A holistic view on Clinical Data Quality

Pieter Stas – 28 Nov 2017

Agenda

Introduction

Data Quality Cornerstones

Data Quality in Clinical Research Process

Trends & Future Opportunities

Give & Take-away

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Give & Take-away

Introduction

Bio: Pieter Stas

- QA & Training Manager at BDLS CRO
- CSV and IT Quality Management Background in life sciences (CRO, Big Pharma) and public (EC) sector
- Interest in innovative technologies and their compliance challenges

Why I am here today:

To share and learn

insights and industry good practices on

how to obtain, process, maintain and deliver data of good quality

Introduction

Why is Data Quality Important?

- Data are valuable assets!
- Out of respect for subjects providing their data
- Data Quality issues might lead to non-reliable data, cause delays

Which Data? Focusing on Clinical Data and Metadata

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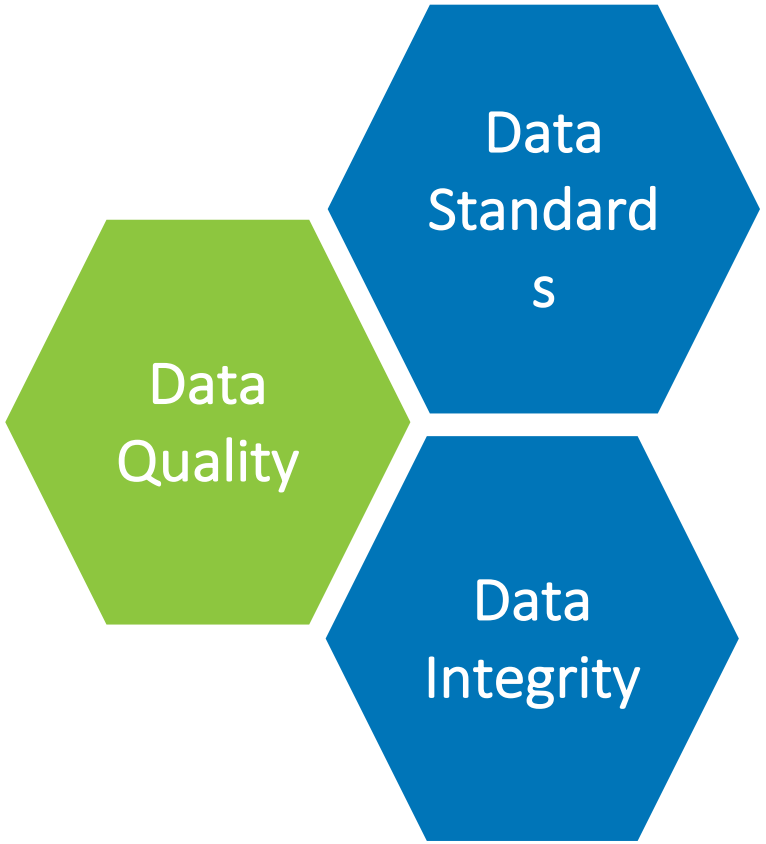
Data Quality Cornerstones



Data Standardization – Metadata

- Sculpture Data towards its needs
- Define requirements for Data
- Plan for future use of the data

Controls - Compliance

- FDA ALCOA+ Principles for Data Integrity
- Security & Access Control through policies and processes
- System Validation
- Metrics on Control and Compliance

Data Quality Cornerstones

Data Standards

CDISC & *Enterprise Data Standards*

- Human interpretation of standards requires specific expertise
- Training of staff & Partners is key

Data & Metadata Repository
as enabler for re-use of data

- Standardized Structure, Formatting and Meaning of data
- Consistent Conversion of Legacy Data to allow for Pooling

To ensure the collected data can meet their intended use(s)

Data Quality Cornerstones

ISPE

GAMP Guide: Records & Data Integrity

ICH E6 (R2)

4.9 Records and Reports

4.9.0 The investigator/institution should maintain adequate and accurate source documents and trial records that include all pertinent observations on each of the site's trial subjects. Source data should be attributable, legible, contemporaneous, original, accurate, and complete. Changes to source data should be traceable, should not obscure the original entry, and should be explained if necessary (e.g., via an audit trail).

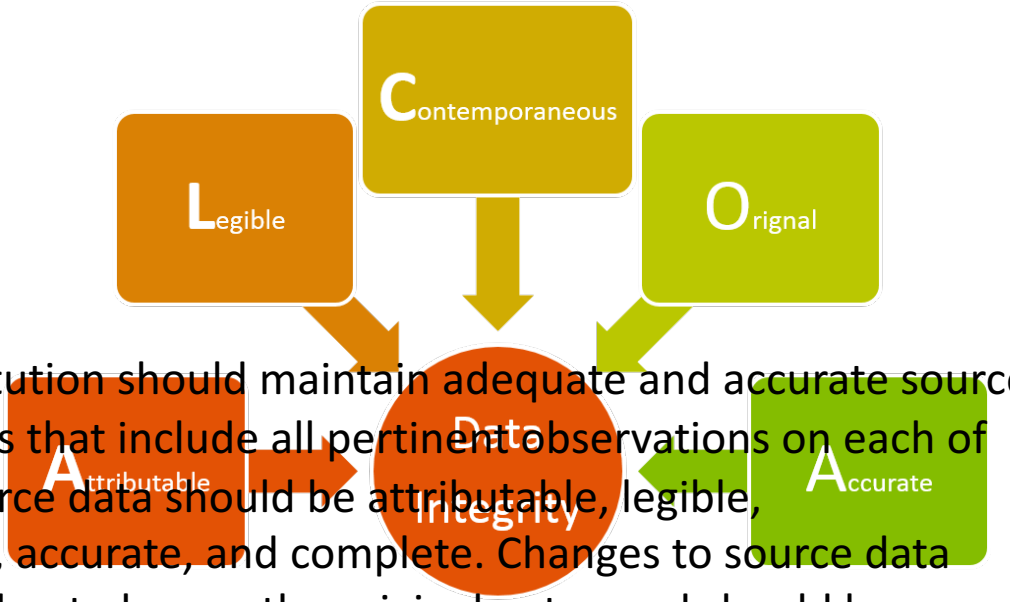
…

5.5. Trial management, data handling, and record keeping…

Ensure the integrity of the data including any data that describe the context, content, and structure. This is particularly important when making changes to the computerized systems, such as software upgrades or migration of data.

Data Integrity

ALCOA: FDA's Data Integrity Focus



ALCOA+

- Consistent
- Complete
- Enduring
- Available

PIC/S

GOOD PRACTICES FOR DATA MANAGEMENT AND INTEGRITY IN REGULATED GMP/GDP ENVIRONMENTS

MHRA

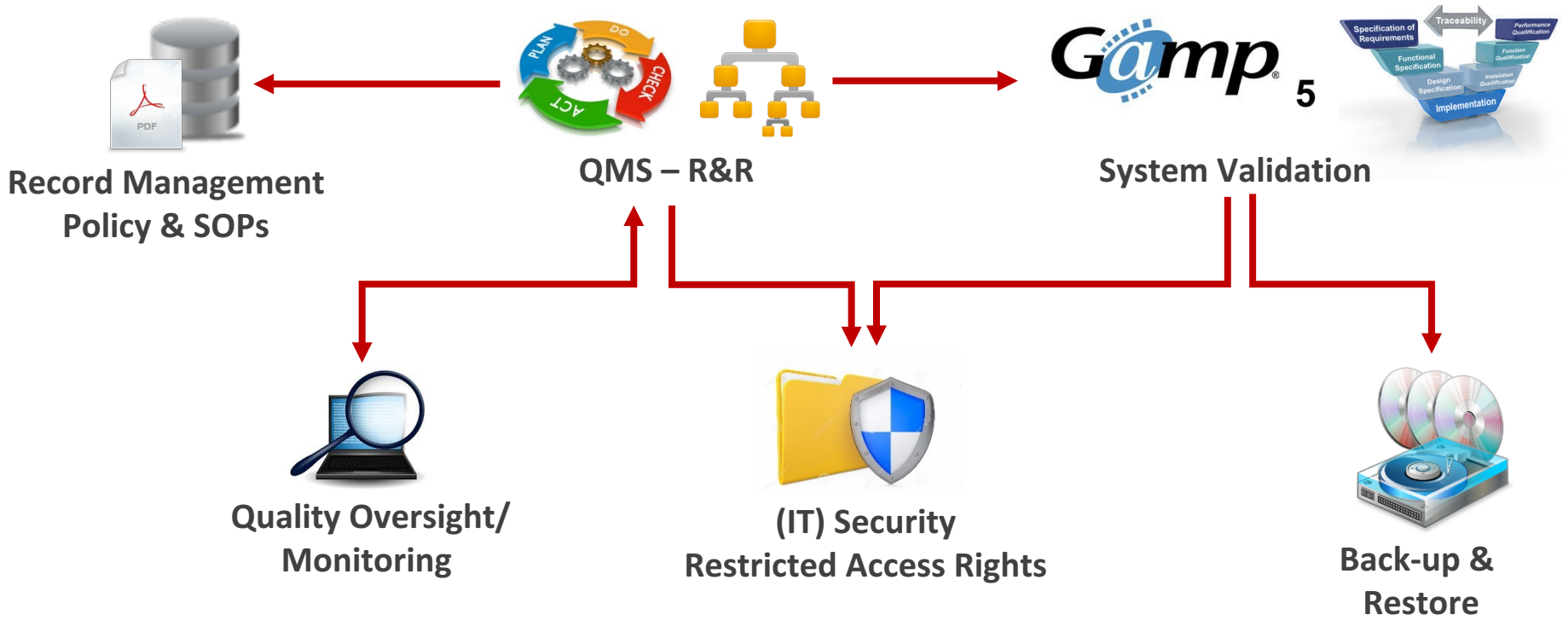
Regulating Medicines and Medical Devices

GxP Data Integrity Definitions and Guidance for Industry

Data Quality Cornerstones

Data Integrity

To maintain control over data assets



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Clinical Research Process

- Specifications & applicable Data Models
- Technology selection, QMS and System Validation
- Partner/CRO selection
- Site selection & training

- Data Validaton
- Risk Based Monitoring
- Interim Analysis & Safety
- Periodic Reviews

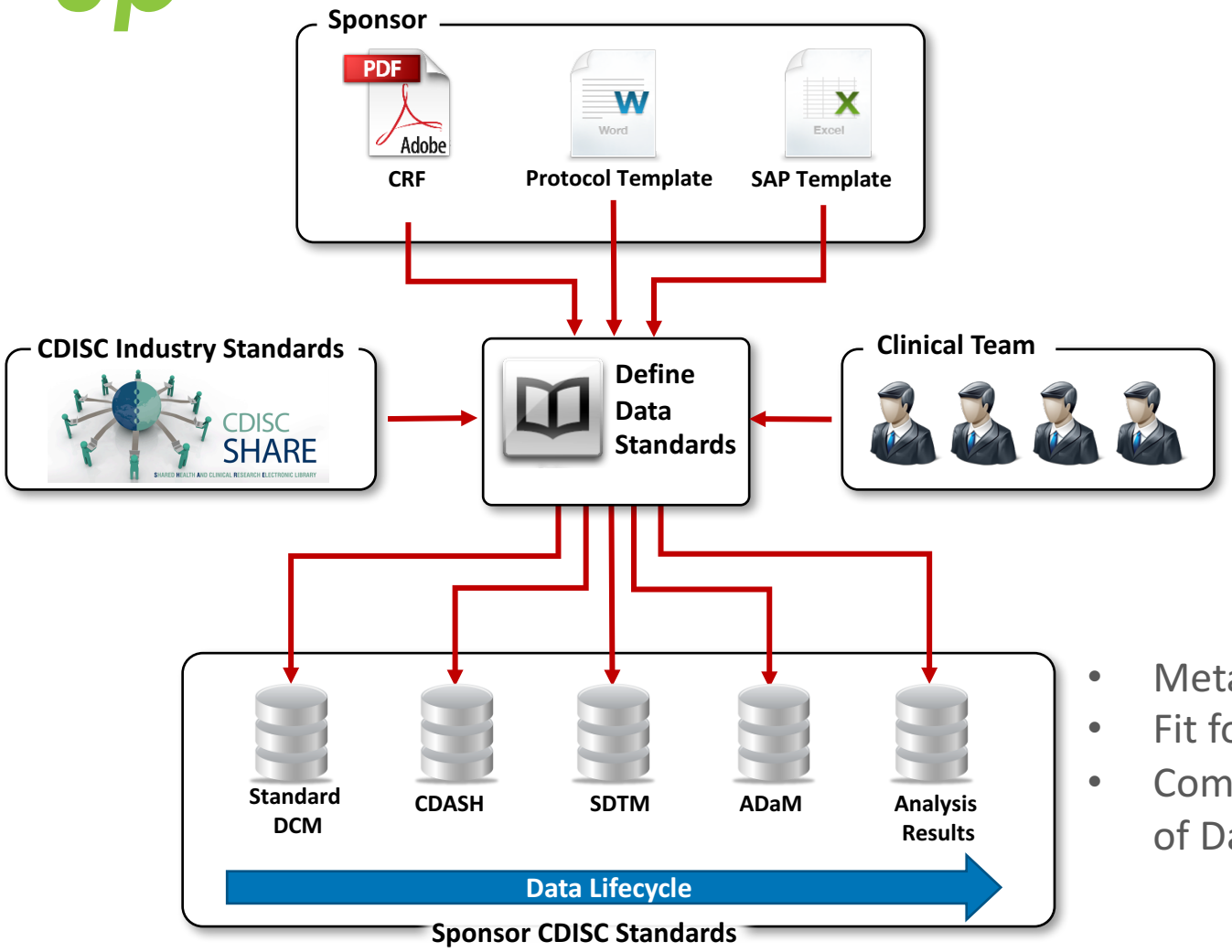
- Analysis results
- Audit findings
- Final Data Quality assessment
- Organizational & Data Standards improvement initiatives

- Robust Technology
- Data Repository
- Supportive Documentation
- Transfer to sponsor

Data Integrity through QMS and System Validation

Study Set-up

Data Standards



Pre-Clinical Data SEND ready?

- Metadata specifications
- Fit for intended studies?
- Common understanding of Data Standards

Study Set-up

Data Integrity

Sources of data
Chain of custody
Risk Assessment

Key Documents
(Monitoring Plan, DMP, SAP, CSR)
E.g. Define key variables & KPIs

Audit Plans
E.g. Start with questionnaires, assess maturity of vendors

Training needs

Systems & Processes
to be validated

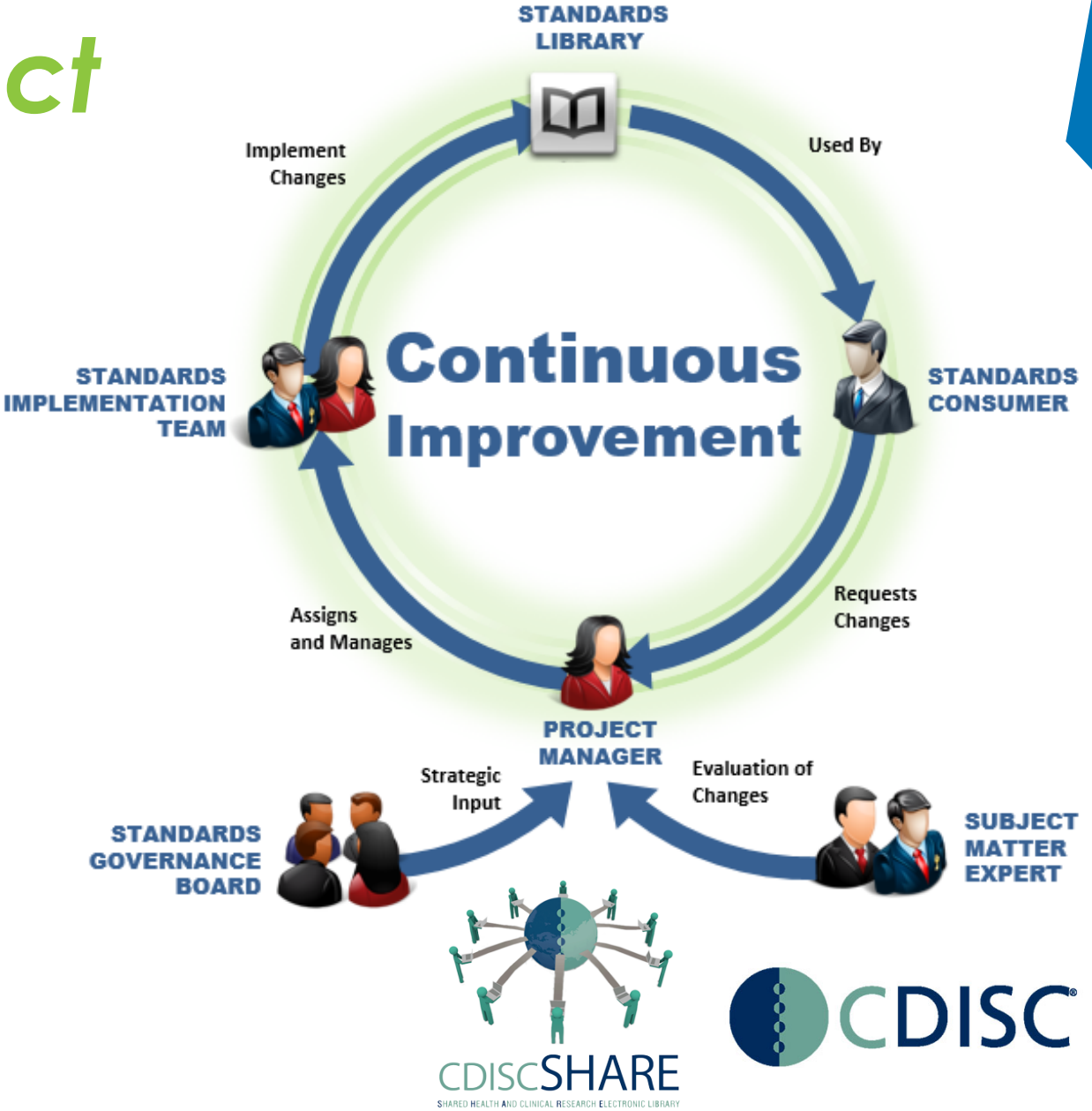
- Risk based approach
- Gamp5 categories
- Demonstrate Data Integrity
- eRecords & eSignatures (21 CFR Part 11)

Study Conduct

Data Standards

Integration of external data with right metadata

Interim Validation vs. Data Standards by independent 3rd party



Study Conduct

Data Integrity

Protocol, SAP, …

Data Cleaning

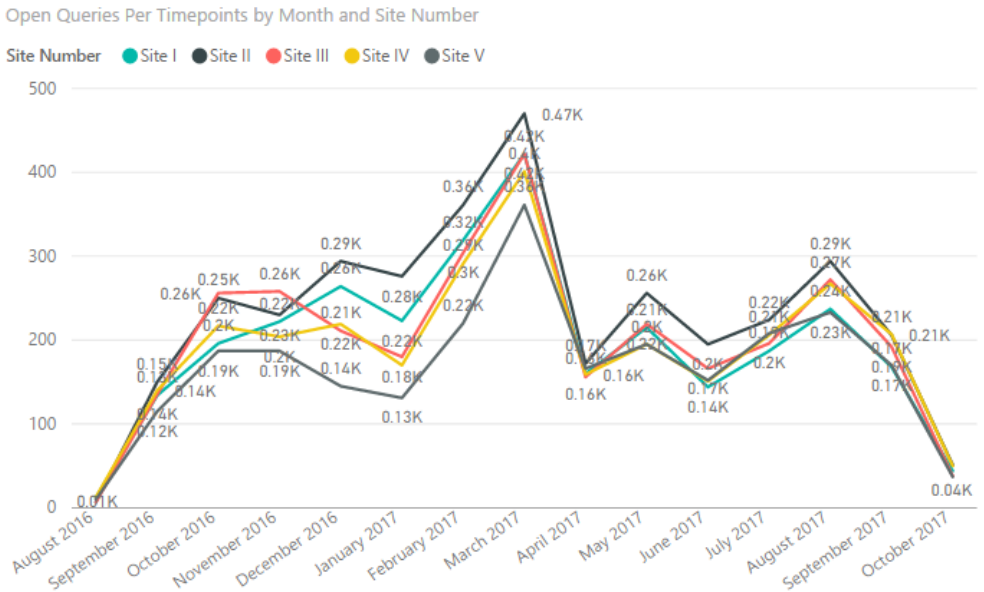
E.g.:
Number of queries by visit
Long pending queries/site
Identification of outliers
Query status over time

Define & Visualize KPIs
Re-use of validated reporting macro's

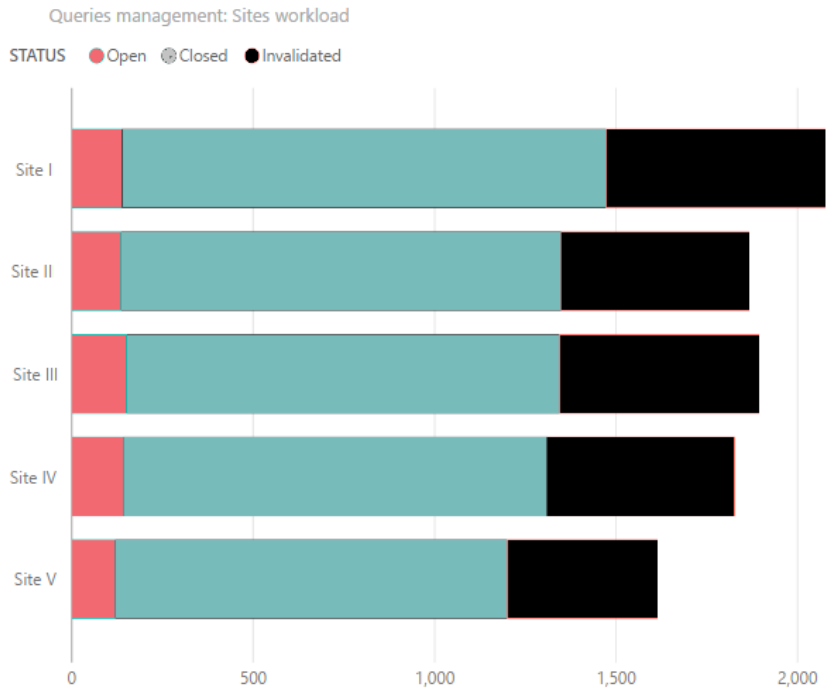
Study Conduct

E.g. Compliance metrics for queries resolution

- Number of open queries by site and by month
- Current status of queries by site



Month	Open Queries Per Timepoints
August 2016	49
September 2016	674
October 2016	1106
November 2016	1101
December 2016	1133
January 2017	980
February 2017	1495
March 2017	2076
April 2017	813
May 2017	1080
June 2017	808
July 2017	1021
August 2017	1303
September 2017	943
October 2017	220
Total	**14802**

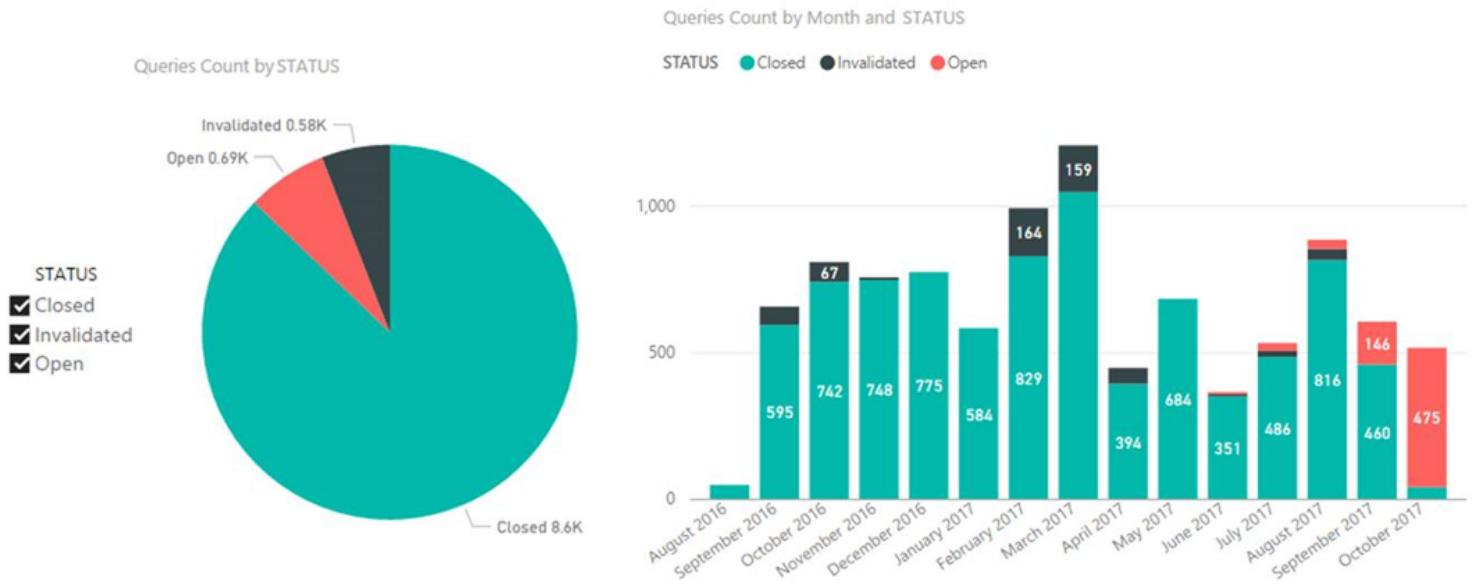


→ *Identify backlog to take corrective actions with sites and/or DM whenever appropriate*

Study Conduct

E.g. Compliance metrics for Data Cleaning Milestones

- Current status of queries generated each month
- Current status of queries



→ *Close follow-up of study milestones and identification of oldest queries not yet resolved*

Study Conduct

Data Integrity

eRecords Policies
Good Doc. Practices

Change Control

QC & Audit

Back-up & Restore
(off-site copy)

Healthy Data

Periodic controls:

Audit Trail Review
(EU Annex 11)

Access Right
Review

DRP Testing

Study Analysis, Reporting

Data Standards

In depth QC/review for

- Quality of SDTM Data & Metadata
- DMR in alignment to SAP
- Protocol Deviations

QC of Mapping by Senior Biostatistician & Senior Programmer

Data Integrity

Double Programming

+ Version control
+ Good Programming Practices
+ Access rights

QC of SAE narratives, protocol deviations by medical profile

Study Archiving & Retention

Data Standards

Archival data & metadata
in Robust Technology
Vendor Assessment

or

Structured repository
Future use?

Data Integrity

eTMF guidance
Supportive documentation – digitalization, certifying copies
Accessibility
Transfer from CRO to sponsor or not (personnel data)

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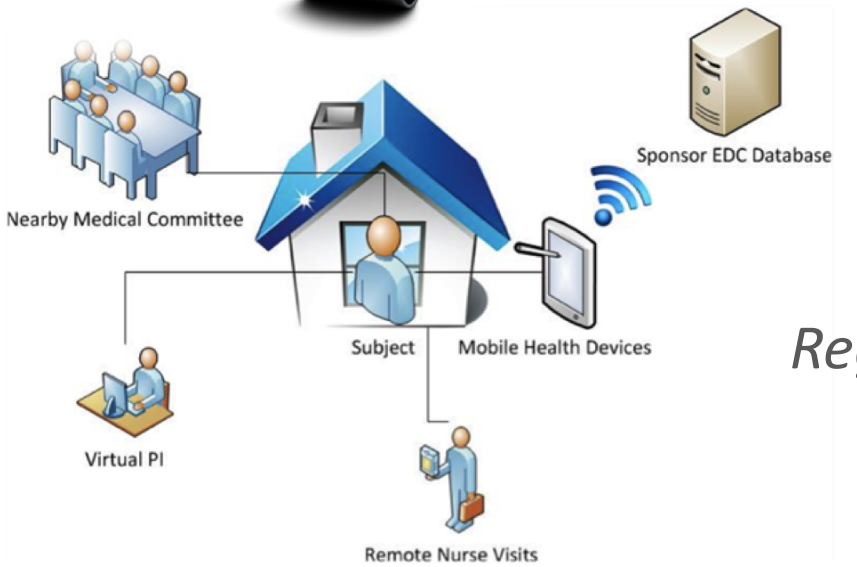
Trends and Future Opportunities

- RWE from different sources (e.g. mobile, ePRO)
- Virtual Trials & Oversight Services
- Need for Standardization & Visualization
- *Whilst keeping control!*



EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

Regulatory Requirements for Transparency without Revealing PII

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Give and Take-away

Sorry, no candy, but keep in mind:

1. Standardization throughout data lifecycle, considering also future use of data
2. Training and communication is key to understand data and metadata
3. Quality Mindset – Good recordkeeping, QC and follow Data Integrity guidelines
4. Efficiency and transparency through dashboards, visualization

Questions...

ROI²
return on investment
through
return on information

Business & Decision
Life Sciences

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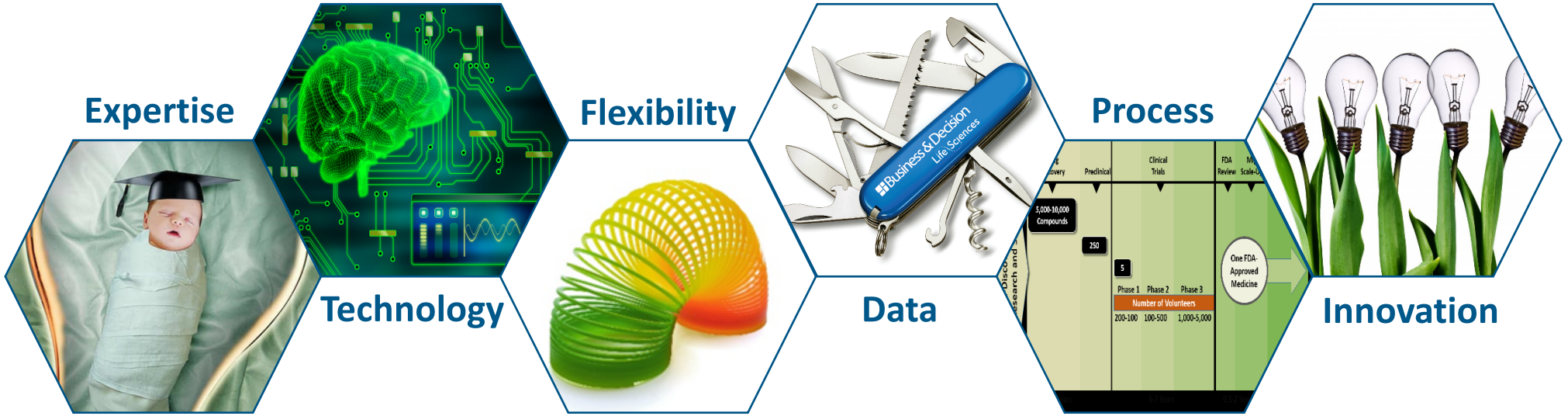
B&D Life Sciences brings you…

Life Science System Integrator
Big Data and Data Science services
eHealth solutions / Business Intelligence / Web and Mobile

Data Standards – We know!
CDISC conversions (SDTM, ADaM) / library management implementation / pre-clinical data (SEND)

Innovation Excellence Centers
Digital Transformation
Big Data and Digital blog
IP / Solutions / Accelerators

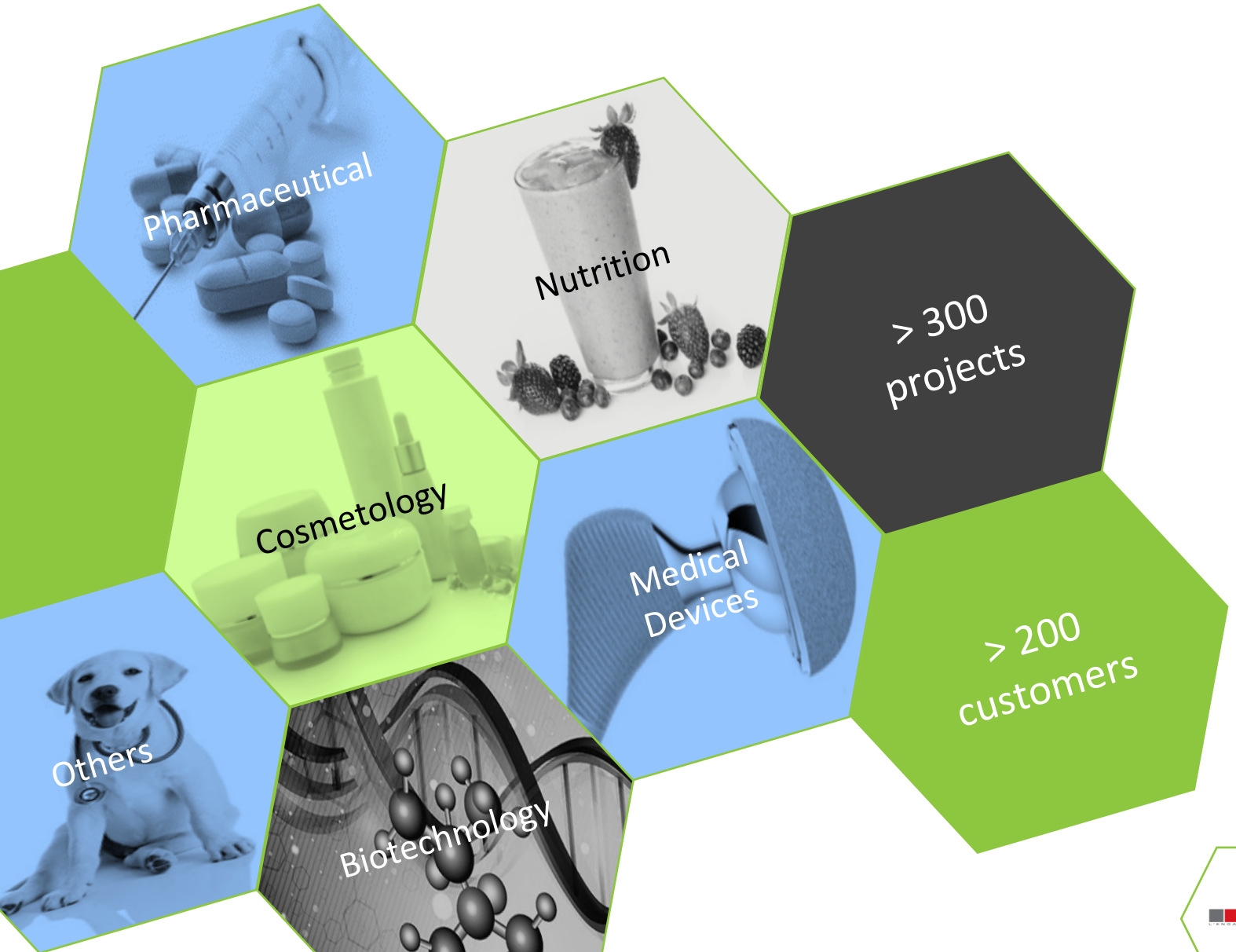


> 2.500 consultants
Service Platforms
Group Know How
Training and Career Path

Collaboration as you wish
CRO, co-sourcing
Service Platforms
Time and Material / Fixed Price

Data Management and Biometric services
Publication and Medical writing services
Compliance and regulation, QA/QC
Pharmacovigilance and risk management services

Our Customers



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