

CRBEL shared services for life-science

Quality Management in Research Infrastructures - Opportunities, Challenges, and Impact

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CRBEL shared services for life-science

Opportunity

a chance to do something, or a situation in which it is easy for you to do something

Why QM?

- Deliver consistent results
- Meet user expectations
- Meet regulatory requirements
- Retain organisational knowledge

In the research environment:

- Underpin reliability and reproducibility of scientific outcomes

Common BMS RI Framework for Quality Management



A framework for quality management in the biomedical research infrastructures (BMS RIs)

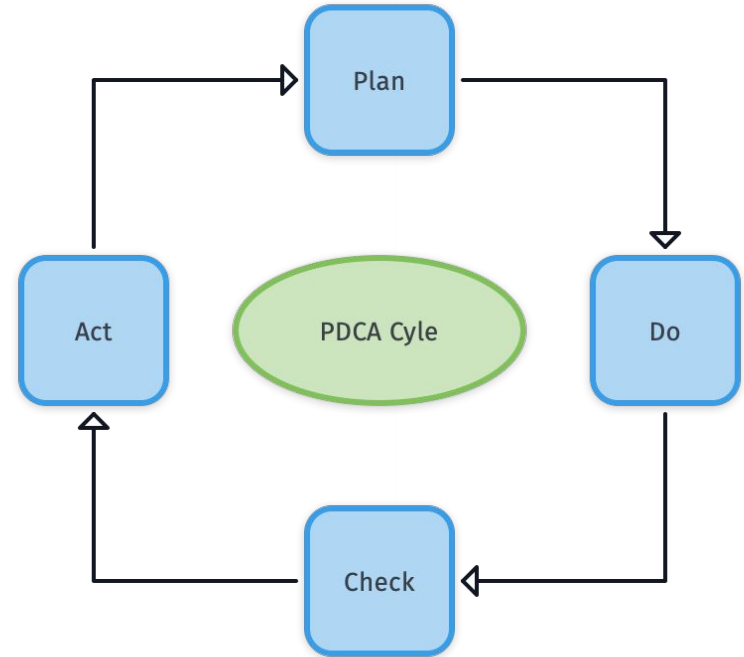
BMS RIs put quality at the heart of biomedical research

It has been widely recognized that the proper use of verified reference materials, standard operation protocols, study designs and data analysis and data storage is crucial to increase the **quality of biomedical research** and reduce the **waste of resources that comes with irreproducible results**¹.

The **continuous development of community standards and references** in the area of

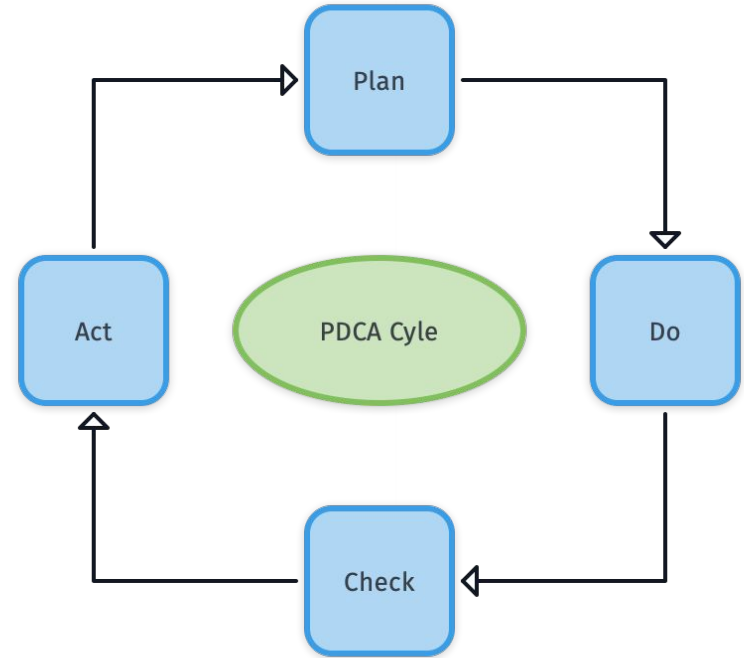
Plan – Do – Check – Act

- Based on your analysis of user requirements you can plan your operations
- Since you have defined measurable quality goals you can check your performance
- Based on this analysis you can suggest improvements to your operations



Sustainability

- Increase efficiency and reliability
- Increase trust from users, funders, authorities
- Increase visibility

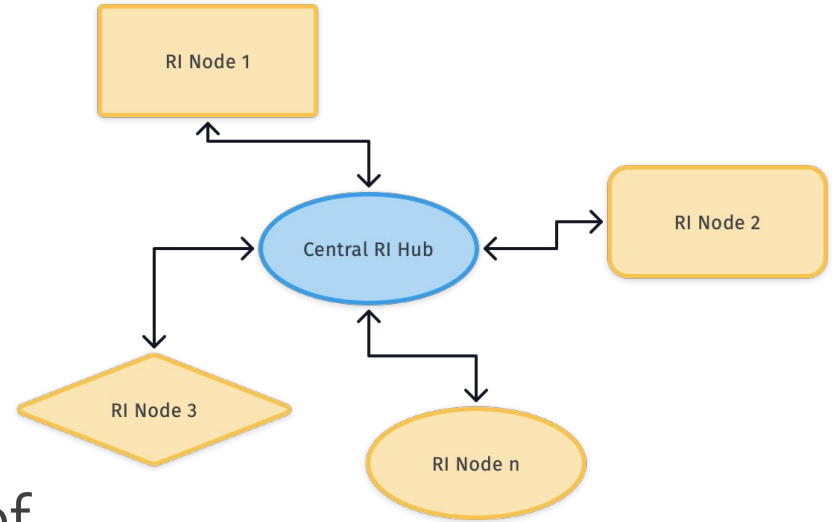


Challenge

something that needs a lot of skill, energy, and determination to deal with or achieve, especially something you have never done before and will enjoy doing

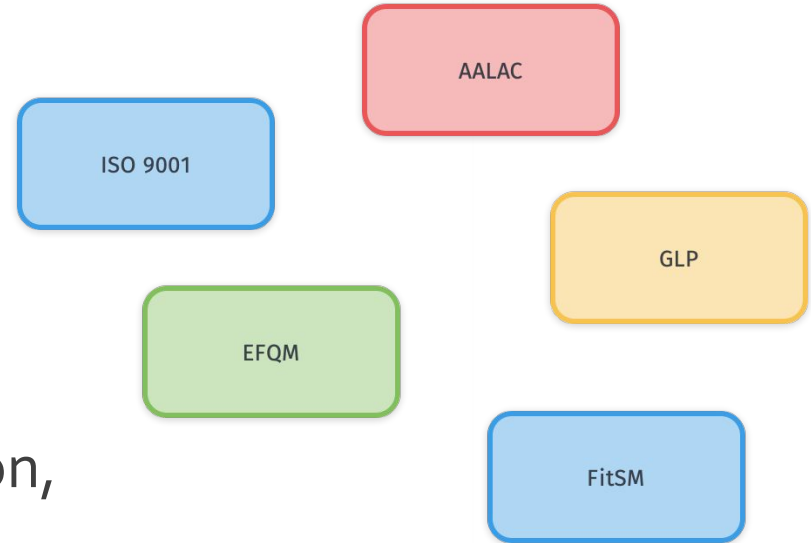
QM in distributed RIs

- Geographically distributed different legislations
- Different node-specific services
- Different QM solutions
- Different implementation status of QMS



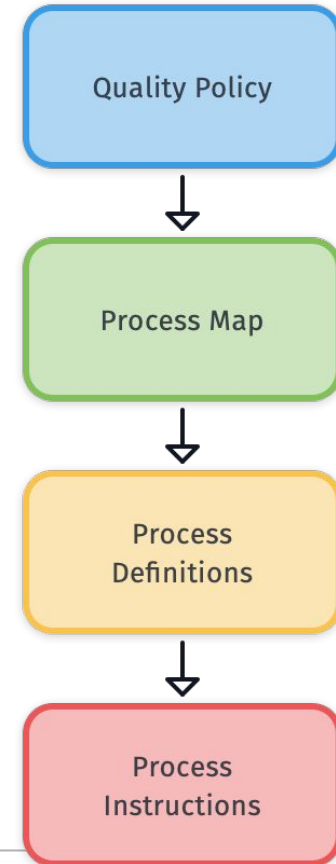
Which system fits best?

- Different QMS out there
- No one-size-fits-all Analysis required
- What exactly should be included (Mgmt processes, service provision, data mgmt, ...)
- How much resources can we invest?



High up-front investment

- Approx 1 FTE for 1 year to implement
- Requires input from all functional units
- Lots of paperwork
- All employees need to be trained
- Costs for certification, audits, ...



Funding

- Resources for implementing the QMS
- Resources for ongoing QM
- Distributed RIs Resources for maintaining a QM network accross the RI
- QM considered as „operational“ activity
- Impact of QM needs to be demonstrated to funders





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Impact

an effect, or an influence

Promoting responsible and reproducible research

Promoting the 3Rs

Replacement

Reduction

Refinement

Minimising
duplication by
providing centralised
high-quality resources

A question of incentives: For-profits

- **We have a problem!** Competition has better products than us
- **We have a problem!** Our products don't comply with regulatory requirements
- Less products sold (less clients) □ Less income
- **We need to improve!**



A question of incentives: RI

- **We have a problem!** Users are unhappy with our service quality
 - **We have a problem!** Our services don't comply with regulatory requirements
-
- Less users
 - Less income??
 - Probably only in the long run
 - Improvement would be a good idea, if we had time and money!



A question of incentives: Funders



**Research infrastructures
make science happen**



Scientists need **easy access** to state-of-the-art infrastructures to test their ideas

laboratories and
equipment

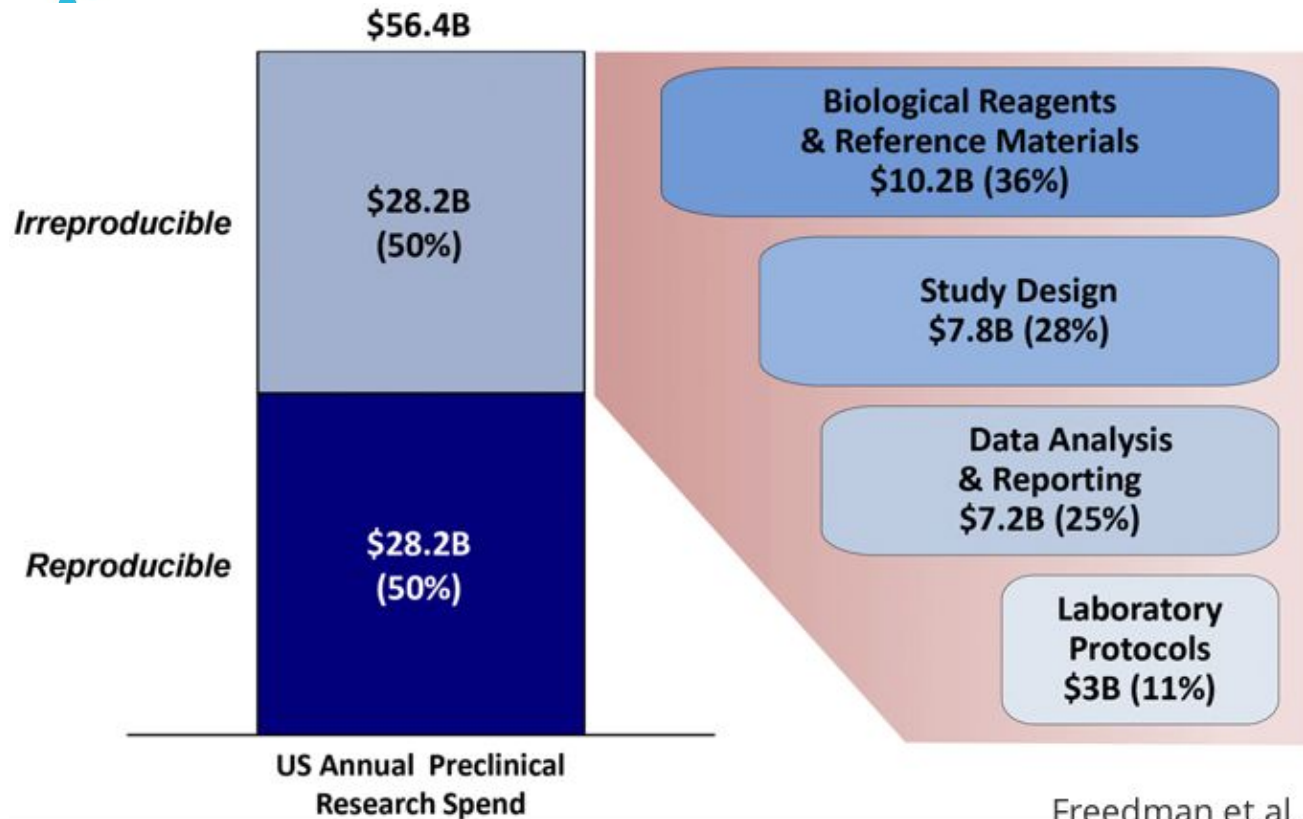
access to biological
samples, scientific data
and archives

computing systems and
communication networks
to test, share, and improve
scientific discoveries





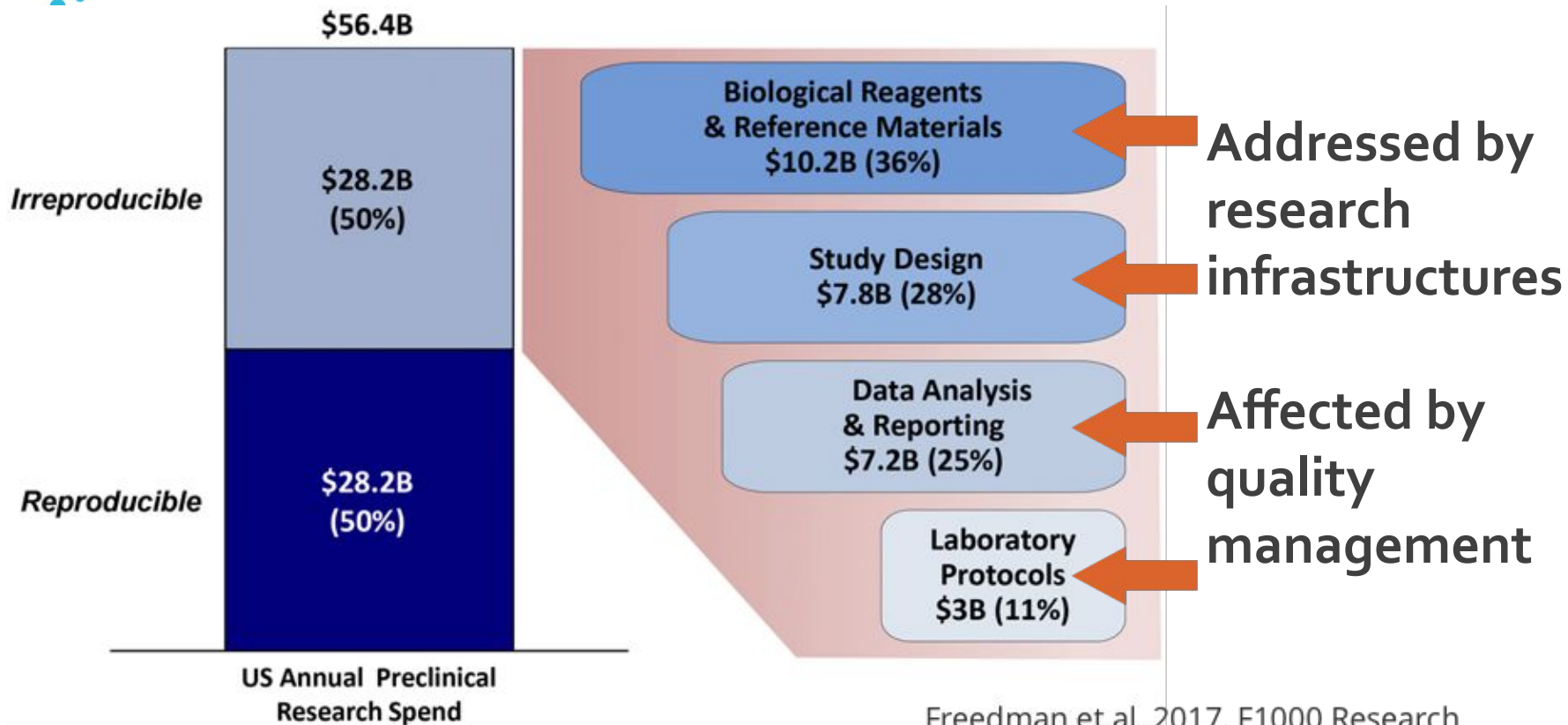
Impact of Quality Management in Research Infrastructures



Freedman et al. 2017, F1000 Research



Impact of Quality Management in Research Infrastructures



Freedman et al. 2017, F1000 Research

A question of incentives: Funders

- **We have a problem!** We fund research that is not reproducible
- We need **gate-keepers** that help to safe-guard reproducibility!

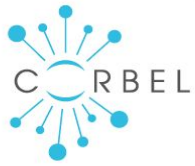
- **We have an agenda!** We want to facilitate best-in class research infrastructures in Europe
- We should fund **constant improvement** of RIs!





Conclusion

something that you decide is true after thinking about it carefully and looking at all the evidence



Conclusions

- QM contributes to RI sustainability
- QM requires considerable up-front investment
- **Buy-in from RI top-management required!**
- QM in RIs contributes to high quality research
- QM increases the impact of Ris
- **Buy-in from RI funders required!**

- CORBEL WP₅
- CORBEL QM Expert Network
- CORBEL WP₉
- INFRAFRONTIER QM Expert Network

