ITERATIVE DEVELOPMENT OF THE ATLAS PUBLICATION TRACKING SYSTEM

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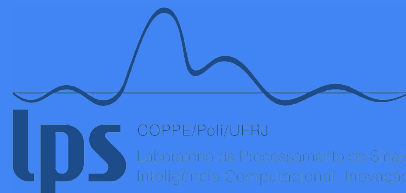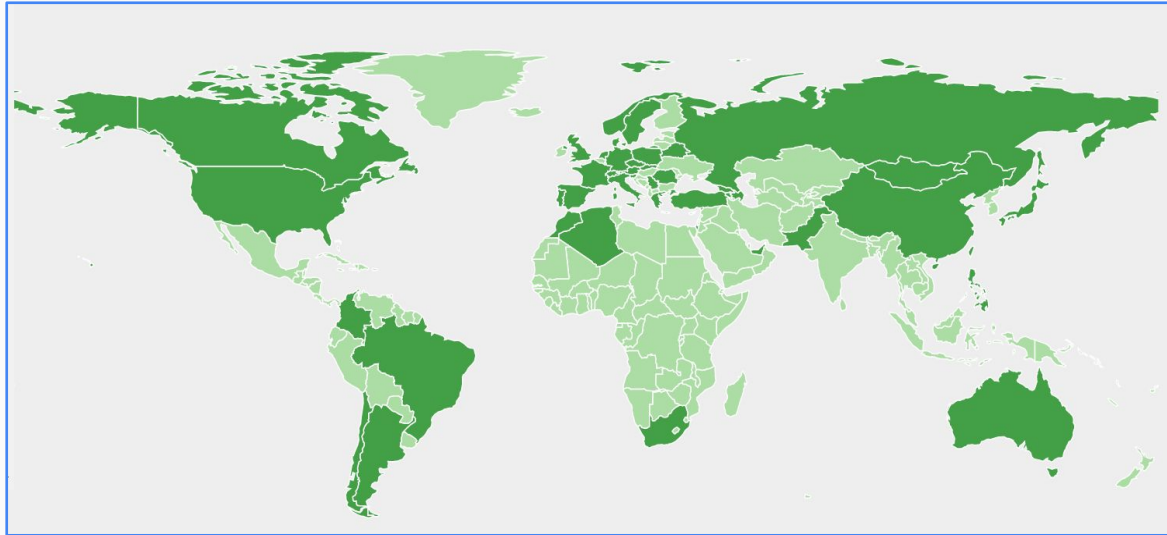
ATLAS
EXPERIMENT

The ATLAS experiment | The Glance Team | The Analysis System

~ 6,000
Active members

~ 300
Institutes around the Globe

> 100
Papers published per year

Collaboration Map. The darker colors represent the countries with institutes affiliated to ATLAS

Context

Goal
Provide software interfaces that support effective management of data

Team
12 Developers
3 Different Institutes

Scope
3 experiments: ATLAS, ALICE and LHCb

Projects
In ATLAS, the Glance team provides interfaces to manage members, employments, appointments, papers' submission, speakers selection, etc.

Context

Main Goals:

✔ Ensure Publications' deadlines
✔ Ensure communication between the involved groups
✔ Ensure the continuity of workflows

Analysis System interface.

Context

Main Goals:

- ✔ Ensure Publications' deadlines
- ✔ Ensure communication between the involved groups
- ✔ Ensure the continuity of workflows

Problems:

- ✔ Code base outdated -> difficult to implement new features
- ✔ Rigid workflow
- ✔ Duplication of data for different types of Publications

Analysis System interface.

Current Analysis System → **ATLAS Publication Tracking System**

Code base outdated
Difficult to implement new features

→ **Code optimization**
Focus on automated tests

Rigid Workflow
Does not meet all the users' needs

Duplication of Data
The users have to synchronize manually

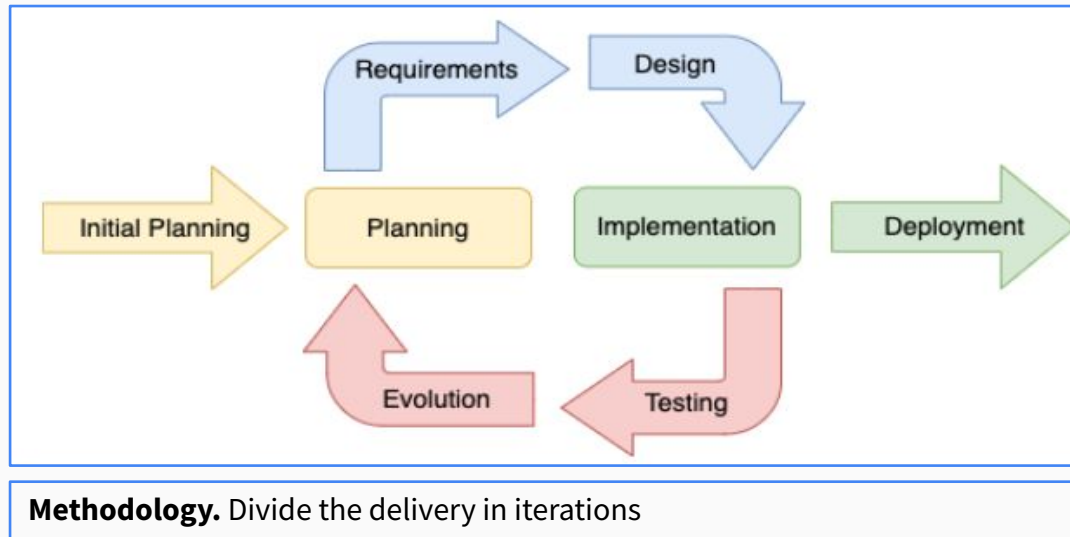**Remodel the database**
Makes it easier to manage workflow changes and avoid the duplication of data

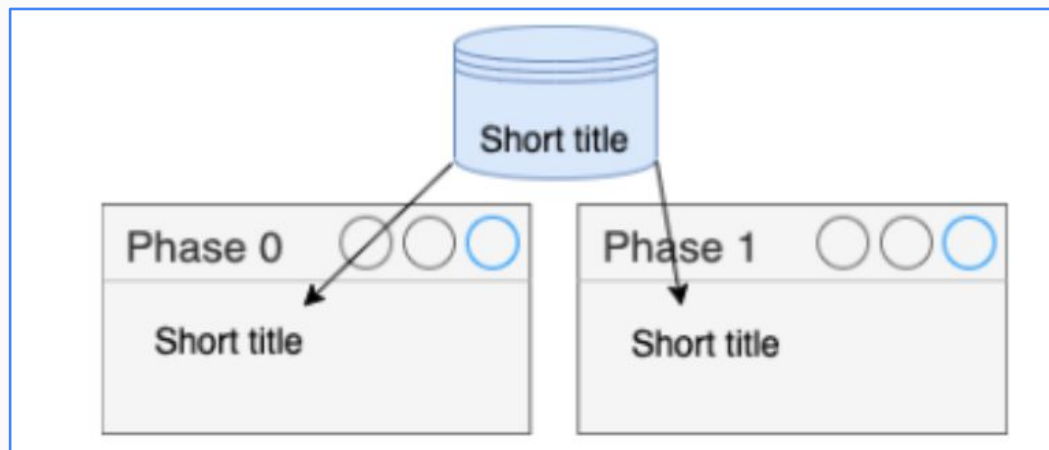**How to implement core changes at a system that has such important role at the Publications management?**

Methodology. Divide the delivery in iterations

First Iteration

New modeling of the database
- ✔ Creation of a separate schema
- ✔ Implementation of data inheritance
- ✔ History implementation

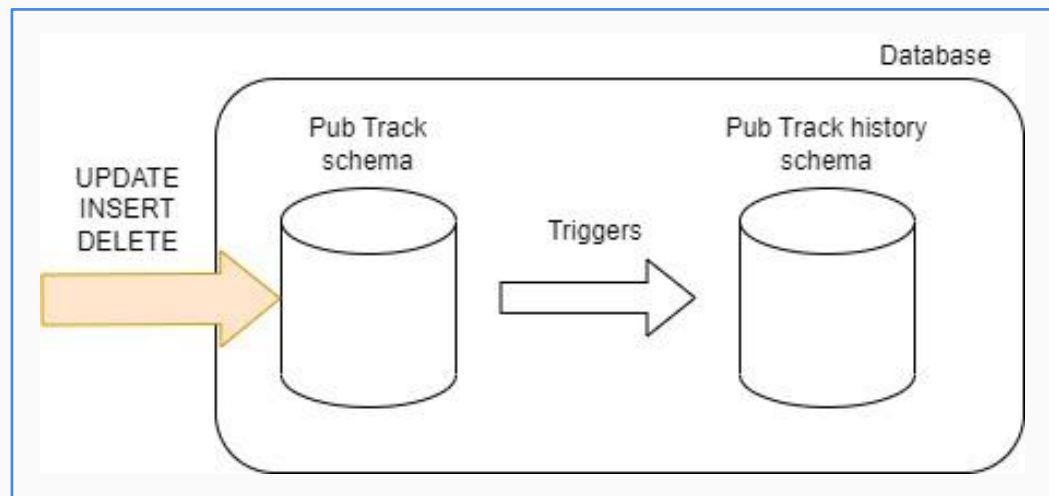**Metadata inheritance implementation.**

First Iteration

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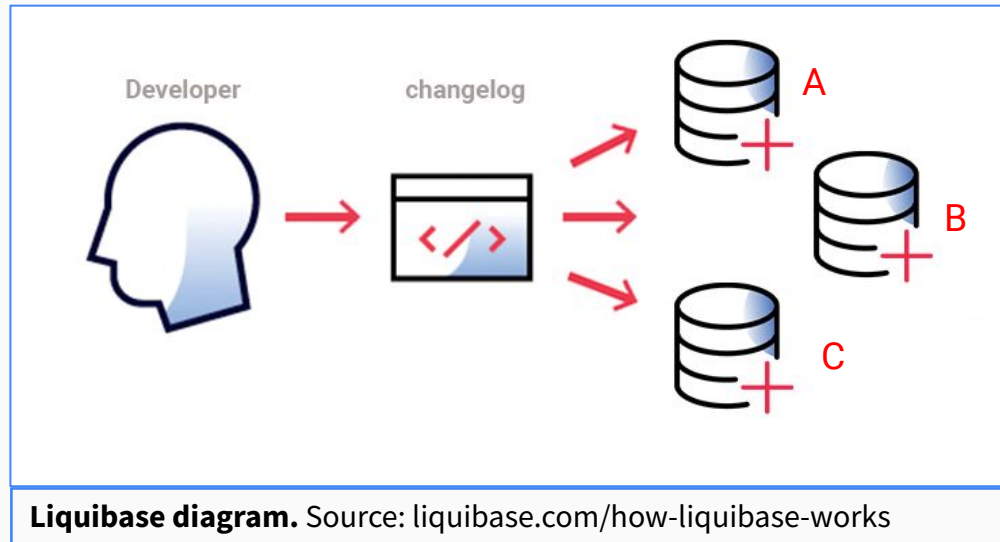

History implementation

First Iteration

→ Code changes → Automated tests

Liquibase implementation

✔ Allows tracking the changes to the database
✔ Easily goes to a specific state of the database

Liquibase

Liquibase diagram. Source: liquibase.com/how-liquibase-works

First Iteration

What?

✔ Separate Domain, Application and Infrastructure layers on the Back-end

Why?

✔ Improve testability
✔ Improve readability
✔ Improve performance
✔ Simplify maintenance
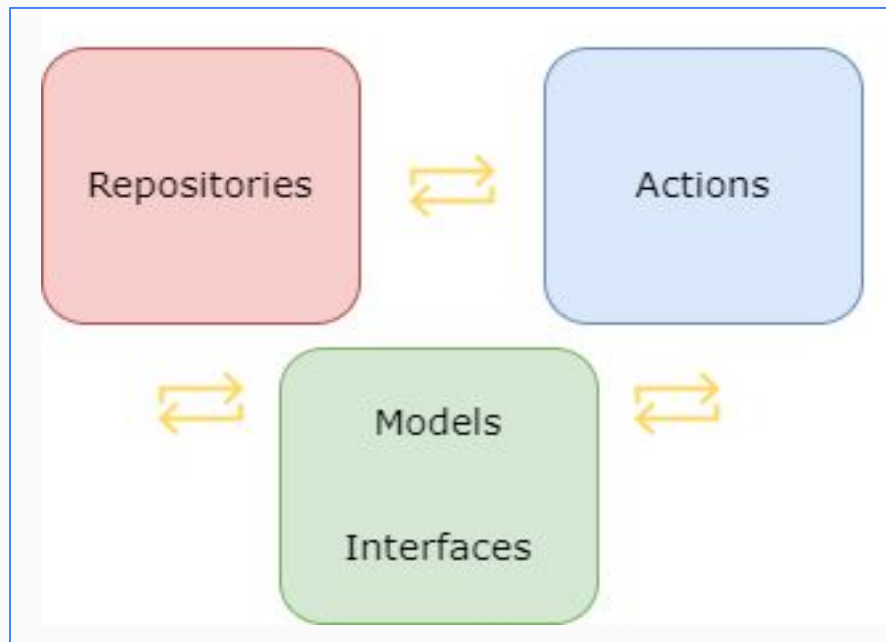
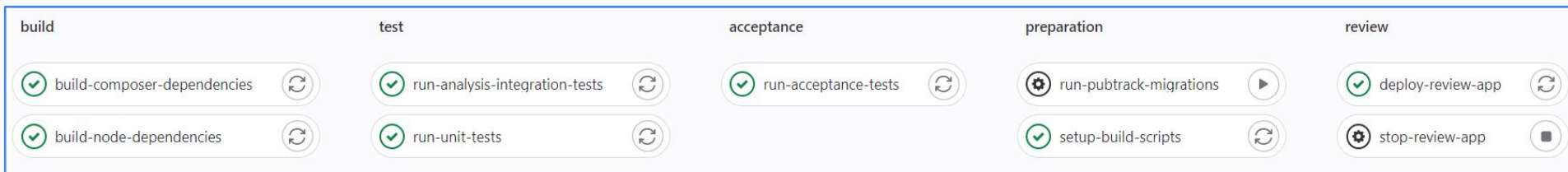**Back-end structure diagram using Domain Driven Design.**

First Iteration

Importance

✔ Quality control of the system functionality
✔ Confidence in Deployments
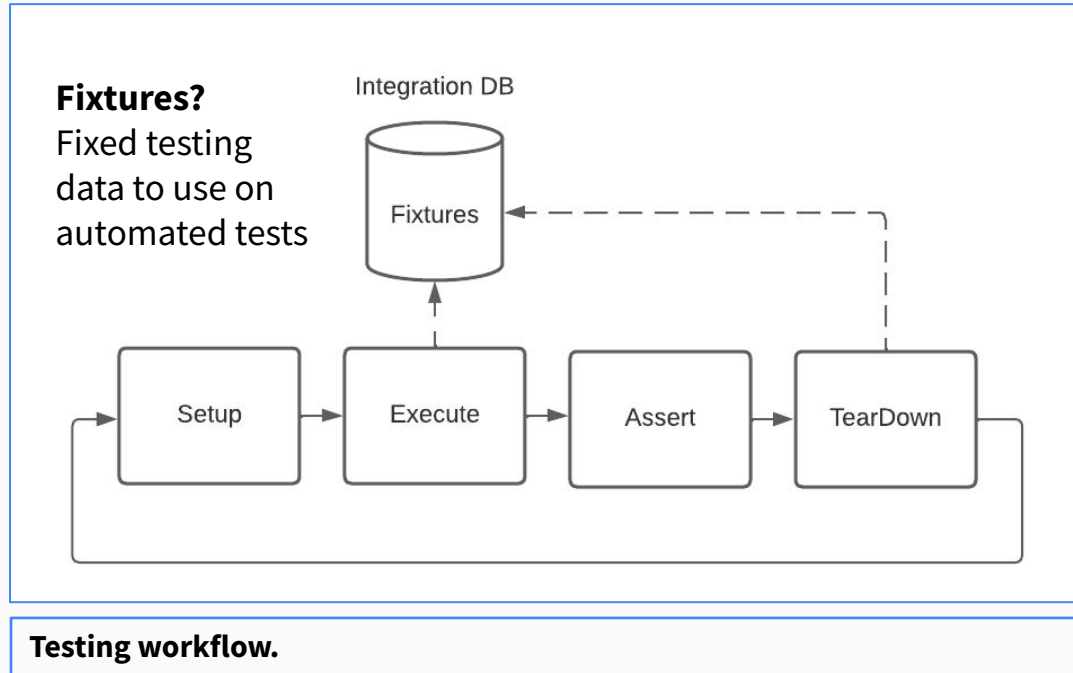✔ Document the use cases and the domain structure

build	test	acceptance	preparation	review
✓ build-composer-dependencies ⟳	✓ run-analysis-integration-tests ⟳	✓ run-acceptance-tests ⟳	⚙ run-pubtrack-migrations ▶	✓ deploy-review-app ⟳
✓ build-node-dependencies ⟳	✓ run-unit-tests ⟳		✓ setup-build-scripts ⟳	⚙ stop-review-app ■

ATLAS Glance Gitlab Pipeline.

First Iteration

Testing workflow.

Next Iterations

- Expansion of the API Endpoints

- Flexibilization of the Workflow

- Authentication through Keycloack instead of Shibboleth

- Integration with new CERN Authorization Service

- Gitlab integration enhancements

- Broader code refactoring and database remodeling

Final considerations

✔ This is a long term Project

✔ The delivery in "packages" allows us to focus on smaller projects and prioritize according to the necessity of the users.

THANK YOU!
OBRIGADA!

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ATLAS EXPERIMENT