What I learned about …

AI Product Development

My journey to develop user-friendly applications that provide insights at enterprise scale.

by Jan Scholz

2024-09-24

README

Jan Scholz
Sr. Director, Data Science

- former Neuroscientist
- now heading a team that builds ML-powered apps using modern cloud architecture and DevOps principles

“After transitioning to the Data Science & ML industry, I become fascinated by the complex dynamics that play out when data, software, and humans come together to build products.”

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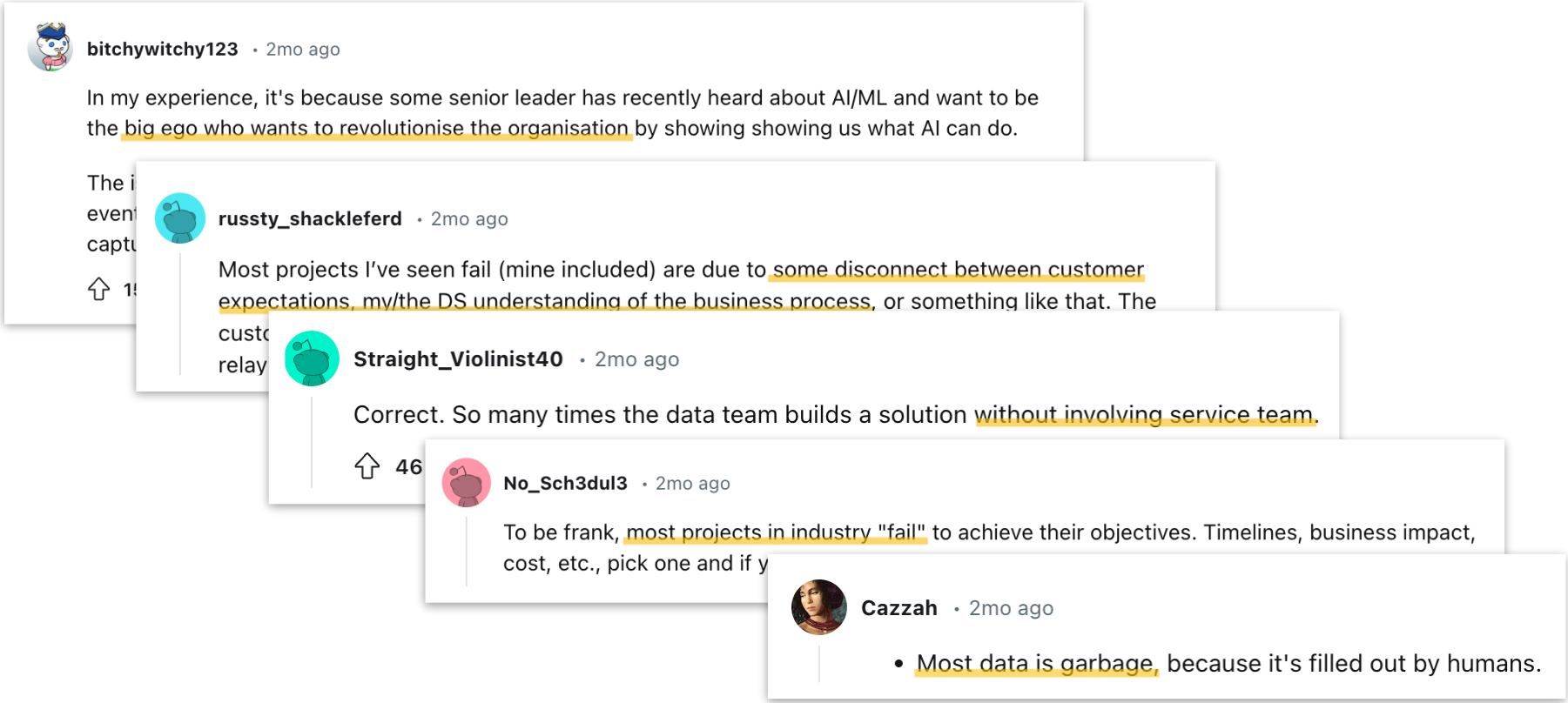
90%

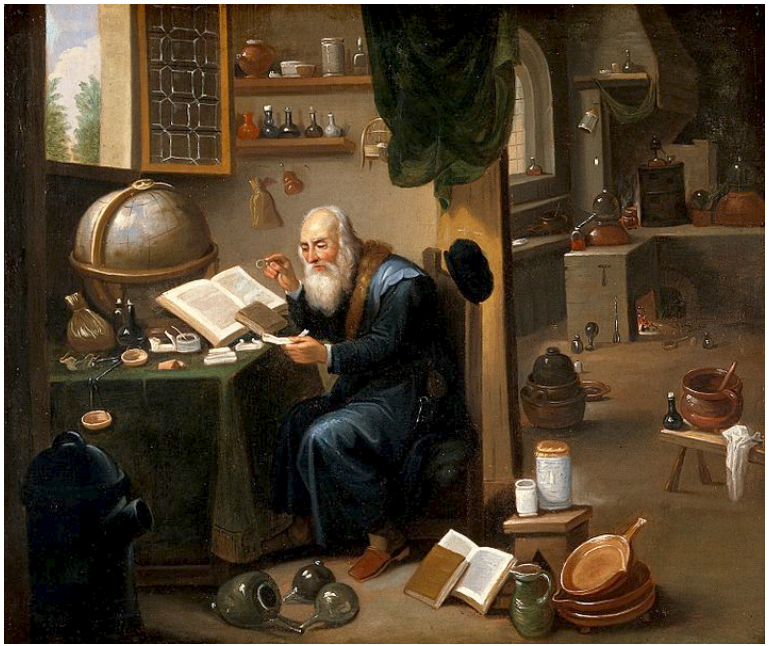
Of all AI/ML projects fail.

r/datascience



Lesson 1: Use the Right Approach

Alchemy doesn't work.



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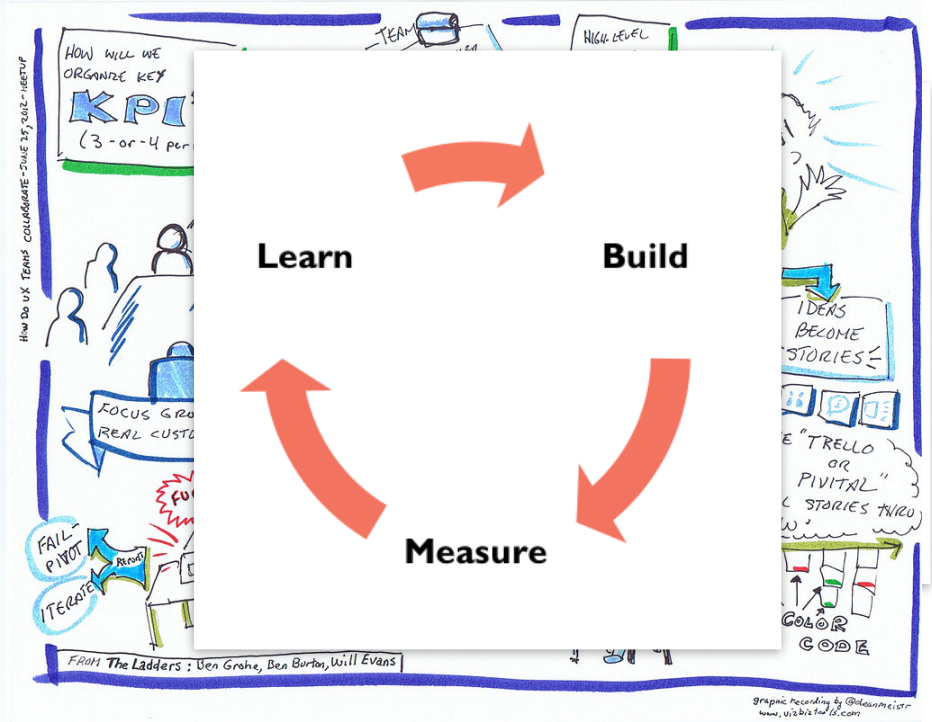
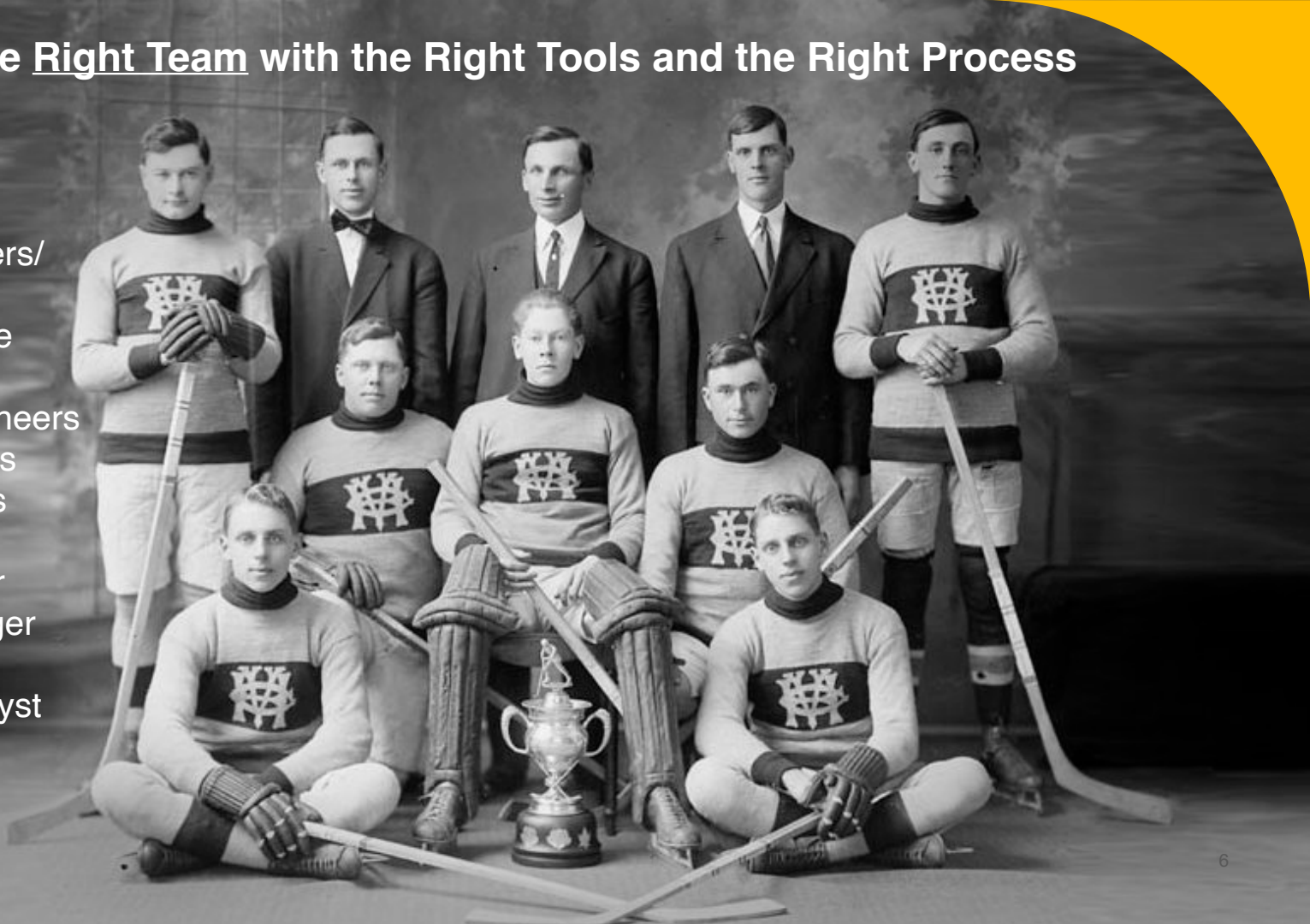
Agile product development does work.



Lesson 2: The Right Team with the Right Tools and the Right Process

- UI/UX designers/ developers
- Cloud/software architect
- Software engineers
- Data engineers
- Data scientists
- QA engineer
- Product owner
- Project manager
- Scrum master
- Business analyst



- Developer-friendly computers
- Live data
- Open source tools
  - Configuration as code
- Version control systems
- Cloud infrastructure
  - Docker
  - Kubernetes
  - CI/CD

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Setting yourself up for success

Problem solving techniques

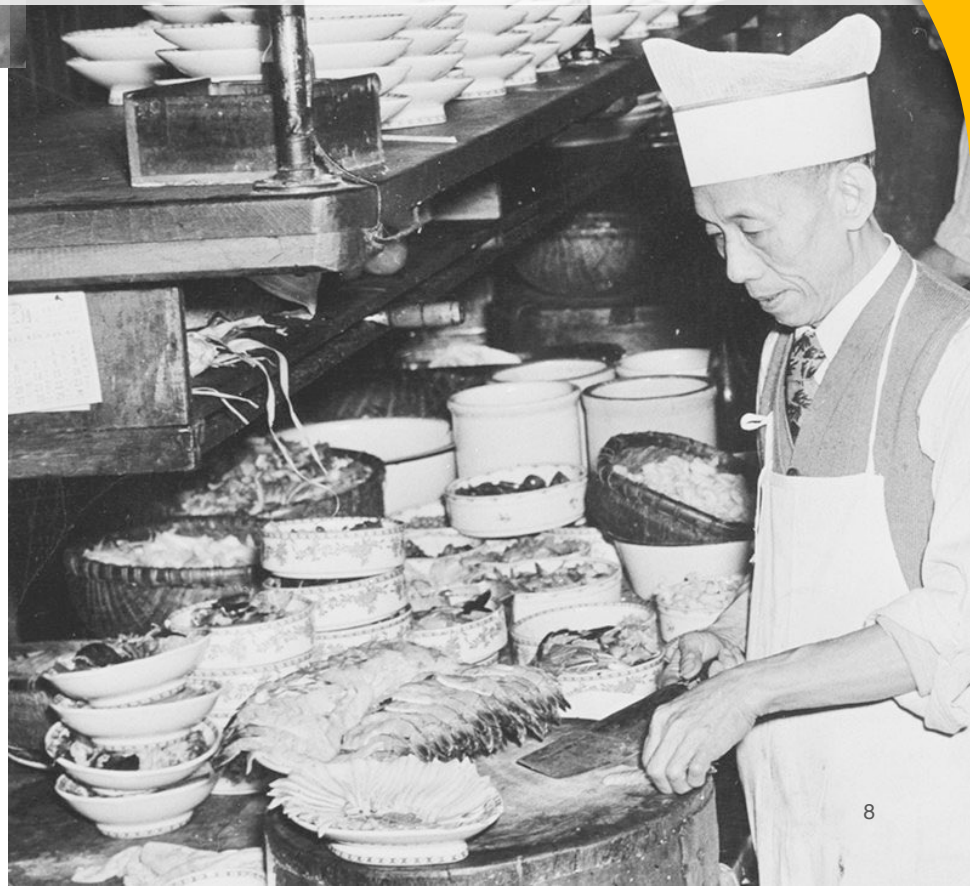
- Design thinking
- Domain-driven design
- Event storming

Organization

- Hub & spoke
- CoE
- Vertical ownership

Ceremonies

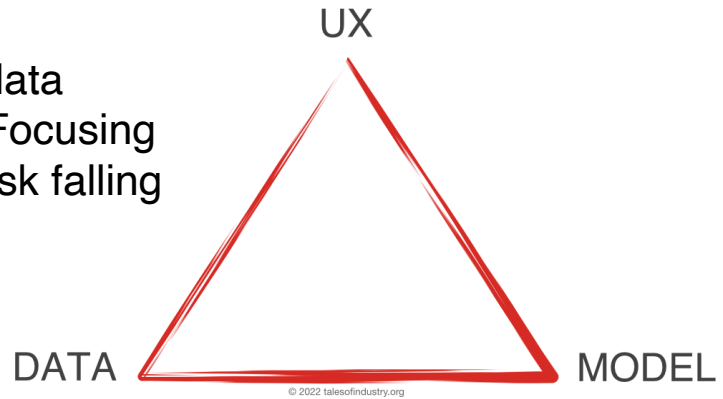
- Standups
- Asynchronous work



Lesson 3: Avoid AI Pitfalls

Additional considerations when building AI Products

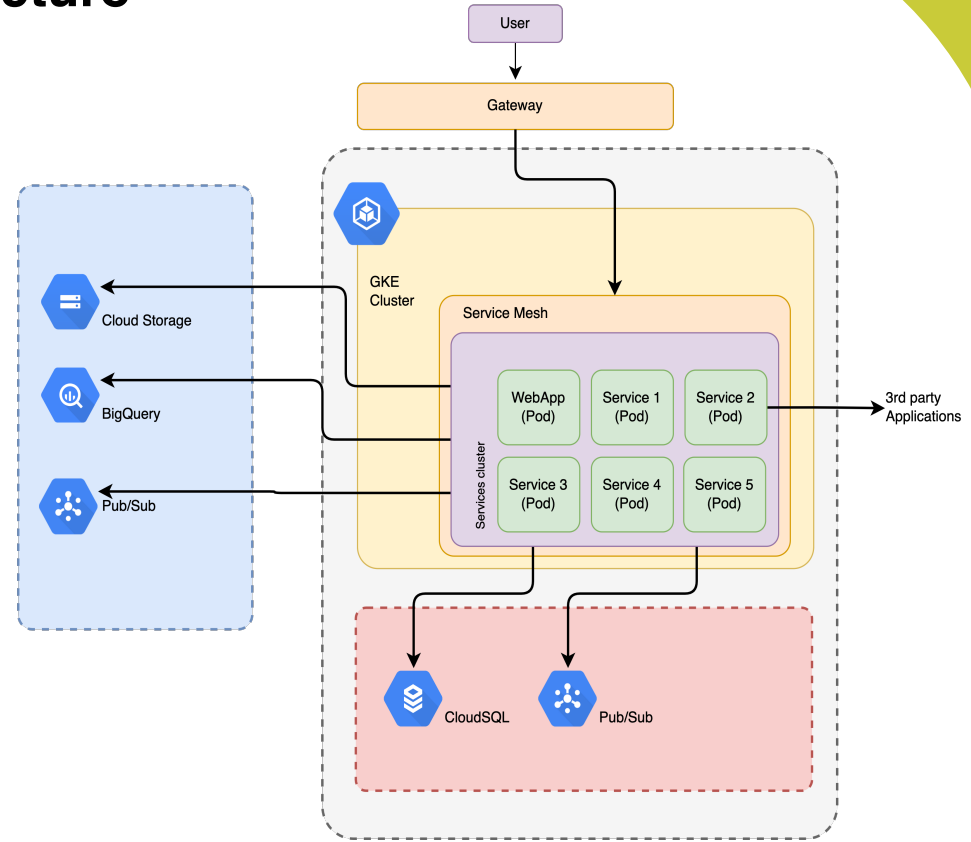
- **Avoiding user feedback.** Aim to develop a simpler product that works end-to-end to establish the vital feedback loop. Avoid delaying user testing for an ambitious technical agenda and perfection. Measure adoption & KPIs.
- **Jumping the gun on automation.** Start with augmentation (or human-in-the-loop) to incorporate human knowledge & business rules and narrow down the business problem.
- **Model tunnel vision.** AI products need to straddle data requirements, model insights and user experience. Focusing efforts on one corner of the triangle, e.g. data, can risk falling behind on modelling and user experience.



Example AI Application: Architecture

Distributed & On-Demand

- Cloud-based
- CI/CD, automated testing
- Service-oriented-Architecture
  - Kubernetes
  - Services allow ownership and separation of concerns
- “Stateless” design, e.g. forecasts are retrieved on the fly
  - Forecasts retrieved within 200 ms
  - Models trained within 1 s
- Synchronous and asynchronous communication patterns
- Architecture is adaptable & extendible



User Experience

Responsive, Empowering the User

☞ Forecasting is leveraged throughout to show the impact of any action

- Users can inspect models and …
  - visualize model fit
  - select from a range of models
  - manually override predictions
- User analytics guides prioritized model improvements

☞ Optimization suggests the best cause of action within the user's constraints

- Optimization provides users with …
  - an entire optimized schedule with a click of a button
  - multiple what-if scenarios
  - a range of recommendations
  - takes business rules and user constraints into account

Thank You

Happy to connect on LinkedIn!

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