



Raising awareness on IT's Environmental Impact

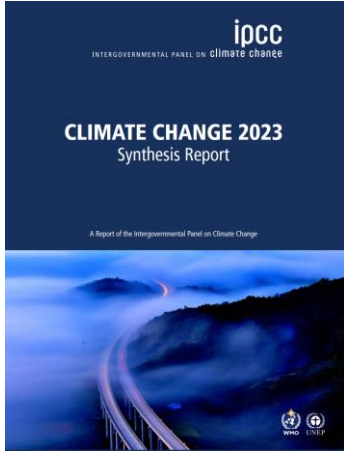
Experiences from a Collaborative Workshop

WLCG Workshop on Environmental Sustainability - December 2024

Outlook

- **Motivation**
- **Collaborative Workshops on Environmental Sustainability**
- **Workshop Structure**
 - About Climate Change
 - The Collaborative Collage
 - Feasibility vs Impact Analysis
 - Proposed Actions
- **Survey Results**
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- **Next Steps**

Motivation



The 6th Assessment Report of the Intergovernmental Panel on Climate Change spans over 10,000 pages!



Climate change is a complex problem!

Several initiatives are contributing to the understanding of climate issues to help trigger the necessary changes

Our goal is to raise awareness about climate change with a focus on the IT technologies and services used at CERN and managed by IT

Collaborative Workshops on Environmental Sustainability

- Scientific based (IPCC reports)
- Activates group's collective intelligence
- No expert needed; participants are active learners owning the subject matter
- Enables open and positive conversations
- Equips people to implement identified climate actions



3 hours



In person or online



1 facilitator for up to 14 participants



versions adults and children (9+)



Similar workshops have been defined following the same methodology:

https://wiki.climatefresk.org/?title=Les_fresques_amies

IT-CD Workshop

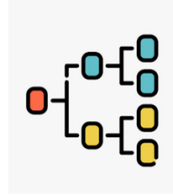


- **IT-CD group operates, maintains and supports scientific computing services including the WLCG Tier-0**
- **IT-CD comprises the following sections:**
 - Compute and Configuration
 - Cloud and Linux Infrastructure
 - Device Provisioning and Productivity
 - Platforms Infrastructure
- **Participants were divided in 4 groups of 9 members, with a total of 36 participants**
- **The workshop lasted 3h in total**

Workshop Structure



Listen to some facts related to climate change and ICT



Build a collaborative collage



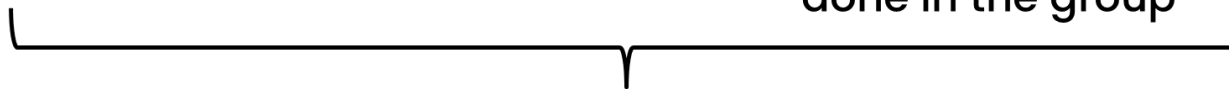
Perform a feasibility and impact analysis



Describe in more detail what actions could be done in the group



Present your ideas to the rest of the group



Teamwork

About Climate Change

The aim is to introduce few **basic concepts about climate change**:

- Global Warming vs Climate Change
- Greenhouse Gases
- Who is monitoring climate change
- Current status and predictions

We also put the **focus on the impact of digital technologies**:

- Some numbers of the digital world
- Footprint of the digital world
- Data centres
- Emissions by economic sector

We summarise **what CERN is currently doing**:

- Environment at CERN
- CERN Environment Report

The Collaborative Collage



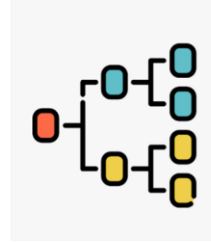
You will receive 5 batches of cards, one at a time



Each card describes an activity that reduces IT carbon emissions



Read the card details out loud



All together build a diagram/hierarchy organizing the cards by areas of action



Green Software Principles



Energy Efficiency
Consume the least amount of electricity possible



Hardware Efficiency
Use the least amount of embodied carbon possible



Carbon Awareness
Do more when the electricity is clean and less when it's dirty



Feasibility vs Impact Analysis



Feasibility vs Impact analysis



Identify one or two actions with high visibility and high impact



Define a plan to implement these actions



Prepare your presentation



Proposed Actions

Green IT Workshop for IT-CD
M. Alandes Pradillo, V. Bhat
V3.1 – 04.11.2024

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SW Efficiency Review

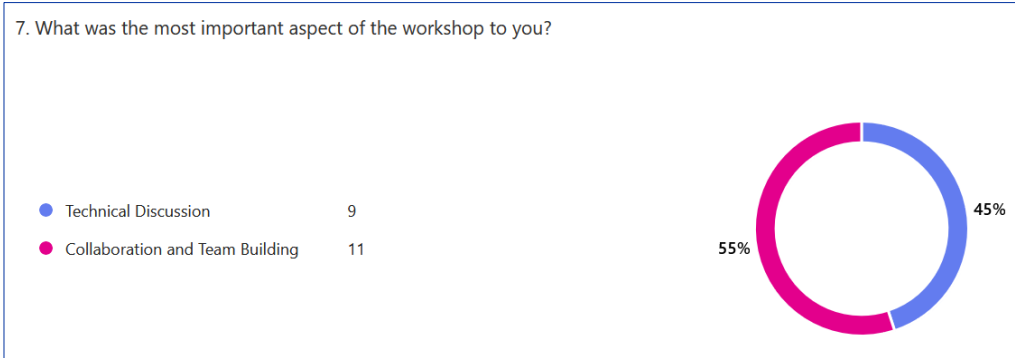
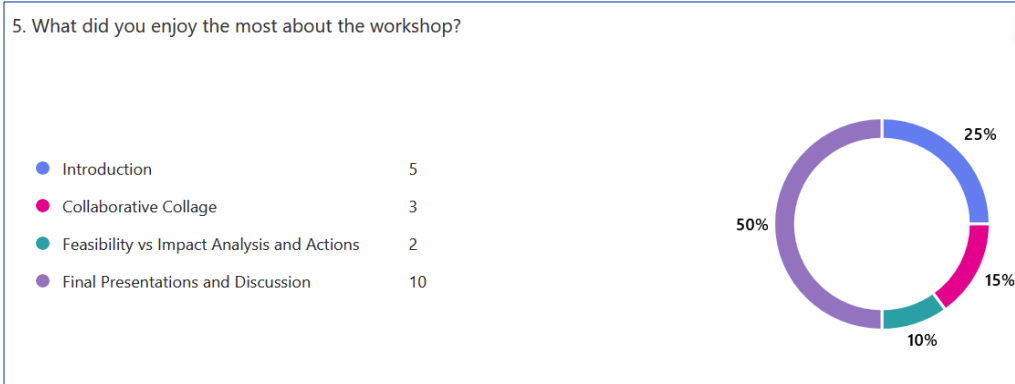
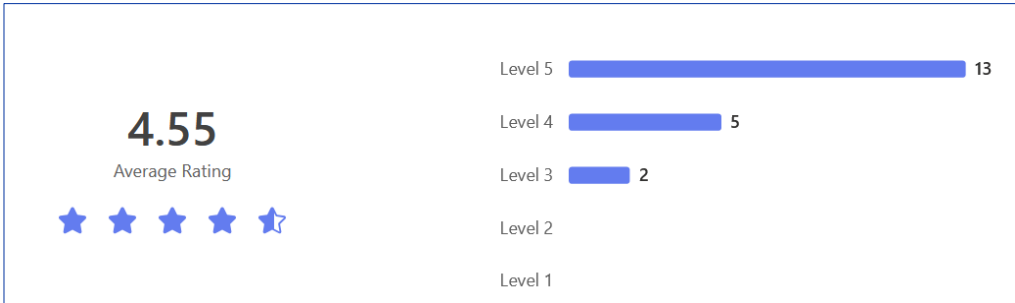
Increase Device Lifetime and Automatic Power Management

Increase Device Lifetime, Monitoring and Reporting

Green Service Efficiency Initiative

Final report: <https://cernbox.cern.ch/s/AVNErt0oGZNIDPJ>

Survey Results



- 20 responses
- Overall positive feedback
- What went well:
 - Learning interesting facts
 - Teamwork and participation

Good teamwork with people I never work with. Reaching rational consensus.

Meeting colleagues for a professional reason out of the ordinary. Looking at our work from another perspective. Learning interesting facts in the context of Green IT.

- What can be improved:
 - More time for discussion
 - Better instructions for the collage

Not enough time for extended discussions during presentations, introduction to the exercise went a bit fast (an example during the introduction would be beneficial)

The time for group discussion was a bit tight. Maybe shorten one of the activities and give more time for the other one?

Lessons Learned

- **We have now a better understanding of timing and interactions**
 - It's probably better to have a full day event with more time to prepare proposals, present them and discuss them. Otherwise, half a day implied a bit of rushing to keep the schedule
- **The collage needs to be better explained**
 - Some people were a bit lost on what to do at the beginning
 - With more time, the different cards can be better explained at the end of each round allowing also for some exchange and discussion
- **It is feasible to have two groups per moderator**
 - However, the wrap-up of each round could work better if two groups get together to see what the others have done, so all groups progress at the same time
- **To increase the impact of the workshop, think in advance those strategies that could be implemented in reality**

Next Steps

- **Align with overall IT and CERN sustainability strategy**
- **Consider running the workshop in other groups in IT who have expressed interest**
 - Review the cards and adapt them so they can be useful in other IT areas (Storage, Networking, DBs)
 - Train other moderators who have expertise in other IT areas
- **Re-think feasibility and impact analysis so strategies are better focussed and meaningful to the organisation**