



DIPF

Bildungsforschung
und Bildungsinformation

Rogatus - Questionnaire and Metadata Management System



Bundesministerium
für Bildung
und Forschung

Agenda

- Introduction
- The current tool situation in DDI-L
- The Generic longitudinal business process model (GLBPM)
- Deriving software tools from the current models
- Introduction to Rogatus QMMS
- Rogatus QMMS toolset
- Example workflow
- Upcoming activities
- Q&A

Introduction

- DIPF is a public service research institute located in Frankfurt am Main and Berlin (Germany)
- In 2007 DIPF started a research cluster called „Technology Based Assessment“ (DIPF/TBA) to accommodate the needs of technical assessment for educational research
- Currently the DIPF/TBA team consists of about 25 IT-professionals and seven psychometricians
- In January 2012 a spin-off company called TBA21 Assessment Systeme GmbH was started to offer the same services for the professional market
- All programming work for TBA21 is currently handled by cooperation partner OPIT Consulting Kft. in Hungary
- Original mission statement of DIPF/TBA: to consult and support German research institutions and universities when they want to implement computer-based testing

Current tool situation for DDI-L

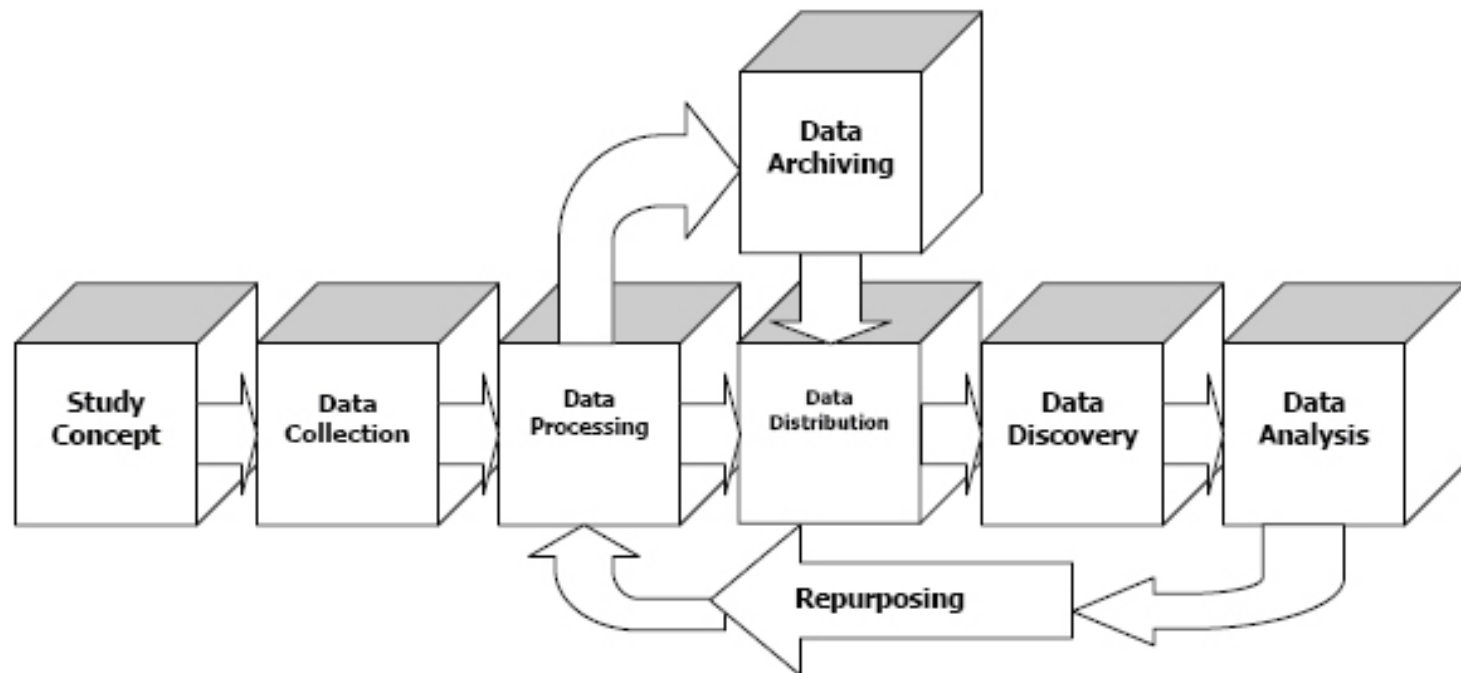
- A lot of metadata editing tools exist:
 - Questasy (CentERdata)
 - Colectica (Algenta = Colectica)
 - DDIEditor (Danish Data Archive)
 - EDO - Easy DDI Organizer (University of Tokyo)
 - NEPS Metadataeditor (DIPF / University of Bamberg)
 - IAB Metadata Management System (TBA21/DIPF/OPIT/Colectica/Amin)
 - Qbee - Questionnaire Builder (DIPF/GESIS/TBA21/OPIT)
 - Metadata Tools by Metadata Technologies USA
 - DesignQuest (GESIS)
 - And a lot more (sorry if I forgot your particular tool)

Current tool situation for DDI-L

- DDI Tools catalog lists additional tools for conversion of different formats to DDI-L (e.g. Blaise) or other small support tools
- No Nesstar-like dissemination tool for analysis
- Currently much more DDI-C users than DDI-L users due to existing tooling
- Question for DDI-L -> which tools does the user really need?

- Answer might be derived from well-known models regarding DDI-L
 - DDI Lifecycle Model itself
 - Generic Statistical Business Process Model (GSBPM)
 - Generic Longitudinal Business Process Model (GLBPM)
- **DDI-L might need a complete tool chain for future success**

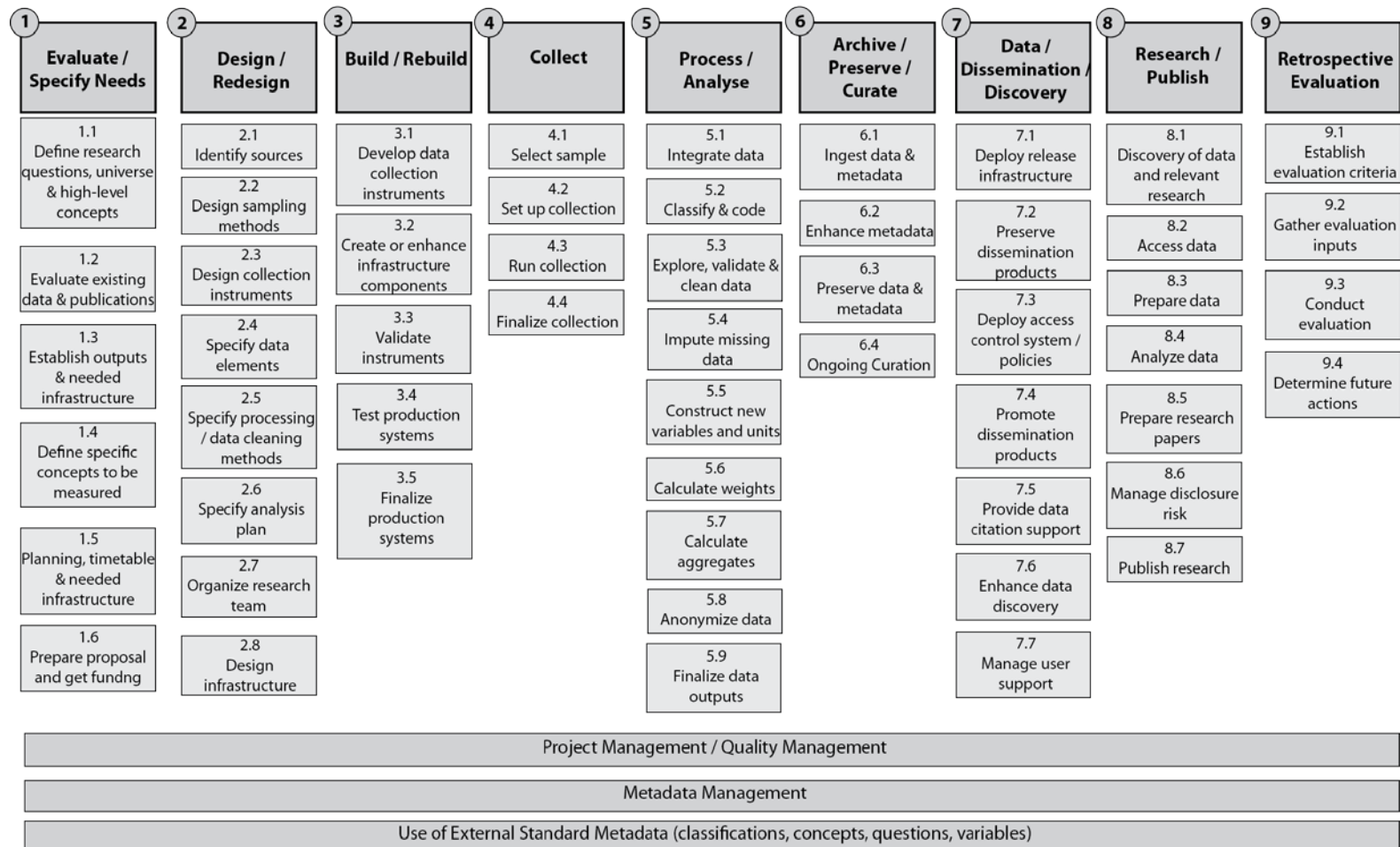
The DDI3 Combined Lifecycle Model (*DDI* 2009)



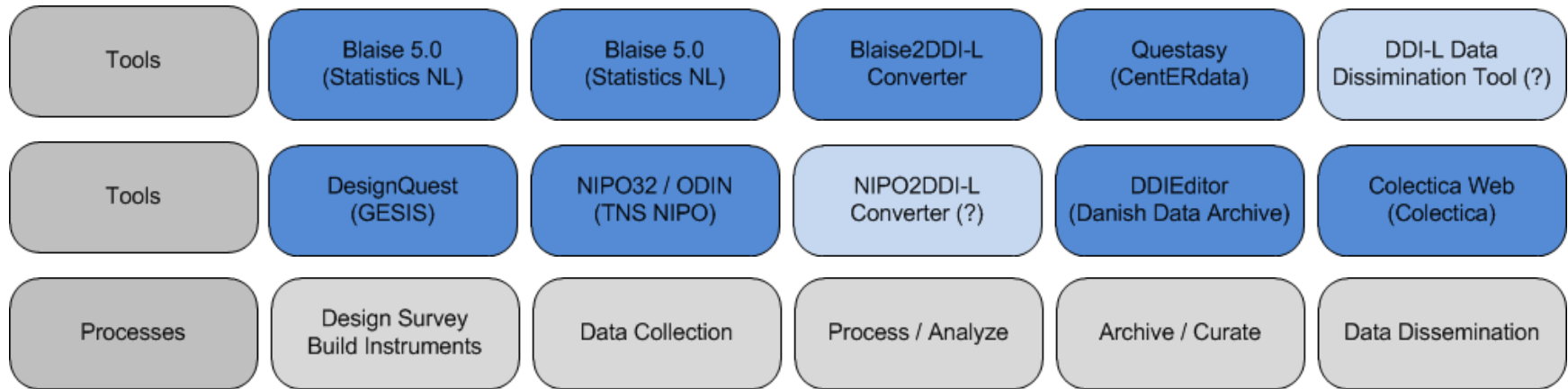


The Generic Longitudinal Business Process Model

Generic Longitudinal Business Process Model: Overview



How could a DDI-L tool chain look like?



Problem: No tool chain currently complete and working seamlessly

Definition

- Rogatus (Latin = to be asked) Questionnaire and Metadata Management System (QMMS)
- Design ideas:
 - Framework consisting of several tools for survey design (Qbee, Mbee, Tbee)
 - Support for metadata standards (DDI, SDMX)
 - Support for PAPI, CAPI, CATI and online tests
 - Bases on work on previous projects (NEPS, DaQS, QDDS, Austrian CMS)
 - Compatibility to existing DDI tools (e.g. Colectica, Questasy)
 - Whole toolset is split into two perspectives
 - Researcher creating a study (survey management)
 - Researcher working in data center (data management)

Involved institutions

- DIPF – German Institute for International Educational Research (funding, consultancy)
- GESIS – Leibniz Institute for the social sciences (consultancy)
- OPIT Consulting Kft. (software development)
- TBA21 Assessment Systeme GmbH (project management)
- IAB – Institute for Employment Research (funding)
- Colectica (consultancy)
- Alerk Amin (consultancy)

- Currently negotiations with other partners around the world

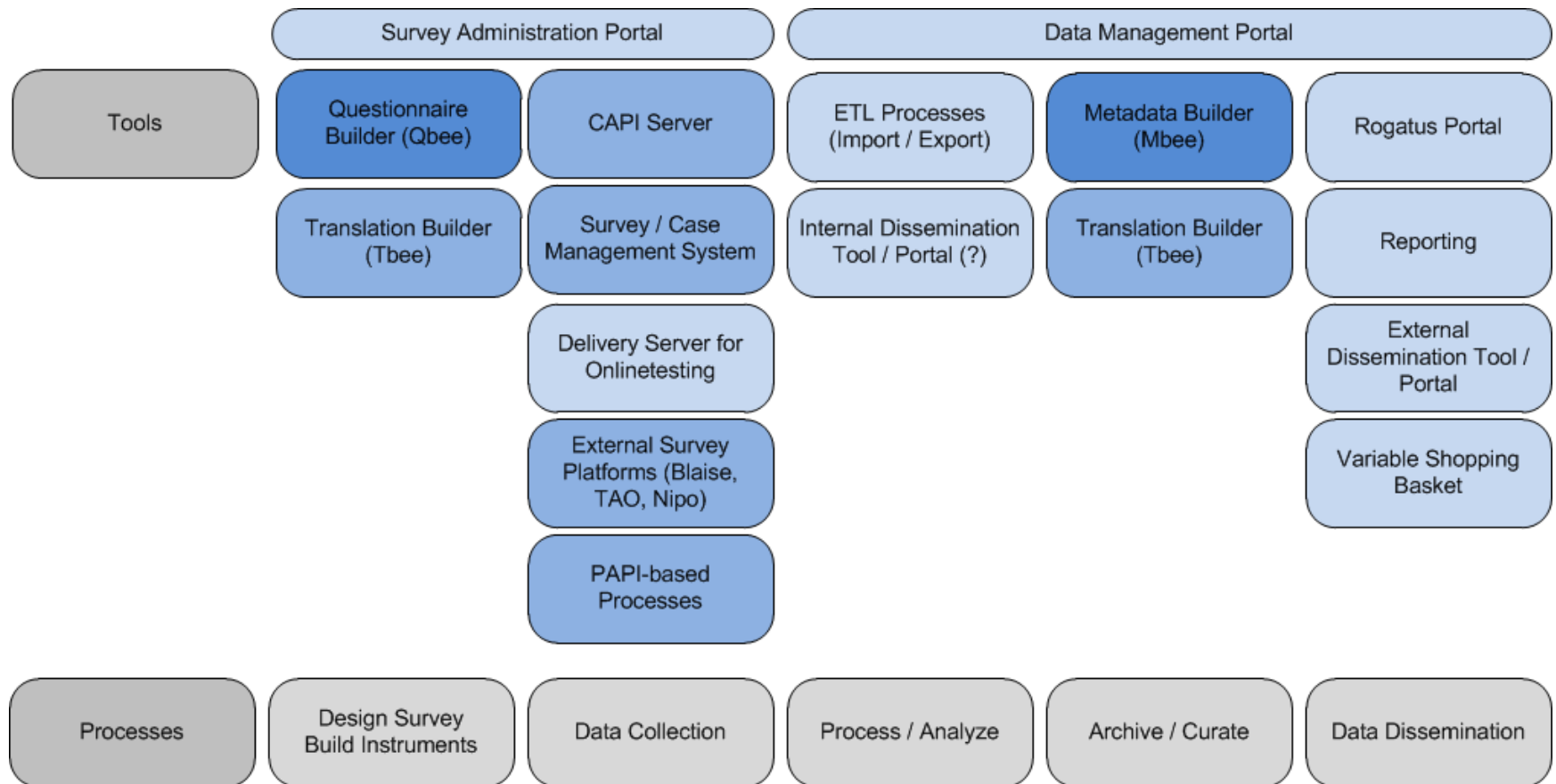
History and previous projects

- NEPS – Development of a metadata system for survey questionnaires (editor, database, reports, portal) which is not compliant to other studies
Technology: .NET Framework 4 with SQL Server 2008
- DaQS – Development of a metadata system for paper-based cognitive items for re-use (editor, database, portal) which does not adhere to standards like DDI or SDMX
Technology: LAMP with Zend Framework
- PIAAC – Development of a translation system for questionnaires and cognitive items using the XLIFF standard
Technology: JAVA (picking up abandoned OLT project from SUN)

Some related projects from partners

- Colectica (Algenta Technologies)
- Questasy (CentERdata)
- Case Management System (CMS) and CAPI Infrastructure (Statistics Austria)
- Testing Assisstee par Ordinateur (TAO) (CRP / University of Luxembourg / DIPF)
- ZACAT / da_ra / QDDS (GESIS)
- CBA Itembuilder (DIPF / Softcon)

Rogatus tool overview



Collaborative approach

- All tools use the same relational database structure for storing metadata
- DDI is used as an import and export format to exchange metadata with other tools, but it can also be used to exchange between different instances within Rogatus
- The toolset also includes several server components to exchange data via web services:
 - Team Server – a component for Qbee for sharing questionnaires between research groups
 - Repository – a read-only version of the Team Server for bigger organizations to share qualified items after quality control procedures

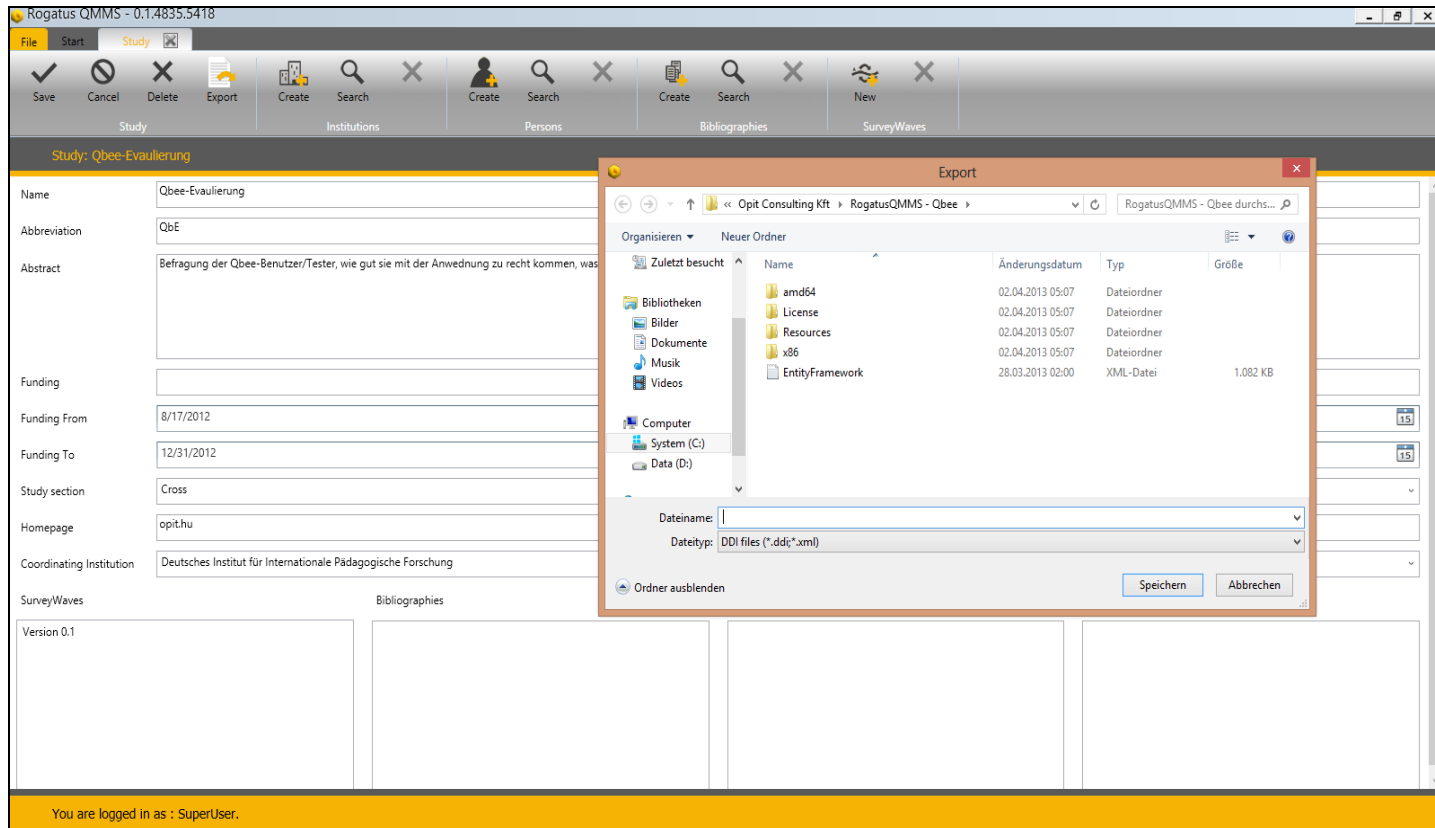
Software platform

- The whole software is developed in C# using .NET Framework 4 using SOAP-based web services
- Local clients like Questionnaire Builder (Qbee) use SQL Server 4.0 Compact Edition for storing local data
- Repository and Team Server are based on SQL Server 2008 R2
- Synchronization and replication e.g. in the Case Management System or Case Builder (Cbee) are basing on Microsoft Message Queuing (MSMQ)
- All base components are or will be released under the Lesser GPL v2 open source license (LGPL v2)
- A very early demo release for Qbee (v 0.1) from August 2012 can be found here:
<http://www.opit.hu/index.php/en/downloads-en>

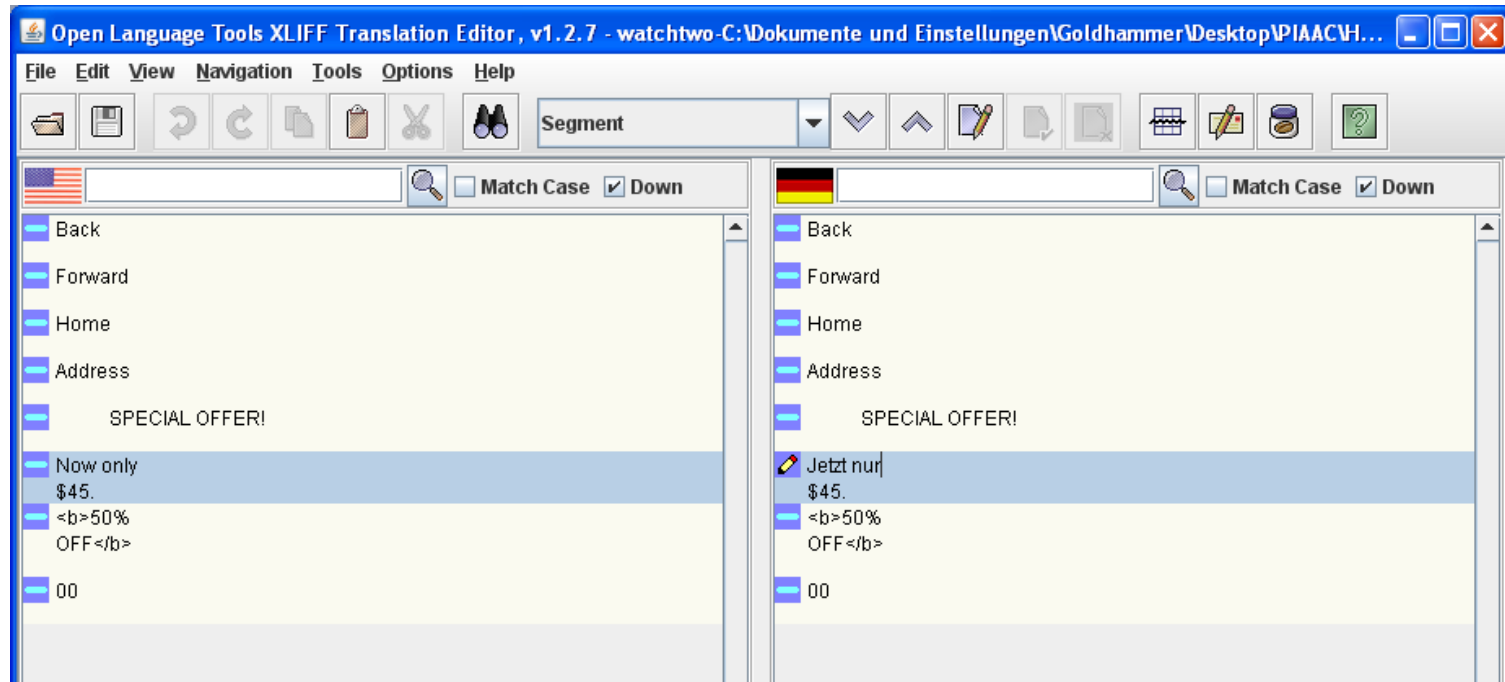
Example Workflow

- To demonstrate the possibilities of a complete survey design and delivery workflow here some screenshots from Rogatus Qbee plus some of the predecesing tools:
 - Creation of DDI-based questionnaire (Qbee – Questionnaire Builder)
 - Translation of Questionnaire (OLT, predecessor of Translation Builder)
 - Delivery of questionnaires/cases to interviewers (PIAAC CAPI System, predecessor of Case Builder Administrator)
 - Overview of paradata (PIAAC CAPI System, predecessor of Case Builder Administrator)
- Similar tools are currently in development also for the data management side (Metadata Builder, Rogatus Portal)

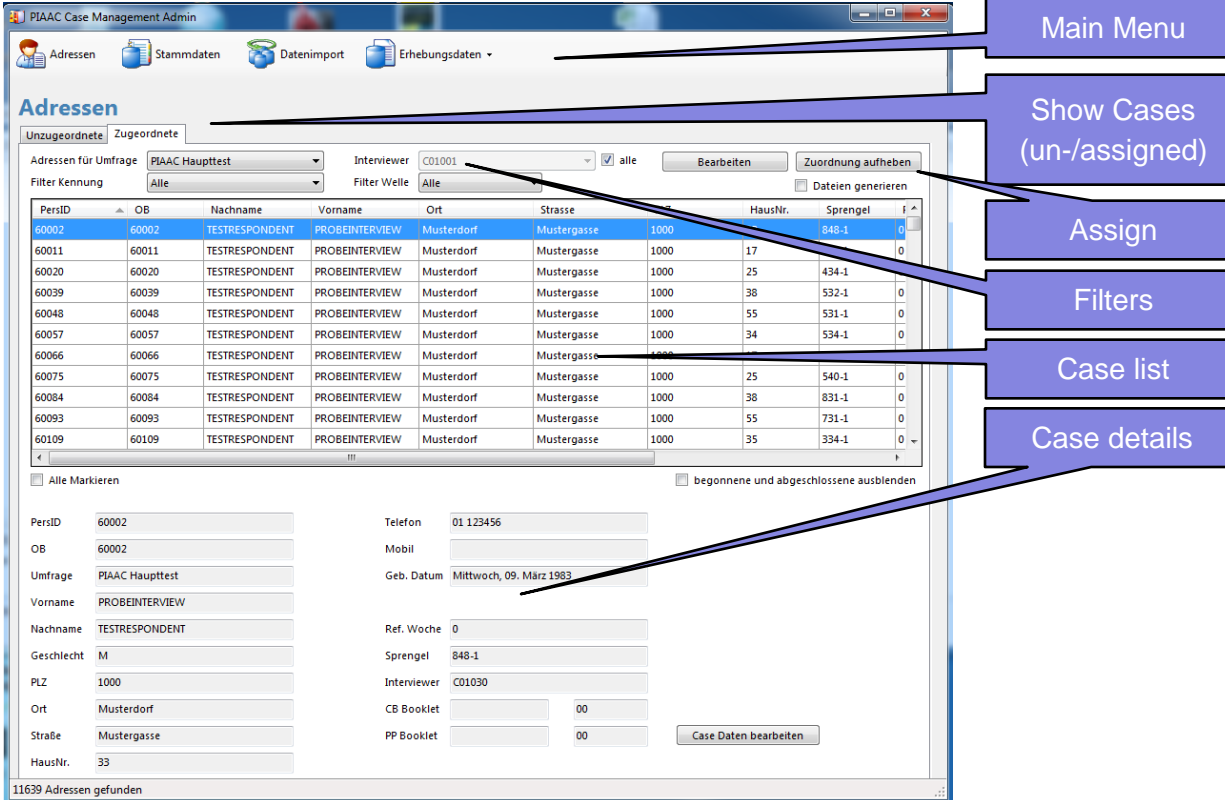
Example Workflow – Creation of DDI-based Questionnaire



Example Workflow – Translation of DDI-based Questionnaire



Example Workflow – Delivery of Questionnaires to Interviewers



The screenshot shows the 'PIAAC Case Management Admin' interface. The main menu at the top includes 'Adressen', 'Stammdaten', 'Datenimport', and 'Erhebungsdaten'. The 'Adressen' section is active, showing a list of cases and a detailed view for a selected case.

Main Menu: Points to the top navigation bar.

Show Cases (un-/assigned): Points to the 'Unzugeordnete' and 'Zugeordnete' tabs.

Assign: Points to the 'Zuordnung aufheben' button.

Filters: Points to the 'Filter Kennung' and 'Filter Welle' dropdowns.

Case list: Points to the table of cases.

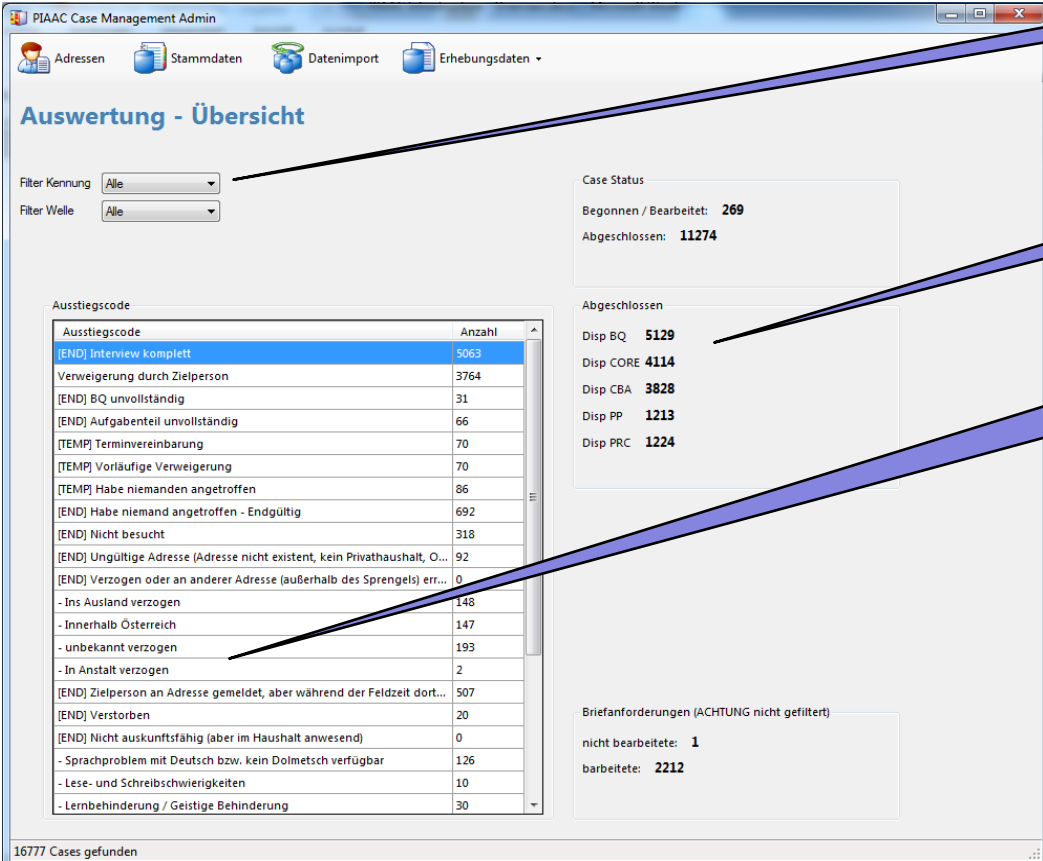
Case details: Points to the detailed form for a specific case.

| PersID | OB | Nachname | Vorname | Ort | Strasse | HausNr. | Sprengel | f |
|--------|-------|----------------|----------------|------------|-------------|---------|----------|-------|
| 60002 | 60002 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 848-1 | 0 |
| 60011 | 60011 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 17 | 0 |
| 60020 | 60020 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 25 | 434-1 |
| 60039 | 60039 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 38 | 532-1 |
| 60048 | 60048 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 55 | 531-1 |
| 60057 | 60057 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 34 | 534-1 |
| 60066 | 60066 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | | 0 |
| 60075 | 60075 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 25 | 540-1 |
| 60084 | 60084 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 38 | 831-1 |
| 60093 | 60093 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 55 | 731-1 |
| 60109 | 60109 | TESTRESPONDENT | PROBEINTERVIEW | Musterdorf | Mustergasse | 1000 | 35 | 334-1 |

The detailed view for case 60002 shows the following information:

- PersID: 60002
- OB: 60002
- Umfrage: PIAAC Haupttest
- Vorname: PROBEINTERVIEW
- Nachname: TESTRESPONDENT
- Geschlecht: M
- PLZ: 1000
- Ort: Musterdorf
- Straße: Mustergasse
- HausNr.: 33
- Telefon: 01 123456
- Mobil:
- Geb. Datum: Mittwoch, 09. März 1983
- Ref. Woche: 0
- Sprengel: 848-1
- Interviewer: C01030
- CB Booklet: 00
- PP Booklet: 00

Example Workflow – Overview of paradata during survey



The screenshot shows the 'Auswertung - Übersicht' (Evaluation - Overview) page in the PIAAC Case Management Admin system. It features a navigation bar with 'Adressen', 'Stammdaten', 'Datenimport', and 'Erhebungsdaten'. The main content area includes filter controls, a summary of case status, a table of disposition codes, and a list of completed cases.

Filters (indicated by a callout box):

- Filter Kennung: Alle
- Filter Welle: Alle

Status information (indicated by a callout box):

- Case Status
- Begonnen / Bearbeitet: **269**
- Abgeschlossen: **11274**

Disposition code detailed information (indicated by a callout box):

- Abgeschlossen
- Disp BQ: **5129**
- Disp CORE: **4114**
- Disp CBA: **3828**
- Disp PP: **1213**
- Disp PRC: **1224**

Table of Disposition Codes:

| Ausstiegscod | Anzahl |
|--|--------|
| [END] Interview komplett | 5063 |
| Verweigerung durch Zielperson | 3764 |
| [END] BQ unvollständig | 31 |
| [END] Aufgabenteil unvollständig | 66 |
| [TEMP] Terminvereinbarung | 70 |
| [TEMP] Vorläufige Verweigerung | 70 |
| [TEMP] Habe niemanden angetroffen | 86 |
| [END] Habe niemand angetroffen - Endgültig | 692 |
| [END] Nicht besucht | 318 |
| [END] Ungültige Adresse (Adresse nicht existent, kein Privathaushalt, O... | 92 |
| [END] Verzogen oder an anderer Adresse (außerhalb des Sprengels) err... | 0 |
| - Ins Ausland verzogen | 148 |
| - Innerhalb Österreich | 147 |
| - unbekannt verzogen | 193 |
| - In Anstalt verzogen | 2 |
| [END] Zielperson an Adresse gemeldet, aber während der Feldzeit dort... | 507 |
| [END] Verstorben | 20 |
| [END] Nicht auskunftsfähig (aber im Haushalt anwesend) | 0 |
| - Sprachproblem mit Deutsch bzw. kein Dolmetsch verfügbar | 126 |
| - Lese- und Schreibschwierigkeiten | 10 |
| - Lernbehinderung / Geistige Behinderung | 30 |

16777 Cases gefunden

Future activities

- Based on the existing tools we are re-engineering all our survey and data management software which was just shown to fit the Rogatus model
- Nevertheless this process is very time-consuming and resource-intensive
- Ideas for collaboration, e.g. applying for research funding for components are very welcome
- We also search for testers, experts and other contributors to broaden the spectrum of the software
- We currently are working with GESIS on two research proposals in Germany to get additional funding
 - Qbee / Repository – German Research Foundation (DFG)
 - Cbee / Delivery Server – German Ministry for Economy (ZIM)

Any Questions?

barkow@dipf.de
<http://www.dipf.de>