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From card systems to global information networks: libraries and linked data

QQML 2023 - Future libraries, innovative synergies and collaborations

Kaisa Hypén, Turku City Library

Turku City Library

- Established 1863
- Consists of
  - The main library
  - 10 branch libraries
  - a service point in a shopping center
  - two mobile libraries
- 2022:
  - 3,2 million loans
  - 1,5 million visits

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Location and co-operation of Turku City Library

- Turku is located in southwestern Finland; it is the biggest city in this area with 195 137 inhabitants
- Turku City Library leads the regional library co-operation called “Vaski”, between 18 municipalities and 61 individual libraries
- Vaski libraries have
  - one library card, one collection (2,4 million books, movies, magazines, music…)
  - one reservation que, common rules of use
  - material transportations free of charge
  - one big e-materials collection
- The cataloguing of library materials is also done through cooperation

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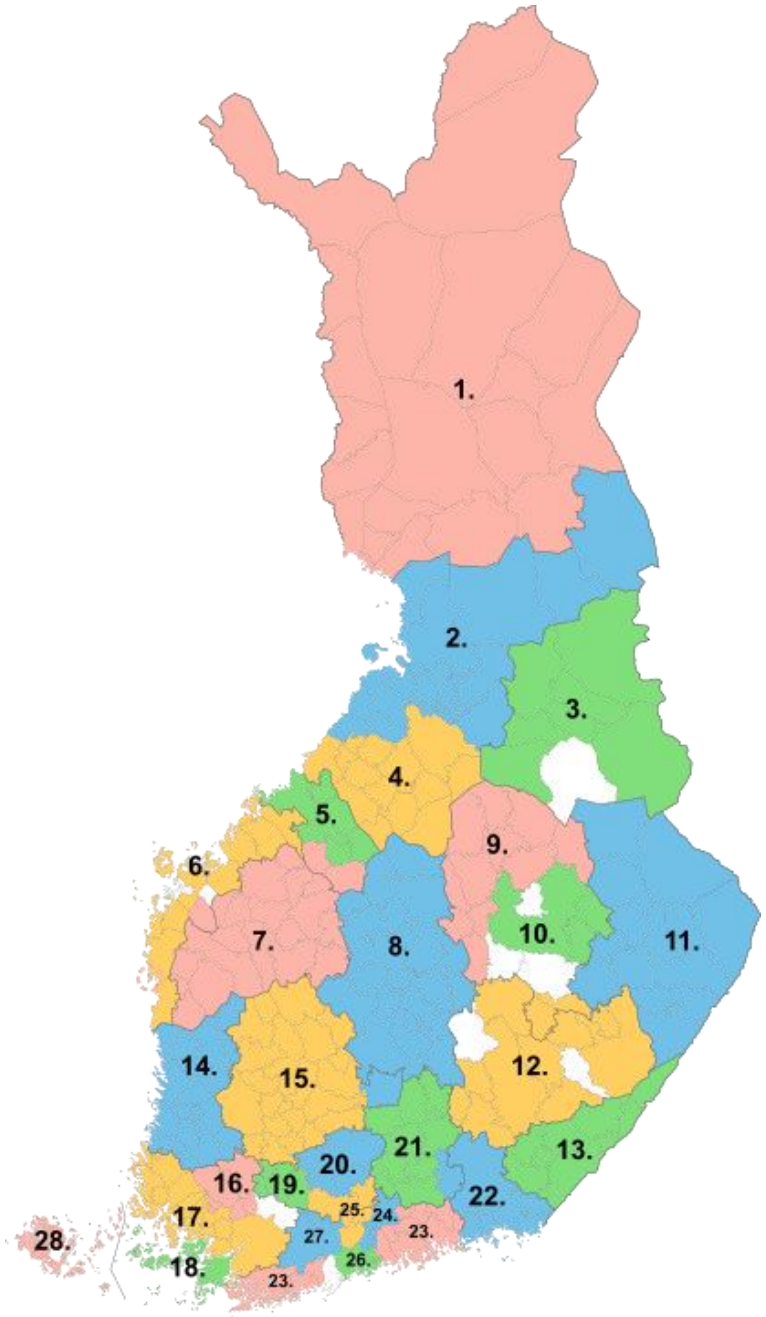
Public libraries in Finland

- There are 293 municipalities in mainland Finland, the Library Act obliges each municipality to have a public library
- In total there are 713 locations of public libraries
- Libraries have 26 cooperative bodies of which Vaski is one
- These cooperative bodies maintain, among other things, a common database
- In total, Finnish public libraries have 36 databases, of which 26 are maintained in cooperation
- Read more: https://www.libraries.fi/finnish-public-libraries



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There is no library without metadata

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The passion of librarians is to make information visible, to organize and convey it to the public, in the ways available at any given time.

Library metadata

- Which works are included in the collection
- Information search
- Placement of the collection
- Is a prerequisite for customer’s independent use of the library

- Bibliographic metadata
- Metadata related to the authors
- Content description

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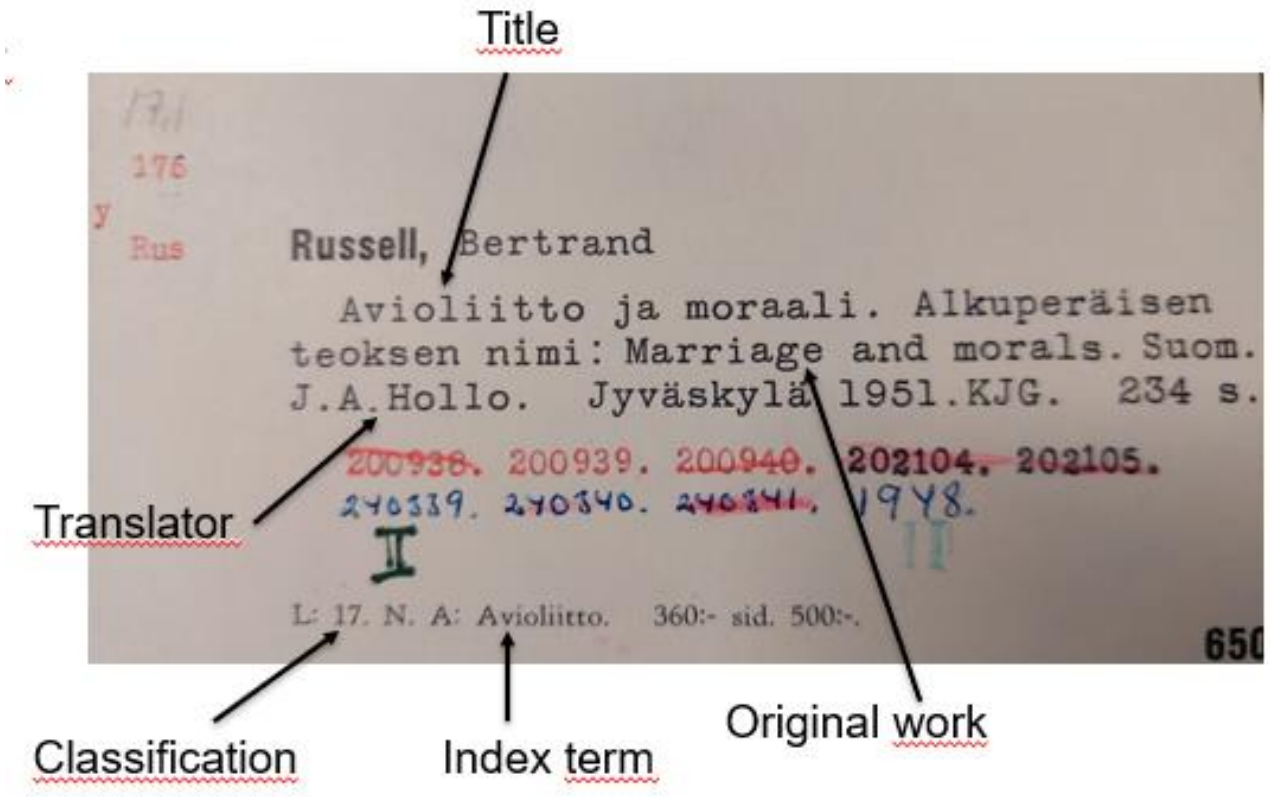
Turku City Library's collection

The era of the card files

- Metadata was created locally in each library
- Several cards were made of each work
  - The size of the card file determined how much information about each work could be stored
- Libraries had several card files, at least
  - Alphabetical
  - Systematical
  - Inventory card file for the library staff
- Index cards were sophisticated and full of information



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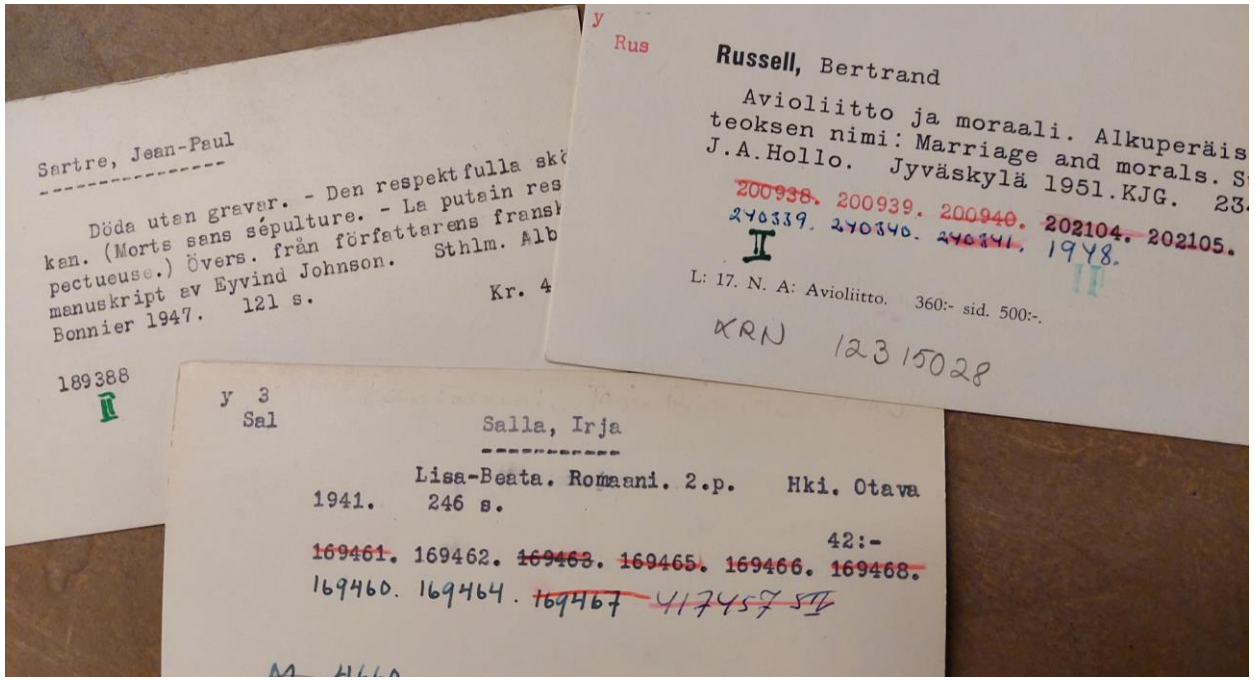
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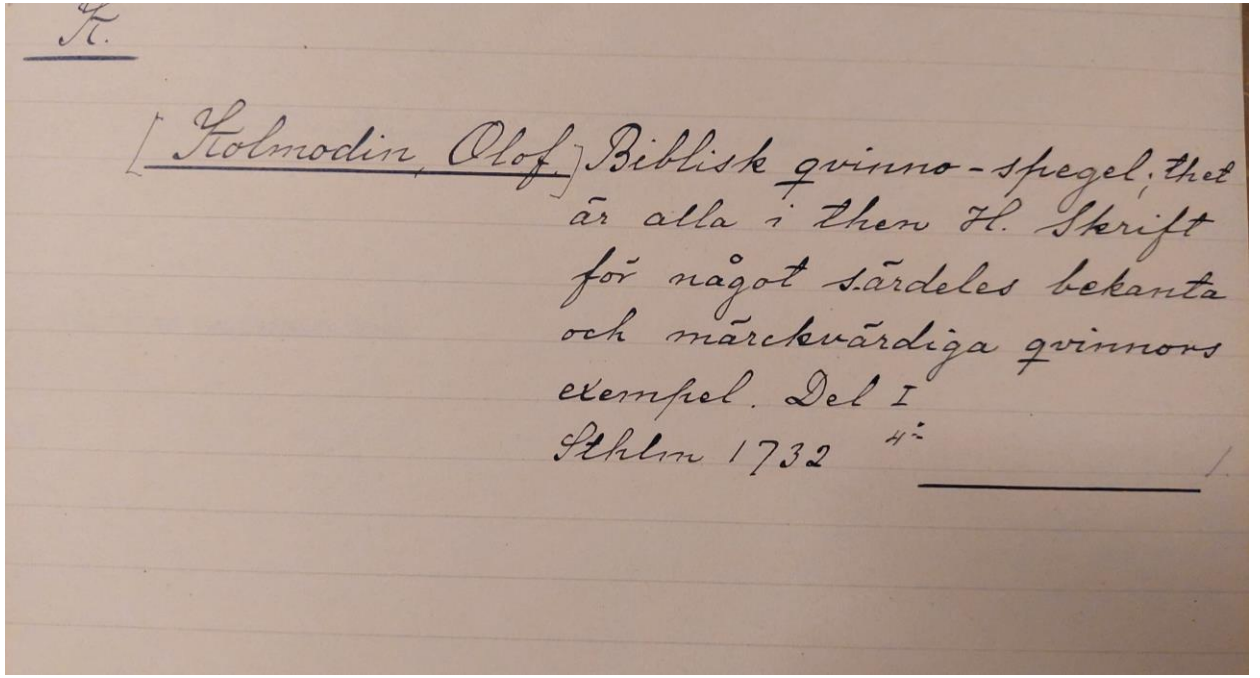
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Metadata was stored in the first library databases in Finnish public libraries in the early 1990s. The very first desktop computer of Turku City Library.

MARC – MAchine-Readable Cataloging

Data storing format used by the libraries since 1960s

MARC was a pioneer in its time and the format has been updated over the years

In today's connected online world, it has become obsolete and it is time to say a long goodbye to the format

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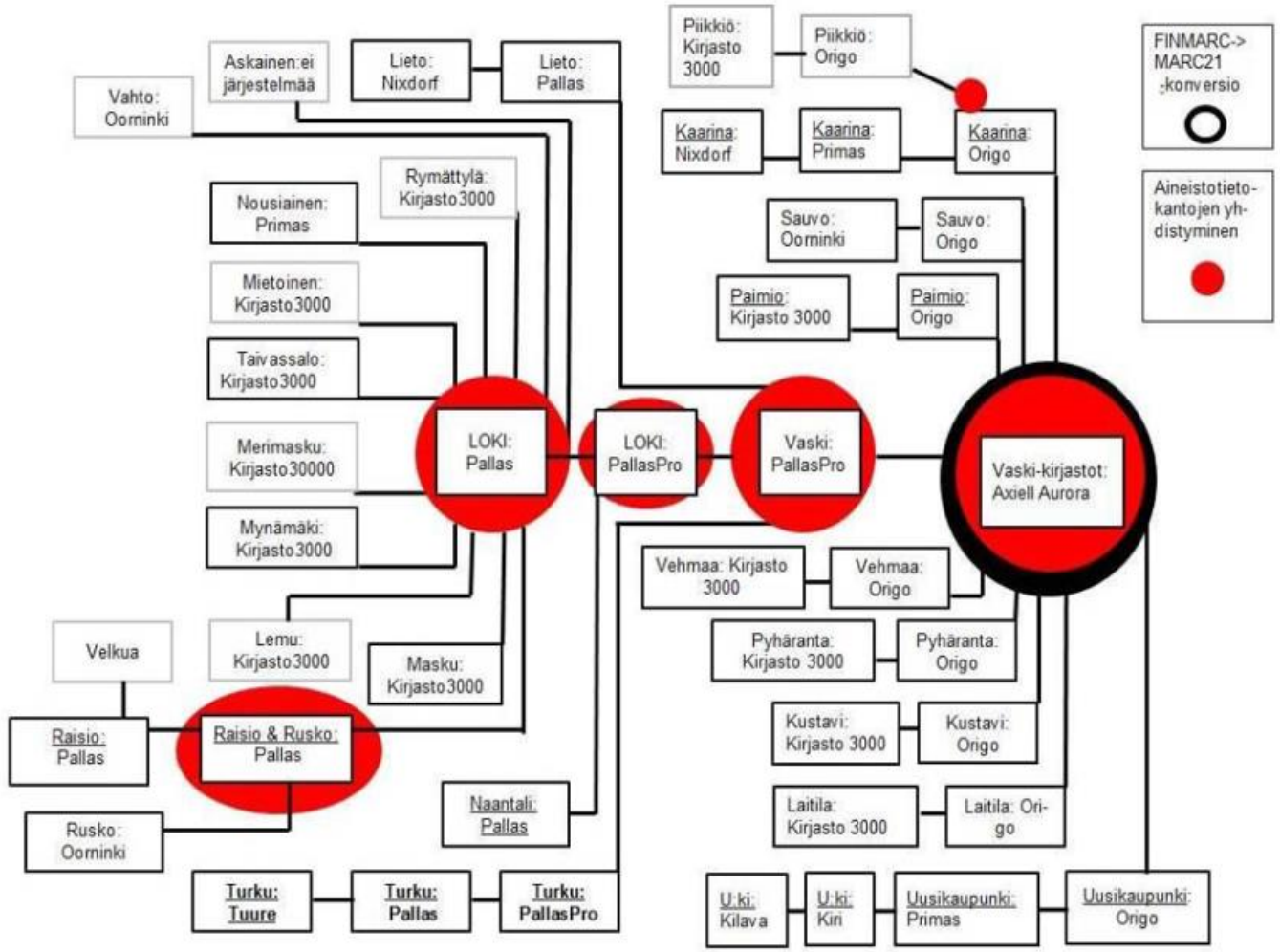
Database infrastructure

- At first, all libraries established their own database
- Gradually, the databases were combined into larger entities
- The database of Vaski-libraries therefore consists of approximately 35 separate databases (not all of them are shown in the picture)
- Libraries with a common database can also share cataloging work



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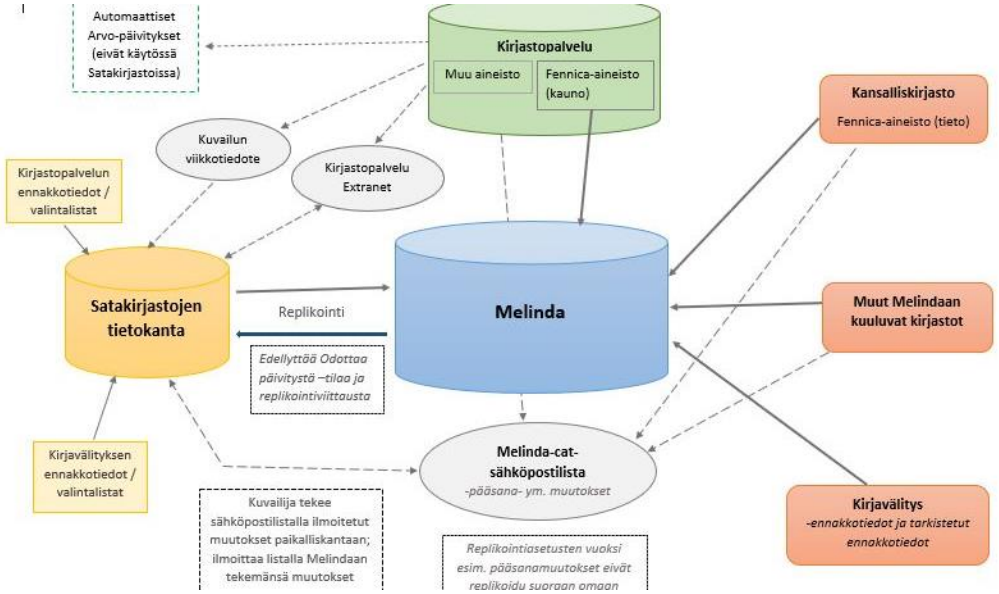
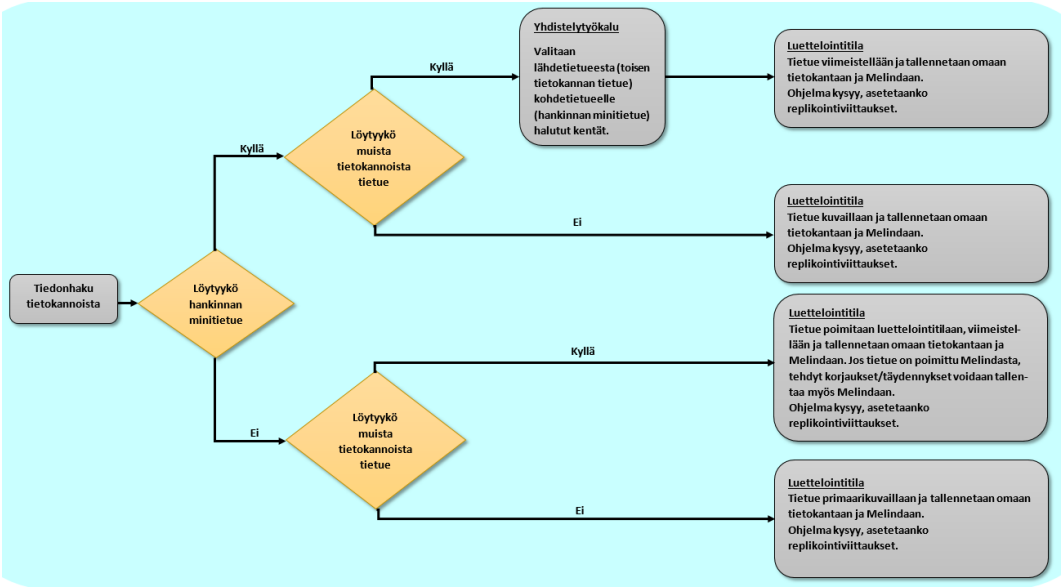
Based on Leo-Lassi Kinnunen's thesis

National repositories

- Databases and digitalization enable wider co-operation between libraries, such as national metadata repositories
- In Finland: Melinda – ”a collaborative environment for national cataloguing activities as well as a national metadata repository”
- Cooperation is built on existing systems, the big picture of the whole, working processes and metadata flows may be complex



Leena Vainikainen



Cataloging process

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Transition to linked library data

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The ideal goal

The most complete linked library data is realized when every new work that appears, for example a book, is cataloged only once in the entire world.

When Annie Ernaux publishes a new novel, it – the work: title, author, content – is described, for example, in the National Library of France, and different versions, translations, editions, formats are linked to it in library systems around the world.

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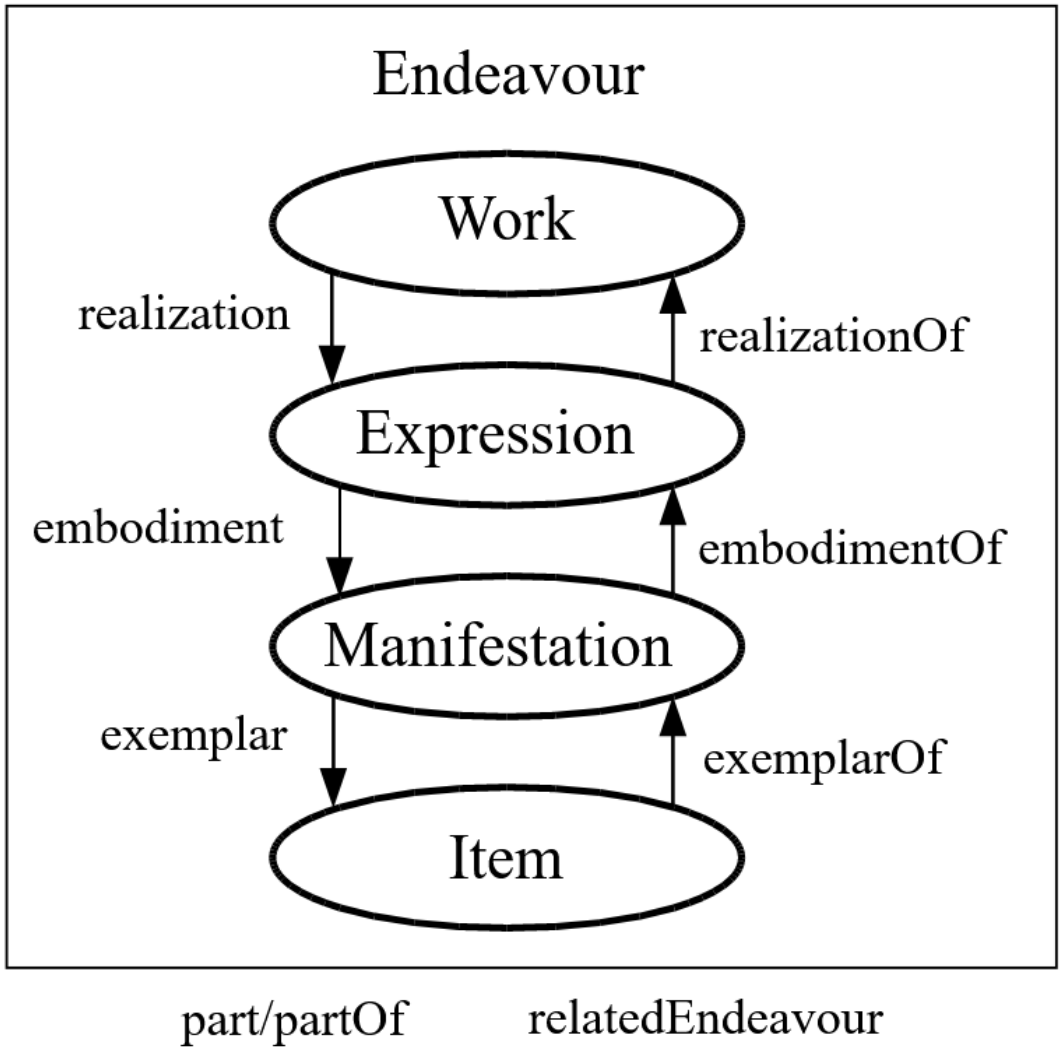
The basic idea

- Four levels (’W-E-M-I’) are identified from the cataloged material
- Relationships of the entities are expressed by linking
- Also the authors, subjects, times and places related to the work are expressed with relationships



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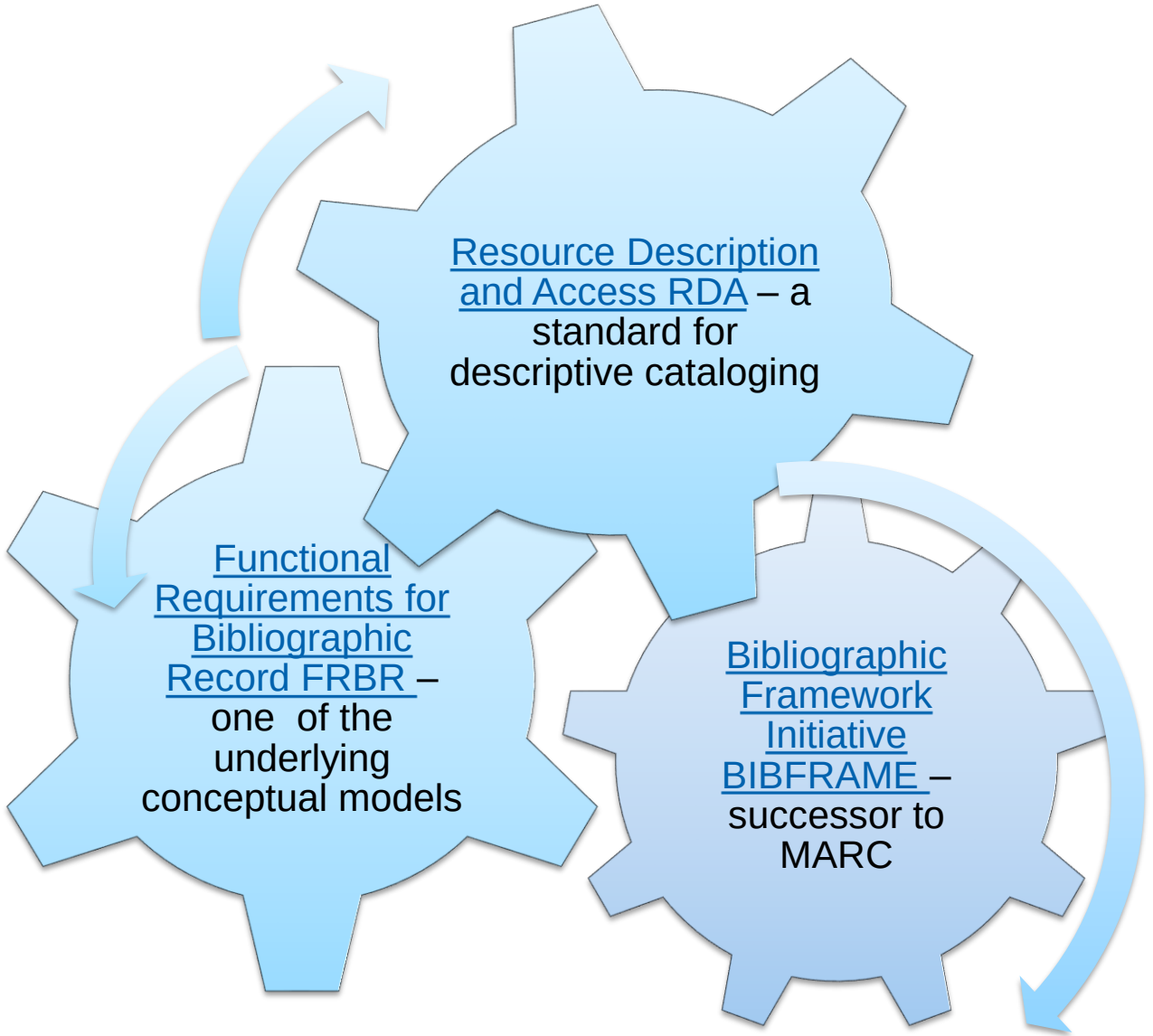
Linked library data elements

- The linked library data infrastructure has been under development for a long time and it is still under construction
- But, of course, a lot has been done already



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Challenges in matching

- Resource Description and Access RDA – a standard for descriptive cataloging
  - Four entities: Work – Expression – Manifestation – Item
- BIBFRAME
  - Three entities: Work – Instance – Item

➢ National applications

  - For example, in Finland we'll have BIBFRAME with four entities, more compatible with RDA

➢ BIBFRAME Interoperability group (BIG)

  - Discussion related to the format, the aim is to ensure the international interoperability of national data models

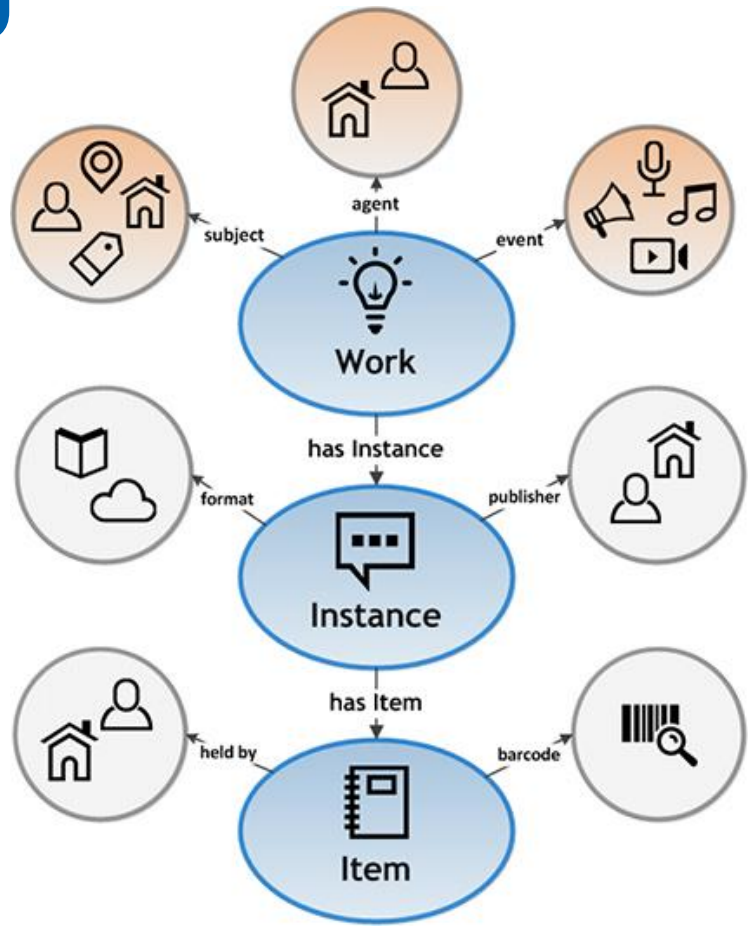

Illustration of BIBFRAME 2.0 model, with three core levels of abstraction (in blue) —Work, Instance, Item—and three related classes (in orange)—Agent, Subject, Event
Library of Congress, Public Domain

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Slow progress?

- Instability of the new format > library systems have not been able to be developed
- It is very laborious to make changes to the system infrastructure of libraries – changes in database and metadata have wide-ranging effects on all work done in the library
- Metadata cooperation is global, the changes must be well prepared and there must be a consensus of them
- The change should concern the entire metadata ecosystem, which has many different actors

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Public libraries and the linked library data. Case Finland

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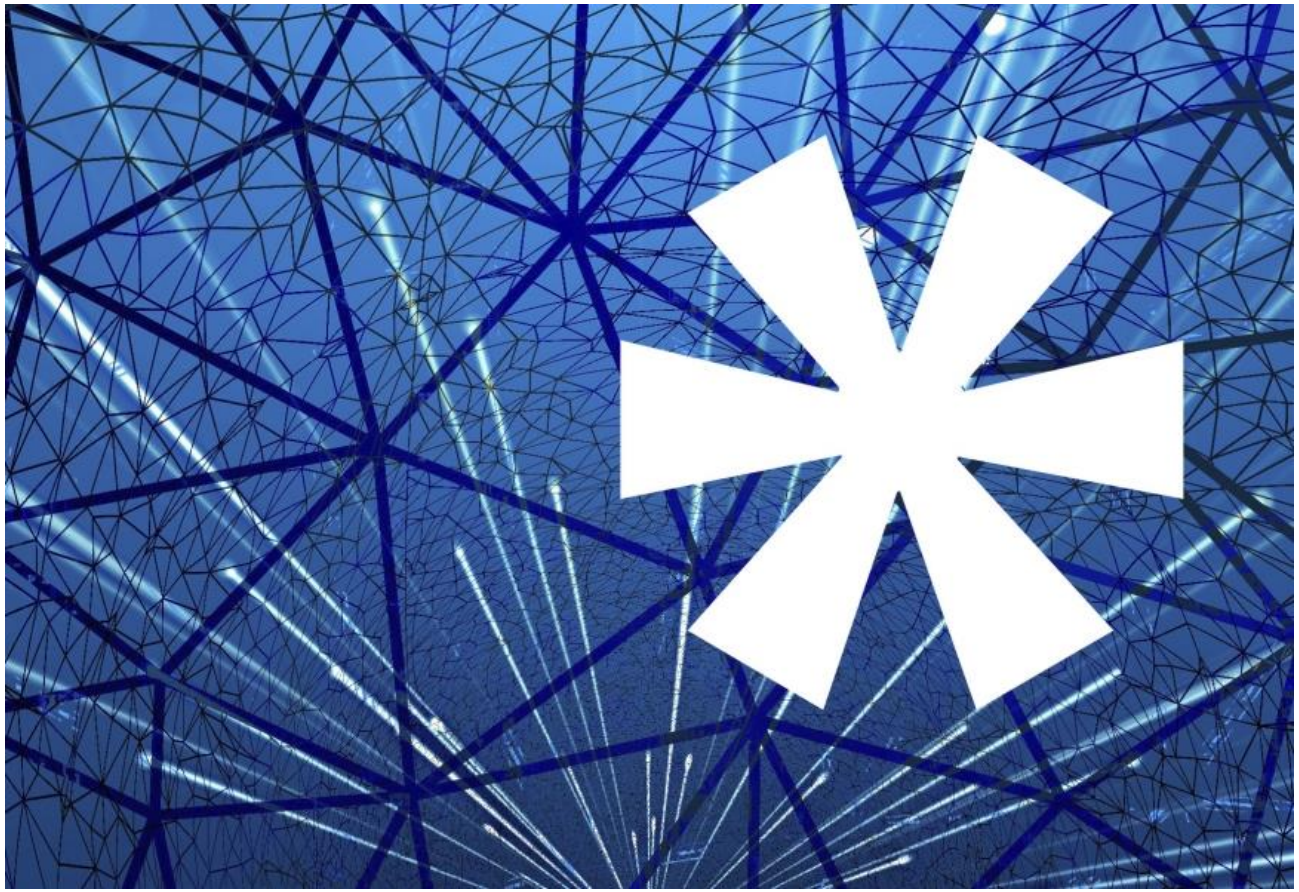
The Metadata vision

- The National library published a metadata vision in February 2020
- According to vision, the bibliographic metadata should be
  - Comprehensive
  - Up to date
  - Quality
  - Reliable
  - Authorized



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The goal of metadata production

- High-quality, rich and interoperable metadata
- The basis for the development of artficial intelligence
- Standards and common practices as well as shared metadata repositories enable the division of cataloging work and the utilization of expertise
- Efforts are being made to automate the cataloging work

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Development work in the National library

- A continuum of linked data in libraries
  - Melinda’s expansion (2012)
  - Implementation of RDA (2013)
  - Unique identifiers
  - Conversion from thesauruses to ontologies
  - New RDA-version
  - BIBFRAME
  - Development of a linked library data conceptual model – works, expressions (2024)
  - Metadata repository Melinda’s back-end system renewal (2025)

Matias Frosterus ja Marja-Liisa Seppälä: *Linkitetty kirjastodata* Melinda huomenna –webinaari

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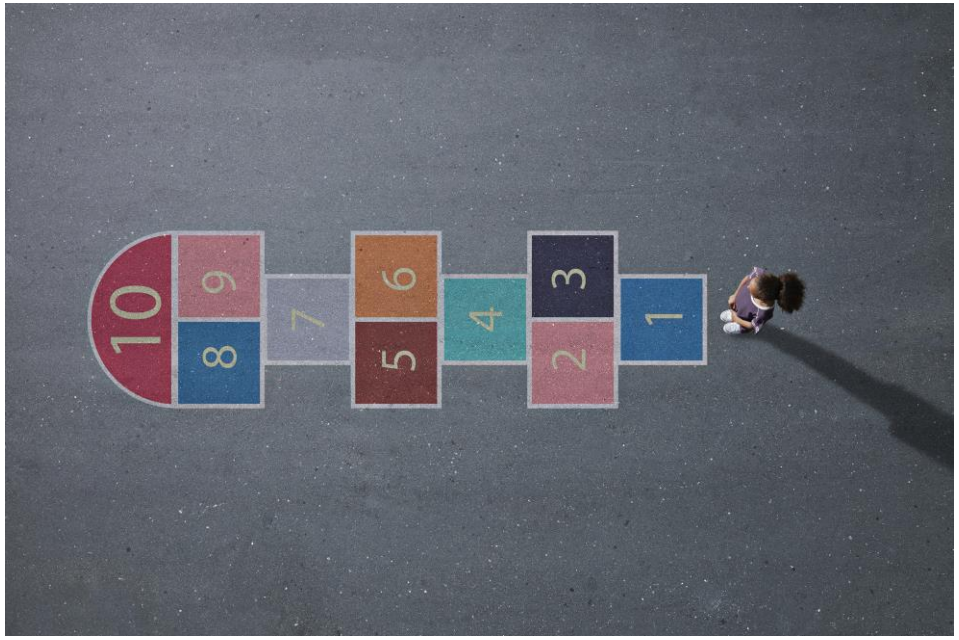
Project “Towards the Metadata vision”

- Was launched at the initiative of the Council of Public libraries
- Funded by Ministry of Education and Culture
- Managed by Turku City Library, part-time project worker
- 1.4.2022-30.4.2023
- A follow-up project 1.5.2023-31.12.2024
- The project has clarified how public libraries can implement the vision in their own operations in the coming years



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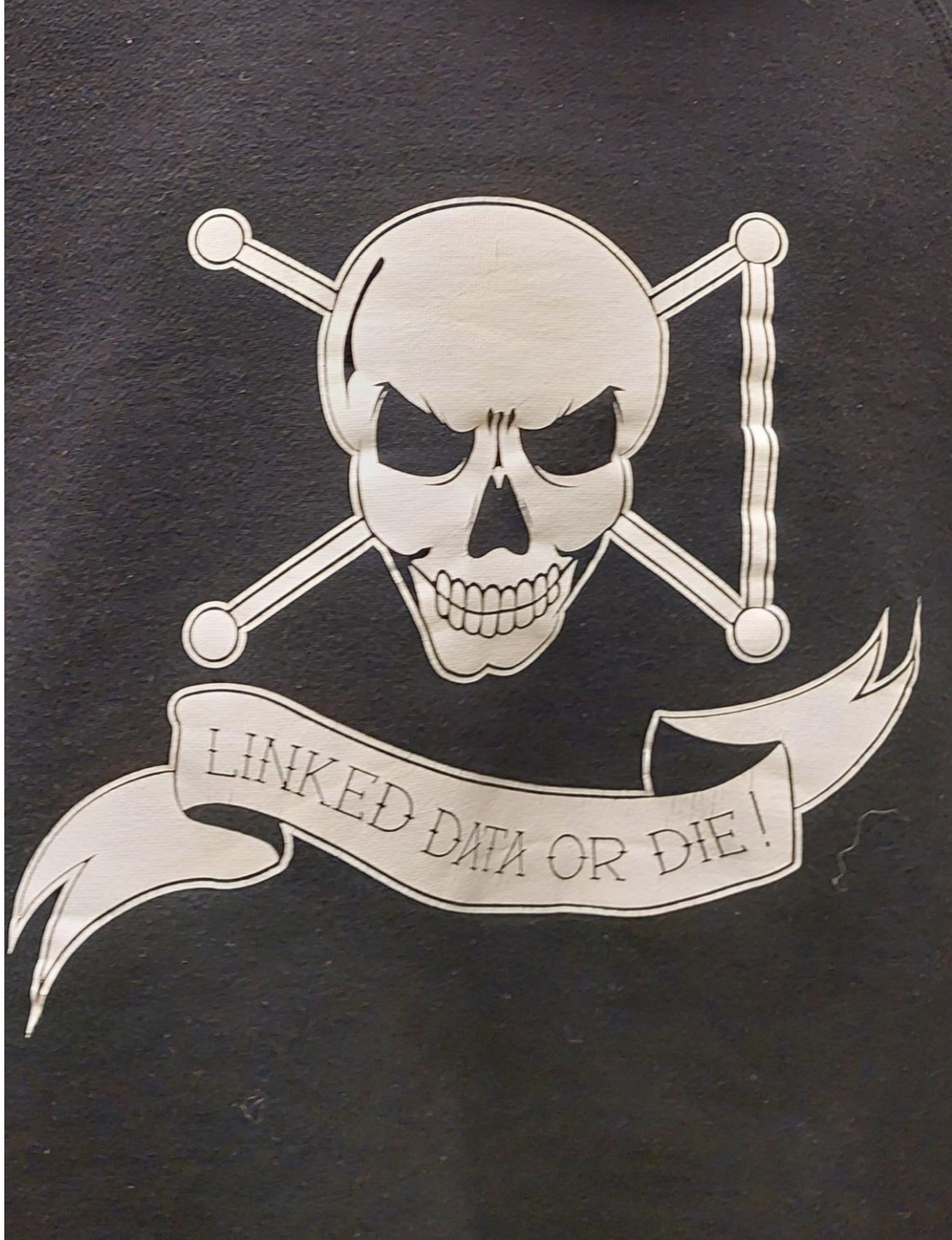
Project tasks

- There are 36 public library databases – we have discussed future changes with 33 libraries that maintain the database
- We have met the suppliers of library systems and commercial producers of metadata
- We have had discussions with the National library
- We visited Stockholm and got to know the cataloging practices in Sweden



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Libris, the first BIBFRAME-database in the world

- The updated version of Libris, the national metadata repository, was introduced 2018
  - BIBFRAME, RDA
- Development work is still ongoing
- BIBFRAME-MARC21-conversion when they move from Libris to local databases
  - Conversions are not lossless, records must be edited in the local databases
  - Causes additional word for all operators

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… and some results

- The willingness to change is strong in libraries – expectations, that the new linked library data model will reduce the cataloging work done locally actor
- Also the other actors in the metadata ecosystem are interested in changing their operating models
- On the trip to Sweden, we learned that in the long run it is tedious if the systems use different formats. This results in manual additional work

➢ The transition period should be as short as possible and we should move towards the linked library data as soon as possible

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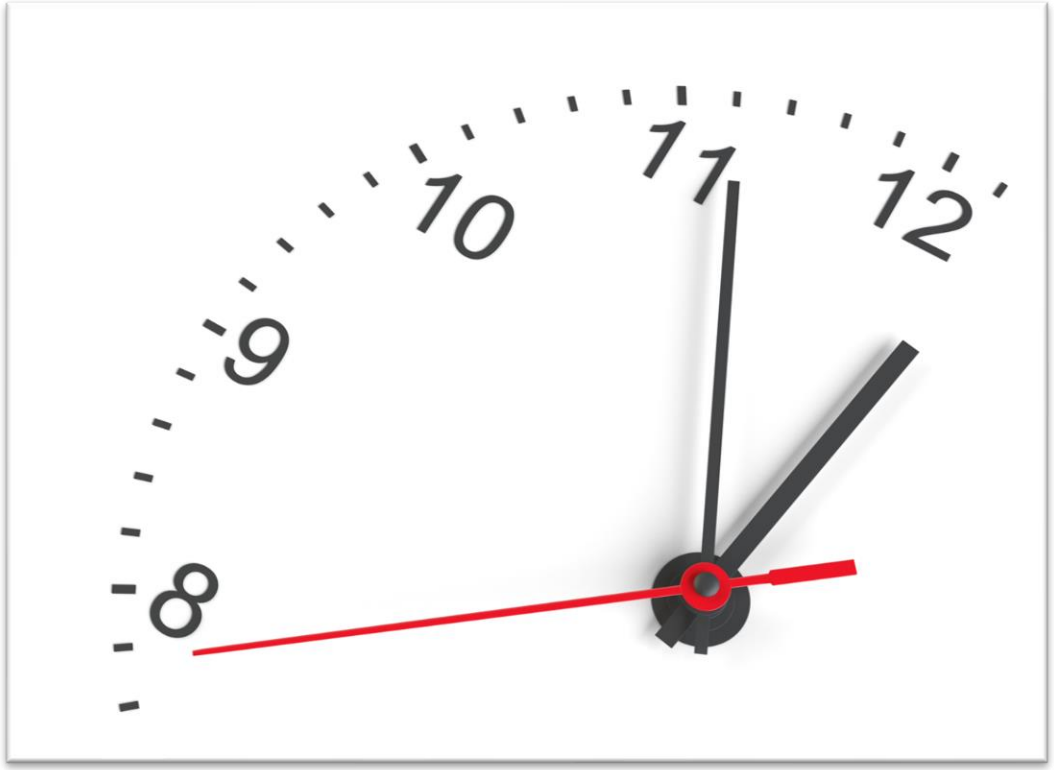
Right time to start making changes = now!

- In Finland, there has been discussion about the one common metadata repository for the entire library field for more than 15 years
- Would now be the right time to statd building it?
- Would the linked library data model provide means for that?
- This is also the central theme of the ”Towards the Metadatavision” -follow-up project – to expand and deepen discussions with all actors in metadata ecosystem



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Common data repositories
Standards

Competence
Quality

Automatic indexing
AI

Other producers of metadata

Decentralized, network-like cataloging cooperation, book trade ecosystem actors

A common metadata repository where all material is cataloged. Covers the entire lifecycle of metadata.
Works
Expressions
Manifestations

User interfaces

Paikalliset verkkokirjastot

Collection and circulation management in local systems – **Items**

Common metadata repositories

- enable better and more accessible metadata, more equal access to information than before and thereby also strengthens democracy
- make cataloging work more efficient and frees up resources for other work done in libraries

➢ **library cooperation at its highest potential**

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Tools change…

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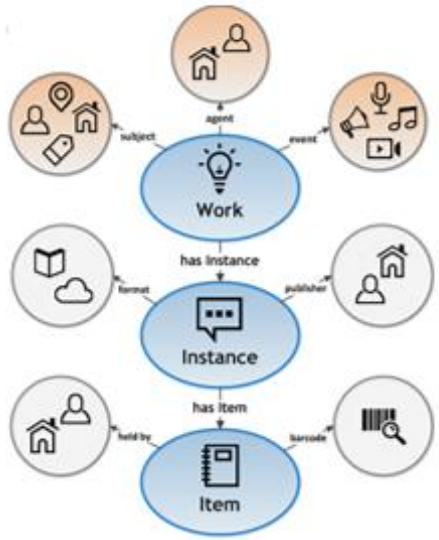
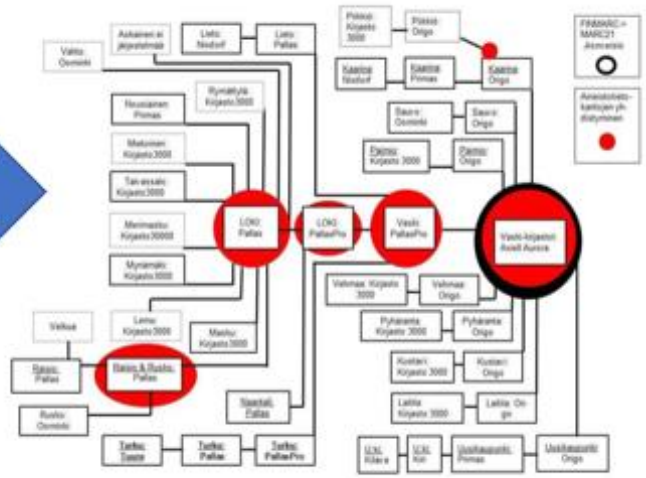
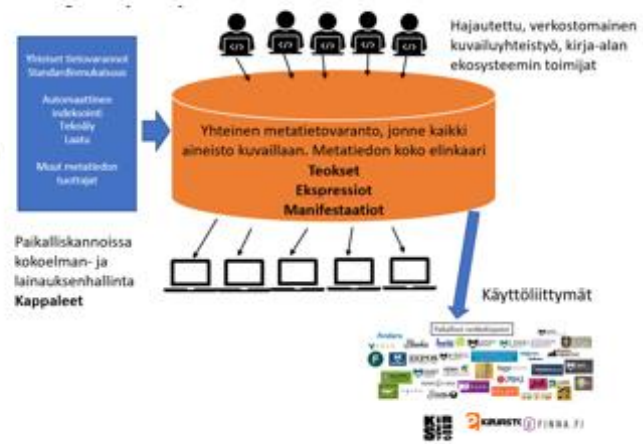


… work processes follow





Thank you!

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