# DDI Profiles to Support Software Development as well as Data Exchange and Analysis

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# Outline

- When developing software for data documentation one has to think about how to incorporate the DDI standard

- DDI-L 3.2 is a powerful standard that can support sophisticated data models and data production modes

- At the same time software needs to be manageable and adjusted to the given institution

# DDI-L - considerations

- DDI Lifecycle 3.2
- XML Schema
  - DDI 3.2 – about 1150 main elements
  - Each element might contain a number of sub-elements
  - Some elements are quite domain specific
- High degree of complexity
- Number of mandatory element quite low due to the demands of different organizations or domains

Research Data Centre (FDZ)
of the German Federal
Employment Agency (BA)
at the Institute for
Employment Research (IAB)

# Challenge when building tools

- Normally there is only a need for 50-60 main elements for a given survey or organisation

- But not always for the same 50-60 main elements


- Huge challenge when building software tools

- Especially when it is about DDI import and export functionalities

- The results are likely not interoperable solutions

# Example from the IAB Metadata project



DDI Concept for IAB Tools Project

Datei   Bearbeiten   Ansicht   Einfügen   Format   Daten   Tools   Hilfe   Lesezugriff

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| | DDI Element | IAB Term | Qbee 0.2 | Colectica | Questasy | IAB |
| 2 | @time | | | y | y (*1) | |
| 3 | @captureInstrument | | | y | y (*1) | |
| 4 | @panel | | | y | y (*1) | |
| 5 | @geography | | | y | y (*1) | |
| 6 | @dataProduct | | | y | y (*1) | |
| 7 | @languageRelationship | | | y | y (*1) | |
| 8 | Citation | | | y | y | |
| 9 | Citation.Title | Name | Name | y | | |
| 10 | Abstract | Abstract | Abstract | y | y | |
| 11 | AuthorizationSource | | - | n | n | |
| 12 | UniverseReference | Data unit | - | y | y | |
| 13 | SeriesStatement | | | y | n | |
| 14 | ExPostEvaluation | | - | n | n | |
| 15 | FundingInformation | | Funding, Funding From, Funding To | y | y | |
| 16 | ProjectBudget | | - | n | n | |
| 17 | Purpose | | - | y | y | |
| 18 | KindOfData | Data type | - | y | n | |
| 19 | Coverage | | - | y | y | |
| 20 | Coverage.TopicalCoverage | | - | y | | |
| 21 | Coverage.TopicalCoverage.Subjects | Topics | - | y | | |
| 22 | Coverage.TemporalCoverage.ReferenceDate.StartDate | Period Covered from | - | y | | |
| 23 | Coverage.TemporalCoverage.ReferenceDate.EndDate | Period Covered to | - | y | | |
| 24 | OtherMaterial | | Bibliography | y | y | |
| 25 | Embargo | | - | y | n | |
| 26 | StudyUnitReference | | Survey waves | y | n | |
| 27 | SubGroupReference | | - | n | n | |

# Solution DDI Profiles by "topic"

- Creating of DDI Profiles is described in an article from 2009 (Ionescu, Sanda)

- The idea is to not have individual profiles but standardized profiles by "topics"

- Examples of topics may include: "survey design", "data collection" or more specific "administrative data"; what else?

- Institutions can than choose the needed profiles for their institution and be interoperable with others

# Standard DDI profiles: Main goals

- Standard DDI profiles should cover the most used DDI elements by topics
- Agencies can choose from those profiles
- This will lead to an harmonized use of DDI
- And to easier exchange between tools and agencies

# Use Case I – Data Exchange

- FDZ of BA at IAB has administrative and social insurance data
  - Responsible German law: social code book
- Survey, health, financial and geo data is or will be merged to IAB data
- Normally data stays in the facilities of the BA, due to the availability of high data security standards
- Merging data sources will be easier when using DDI profiles excepted within the community

# Use Case II – Data Exchange

- International research becomes more and more important

- Moving confidential data to a central storage is normally no option, due to legal restrictions

- Trusted third party infrastructures could solve that challenge, by providing secure trusted environments

- DDI profiles will ease the job of finding comparable data sources within different countries

# Use Case III – Software development

- DIPF/TBA21 provides a DDI-based survey system
- A full DDI-L instance is much too complex to describe a questionnaire for field work
- Needed is only an extract containing e.g. QuestionItems, ReponseDomains and Conditionals (working questionnaires can only be created in DDI-L 3.2)
- Solution to exchange questionnaires between tools is a „simple questionnaire" DDI profile

# Summary

- Goal is:
    - to make DDI-L manageable and
    - to ensure exchange possibilities between different software (harmonization between agencies)
    - to prepare shift to DDI-L 4.0

- Useful standard DDI-L profiles need to be discussed and agreed on

# Thank you for your attention

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