PSI

LTP Analysis Preservation Bootcamp
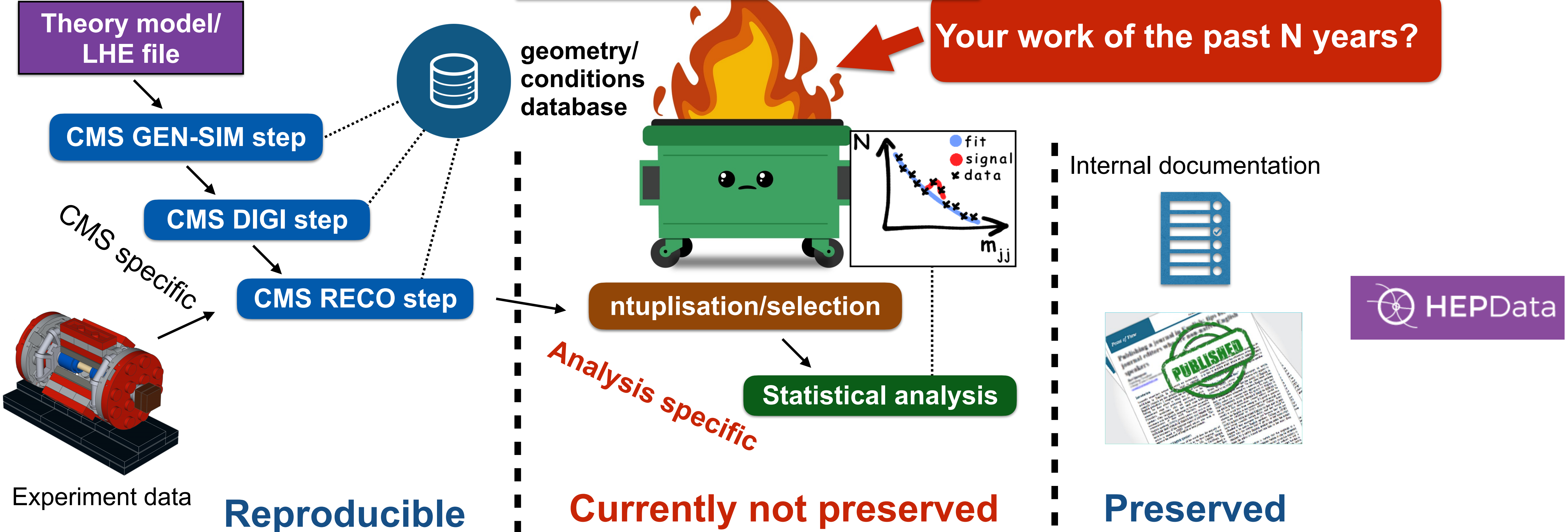
Welcome

Clemens Lange (Paul Scherrer Institute PSI)
22nd January 2025

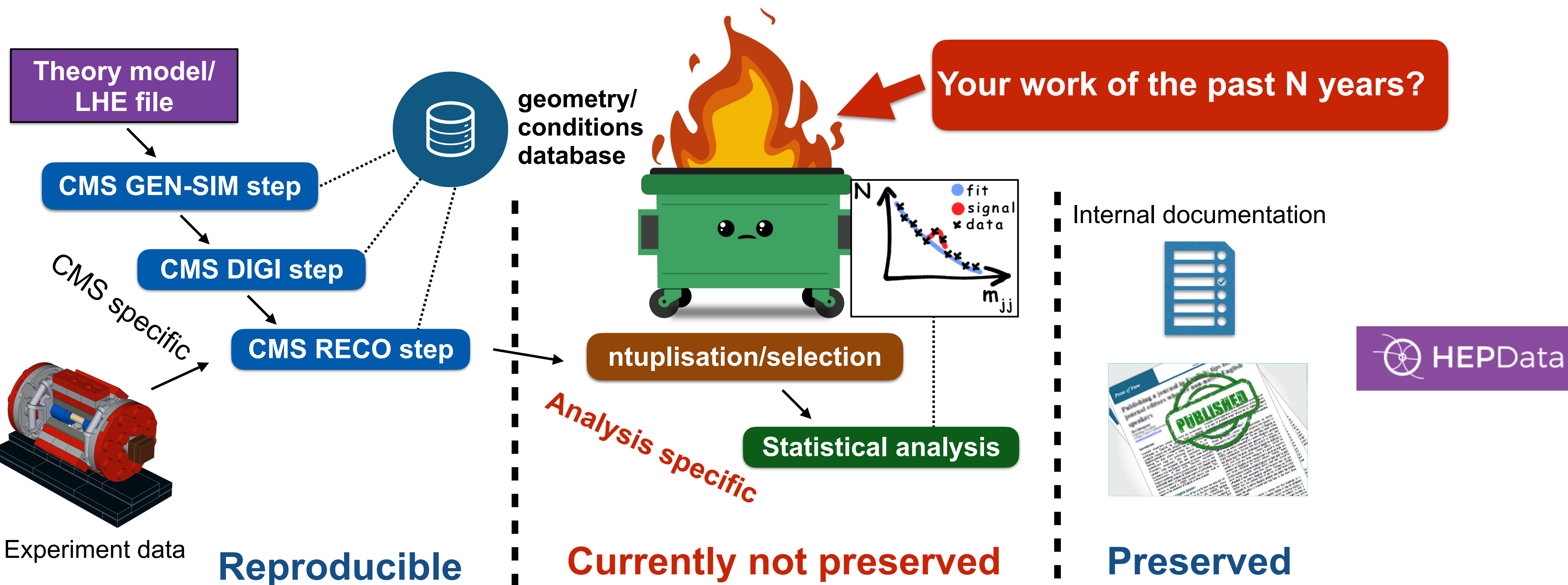# Typical analysis workflow and preservation

Starting from centrally maintained software and data sets, preserving your own analysis code and workflows is up to you — the only real requirement is often that your paper is published under open access.

CMS experiment example

Your work of the past N years?

Theory model/LHE file

geometry/conditions database

CMS GEN-SIM step

CMS DIGI step

CMS specific

CMS RECO step

ntuplisation/selection

Analysis specific

Statistical analysis

Internal documentation

HEPData

PUBLISHED

Experiment data

Reproducible

Currently not preserved

Preserved

Helping Your Future You

"Your closest collaborator is you six months ago... and your younger self doesn't reply to emails" → **preserving your analysis will help you in your immediate future**

Theory model/ LHE file

CMS GEN-SIM step

geometry/ conditions database

Your work of the past N years?

CMS DIGI step

CMS specific

CMS RECO step

ntuplisation/selection

Analysis specific

Statistical analysis

N | fit • signal ● data ✗ | m_{jj}

Internal documentation

HEPData

PUBLISHED

Experiment data

Reproducible

Currently not preserved

Preserved

Steps towards Reusable Analyses

1. Capture software	2. Capture commands	3. Capture workflow
Individual analysis stages in an executable way (including all dependencies)	How to run the captured software?	How to connect the individual analysis steps?

We will focus on steps 1 and 2

This will:

> enable portability of your analysis code — execute your code anywhere

> ensure that your code works for you and for collaborators

Bootcamp schedule

Day 1: building software containers

> Capture all dependencies of your code

Day 2: using GitLab CI/CD

> Automate building software containers

> Testing your code

Mornings and early afternoons: hands-on tutorials

Afternoons: work on your own code with the help of Kati, Max, and me

This event is for you — try to make best use of it, do not hesitate to ask questions!

Breaks

PSI

Can have morning afternoon breaks together → Park Innovaare

> I have a coupon to pay for beverage and gipfeli

Lunch at 12:00 — let's walk over at 11:50

> A table for us is reserved, you can choose from the available menu

Work is supported by ETH domain Open Research Data grant "Seamlessly containerised physics analysis workloads"

Brief round of introductions

> Name

> Group

> What made you sign up?

Clemens Lange — LTP Analysis Preservation Bootcamp   22.01.2025

PSI