How to create an environment for successful Data Science Projects

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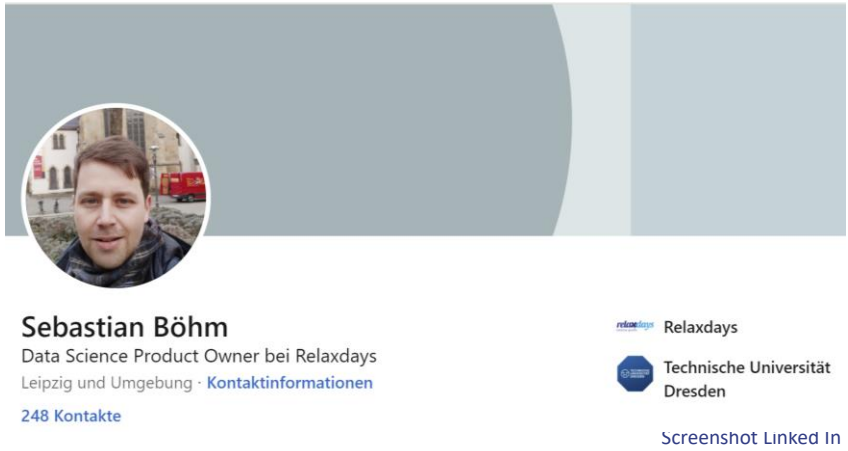
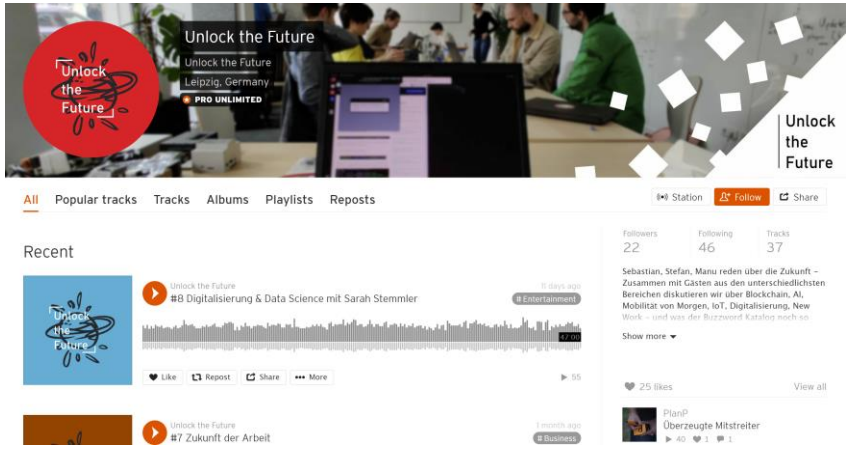
About me

- Mathematician
- Podcaster (Unlock the Future)
- 10+ year experience in data analysis (and related projects) with focus on financial reporting, energy trading and energy IoT data
- former PO for an IoT and Data Science Platform for a municipal energy provider
- Speaker at different events like MATLAB Expo, Rebels@Work, Energieforen, GO.Digital



Screenshot LinkedIn



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Data + Science = Business Value

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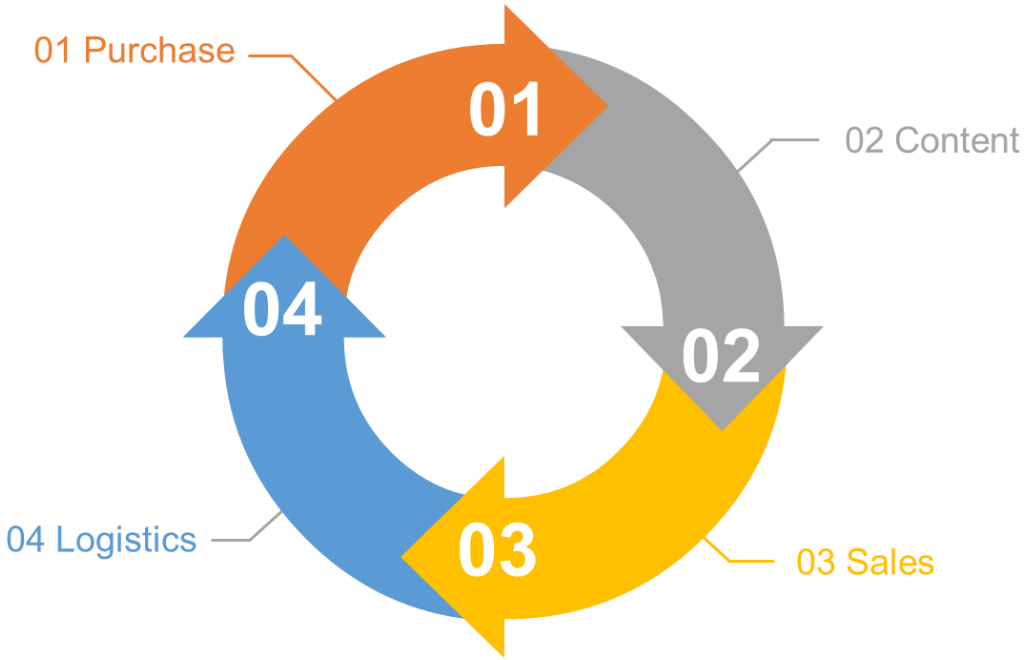
What is Relaxdays?

- founded in 2006
- e-Commerce, content creation, logistics, technology
- offices in Halle, Leipzig, Dresden, Prague



480
Mitarbeiter

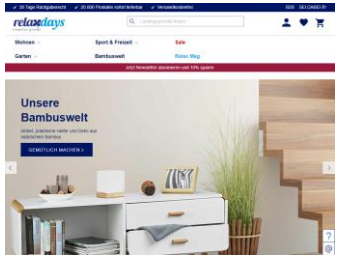
> 40
Teams

> 20.000
Produkte

> 7 Mio.
Kunden

europaweit
Versand

https://relaxdays-unternehmen.de



https://relaxdays.de

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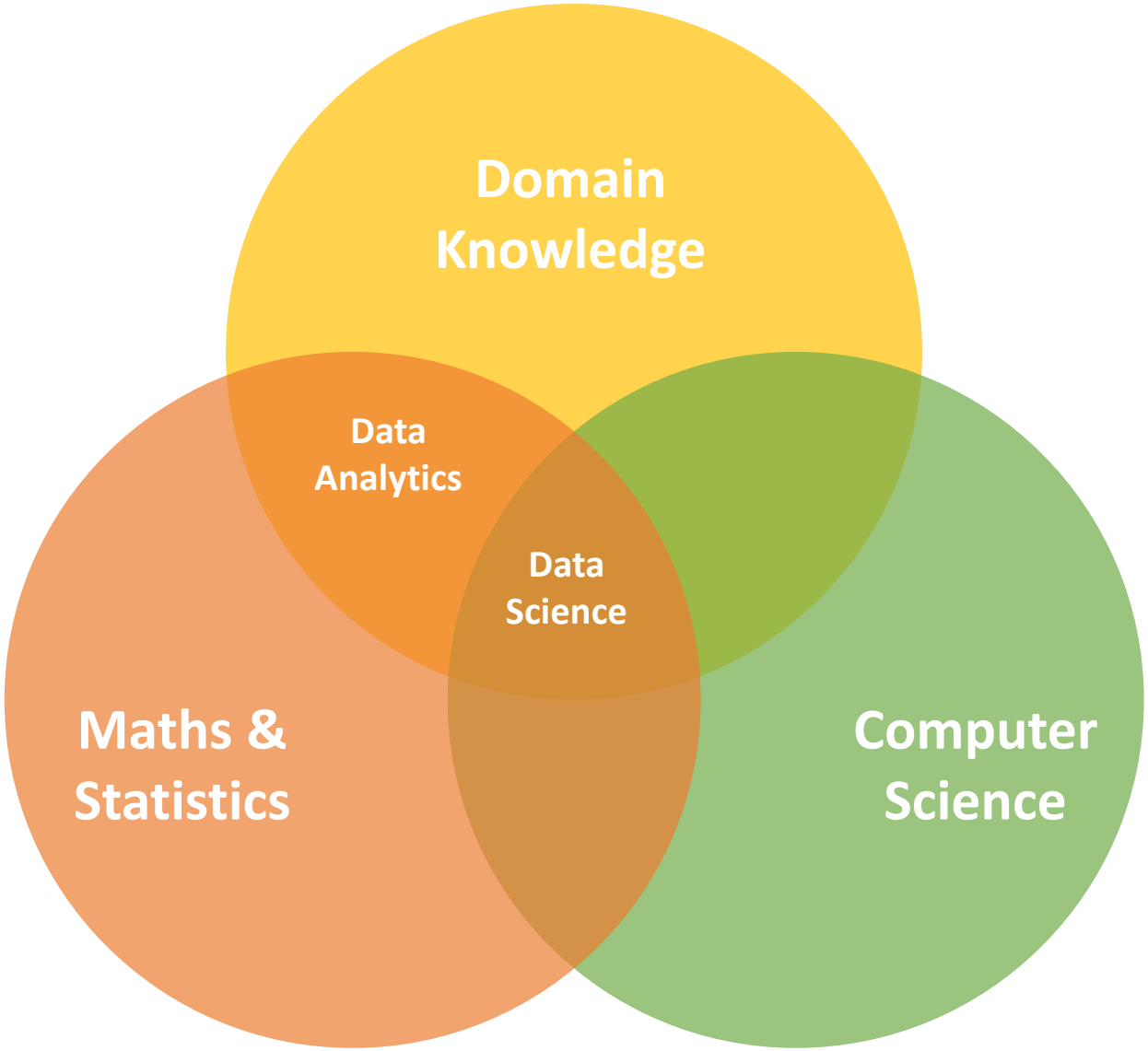
What do I mean with Data Science?

Data Science = usage of valuable analytical functions scalable and 24/7!



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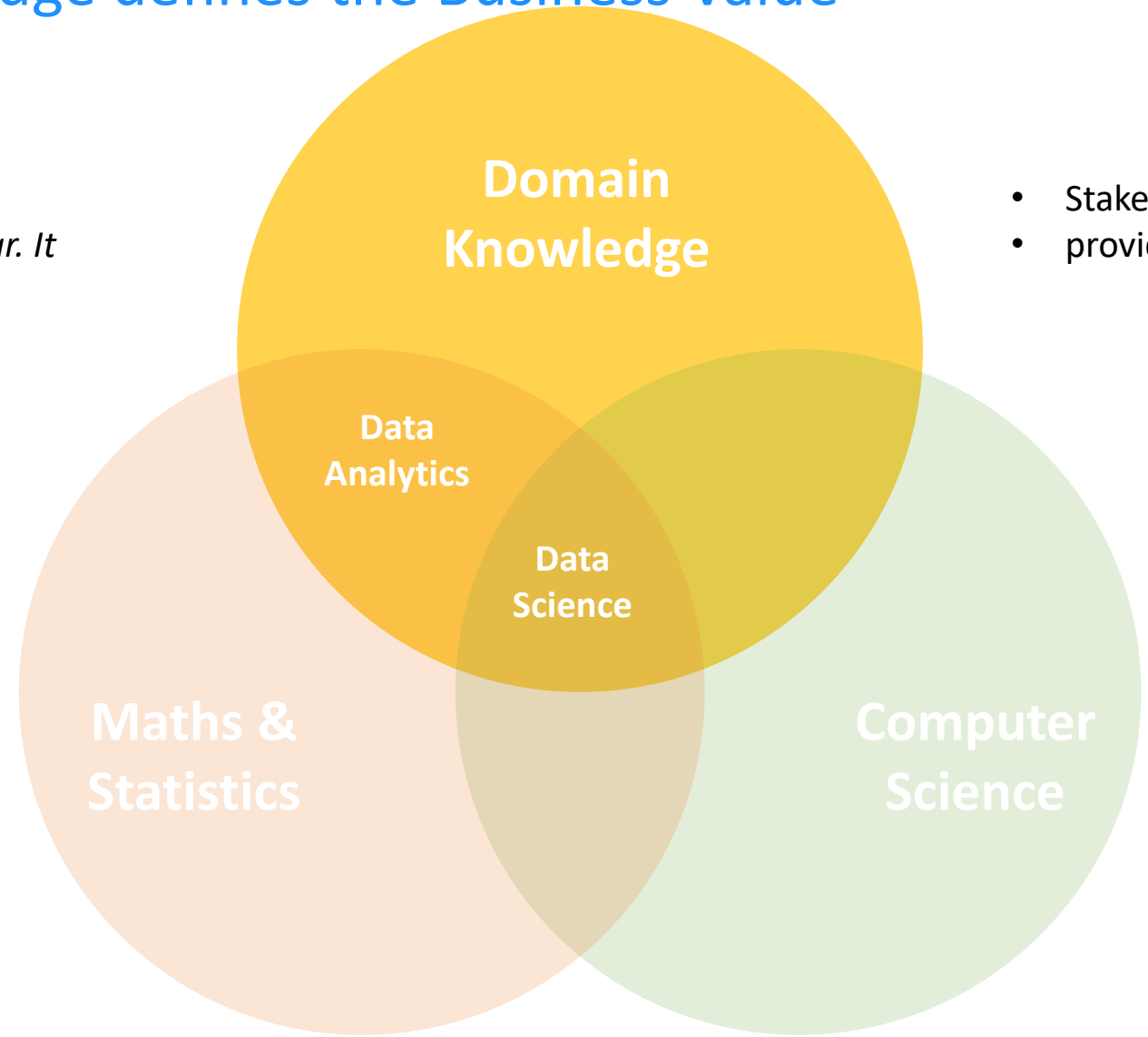
Domain Knowledge defines the Business Value

„I need a forecast of the expected sales of next year. It can‘t be that hard…“



- Stakeholder, Users, Experts
- provide challenges and use cases

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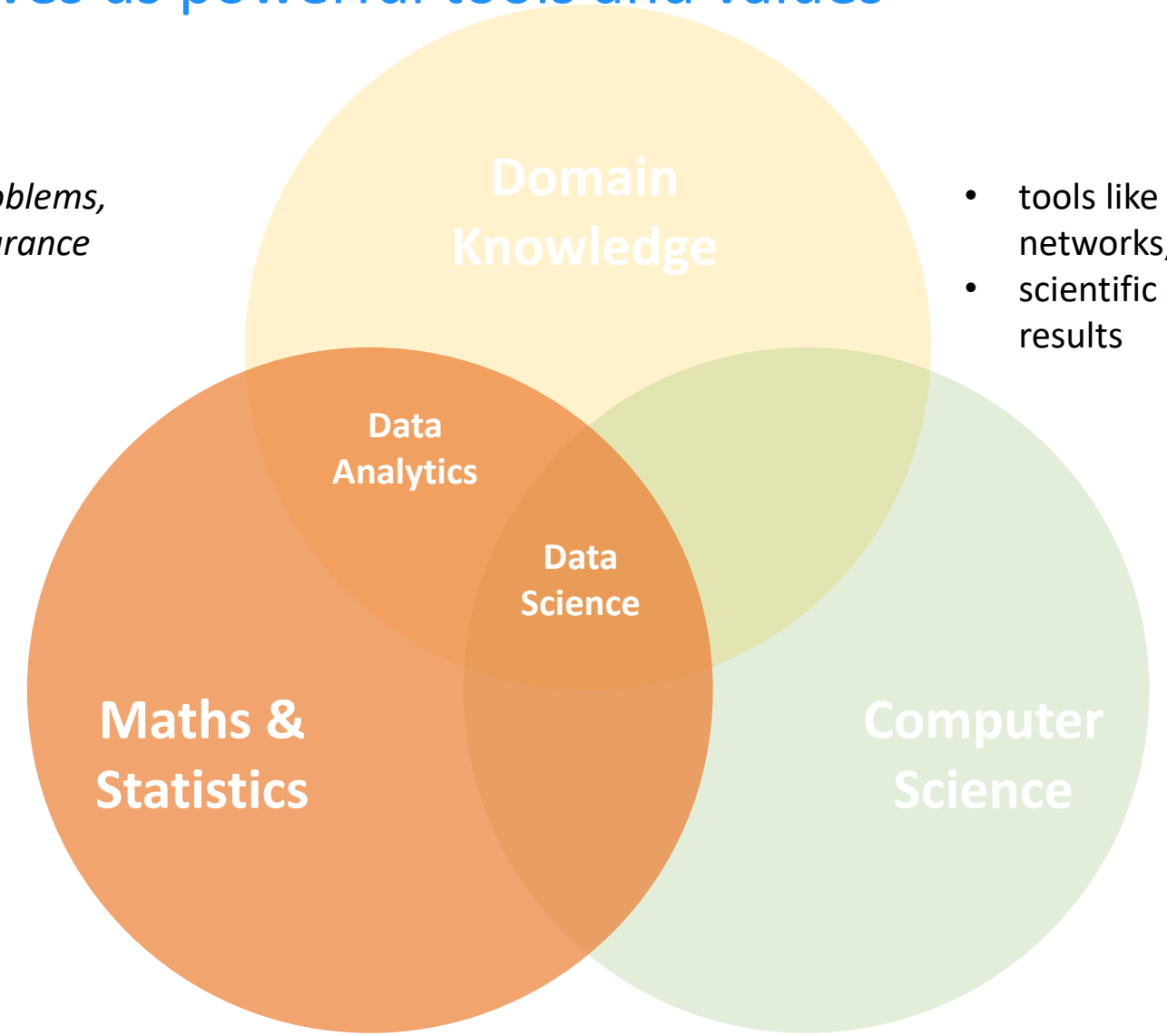
Mathematics gives us powerful tools and values

mindset to solve hard problems,
e.g. persistence and endurance



- tools like optimization models, neural networks, machine learning, simulations
- scientific approach, measurability of the results

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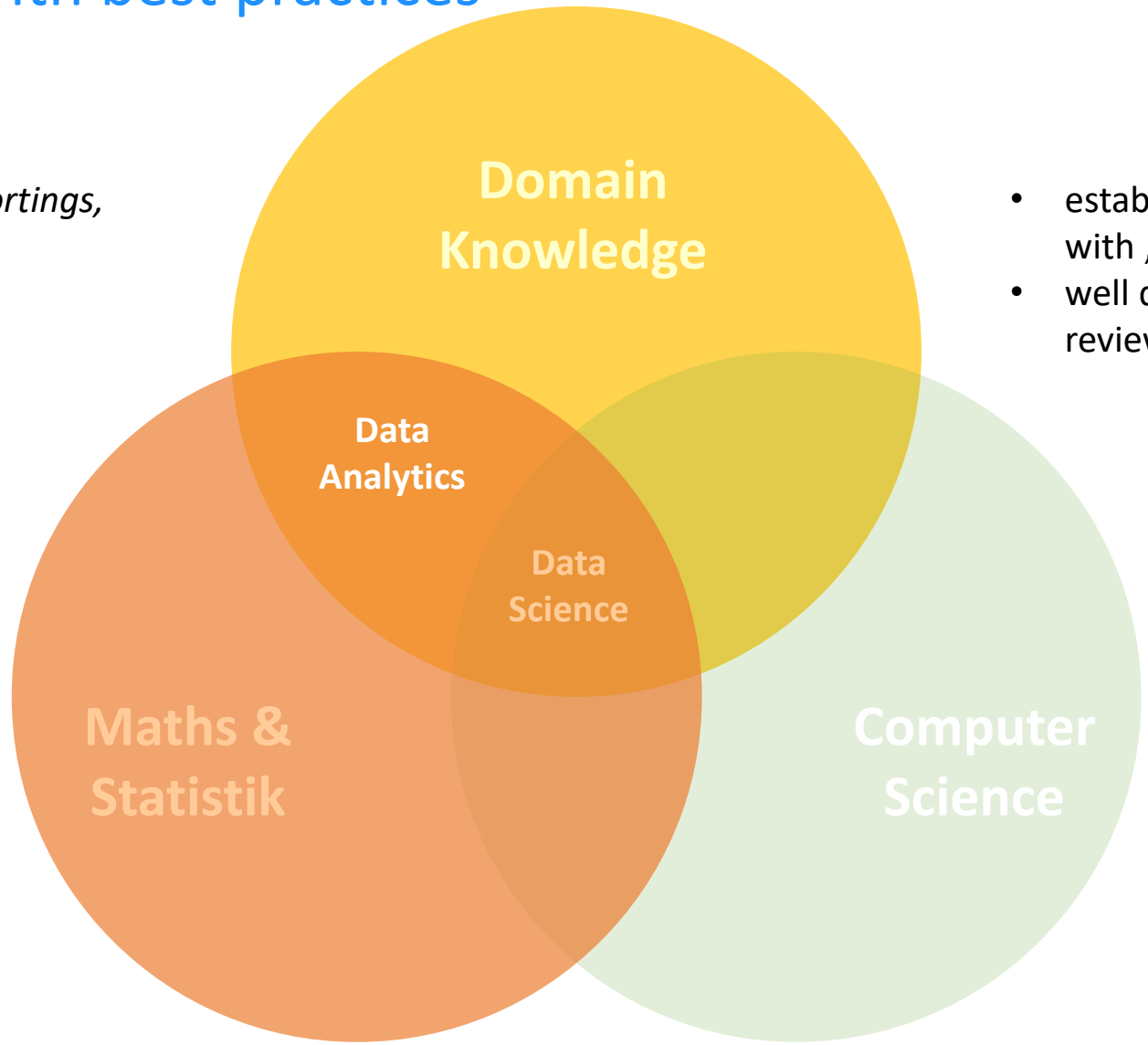
Data Analytics with best practices

risk management, BI, reportings, marketing KPIs



- established orzanizational structures with „Quant-Teams“
- well defined methods with an annual review of these methodes

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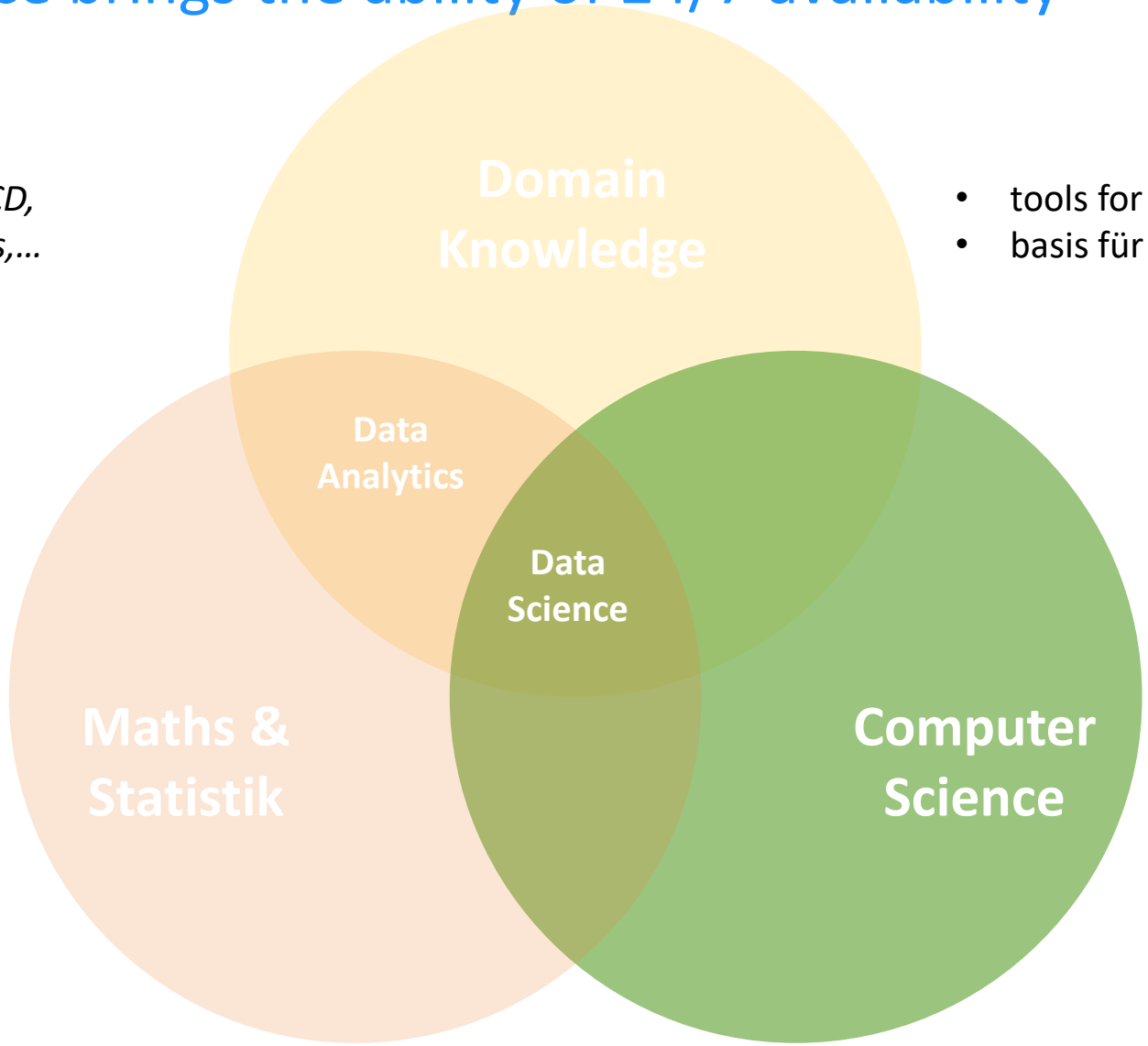
Computer Science brings the ability of 24/7 availability

Scrum, Kanban, Agile, CI/CD, DevOps, other frameworks,…



- tools for monitoring and operations
- basis für scalable, high-quality solutions

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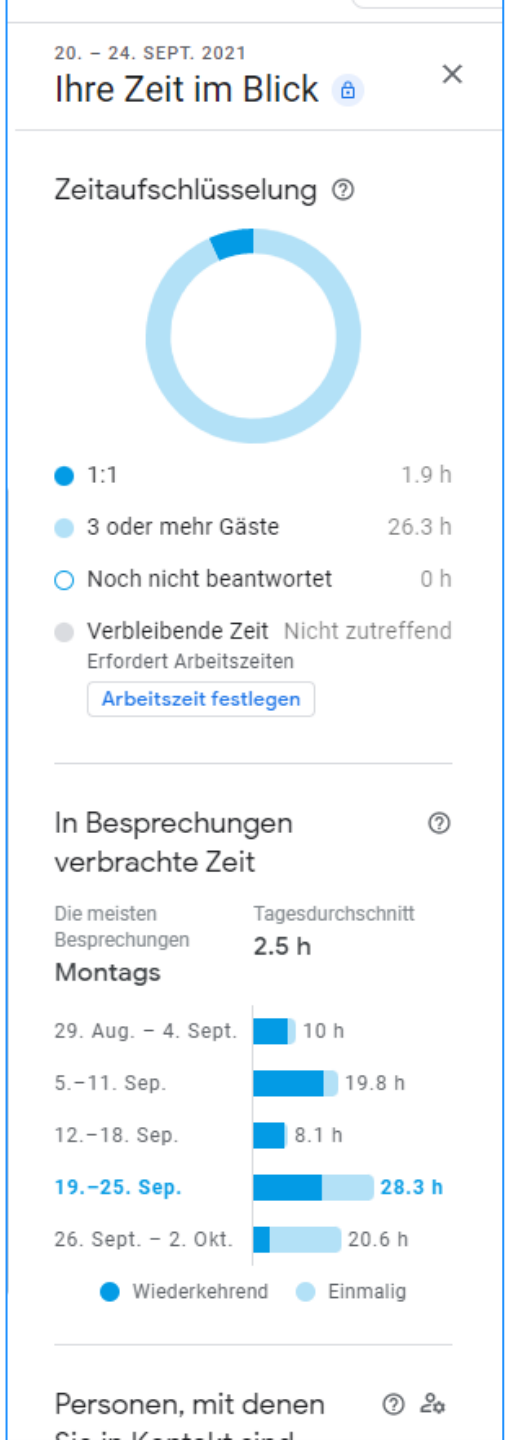
Example



Google Calendar Screenshot

Key drivers to success

Important for any Data Science Use Case

- You have a CDO or at least C-level support
- Your Data Science use cases support the strategic goals of the company
- You have a fantastic WHY which brings you through hard times
- You don‘t think in silos any more
- Your company develops a data-driven-culture
- You have a specific idea and project
- You are able to integrate Data Science approaches into you existing business processes
- You have a good technical basis
- You have all the data needed
- You have the right people with the right skills
- etc.

Let‘s assume we have all of this

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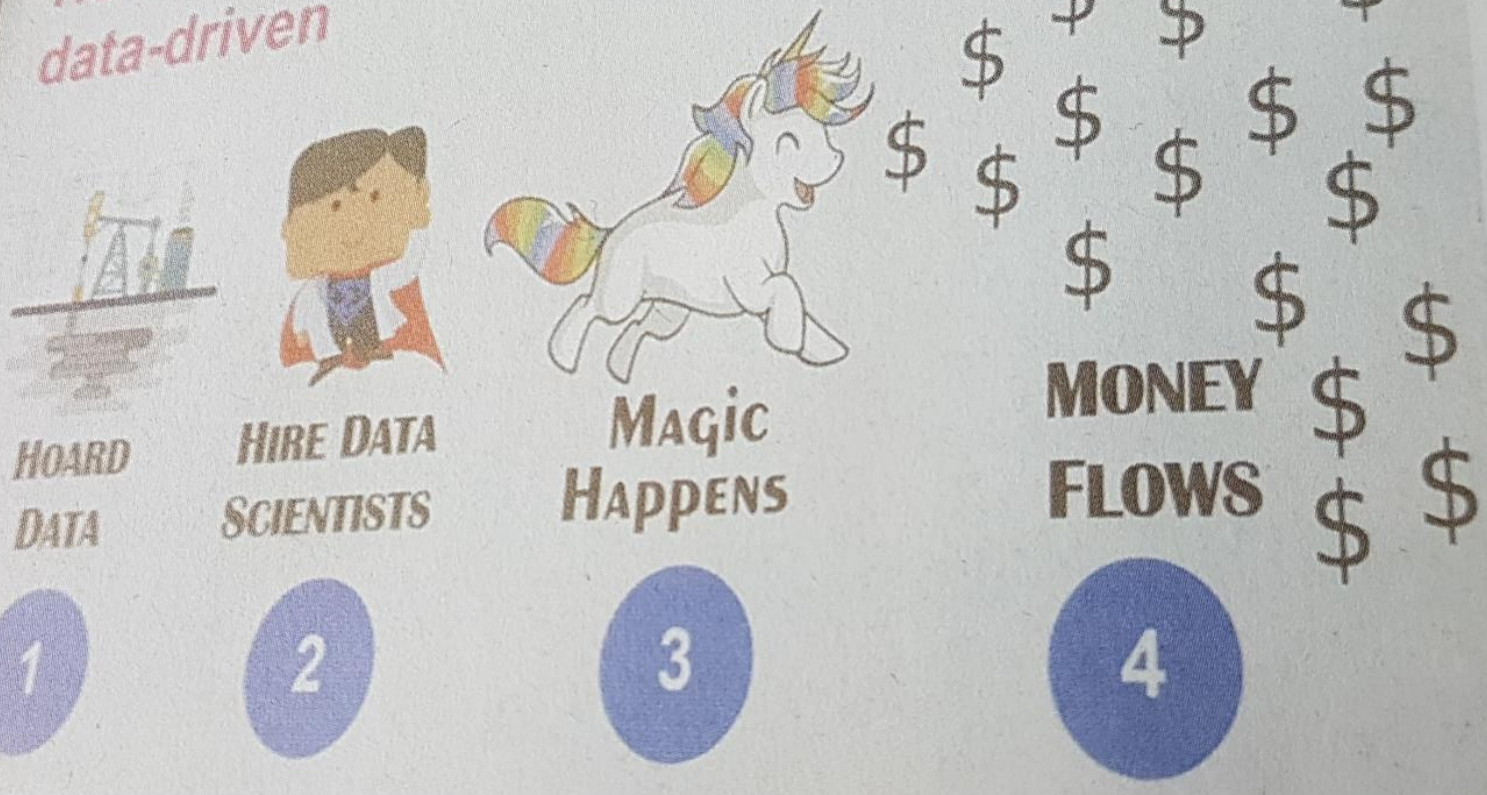
…PLUS The usual construction plan

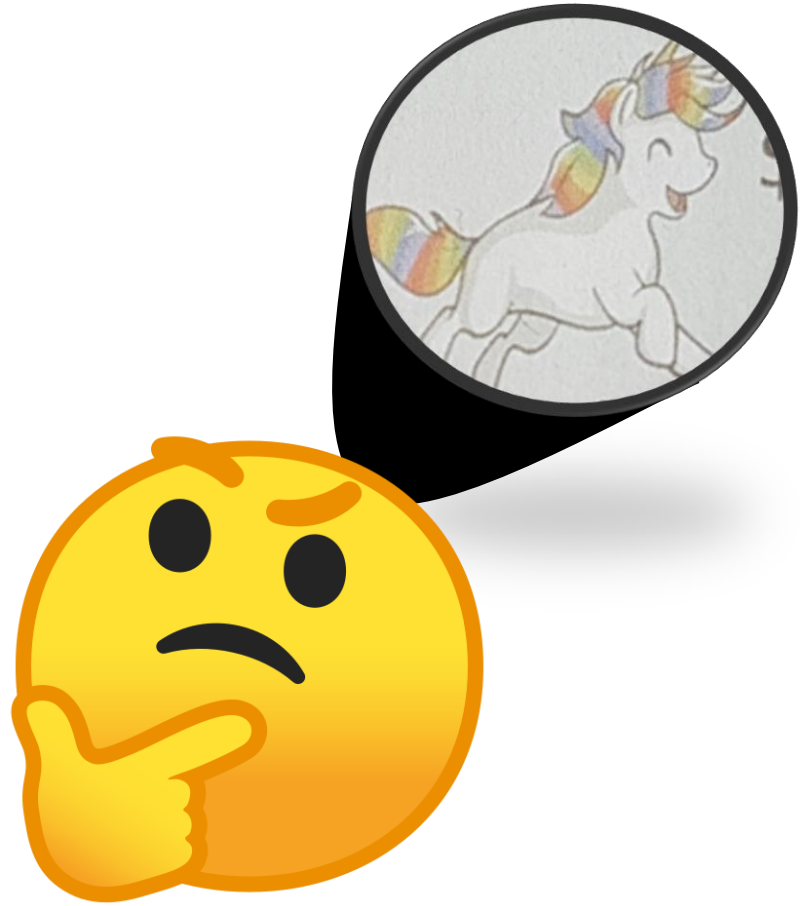
How businesses think they become data-driven



Source lost… a picture taken from a magazine somewhen in 2018

Starting lineup

- a team consisting of several data scientists: physicists, mathematicians, biologists, computer scientists
- which uses the scrum framework
- and Docker, K8s, Gitlab, Python, etc.
- and gots exiting challenges from the business unit
- and a lot of data



What happens?

„Duck-tales“ or typical software development pitfalls

- „it works, but we can‘t use it in production actually“
- „small“ changes take „a lot“ of time
- team talks about computing power, memory usage etc. (and NOT business value)
- the customer/stakeholder has to listen to long technical explanations instead of getting business value
- there is library or framework for everything, but you don‘t know which one fits perfect to your problem
- scientist forget about scientific approaches (hypothesis -> proof)
- the model worked fine during training, but times are a-changing and we now get different data

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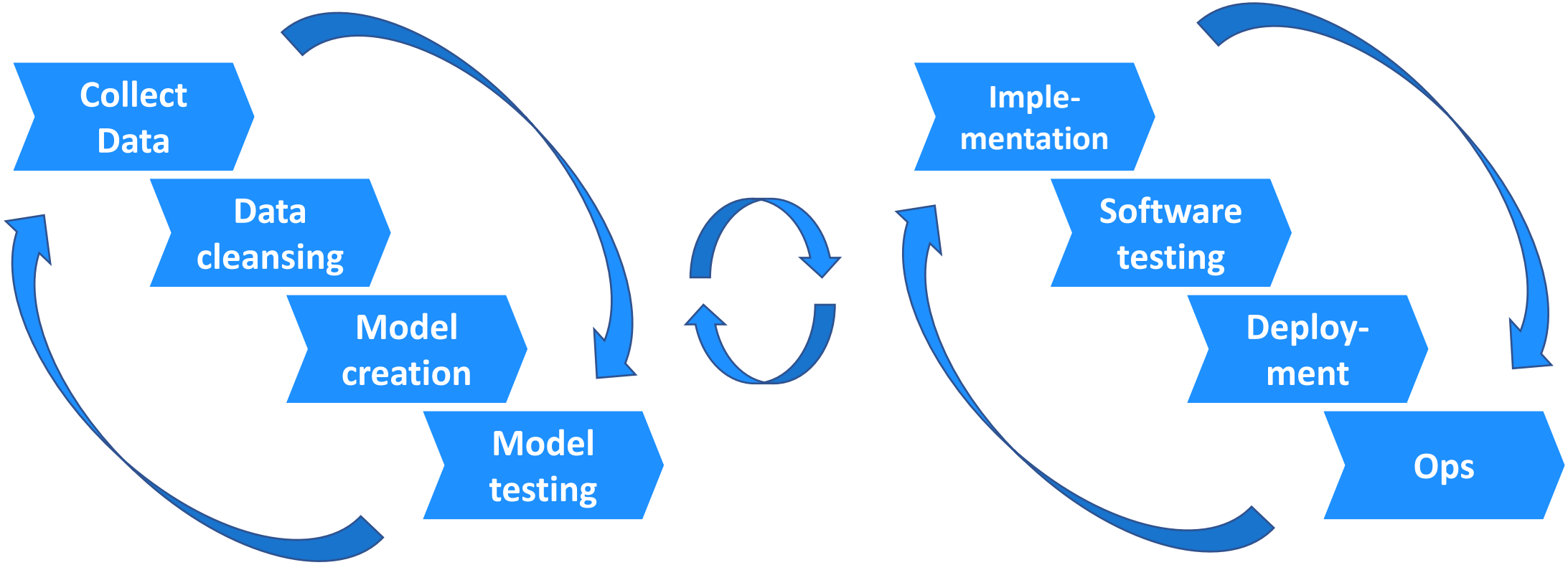
Why do we end up there? Look at the data science process…



Data Science Cycle

Software Development Cycle

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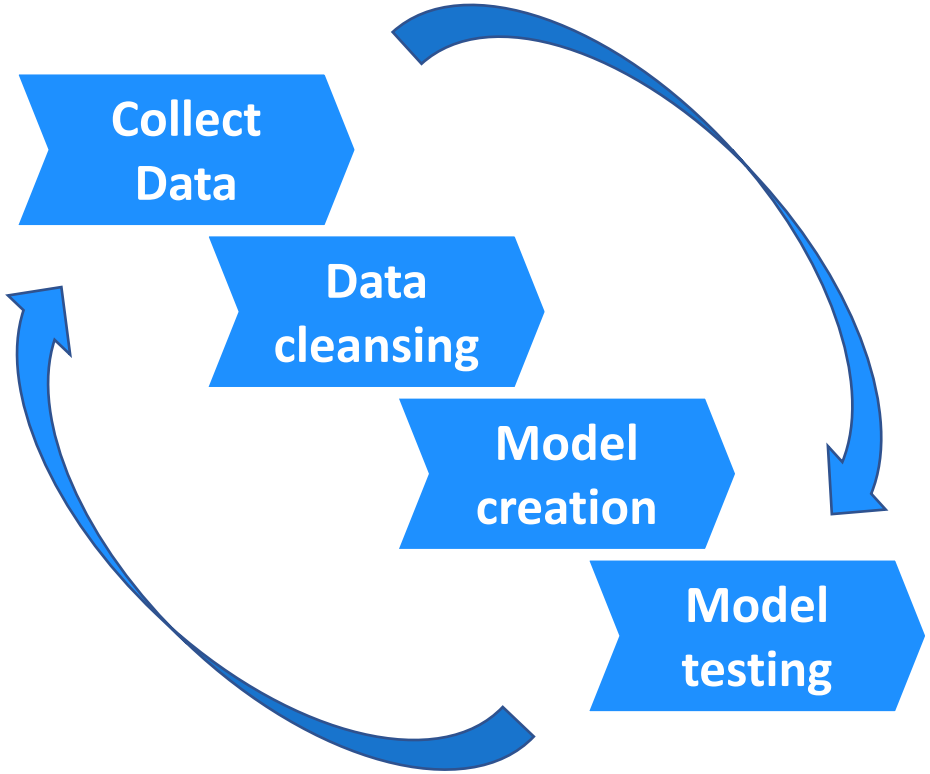
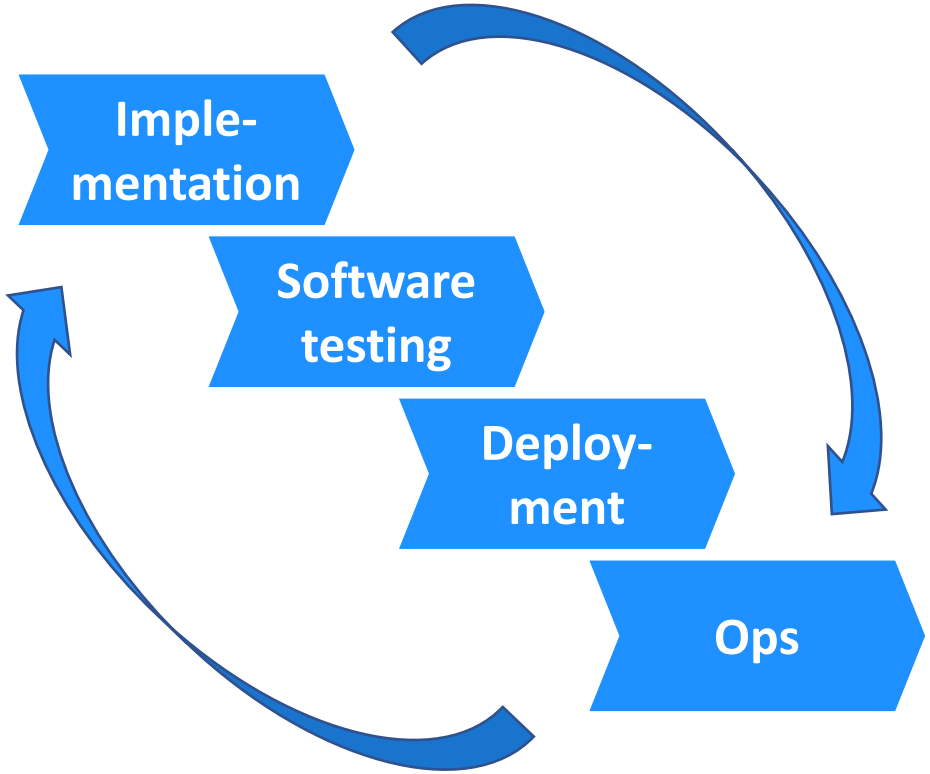
Data Science Cycle creates solutions



Data Science Cycle

- Goal: find solutions for business problems
- fail fast and go on to the next idea
- for this cycle we need data scientists
- In an ideal world:
  - concentrate on the important steps like model creation and model testing
  - automate data aquisition and cleansing

Software development cycle brings solutions to production



Software Development Cycle

- Goal: bring the solution in production so one can use it
- for this cycle we don‘t really need data scientists
- focus on stability and scalabilty
- In an ideal world:
  - ➢ automate it!

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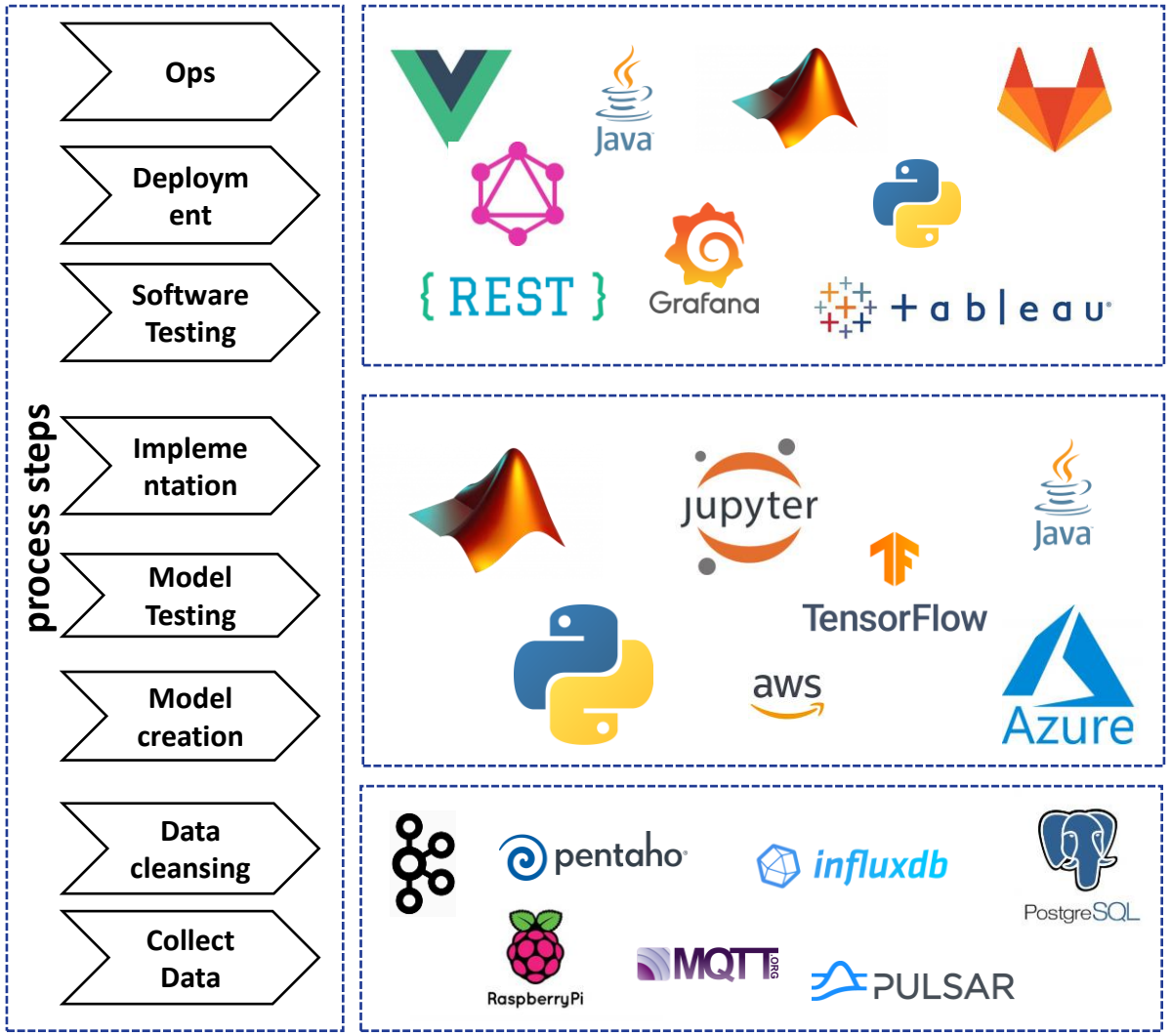
Find a proper solution for every step of the procss



- define principles for you work, like „we prefer microservices instead of monolyths“
- Be open for new technolgies and third party solutions which can help you to automate a process step
- Build it step by step and have always a concrete use case in mind which helps you to create business value

Extensive automation of software development steps enables concentration on professional data science oriented challenges, not on technology

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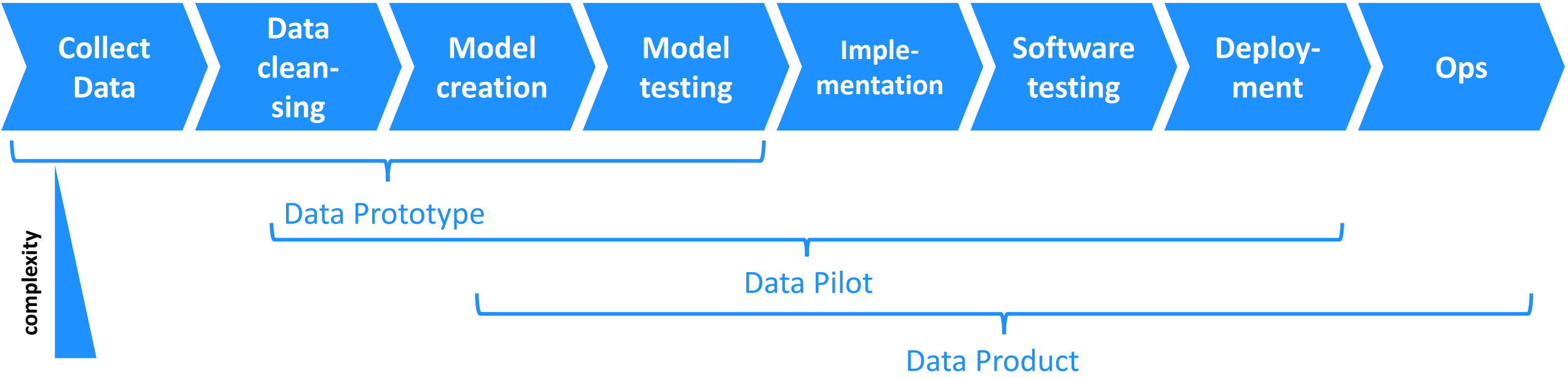
And one more thing…



- Add complexity piecewise – we don‘t need scalability in the data prototype phase. We need correct results.
- Use this to speed-up your work and learn fast to deliver business value

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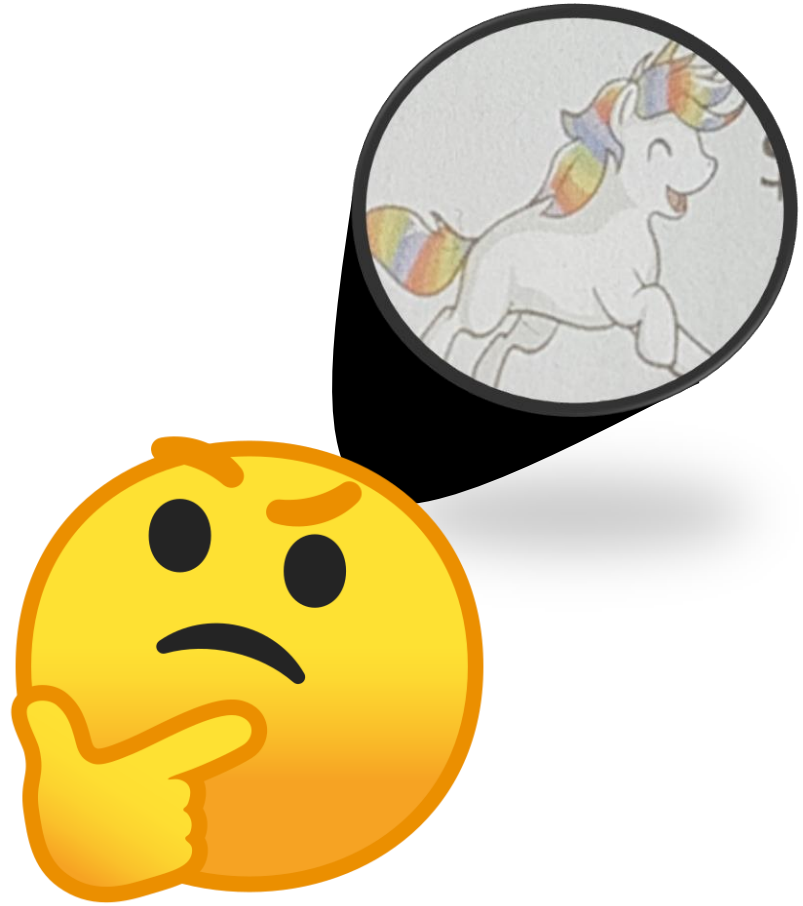
What do we have achieved?

- We created an environment where data scientists can concentrate on the data science part of their work
- Software development related tasks are mostly automated
- We understood that our work consists of two important cycles (data science and software development cycle)
- We can use this insight to create data products with respect to the product stages (prototype – pilote – product)



It‘s not a unicorn, actually – but it looks like a horse

- We empored analytical guys to do analysis and automated the rest
- Now we can concetrate to develop the team with useful roles, improved processes, etc.

- The team now can start it‘s evolution and seek for the promised data science land, where
  - data magic happens and 1 + 1 = 3
  - you are able to build rapid protoypes and bring it to production in no time
  - you have time to learn new stuff and use it in your everyday work
  - all the boring stuff is automated, etc.

How to get there? This can be part of another talk…

Many thanks for your attention!

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