

My journey as a Project Manager

or how I learned to stop worrying about deadlines.

Pedro Ferreira

Who am I?

- 36 years old
- Portuguese 
- Software Engineer 
- Working at CERN since 2007

Structure of the Talk

- What is CERN?
- My experience as a Manager:
 - Indico - Project Manager (2014 - 2020)
 - CS3MESH4EOSC (2020 -)
- Some thoughts

What is CERN?

It means, *obviously*

**European Organization for
Nuclear Research**

(formerly known as **Conseil
Européen pour la Recherche
Nucléaire**)

or, in a more understandable way,

**European Laboratory
for Particle Physics**





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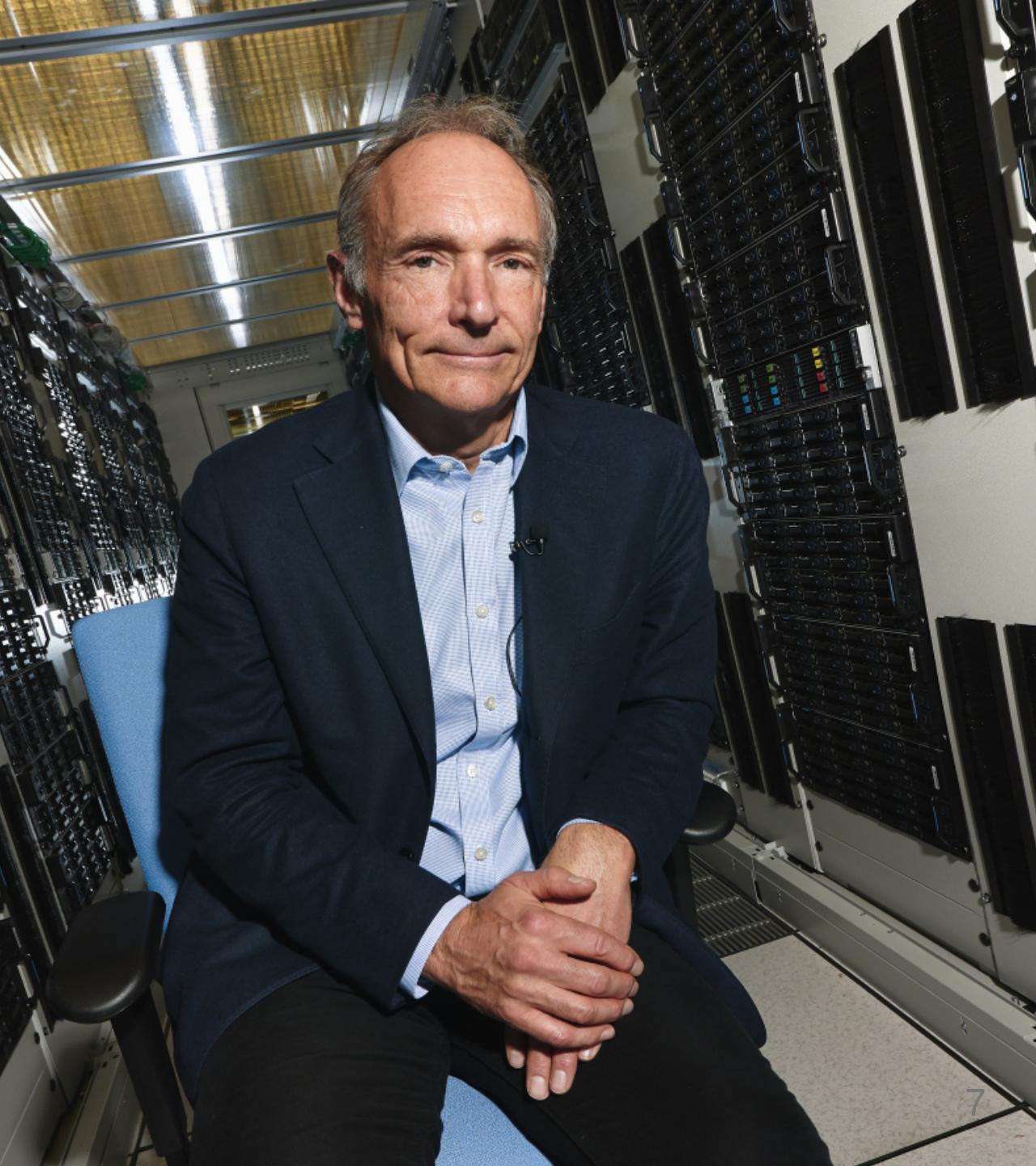


CERN OVERVIEW animation





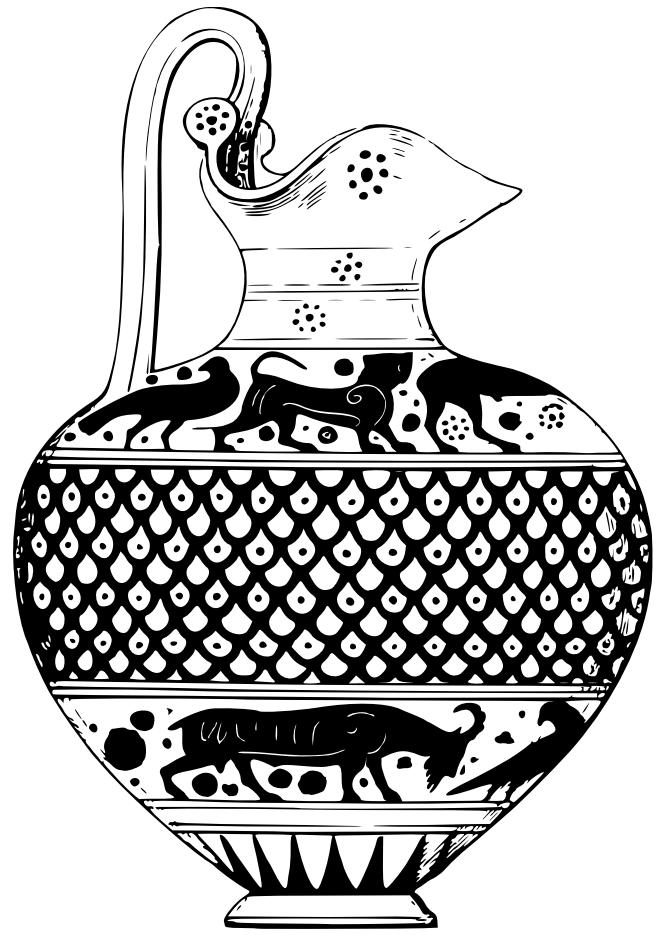
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The screenshot shows the Indico web interface. At the top, there's a navigation bar with links for Home, Create event, Room booking, Administration, Services, and My profile. The main content area has a header "Main categories". Below this, there's a welcome message: "Welcome to Indico. The Indico tool allows you to manage complex conferences, workshops and meetings. To start browsing, please select a category below." On the left, there's a sidebar with a tree view of categories: CERN-Related Clubs, Associations and Forums (6,324 events), Committees (7,598 events), Conferences, Workshops and Events (7,821 events), Departments (62,533 events), Directorate (256 events), Experiments (552,745 events), Global Indico (2,700 events), Outreach (751 events), Projects (44,124 events), Schools, Seminars and Courses (9,240 events), and TEST Category (141 events). On the right, there are two columns: "News" (with items like "Coming to CERN by car?", "New URL shortener available", and "Changes in Assistance workflows") and "Upcoming events" (with items like "XXVI Cracow EPIPHANY Conference, LHC Ph...", "FIPS 2020: Planning meeting", "MEDAMI 2020 organization", "International Conference on Neutrinos and Dar...", "Quarkonia As Tools 2020", and "ZPW2020 - The Higgs boson and the Top quark"). At the bottom, there are links for Help, Contact, Terms and conditions, and URL Shortener, along with the CERN logo and a note saying "Powered by Indico".



- **Event Management System**
- **Core Developed at CERN**
- **Collaborative effort - Open Source**
- **> 70 developers over the years**
- **> 150 servers world wide**



History

- 1999 - CDS Agenda
- 2002 - EU Project
- 2004 - First Conference
- 2007 - Room Booking
- 2009 - Video Conferencing
- 2013 - First Workshop
- 2015 - UNOG starts using it
- 2017 - Indico 2.0 (rewrite)
- 2021 - Indico 3.0 (Python 3)



Philosophy

- "Agnostic" core
- Plugins 
- Themes 
- Developed publicly

Context

- Small team, significant turnover
- Team also does support and bug fixing
- Development happens a lot around GitHub (especially now!)
- Reliance on chat tools (even pre-COVID)

The screenshot shows a GitHub pull request page for the repository `indico/indico`. The pull request is titled "Add search within categories with limited scope" and is identified by the number #4885. It is marked as "Open" and shows 8 commits, 4 checks, and 13 files changed. The pull request has received +182 votes and -31 reviews.

A comment from `javfg` is highlighted, stating:

javfg commented 8 days ago

Related to #4876.

For now, this includes part one: Creating a `/category/<int:category_id>/search`, which shows a search page just like `/search`, and limits the output to the given category.

Also, there is a temp commit including modifications to the Search controller which will most probably be discarded.

Below this, a review from `javfg` is shown, mentioning a file change in `indico/modules/search/controllers.py`.

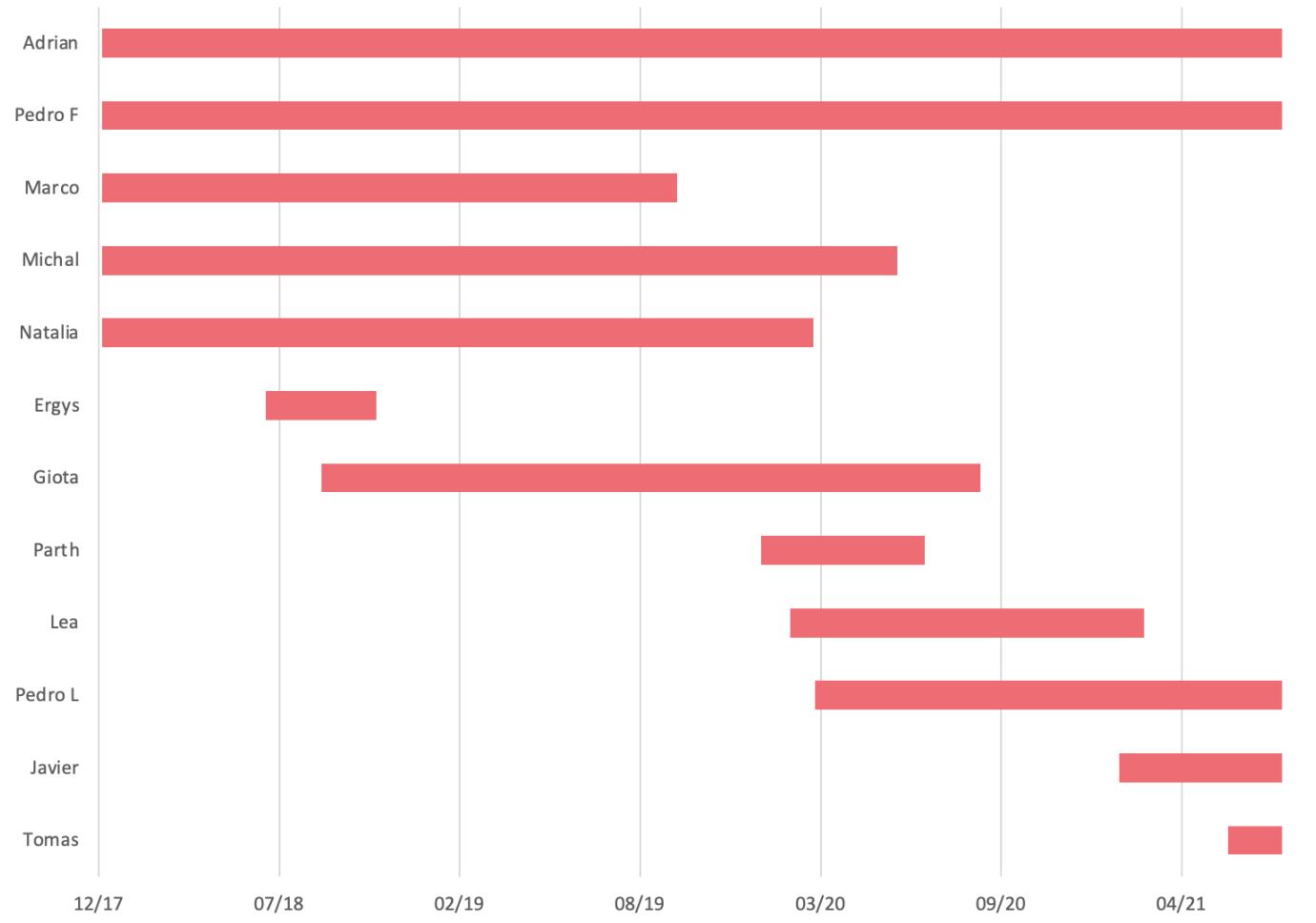
ThiefMaster reviewed 8 days ago

`indico/modules/categories/blueprint.py` Outdated

... @@ -102,6 +103,9 @@ def _redirect_event_creation(category_id, ev
102 103 # Administration
103 104 _bp.add_url_rule('!/admin/upcoming-events', 'manage_upcoming',
104 105
106 + # Search
107 + _bp.add_url_rule('!/category/<int:category_id>/search', 'cate

The sidebar on the right provides details about the pull request, including reviewers (`ThiefMaster`, `plourenco`), assignees (None yet), labels (None yet), projects (None yet), milestones (None yet), linked issues (none yet), and notifications (11).

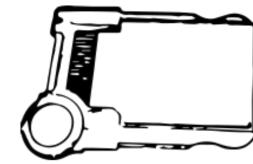
The Team





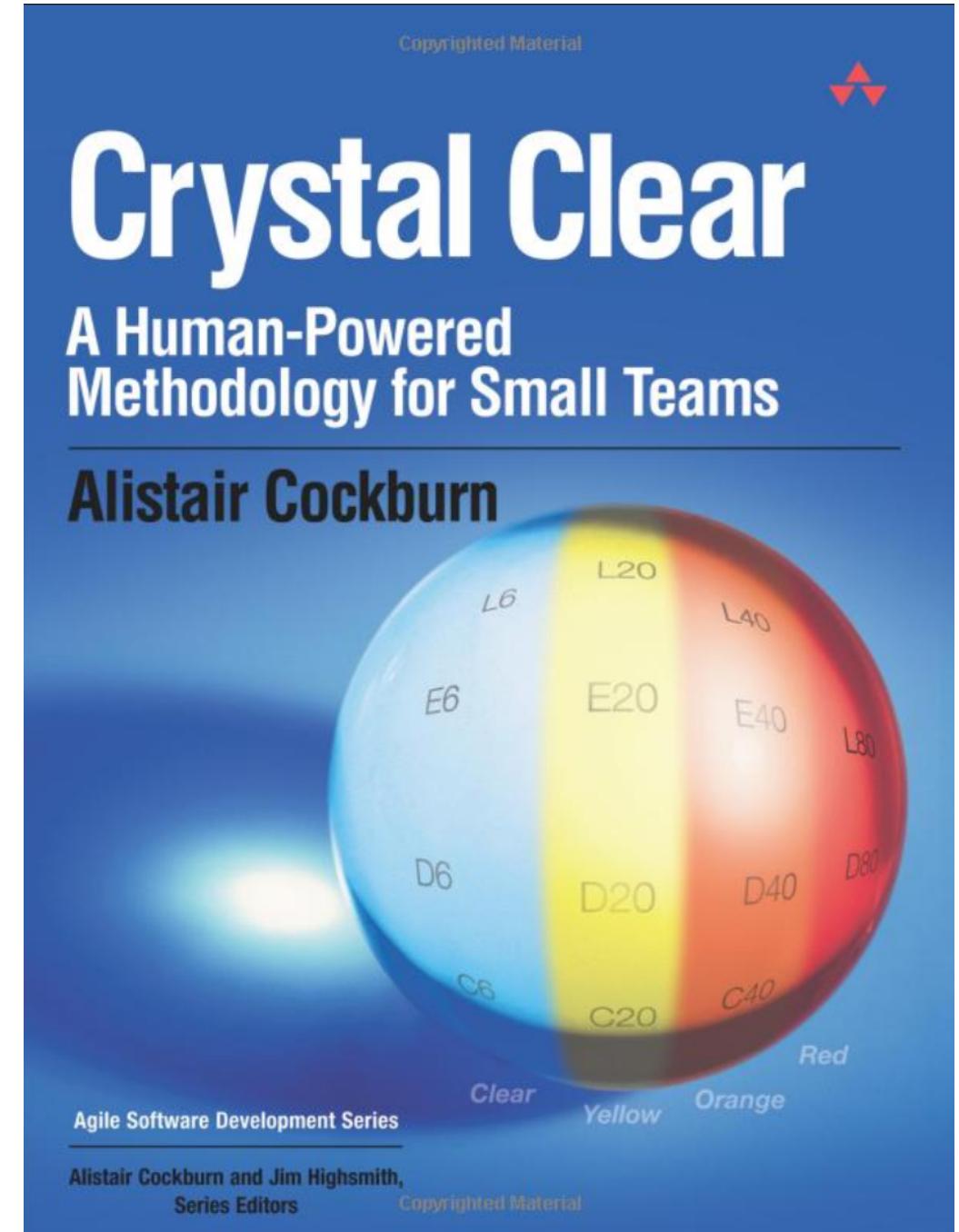
The Portfolio

- Indico (> 300K lines of code) + Plugins
- newdle (meeting scheduling)
- Flask libraries
- mereswine (community metrics)



The Methodology

- It's... complicated
 - not the methodology, the choice
- Kanban-based
- Elements from Crystal Clear
- Updated for the GitHub era



The problem with "Agile"

- Typical "Agile methodologies" are tailored for **larger teams**
- Not conceived with GitHub and Slack/Mattermost (or Open Source!) in mind
 - e.g. Scrum adds some **overhead** in meetings
- "Agile" should be about "**less process, more people**" - "enterprise Agile" seems to go the other way.

Back to the fundamentals

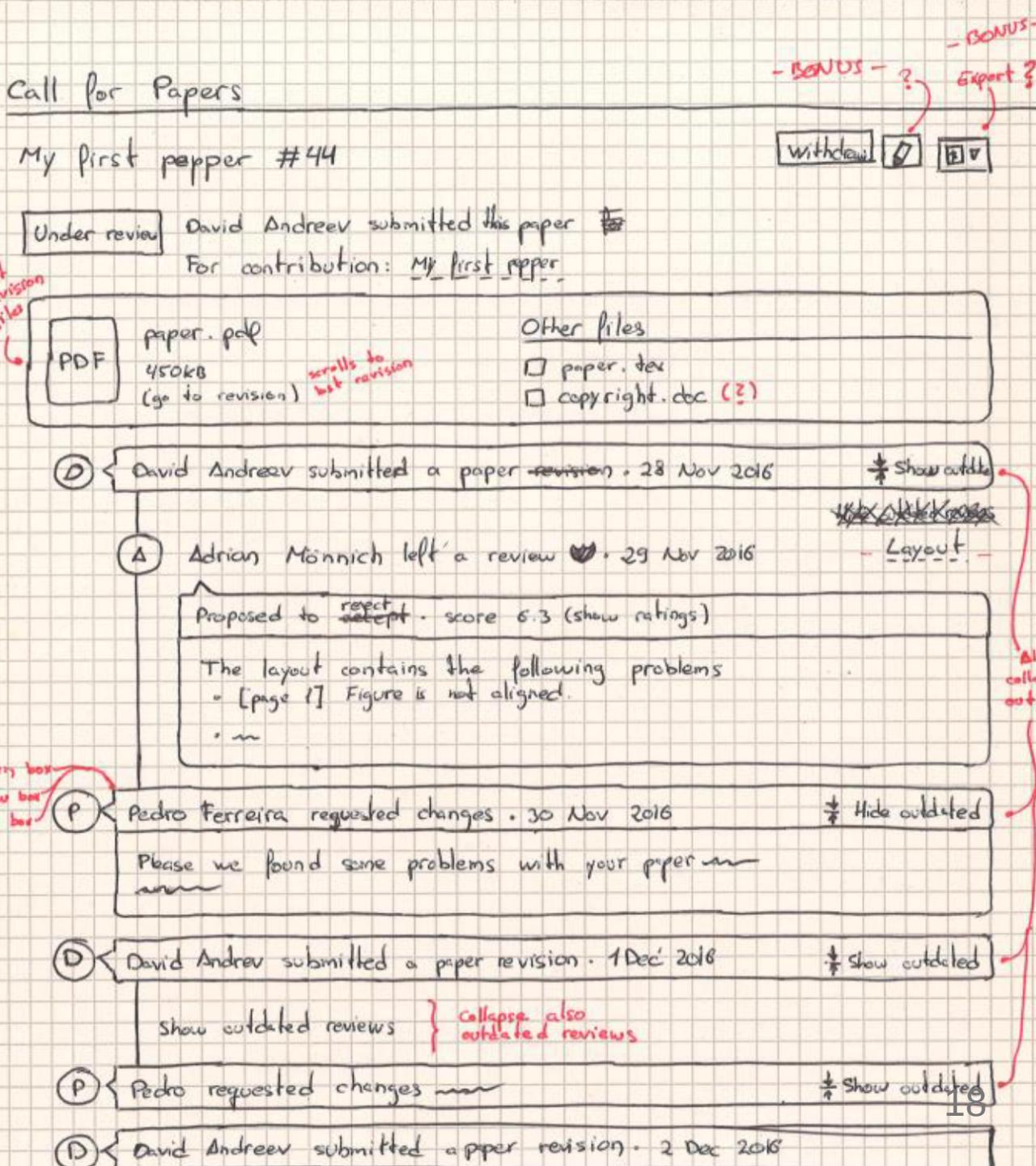
Agile manifesto

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

The Indico Software Development Methodology

Typical Delivery cycle

- Collecting/prioritizing user stories (e.g. tickets)
- Creating Mockups
- Kanban-based development sprint (~2 months)
- Validation tests with users, iteration
- Public release
- Release Reflection Workshop
 - Process is iterated upon



The "task" cycle

- Developer takes task from the "TODO" list
- Sends PR once done (sometimes draft PR if it's too long), now "in review"
- PR is reviewed by at least two other people, iterated upon
- PR is merged into the development branch

Other elements

- Pair programming (highly appreciated by developers!)
- Continuous Integration
- Automatic enforcement of code guidelines

) Successful in 1m

Successful in 2m

request) Successful in 3m

t) Successful in 1m

Conflicts with the base branch when rebasing
are performed automatically.

You can also [open this in GitHub Desktop](#) or view command line

Evolution

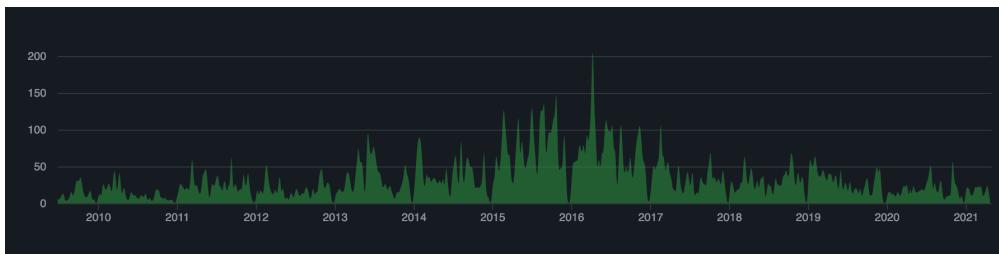
- Phase 1 - "We can do it!"
- Phase 2 - "We'll do what we can"
- Phase 3 - Community-based Development

Phase 1

We can do it!

Context (2014): Gigantic DB migration (technical debt payoff)

- > 11 major releases in 3 years
- > 10.000 individual commits
- 6167 changed files
- > 800 Pull Requests



Phase 1

COMMON PARTS:	TIMEFRAME
- LOCATION WIDGET	3D/1
! - COLLAPSEABLE HEADERS	1D/1
! - CUSTOM DROP BOXES	2D/1
- (Co-)AUTHOR/SPEAKER WIDGET	4D/1
- DATE PICKER + TIMEDELTA	3D/1
- SUB-CONTRIBUTIONS	3D/1
- SESSION LIST	
- BASIC LIST	0.5D/1
- COLOUR SWITCHES → PALETTES	3D/1
- LISTS/E-MAIL	1D/1
- EXPORT	1D/1
- ADD / REMOVE	1D/1
-	9.5.
- ABSTRACT FIELDS	
- AUTHORS, SPEAKERS	

29.5

TIMEFRAME

2D - DATE PICKER

1D - ADD NEW

0.5D - "SCHEDULE"

0.5D - ADD NEW

2D - ADD NEW

5D/2 [ADAPTING]

CREATING

4D - WRAPPING

4D - BALLOONS

2D - RESCHEDULE

1D - IMPORT (R)

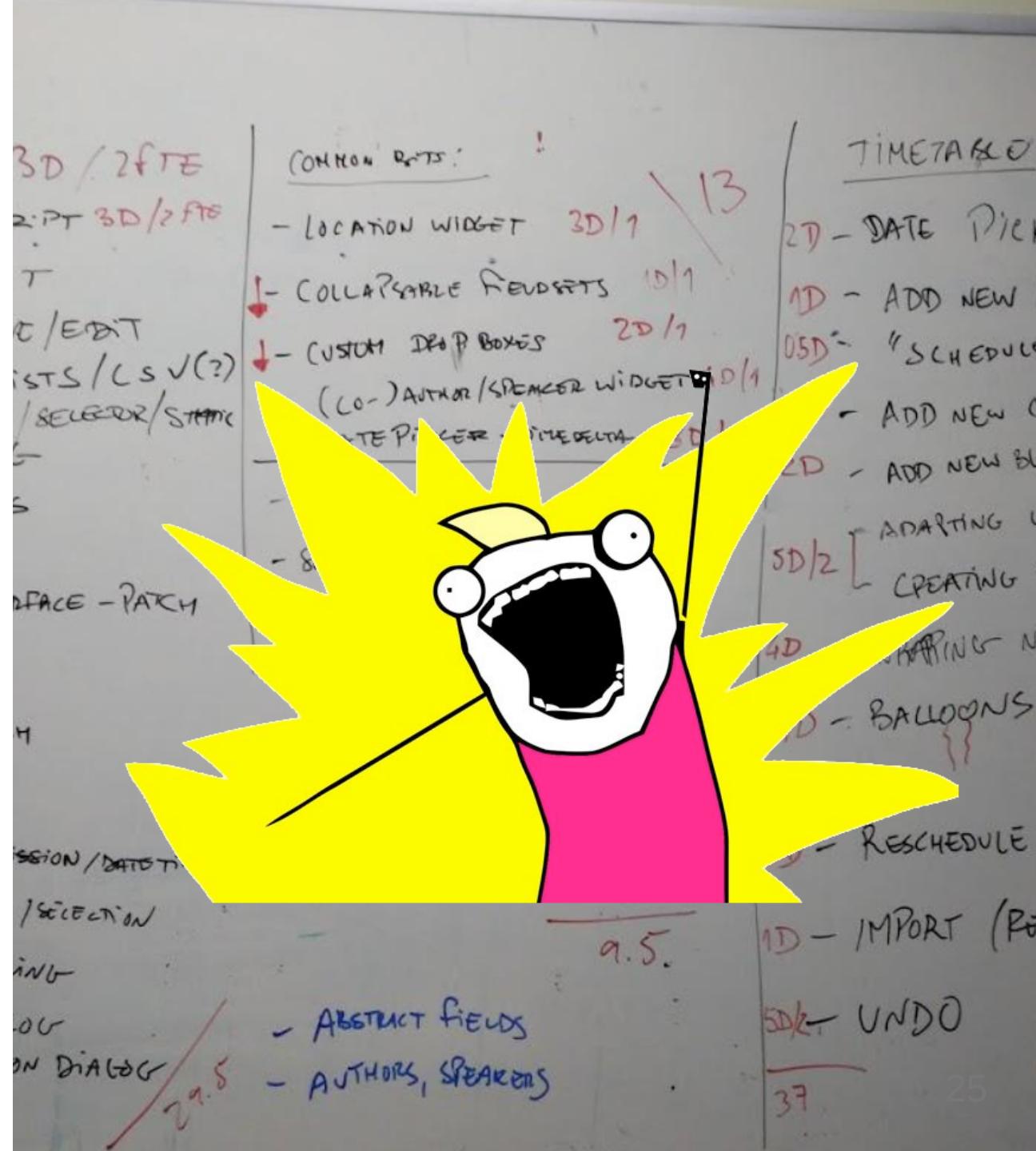
5D/2 [UNDO]

37

24

Phase 1

ESTIMATE ALL THE THINGS!



Phase 1

We can do it!

... but we're not sure by when.

Phase 2

"We'll do what we can"



Phase 2

"We'll do what we can"

- Improve prioritization
- More restricted set of "must-have" features
- Deliver earlier, add the frosting later
- Typically:
 - First "bare-bones" release
 - A cycle of smaller releases with bug fixes and "nice to have"

Phase 3

Community-based Development

Phase 3

Community-based Development

- New stakeholders
 - Significant increase in Open Source contributions
 - Greater availability of funding for isolated developments
 - UN enters the game in 2015
- Need for a clearer medium-long-term roadmap
- Need for a "constitution" of Indico



Connecting European Data

CS3MESH4EOSC

- 3-year project
 - Started **January 2020**
- 13 partners (including WWU!)
- ~6M EUR

CS3MESH4EOSC

A global and rich Sync & Share Collaboration Service and Workflow of applications and software components for academic sector, data curators and analysts



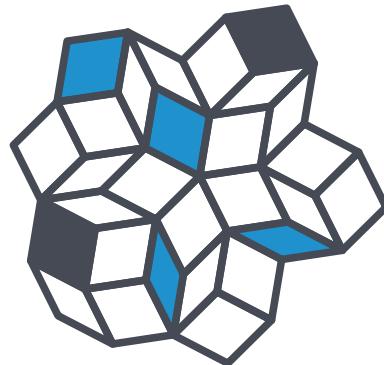
Unlock scientific collaboration through technology.

ScienceMesh is a rich ecosystem for frictionless scientific collaboration and access to research services.



The Idea

- Decentralized mesh of EFSS nodes
- Based on **Open Standards** and **Open Source**
- **Federated** environment for collaborative research
- **Application platform** for distributed collaboration



Science
Mesh

My role

- WP1 (Management) Leader
 - High-level management
 - Ensuring implementation of Work Plan
 - Interfacing between partners
 - Communication with EC
- Technical Coordinator
 - Ensuring technical WPs work together

Differences (vs. Indico)

- Larger "team"
- Beyond CERN's borders
- Less direct contact with technology
- "Bureaucracy"
- Process is much more formalized
- Lots of Synchronization work
 - Technical teams work in parallel

The Methodology

- Framework imposed by the EC
- Work Packages, Tasks,
Milestones and Deliverables
- Reviews (in this case only one,
mid-Project)
- Plans
 - Quality Assurance
 - Data Management
 - Risk Management
 - Intellectual Property Rights



Quality Assurance

- Rules on **Project Meetings**
 - when, where and with whom
 - how they're documented
- **Collaborative tools**
 - Mailing lists, document stores, Indico, Wiki...
- **Work Plan Management**
 - how it's set up, reviewed and executed
- **Deliverable** submission and reviewing
- **Decision making**



The image shows the cover page of the 'Quality Assurance Plan' for the project CS3MESH4EOSC. The page features the project logo at the top left, which consists of a stylized cloud icon with a hash symbol (#) inside. To the right of the logo is the acronym 'CS3MESH4EOSC'. Below the logo are two other logos: 'CS³' with a blue cloud icon and 'EUROPEAN OPEN SCIENCE CLOUD' with a sun-like icon. The title 'Quality Assurance Plan' is centered below the project name. A subtitle 'Project acronym: CS3MESH4EOSC' follows. A table titled 'Deliverable D1.2: Quality Assurance Plan' contains the following data:

Contractual delivery date	31-03-2020
Actual delivery date	29-05-2020
Grant Agreement no.	863353
Work Package	WP1
Nature of Deliverable	R (Report)
Dissemination Level	PU (Public)
Lead Partner	CERN
Document ID	CS3MESH4EOSC-20-003
Authors	Pedro Ferreira (CERN), Jakub Moscicki (CERN), Anna Manou (CERN)

A Creative Commons Attribution (CC BY) license logo is located next to the authors' names. Below the table is a 'Disclaimer' section stating: 'The document reflects only the authors' view and the European Commission is not responsible for any use that may be made of the information it contains.' At the bottom left is the European Union flag logo, and to its right is the text: 'This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 863353'. The page is numbered '1' at the bottom center. In the bottom right corner, the text 'Deliverable D1.2 CS3MESH4EOSC-20-003' is printed.

Risk assessment

- Risk assessment table
 - Likelihood
 - Severity
 - Mitigation measures
- e.g.
 - *critical staff leaving*
 - *user community interest drops*
 - *Future lockdowns* (added 2020)
- Reviewed periodically



Data Management

- Especially relevant in Projects where research data is collected
 - e.g. *clinical trial data, surveys*
- Compliance with GDPR
- Software Products: privacy-first approach

```
data:[{"id": "1234567890", "name": "Example User", "location": "San Francisco, CA", "description": "A user with many interests and hobbies.", "profile_picture": "https://example.com/avatar.jpg", "bio": "I'm a software engineer by day and a runner by night.", "url": "http://example.com/u/1234567890", "public": true, "private": false, "verified": true, "followers_count": 1500, "friends_count": 2000, "listed_count": 50, "favourites_count": 100, "statuses_count": 1200, "created_at": "2018-01-01T12:00:00Z", "utc_offset": "-08:00", "time_zone": "Pacific Time (US & Canada)"}, {"id": "9876543210", "name": "Another User", "location": "New York, NY", "description": "A user who loves photography.", "profile_picture": "https://example.com/avatar2.jpg", "bio": "I'm a professional photographer and travel enthusiast.", "url": "http://example.com/u/9876543210", "public": true, "private": false, "verified": false, "followers_count": 800, "friends_count": 1200, "listed_count": 20, "favourites_count": 50, "statuses_count": 300, "created_at": "2017-07-01T14:30:00Z", "utc_offset": "-04:00", "time_zone": "Eastern Time (US & Canada)"}]
```

June 10, 1952

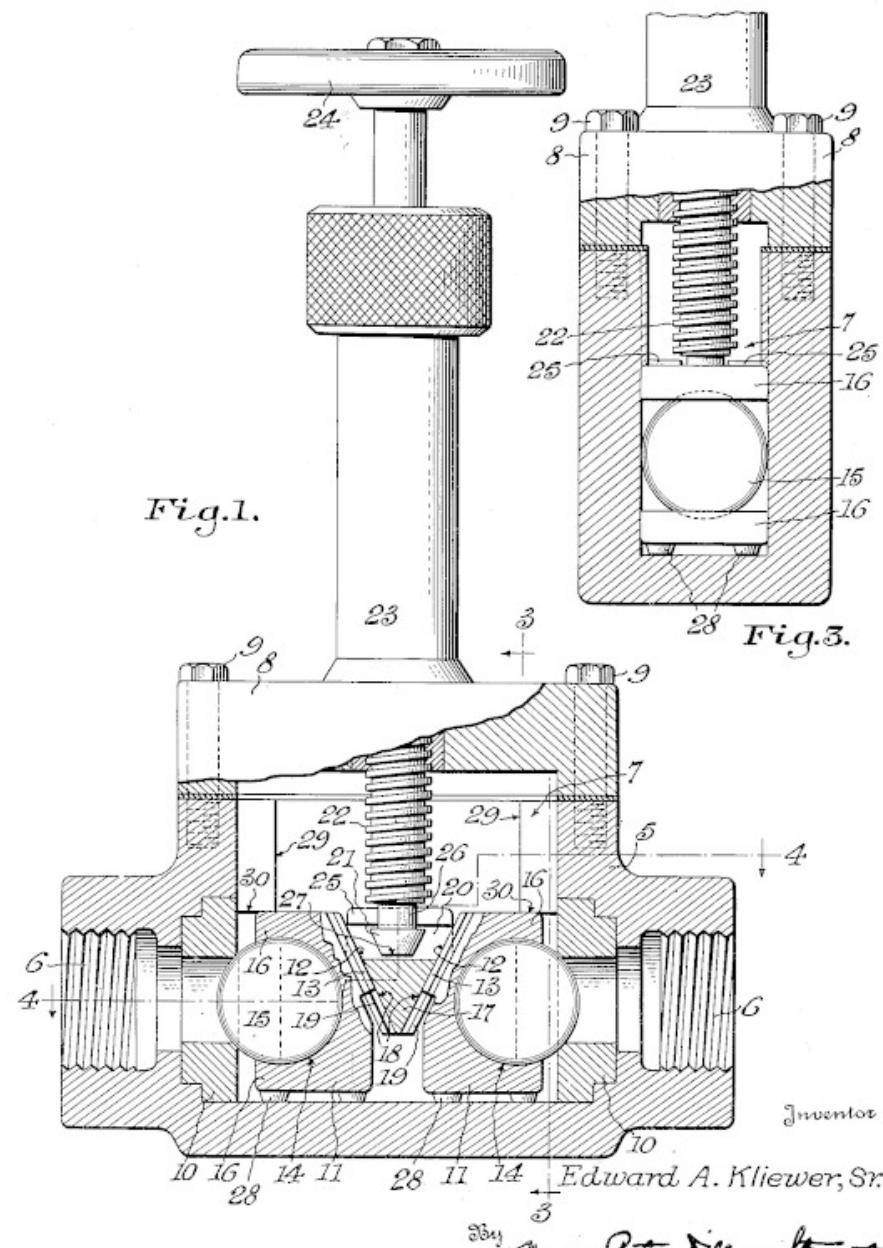
E. A. KLIWER, SR

2,600,115

VALVE

Filed May 15, 1946

2 SHEETS—SHEET 1



The Work Plan

- Managed on GitHub kanban (for convenience)
- Every 1st StC meeting of the month: review
 - "Snapshot" produced and circulated to members of the StC

The screenshot shows a GitHub Projects board titled "Review Targets". The board has a dark theme and displays four cards under the "In progress" column.

- D2.3 - Quality Assurance and Monitoring in Production**
workplan#39 opened by pferreir
WP2-T2.1, WP2-T2.3
M24
- D2.4 - Security Policies and Procedures**
workplan#38 opened by pferreir
WP2, WP2-T2.5
M24
- OwnCloud integration**
workplan#30 opened by pferreir
WP3, WP3-T3.3
M30
- Interoperability with Peer to Peer storage (Cubbit)**
workplan#17 opened by pferreir
WP3, WP3-T3.4
M30

On the right side of the board, there is a sidebar with the title "Review Targets" and a list of five items:

- 10 **Preparation of M18 review**
workplan#36 opened by pferreir
WP1, WP1 - T1.1
R1 - M18 EU Review
- D2.2 - Operational Procedures**
workplan#37 opened by pferreir
WP2, WP2-T2.2
R1 - M18 EU Review
- Understanding with EOSC on CS3MESH**
workplan#11 opened by pferreir
WP2, WP2-T2.4
R1 - M18 EU Review
- Outsourcing - Testing Framework**
workplan#29 opened by pferreir
WP3, WP3-T3.1
R1 - M18 EU Review
- Check adoption of IOP by sites**

A search bar at the top right says "Filter cards".

Personal notes

On Deadlines

And he, the said Wirz, still wickedly pursuing his evil purpose, did establish and cause to be designated within the prison enclosure containing said prisoners a "dead line," [...] [and he] instructed the prison guard stationed around the top of said stockade to fire upon and kill any of the prisoners aforesaid who might touch, fall upon, pass over or under [or] across the said "dead line"

"Trial of Henry Wirz," Report of the Secretary of War, Oct. 31, 1865

On Deadlines

- Necessary evil
- Safety > Quality > Production
- Leave always some leeway
- Sometimes they're worth failing

Decision-making

- Make informed decisions
- You're a Manager not an Oracle
- Proactively seek other people's opinion

Building from the Foundations

- "Baby steps"
- Evolution >>> Revolution

Saying "No"

- Sometimes you have to be the killjoy
- Look at the facts and ask those around you
- Saying "no" is not necessarily selfish
- You owe that to yourself and those who work with you

Testing

- Test early, test often
- Test with real users
- If it hasn't been tested by users, it's not production-ready

Thank you!

@pferreir

<https://getindico.io>

<https://cs3mesh4eosc.eu>

Credits

- "Data" photo by ThisIsEngineering from Pexels
- Crane accident image from the CERN media archives (Copyright CERN)
- All logos are property of the respective projects and mean no endorsement