

# Pixi powering Telekom data cloud

Aleksandar & Georg | 2025-01-31



# Agenda

- 01 Foundational principles  
Magenta`s cloud data platform
- 02 Data domain building block  
dbt, dagster, pixi
- 03 The role of pixi  
Advantages of pixi ~~over old system (conda)~~

## About us



**Data expert** in academia and industry Magenta Telecom

- meetup organizer and speaker
- data architecture, multimodal and complex data challenges

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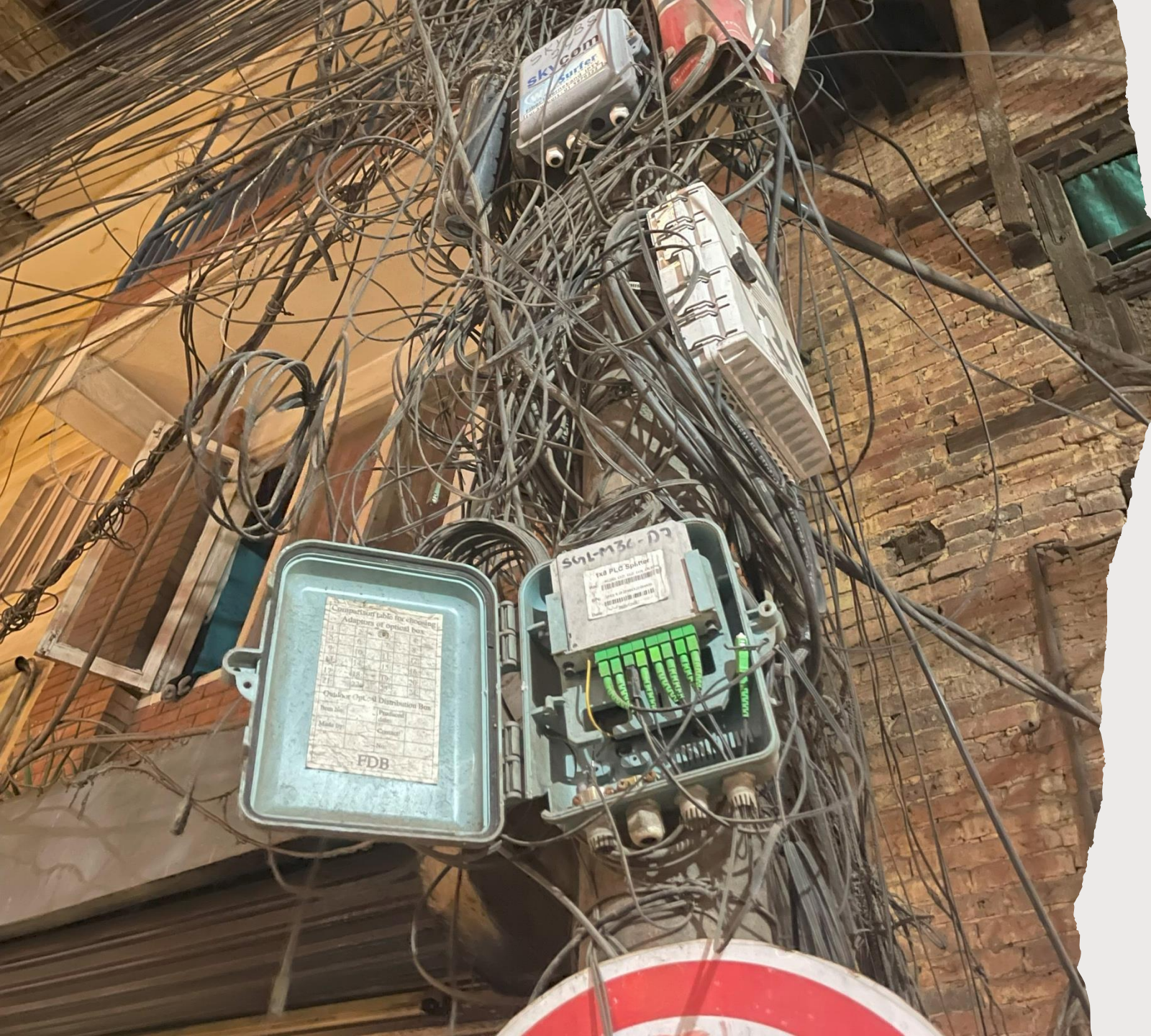
**Data engineer** at Magenta Telecom

- database internals, data platform engineering

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Before – there  
was chaos

# Governance & Interface management

Explicit data  
dependencies

Event-driven  
coordination

Breaking  
down tool  
silos

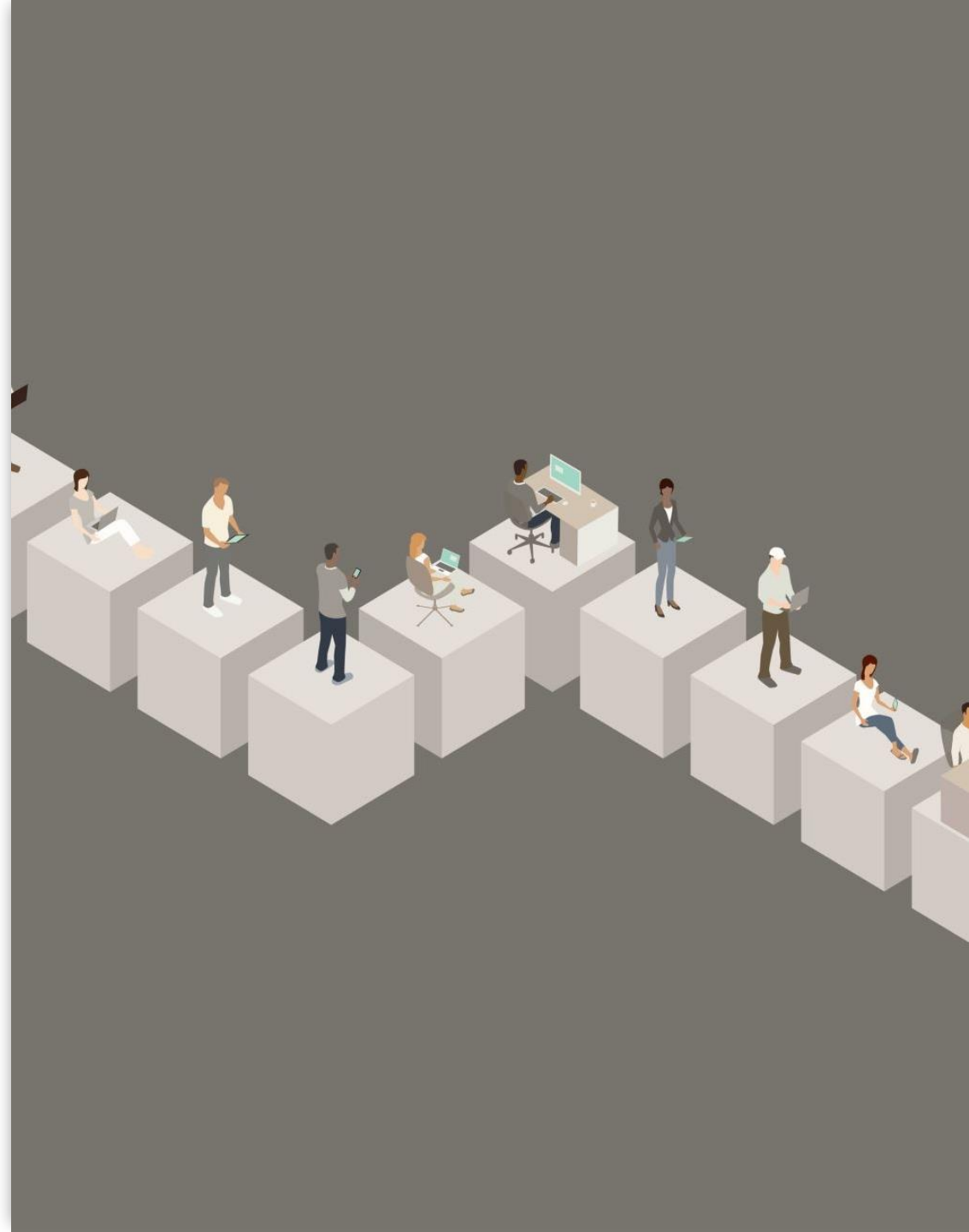
# Pillar 1 - Like a Calculator for Data Dependencies

- Just as a calculator automates math, we let **data dependency graphs** automate the heavy lifting.
- **Why?**
  - Reduce manual errors and dependency tracking effort.
  - Improve scalability by leveraging computer-aided processing.



# Pillar 2 - Event-Driven Coordination

- No more waiting for reference data!
- Data processing driven by **real-time events** instead of static schedules.
- **Why?**
  - Eliminate bottlenecks in workflows.
  - Enhance flexibility and responsiveness to changes.
  - Reduce unnecessary waiting times & state synchronization issues



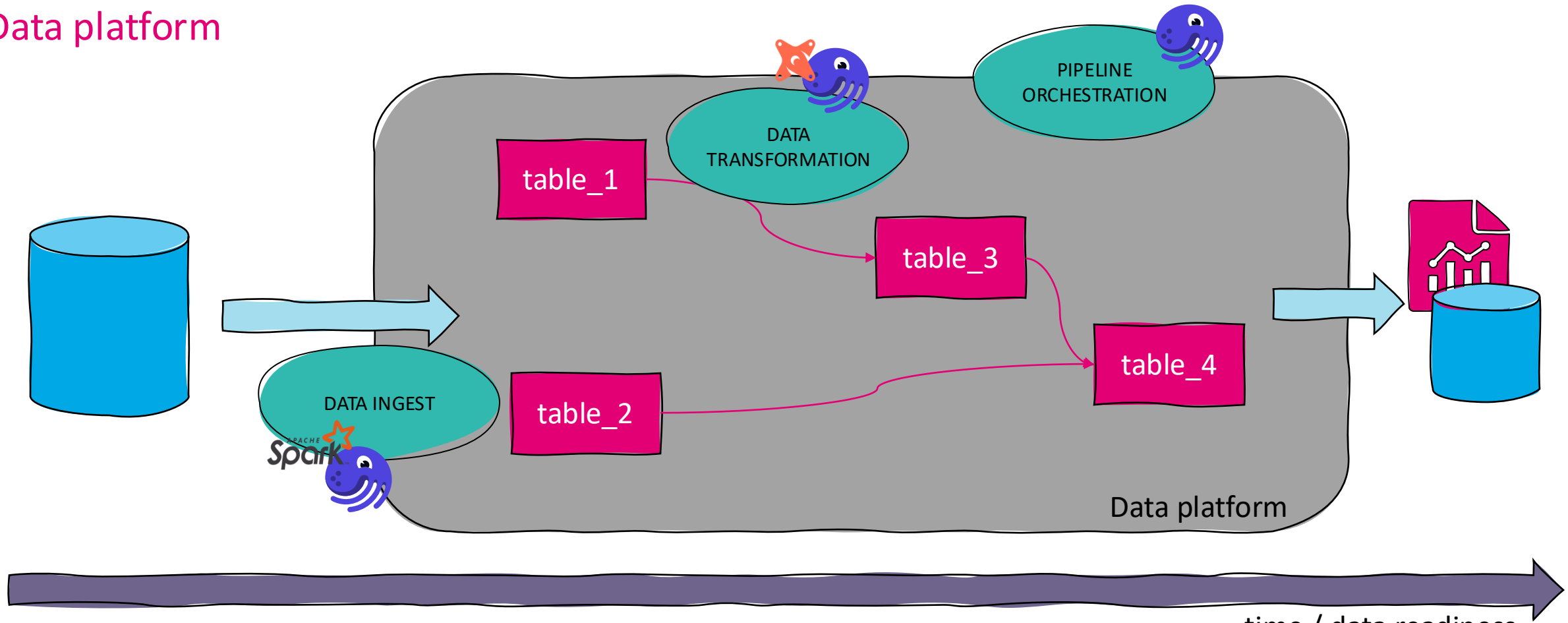


## Pillar 3 - Breaking Down Team Silos

- Unifying tooling for ingestion, transformation, and data science
- No more team silos!
- Why?
  - Foster collaboration with a single platform: Flexible resource allocation/cross team collaboration
  - Easy operationalization



# Data platform

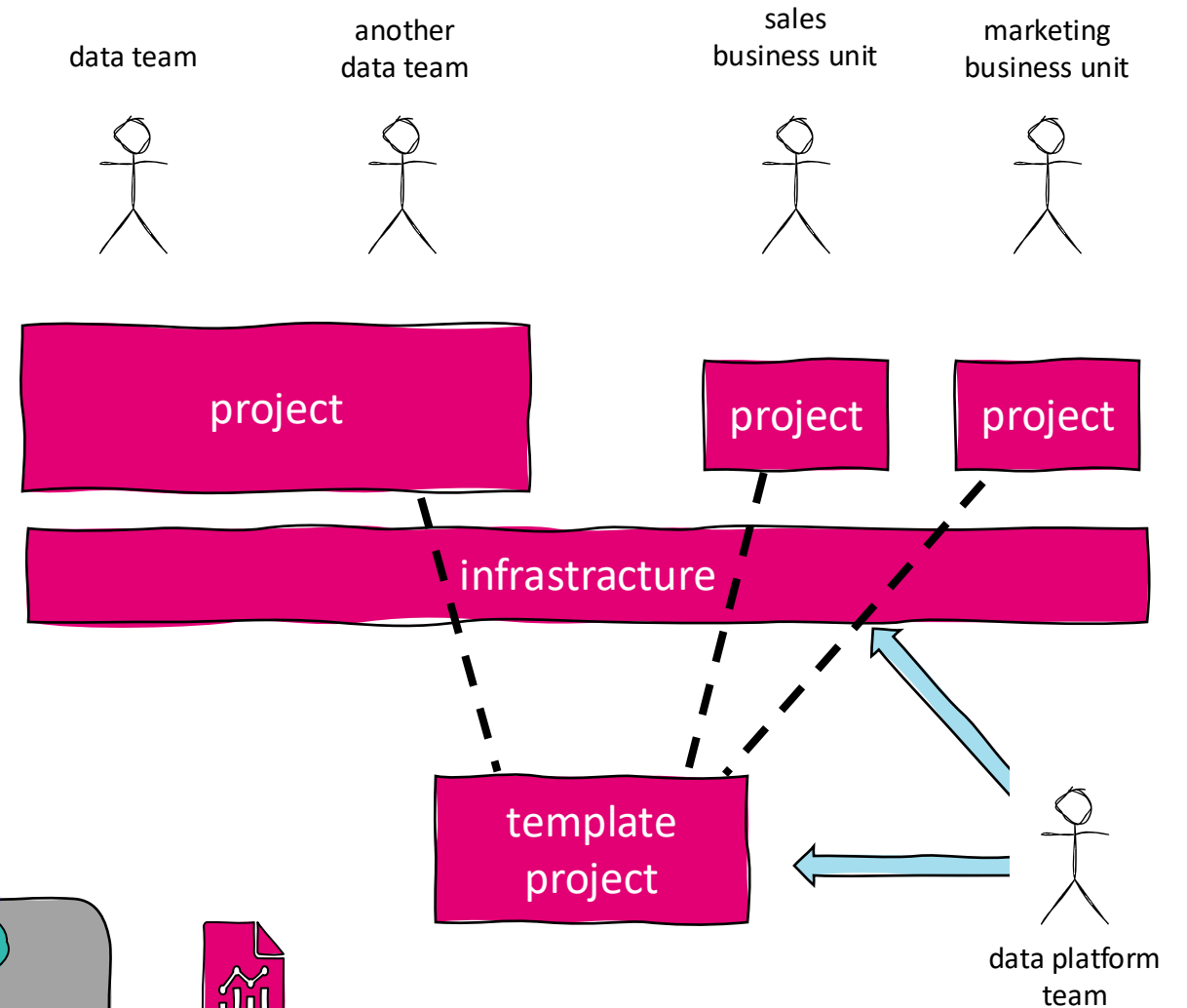
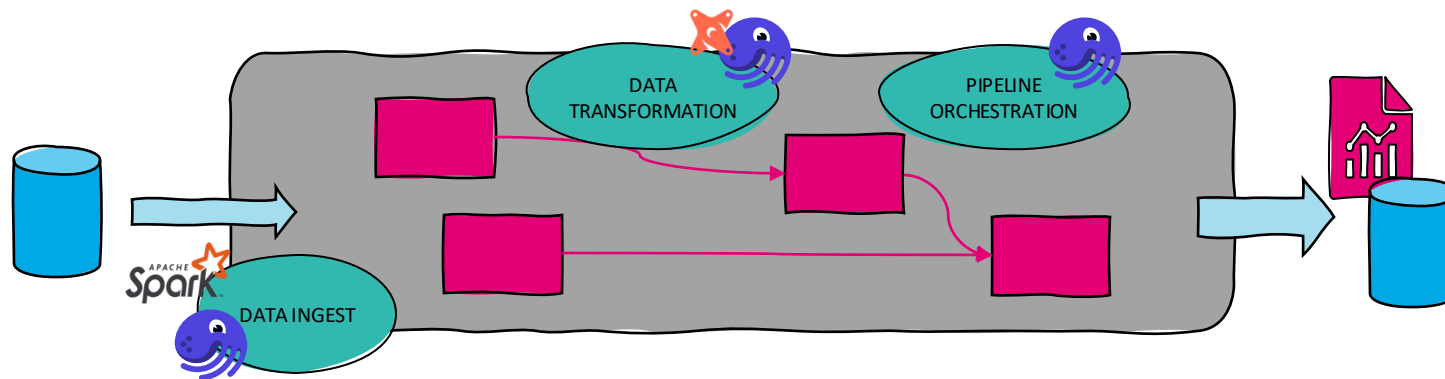


Source data:

- kafka
- files
- database systems

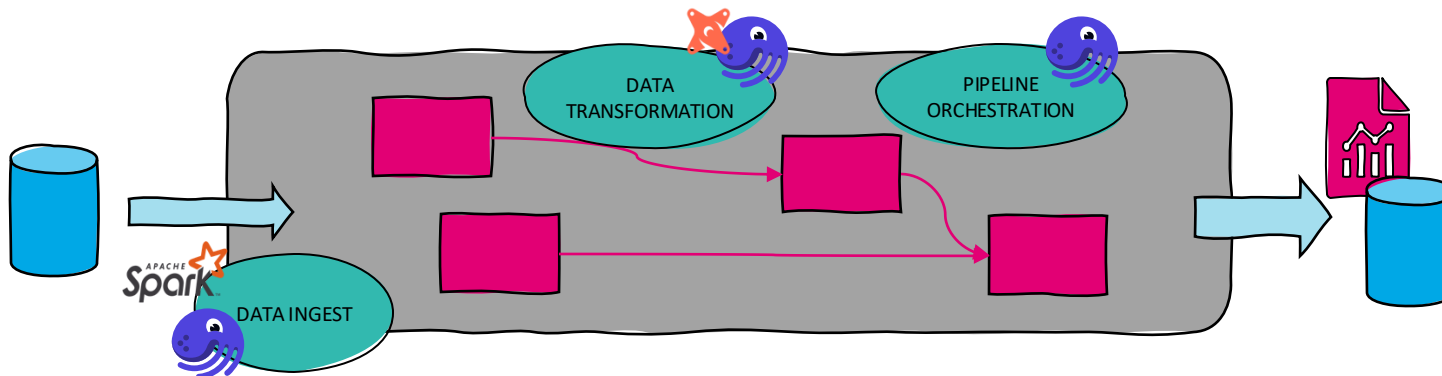
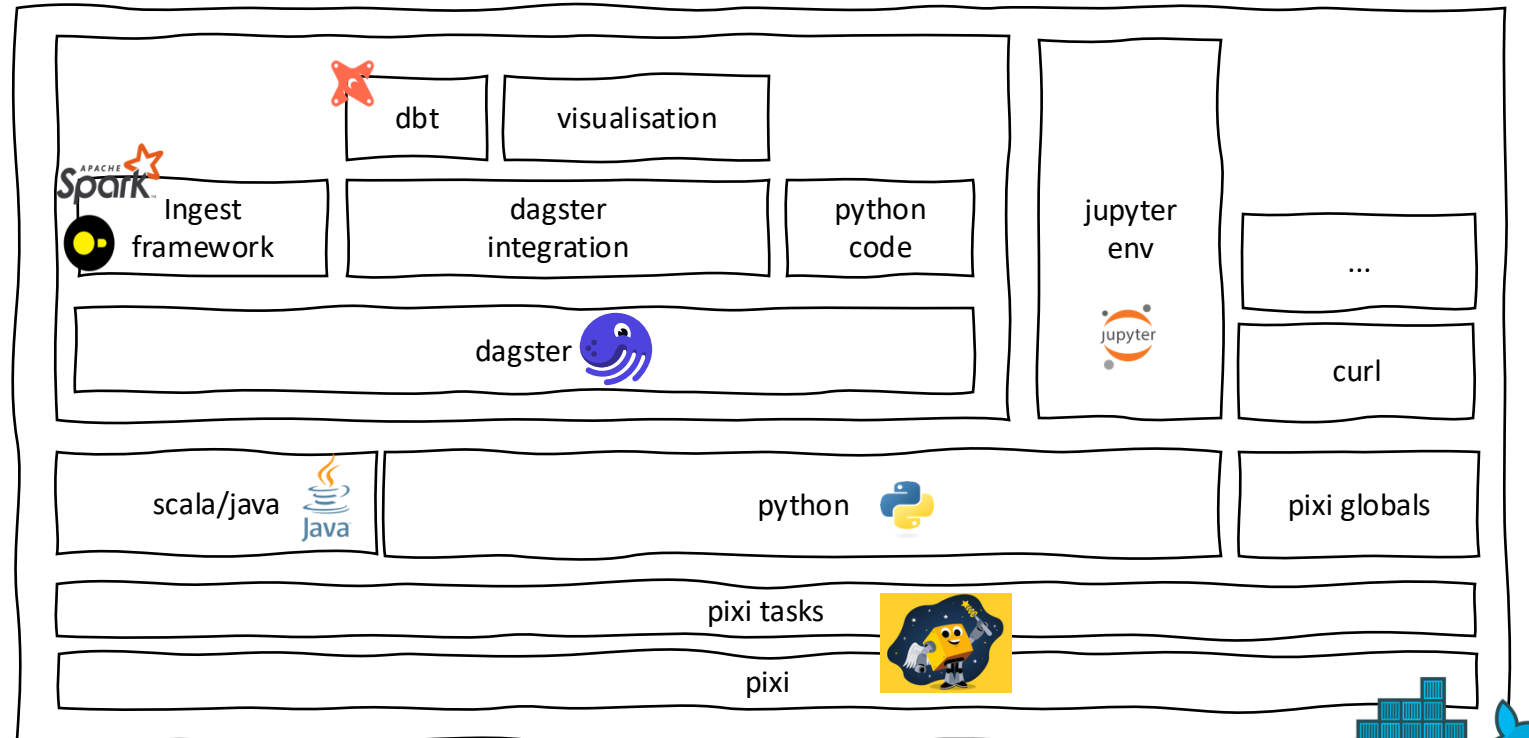
# Observation

- Process is straight forward: ingest, transform, use
- Everything what we do we do for business to provide better service
- Hard to scale across company
- dividing people into **develop framework** and **use framework** groups
- thinking in a **building block** structure
- introduce modern tooling supporting software engineering practices: **dbt, dagger, pixi, docker**



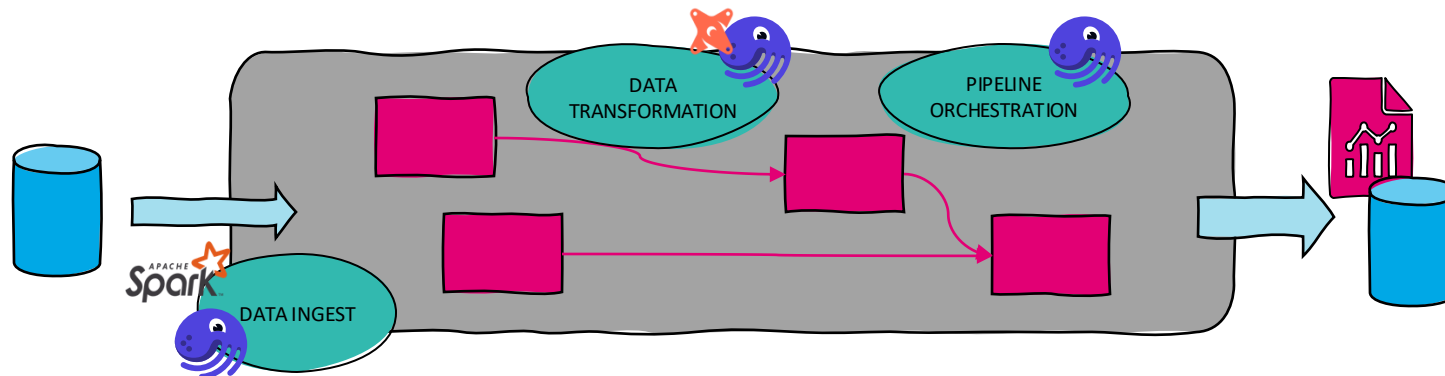
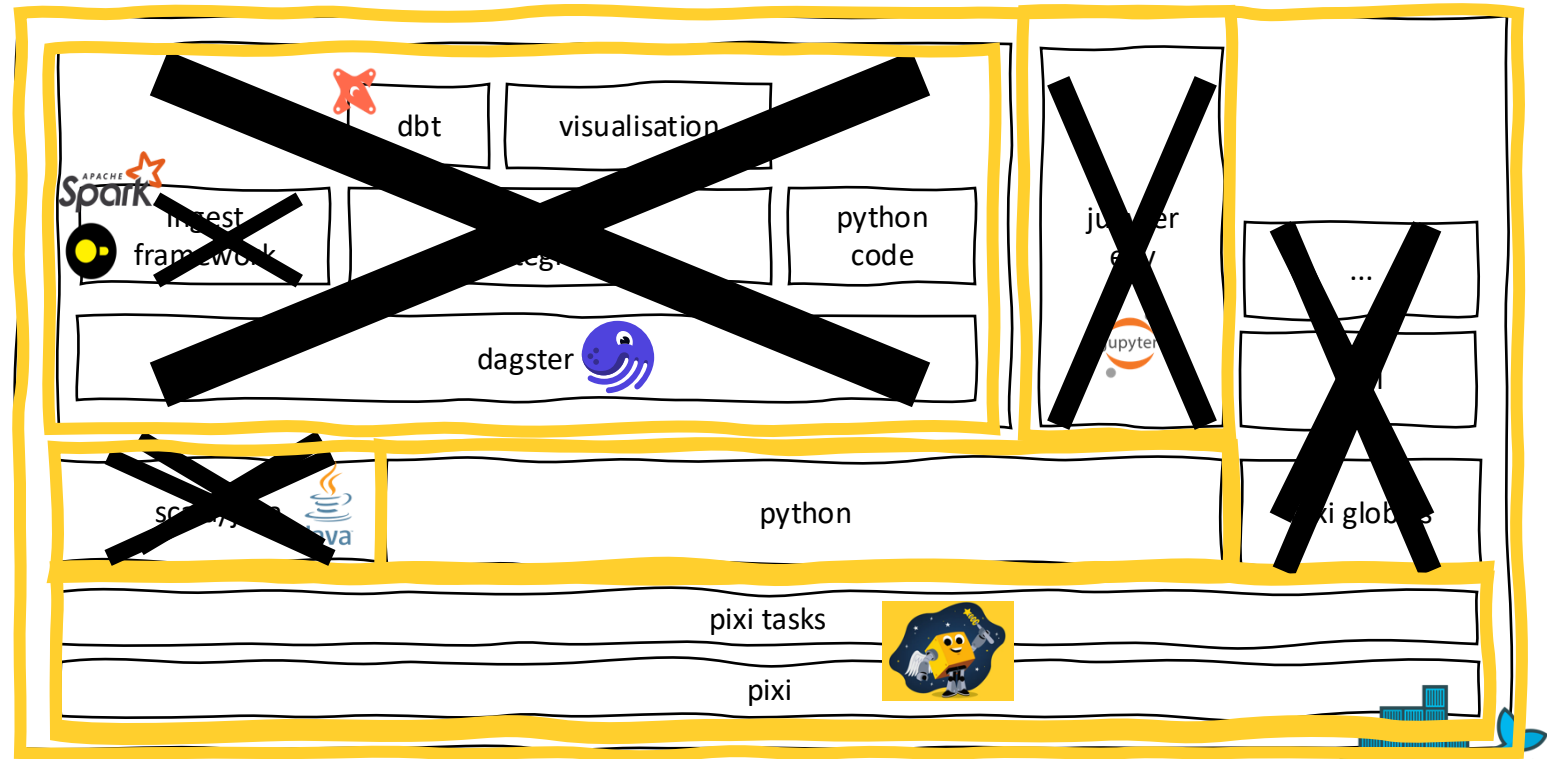
## Building block

- Dagster is the core of the project
- Need for java because of the custom code
- Development needs more toolings around
- Pixi is holding everything together as the environment manager



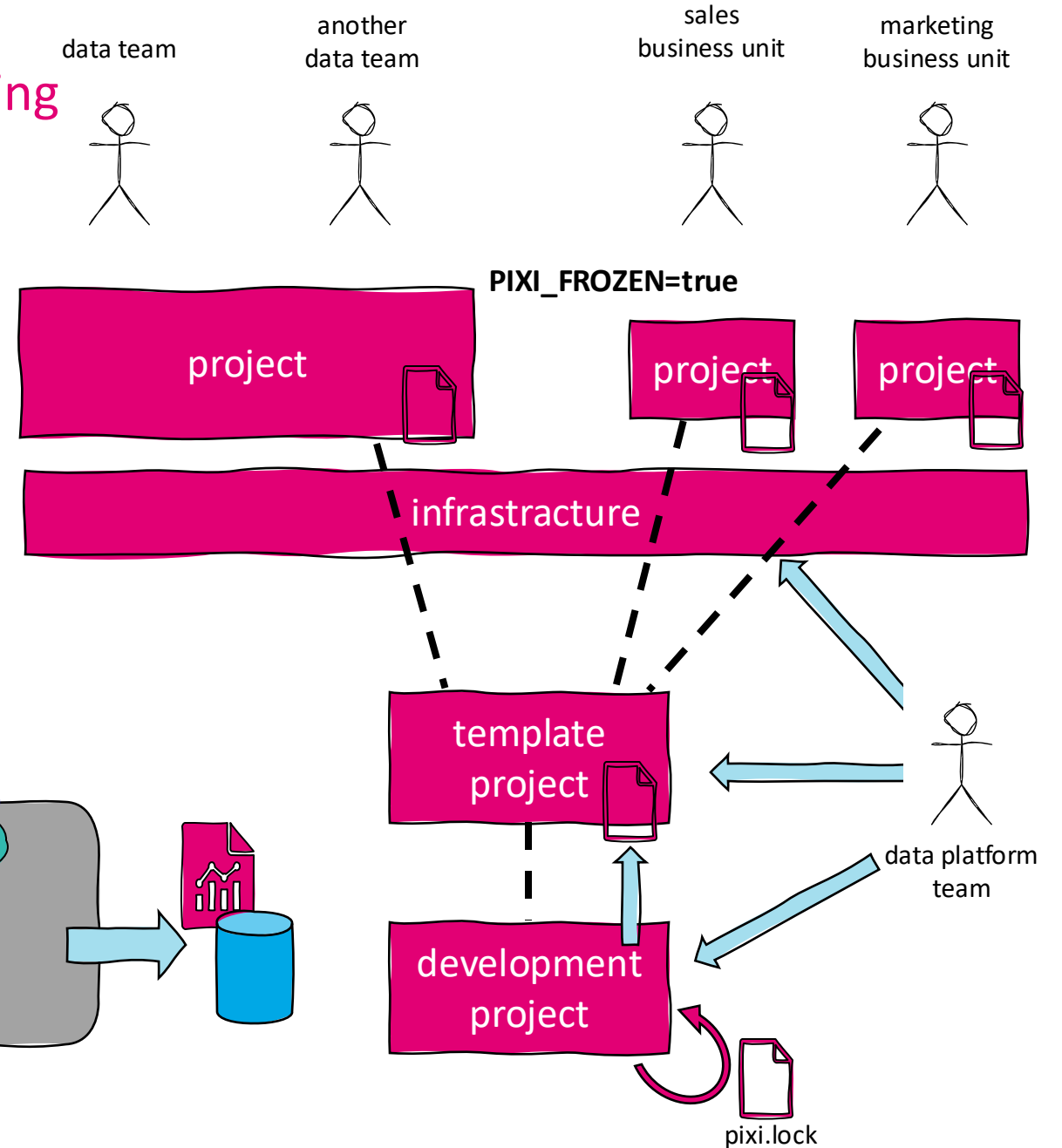
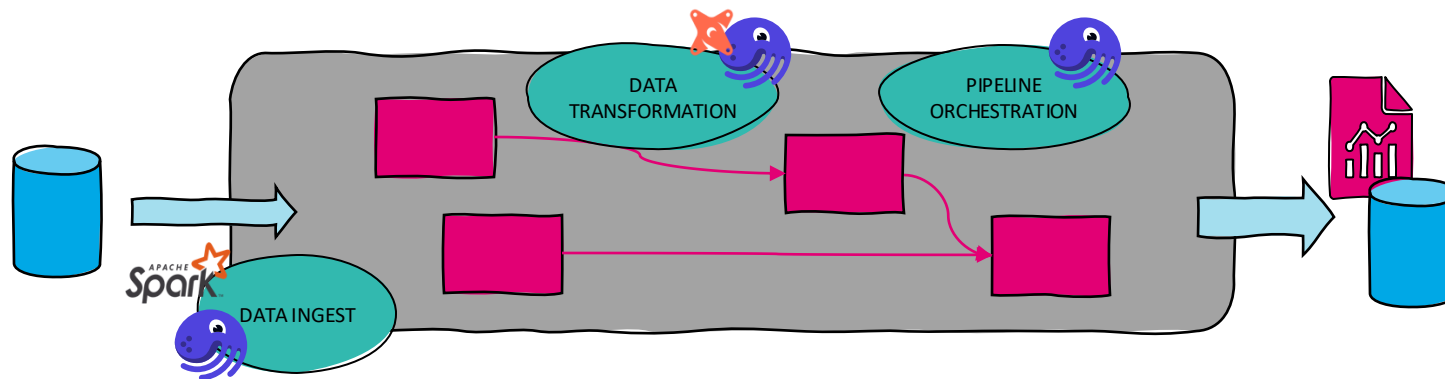
## Pixi use case 1: Feature selection

- Someone wants to play around
- Fully fledged development environment
- Production doesn't need development tooling
- Production with partial features



## Pixi use case 2: Dependency resolution & environment locking

- Environment resolution mostly happens while developing new features in the platform team



# ~~Advantages over old system (conda)~~

- Lockfiles: resolve only while developing
- Speed of dependency resolution
- Integrated task runner and replacement of make files
- Feature-environment based dependencies (dev, prod, lint)
- Multi language environments: python and java

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