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healthy all life long

EQALM CENTRAL DATABASE

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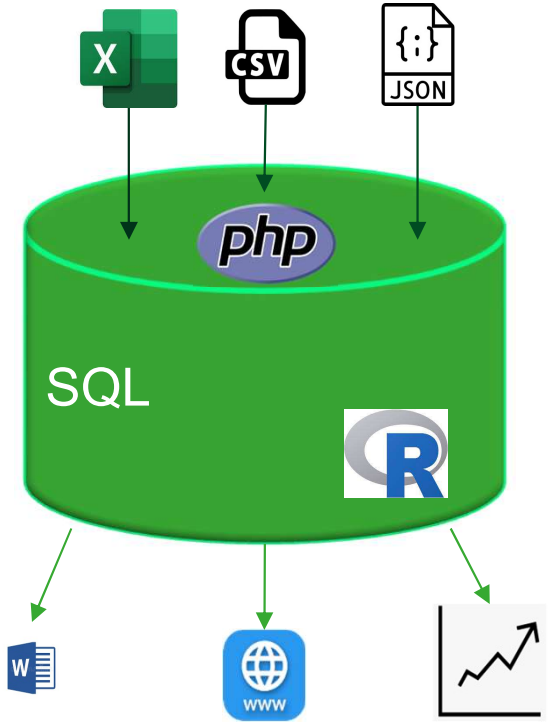
The EQALM CENTRAL DATABASE

What ?

A data base aiming at collecting and centralizing EQA results for answering questions that are hard to answer when EQA data from only one provider are involved



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Managed by EQALM

- EQALM has final responsability over database
- Content remains ownership of EQA providers
- EQALM board approves projects
- EQALM representatives in external initiatives
- Work coordinated by a new working group

Application of EQALM centra data base

- Service to EQA providers
  - Helping EQA providers in running their EQA scheme
- Internal projects
  - Someone wants to investigate something using a large data set
- External projects
  - EQALM acts as a partner in projects with other organizations

Service to EQA providers

- Benchmarking own results

  Are the results of my EQA participants comparable to those from other participants ?

- Obtaining expected EQA variability

  I want to start a new EQA program. I need to assess homogeneity of my samples. What is the expected EQA variability ?

  I want to evaluate my laboratories taking into account state of the art. Which variability can I expect ?

Using statistical techniques

- Checking data quality

  My data should be unimodal. Can I check for this ?

- Alternative statistical evaluation techniques

  What would it give if I use other statistical approaches to evaluate my data than the ones that I am currently using ?

Internal projects

- Examples of recent projects using EQALM Central database
  - EQALM SARS-CoV-2 antibody study
    - Various EQA providers, all using same samples
    - Data centralized and analyzed via EQALM central data base
  - Resilience of laboratories with respect to Covid crisis
    - Various EQA providers, reporting response rate and success rate of their laboratories
    - Article being written

External projects

- HALMA (with ICHCLR): Harmonisation of Measurands in Laboratory Medicine through Data Aggregation
    - By combining results from various EQA providers using commutable samples to assess and monitor harmonization of selected measurands
    - Starting with Creatinin, Albumin, Calcium

- RMS4IVDR: Reference Measurement Systems for clinically relevant biomarkers to support the effective implementation of the IVDR
    - By combining results from various EQA providers using the same comumutalbe sample to assess harmonization and trueness of IVDs
    - Alternative approaches and statistical models for commutability assessment

Lessons learnt

- Huge hetereogeneity of reported results
  - Format of results

    Data template not always followed
  - Language of results

    Names of measurands in own local language
  - Character set of results

    Not always Latin characters: мкг/мл , µg/ml, μg/ml, ug/ml
  - Naming of methodology

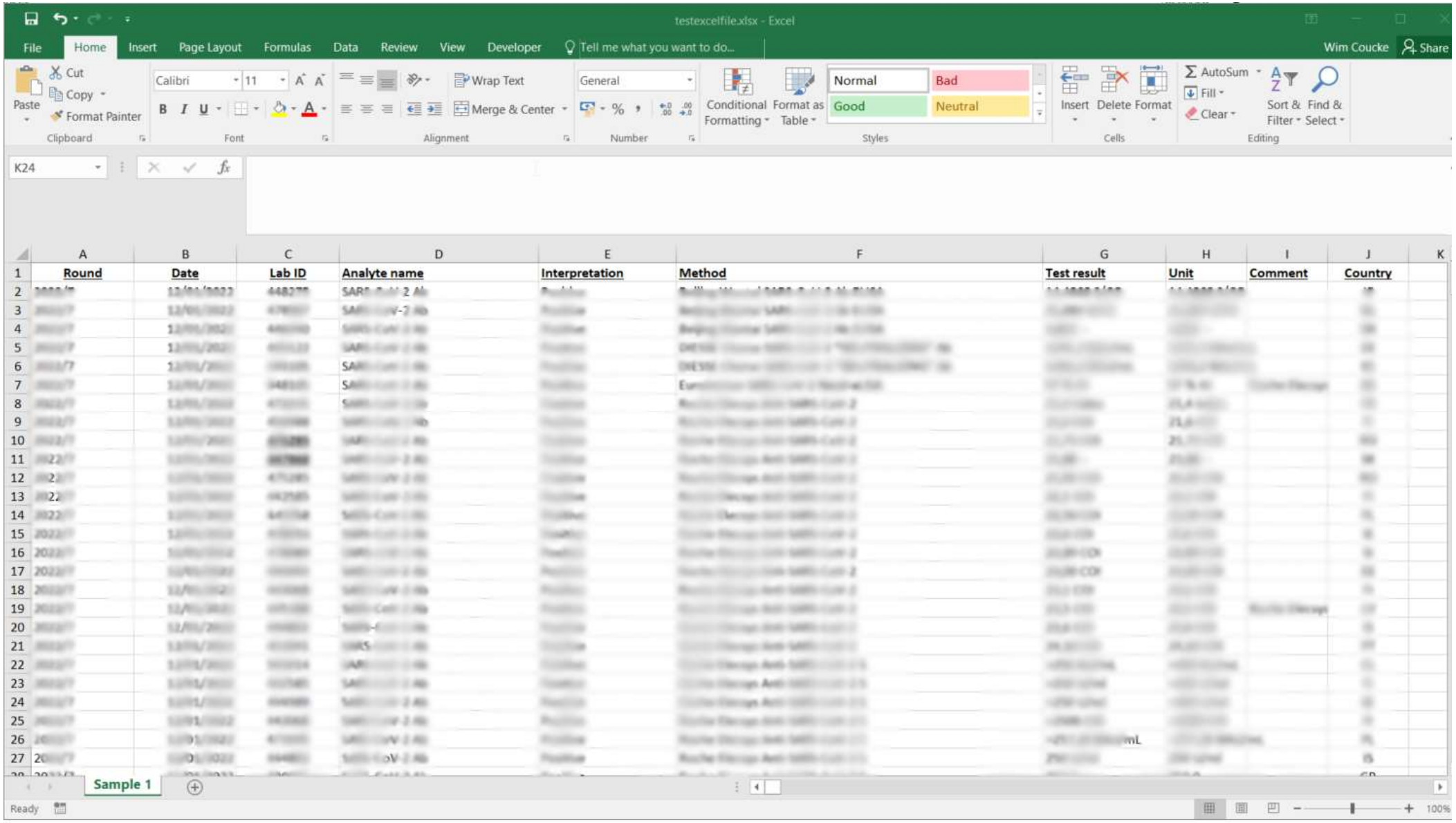
    Manufacturer confused with distributor
  - Level of detail of methodology

    Some up to manufacturer, others detail up to calibrator

Solutions so far

- Format of results:
  - Desigining web page where user can give translation of own column names to uniform column names
- Different languages
  - Translation tables
- Aligning peer groups:
  - Web page to easily define and attribute uniform peer groups
  - Definition of peer groups on different levels

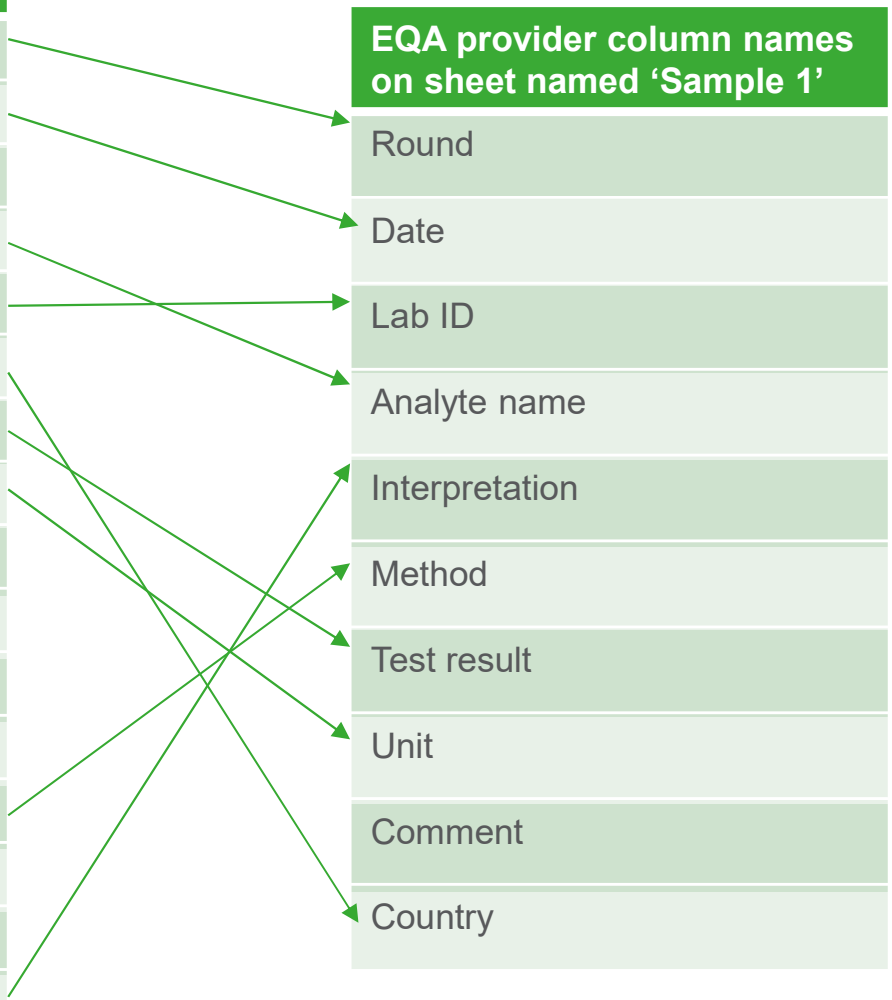
Reading in data



Reading in data

Expected column names
Round name
Round date
Sample name
Parameter
Laboratory id
Country
Result
Unit
Equipment manufacturer
Equipment
Reagent manufacturer
Reagent
Analytical principle
Peer group name
Threshold
Interpretation
Calibrator manufacturer
Calibrator

EQA provider column names on sheet named ‘Sample 1’
Round
Date
Lab ID
Analyte name
Interpretation
Method
Test result
Unit
Comment
Country



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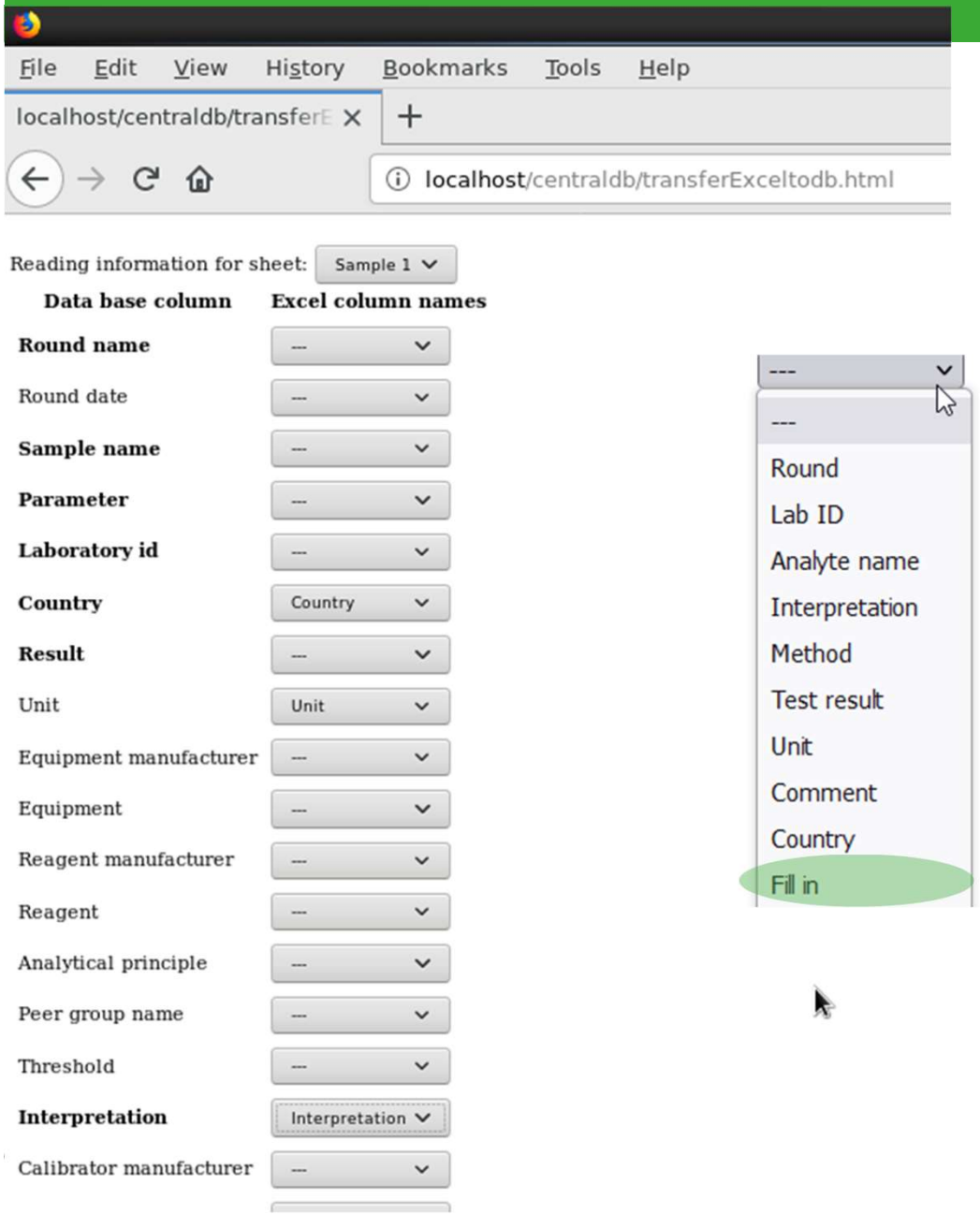

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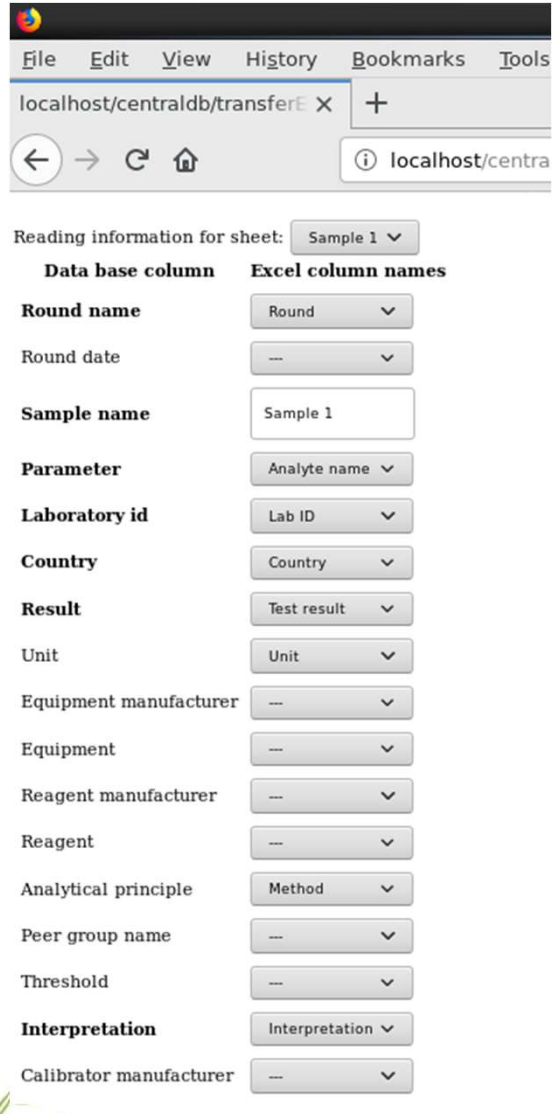

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Limitations of data base

- Limitations on character encoding
  - Excel files are not the best format to handle non-English characters
- Dependent on naming of methods by EQA provider
  - Not all data can be taken into account
  - Sensibilising EQA providers for using correct terminology
- Not all methods applied in all countries
  - When the aim is to compare methods, EQALM central database does not offer advantages for rarely used methods
  - Results will initially focus on measurement procedures used on a large scale

Near future

- Collecting data on a permanent basis
  - Services for EQA providers
- HALMA project
  - Collecting data from selected EQA providers using commutable samples
- …

Can I participate ?

- The samples I use are not commutable
  - Benchmarking EQA performance
- I use only a high level description of measurement procedures
  - Method evaluation is also done using high level description of measurement procedures
- I do not have much participants or EQA samples
  - All data are welcome, also small amounts
- I have some knowledge about SQL, Javascript, PHP and understand the content of the data
  - You are more than welcome to join us !