aimari Oy, and Grip Studios Interactive

Finnish National Gallery http://www.fng.fi Grip Studios Interactive Oy http://www.gripstudios.com



#### The Big Picture!

(very simplified version)





### Data sources – Muusa

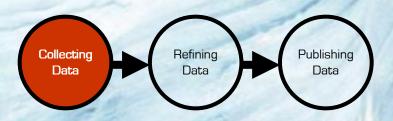
- Information system developed by FNG and Aimari
- Stores the definitive knowledge about artworks and artists
- Used in 18 different art museums in Finland,
   >70 000 artworks
- CIDOC Conceptual Reference Model (ISO 21127:2006)
- Relational Database

Muusa http://www.muusa.net CIDOC Conceptual Reference Model http://en.wikipedia.org/wiki/CIDOC\_Conceptual\_Reference\_Model

## Data sources – Muusa Export

Definitive data package
GQL → LTM
Why LTM?
Easy to generate
Compact format, small file size
Imported to Wandora as a topic map layer

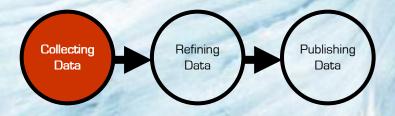




### Data sources – Enrichments

- Additional knowledge to spice, expand, and refine the Muusa Export
- Manual construction with Wandora desktop application
- Data extractions
   Topic map layer





#### Data sources – Layers

#### Muusa layer

- Information from a huge relational database
- Layer data is updated periodically by converting original database into a topic map
   Enrichment layer
  - Managed continuously





## Refining the data

- Deleting unnecessary topics and associations
- Using Wandora's layers to
  - Rename topics
  - Merge identical topics
  - Thin down dense categories with merge
- Special tools to
  - Process complex associations (CIDOC CRM)





## Refining the data

- ✤ Fixing topic types
  - Types used to group similar topics
- Fixing subject identities
  - Ease ad hoc construction of subject identifiers
- Inserting data chunks
  - Iconclass vocabulary (English and Finnish)
  - Muusa keyword Iconclass bridge-associations





## Other resources – Images

- Need for 8 different versions of single image!
- Subject locators and scoped occurrences were tried but found unusable
  - Topic map size exploded
  - Immature tools to handle large collections of subject locators and occurrences.
- Solution: Single image identifier and separate application to resolve and generate the requested image version.





## Publishing data

- Wandora-Piccolo framework
- Two actions: View topic and Search
- Velocity templates
  - Producing HTML documents
  - >90 template files, template hierarchy depth ~4
  - Choosing template using topic's type and subject identifier





# Publishing data

- Minimized code in Velocity templates
- Java library class including useful methods
  - Get players of topic X where association type is Y and player's role is Z.
  - Get topics from given collection having association X.
  - Sort associations along player X.
  - + etc.



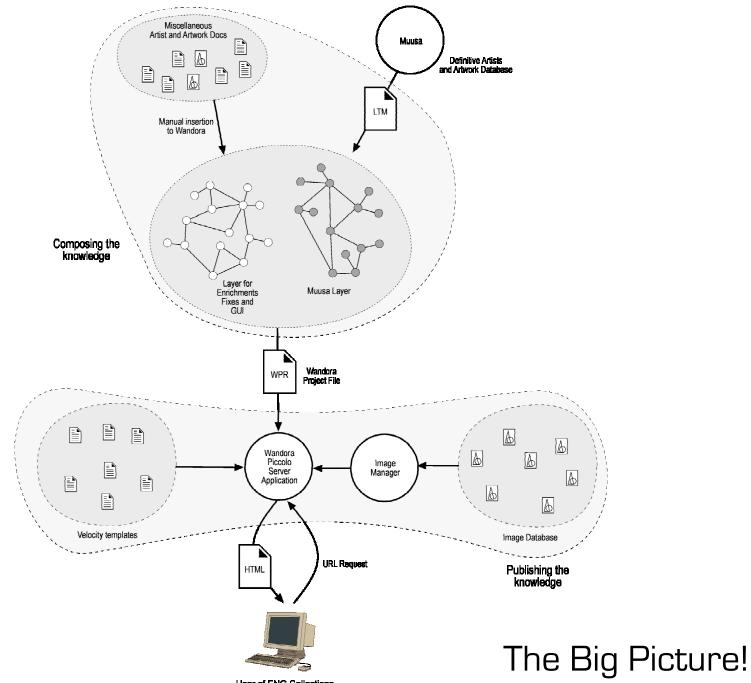


## Publishing data

◆ Special GUI topics defining
◆ GUI properties
◆ GUI texts (→ No language dependent texts in templates)
◆ Numerous invisible topics and associations
◆ Topic map model not visible in HTML visuals







User of FNG Collections

#### Lessons learned

- Asymmetry of language versions
  - Finnish version > English version > Swedish version
- Managing subject locators
  - No subject locators but specific application resolving external resources
- Keyword bridges
  - \* Muusa keywords  $\leftarrow \rightarrow$  Iconclass keywords
- Metadata in topic map
  - Topics defining GUI properties and GUI texts



#### Lessons learned

- Presentation of topics
  - Careful template design avoid flat hierarchy
  - Numerous invisible topics and associations
  - Topic != HTML page
  - Topic map model *not* visible in HTML visuals
- Scalability
  - Database topic maps vs. Memory topic maps
- Numbers are bad
  - Dates, measures etc.
  - Occurrences  $\rightarrow$  Topics



# Sightseeing tour

Screenshots from the FNG collections site





S VALTION TAIDEMUSEO 200

Tyko Sallinen: The Washerwomen, 1911



ARTIST

**KIASMA** 

SINEBRYCHOFFIN TAIDEMUSEO

Selaa tietoja taiteilijoiden elämästä, teoksista ja taiteenalasta.

#### COLLECTIONS

Museon hankintojen lisäksi kokoelmassa on lahjoituskokoelmia. Jokaisen takana on tarina.

#### MUSEUMS

Browse collections of museums:

Sinebrychoff Art Museum Ateneum Art Museum Museum of Contemporary Art Kiasma

ROUTES

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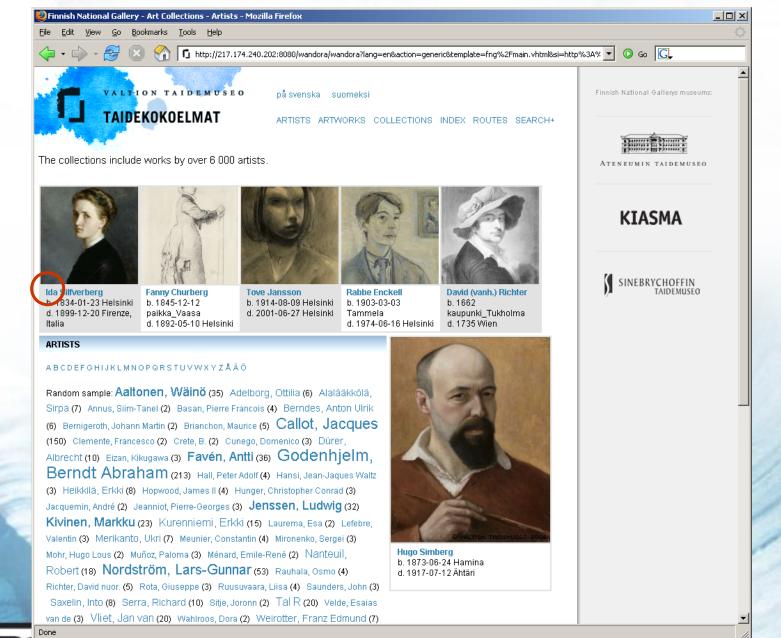
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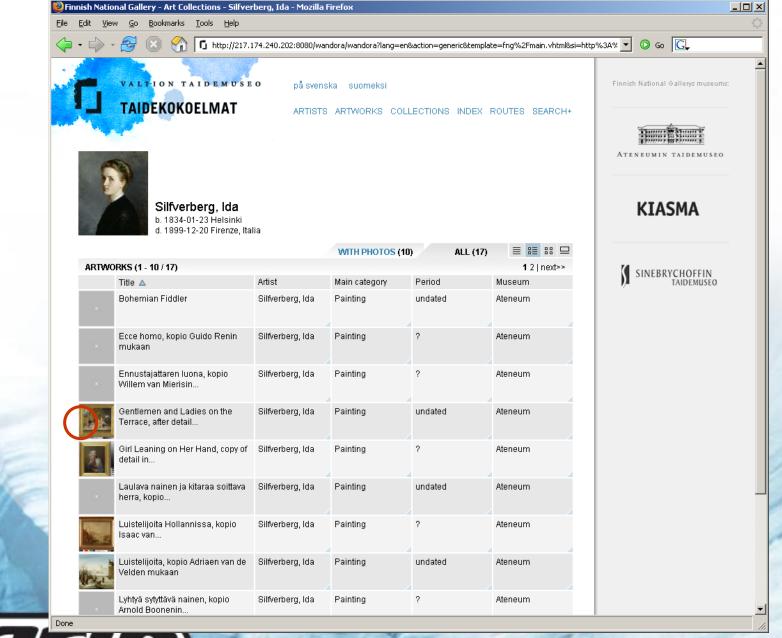
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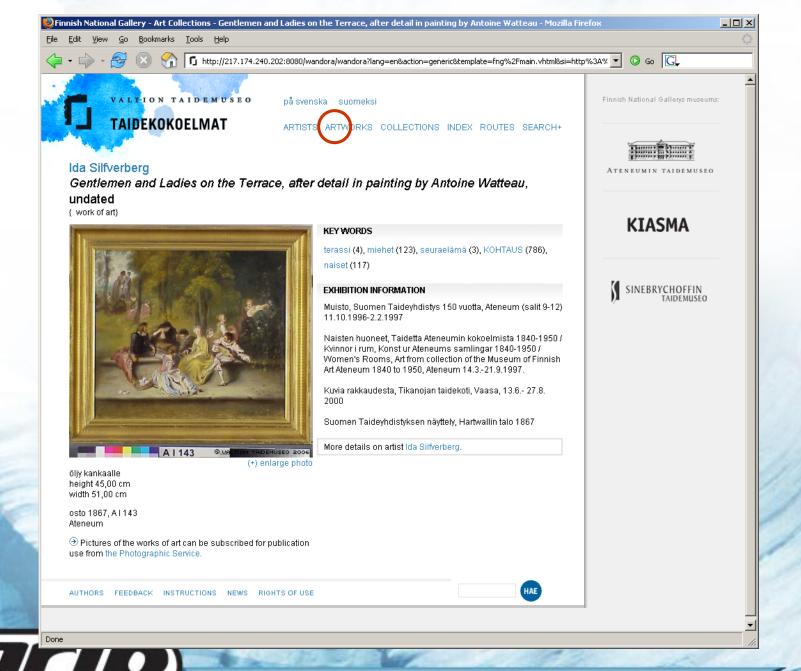
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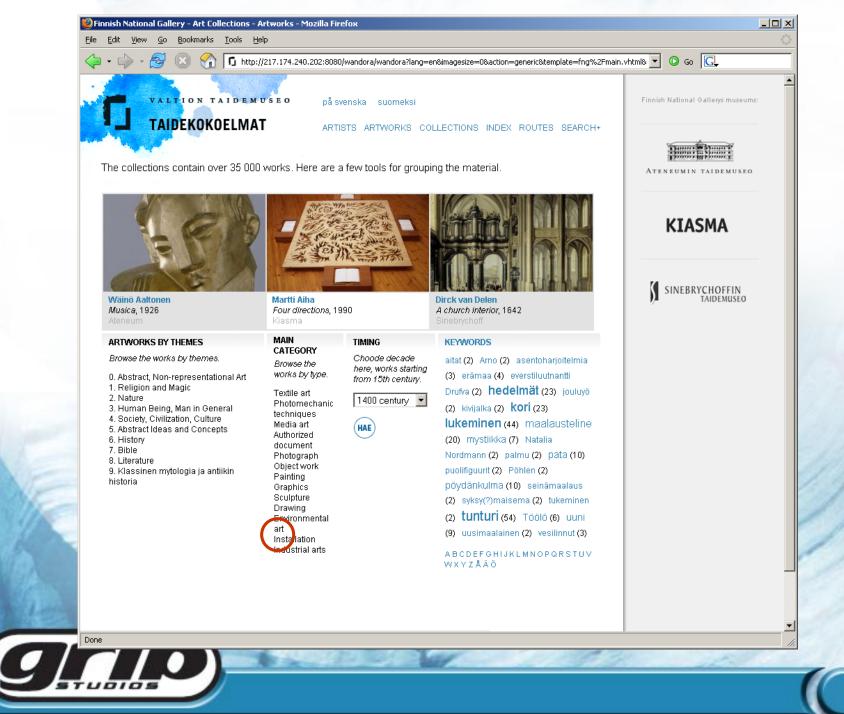


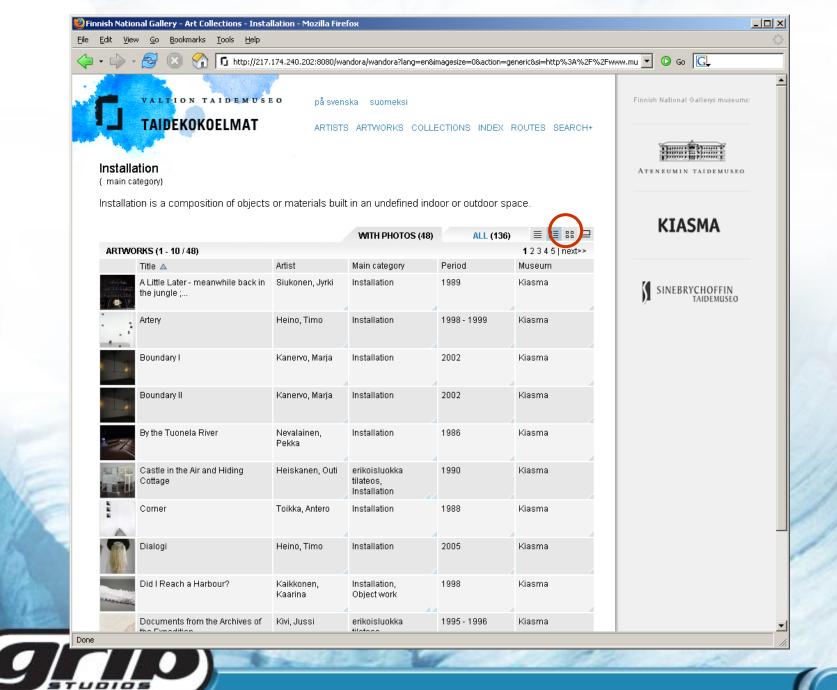


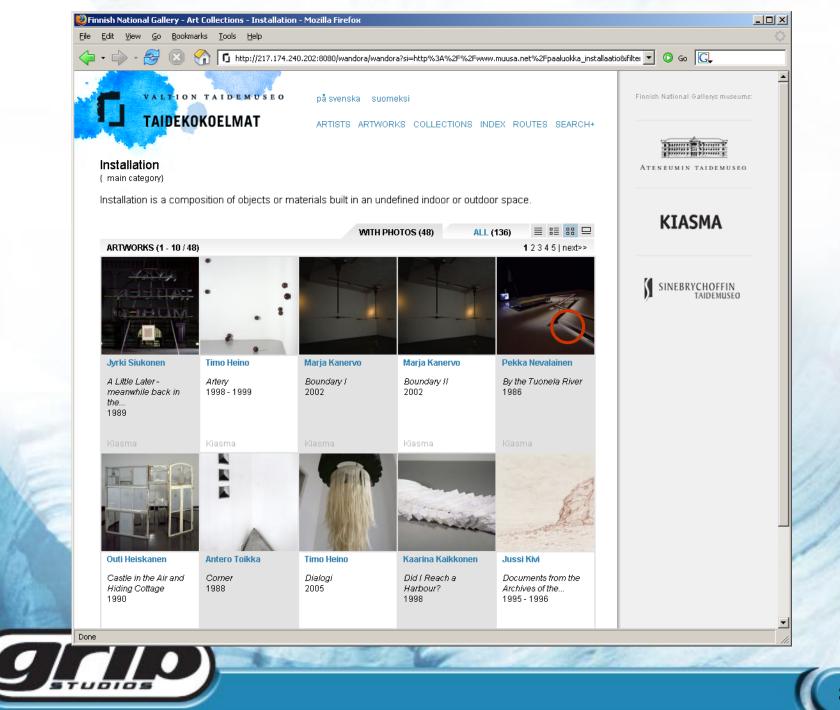


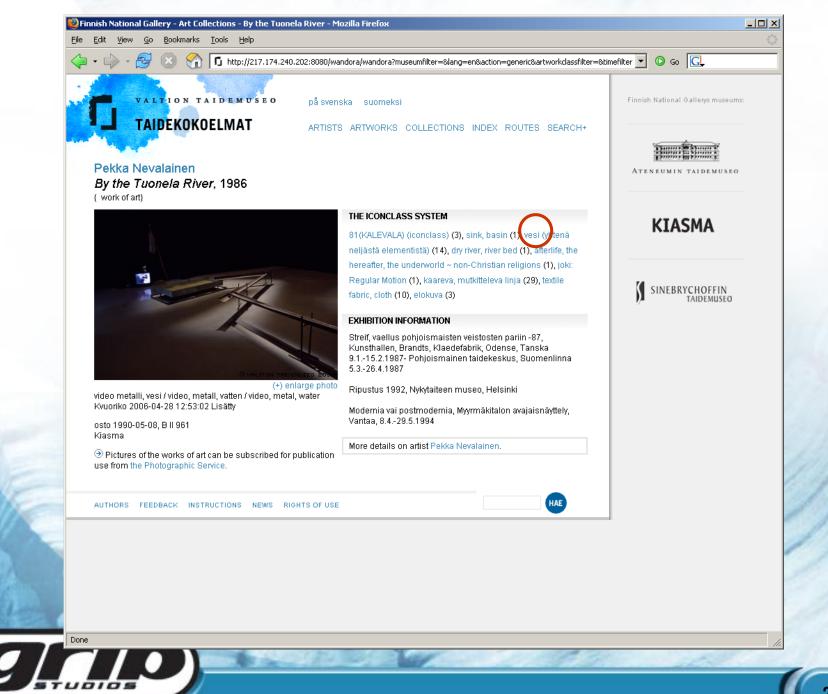
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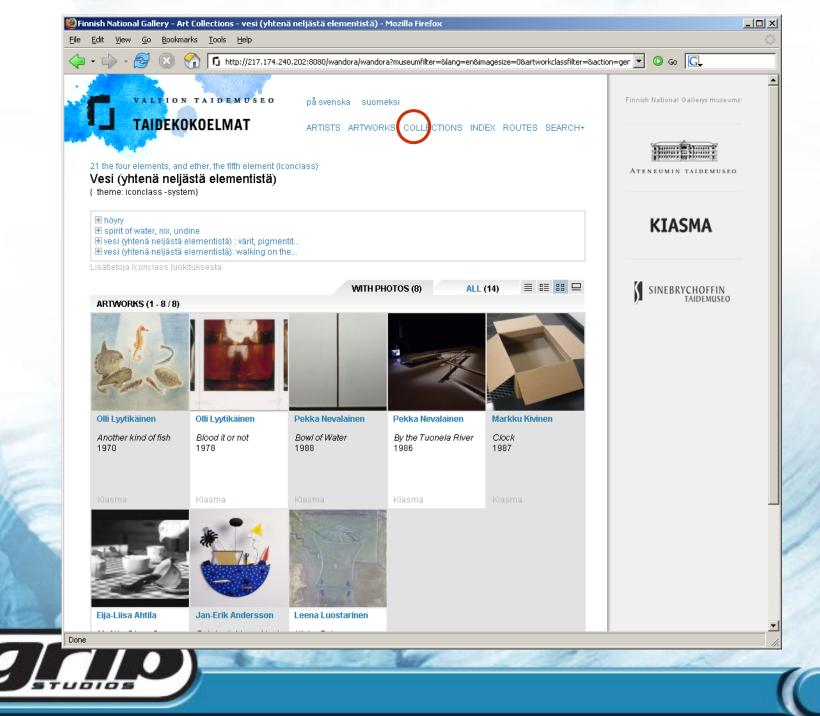




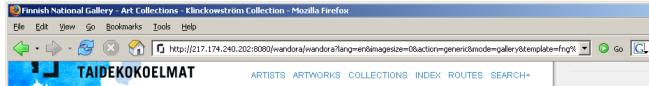












#### Klinckowström Collection

{ collection}

#### ABOUT THE COLLECTION

Klinckowström's art collection is a typical family collection. built around the core of inherited family portraits. After Klinckowström died, Crown Prince Alexander acquired 28 works from the collection and donated them to the Finnish Art Society in the name of his son, who was a patron of the association. The Helsingfors Tidningar newspaper reported on the gift as follows: "The Finnish Art Society has received a donation that is to be valued in its own right, but even more treasured is the hand that offered it". The donation came with a request that the best works in the collection would be kept as initial stock for a painting gallery for the association. The request was realized in 1868 when the collection of the Finnish Art Society gained official status.

The donated collection is quite illustrative of what a partly inherited, partly self-acquired society collection from the early 19th century looked like. It contained landscapes, portraits, still lifes, interiors and mythological and religious themes. The pearl of the collection was Lucas Cranach's Portrait of a Young Woman from 1525. Other notable works in it include, for example, Dirck van Delen's A Church Interior from 1642, Hieronymus Francken II's Connoisseurs at a Gallery and Godfriedt van Bochoutt's still life pair from 1661. Most of the works in the collection are of Central European origin. The Nordic countries are represented by the artists Carl Johan Fahlcrantz, Pehr Norquist and Alexander Laureus.

Susanna Pettersson Senior Planning Officer Finnish National Gallery, 2006 ABOUT THE COLLECTOR

Swedish-born Baron Otto Wilhelm Klinckowström (1778-1850) moved to Finland in 1816 with his wife, Sara Cuthbert-Brook, and their son. They settled first in the Vuojoki Estate in Central Finland and later resided in the cities of Helsinki and Vyborg. Baron Klinckowström was a close friend to Prince Menshikov who was the Governor-General of Finland in 1831-1855 and he was soon advanced to the position of member of the Senate. He was also assigned other high-ranking duties past the country's own governing aristocracy.

In 1821 Klinckowström was appointed governor of the county of Wborg, in 1825 member of the Senate's Finance Committee, in 1836 member of the National Board of Censorship and in 1841 vice chair of the National Board of Public Roads and Waterways and Lieutenant-General. He resigned in 1847 and was awarded the imperial court ranks of Actual Privy Councellor and Ceremonial Master. Klinckowström is not however historically best known for his public service career achievements. His interests lay in the glamorous social life of St. Petersburg, gardening and arts. He was also a board member and vice chair of the Finnish Art Society, which was founded in 1846.



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#### **KIASMA**

SINEBRYCHOFFIN TAIDEMUSEO

WITH PHOTOS (18)

ALL (20)

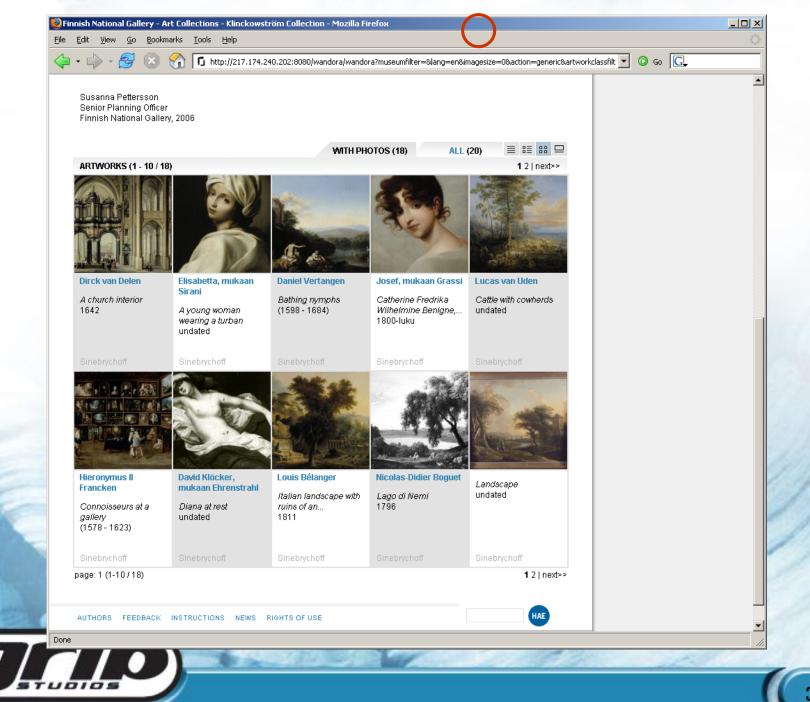
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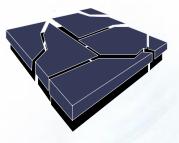


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UDIOS







Thank You

Grip Studios Interactive Kristianinkatu 15, FIN-00170 Helsinki office@gripstudios.com

> Download Wandora application from www.wandora.net

