

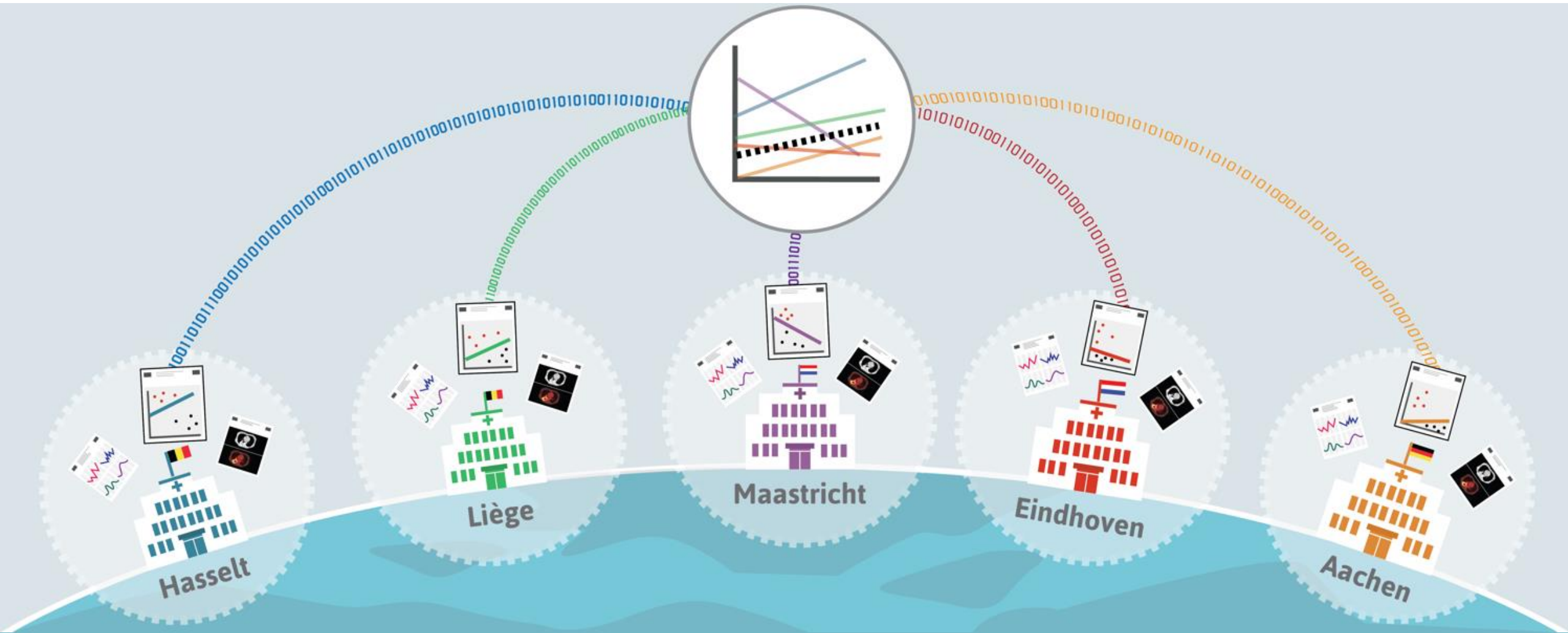
It's not the technical development

Johan van Soest, PhD
Maastricht University



BISS

Sharing algorithms instead of data

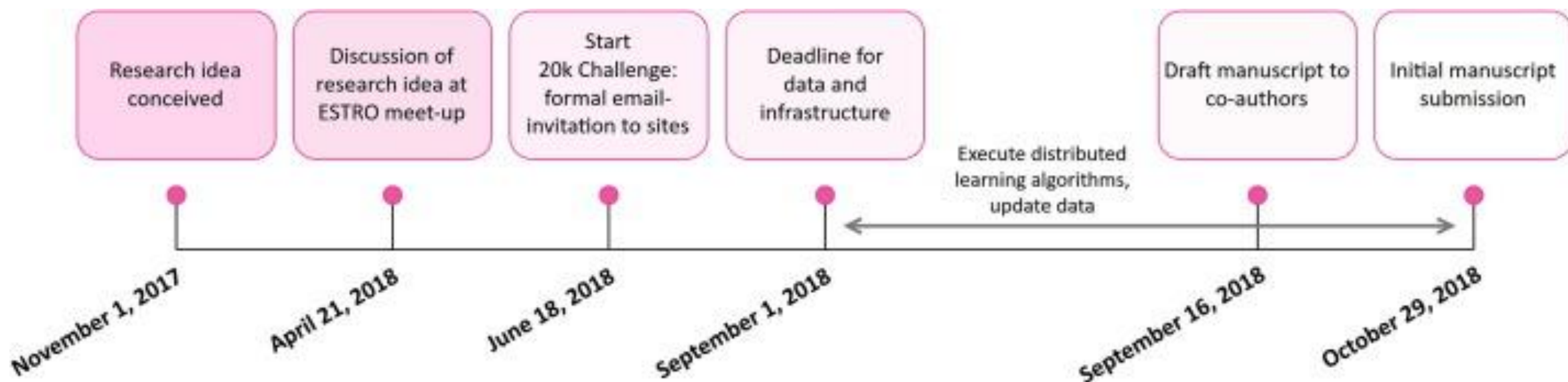


Application of Machine Learning for Multicenter Learning, [van Soest](#), Dekker, Roelofs, Nalbantov (2015)
Infrastructure and distributed learning methodology, Deist et al. (2017)

Federated analytics does not:

- Solve the problem of data interoperability and semantics
 - It makes this problem even more prominent
- Solve the problem of bias in data
 - More data does not mean less bias
- Overcome all obstacles in data sharing
 - Who can learn what within the consortium of participants?

Does this mean a long setup process? No

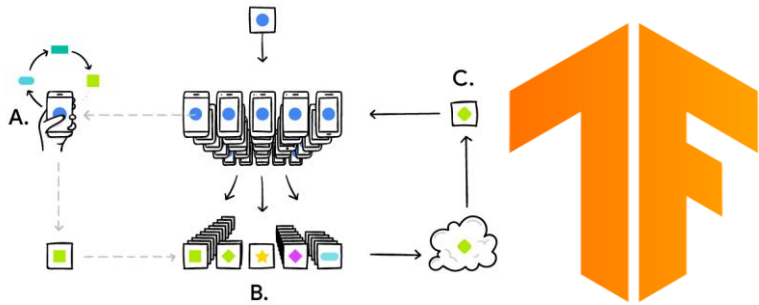


Distributed learning on 20 000+ lung cancer patients – The Personal Health Train

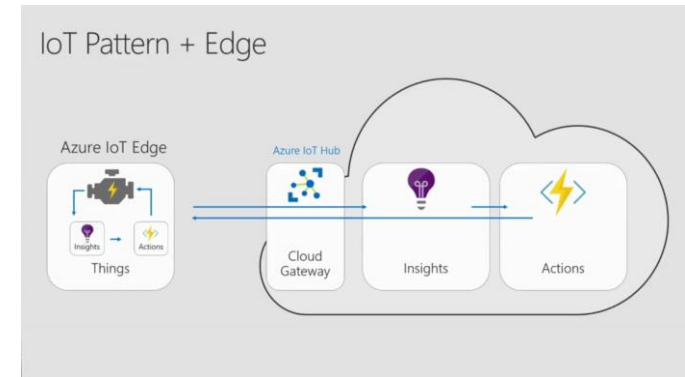
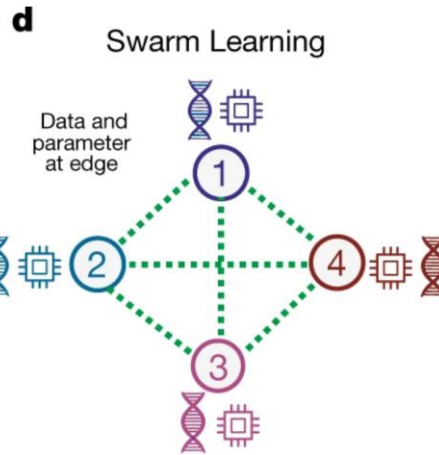


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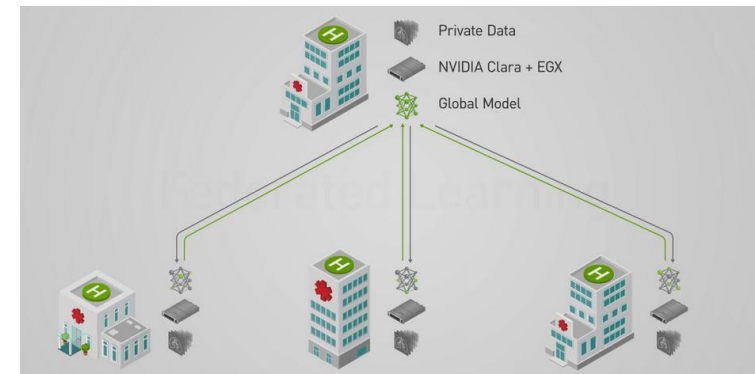
The space with tech infrastructures is filling quickly



Your phone personalizes the model locally, based on your usage (A). Many users' updates are aggregated (B) to form a consensus change (C) to the shared model, after which the procedure is repeated. (Google 2017)



Distributed Analytics Meets Distributed Data with a World Wide Herd **DELLEMC**



What is needed to run such a project (resources)?

- Project management at lead party

- At every data provider:
 - Local project lead
 - Legal support
 - Domain experts
 - IT experts



Non-academic hospitals?
1st line of healthcare (e.g. GPs)?



- Standardized descriptions for FA
- Trust framework (roles, responsibilities)
- Business model

- For the actual federated analytics (if new algorithms):
 - Data analyst / researcher with scripting experience