Introduction for summer students

2016

CERN openlab

CERN: A UNIQUE ENVIRONMENT IN WHICH TO PUSH TECHNOLOGIES TO THEIR LIMITS

What is CERN?

European Organization for Nuclear Research

~ 2300 staff

~ 1050 other paid personnel

~ 11000 users

Budget ~1100 MCHF

Founded in 1954

Member States: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Israel, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom

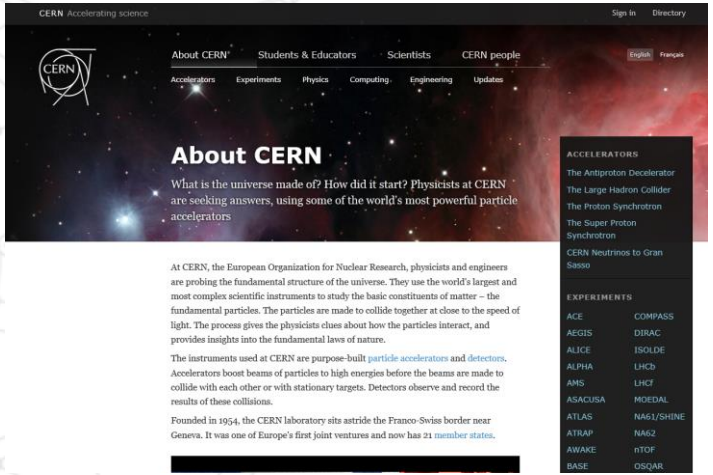
Candidate for accession: Romania

Associate Members in the Pre-Stage to Membership:, Cyprus, Serbia,

Associate Members: Pakistan, Turkey

Observers to Council: India, Japan, Russia, United States of America, the European Commission, Joint Institute for Nuclear Research and UNESCO

CERN Structure



http://home.cern

http://home.cern/about

Beams

Information Technology

Site Management and Buildings

Human Resources

Engineering

Theoretical physics

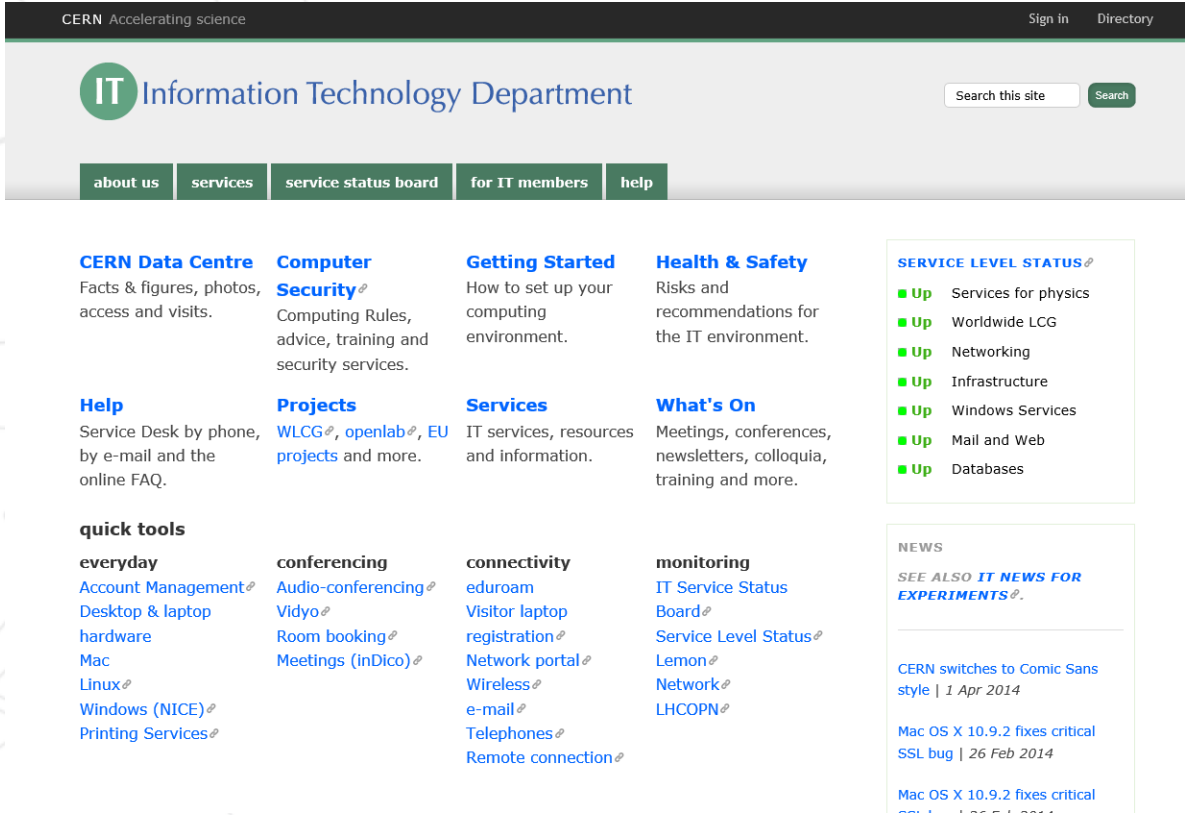
Technology

Site Management and Buildings

Experimental physics

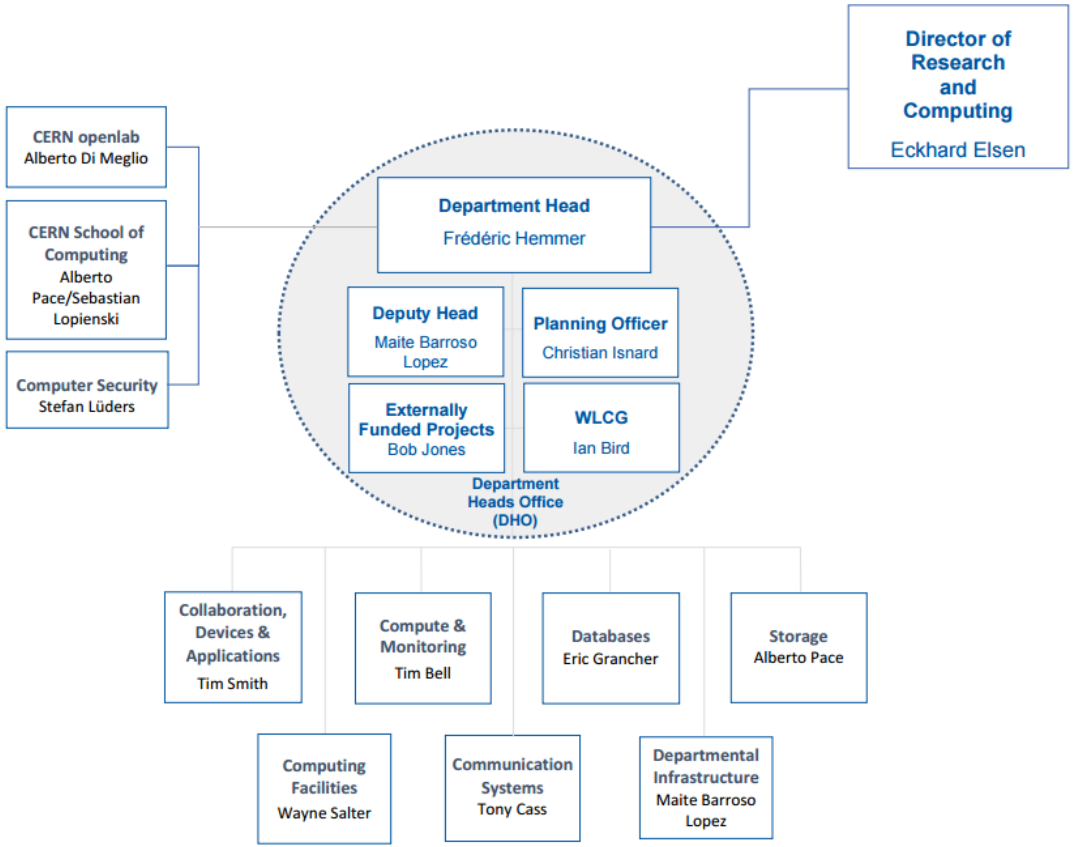
Industry, Procurement and Knowledge Transfer

IT Department



http://information-technology.web.cern.ch/

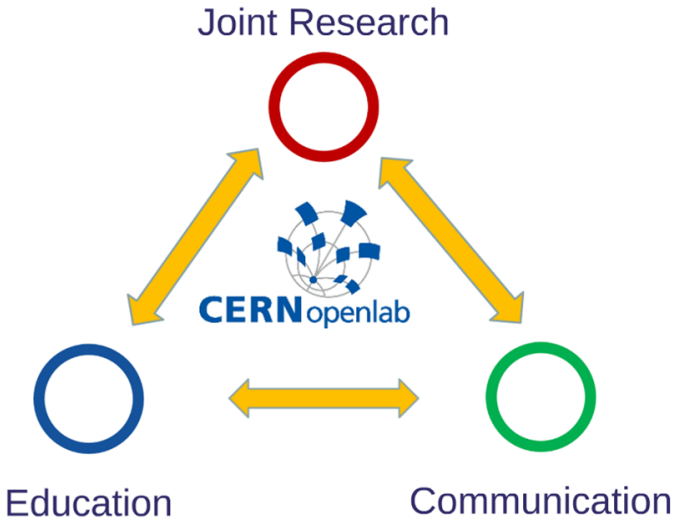
IT Department Structure



CERN openlab in a nutshell

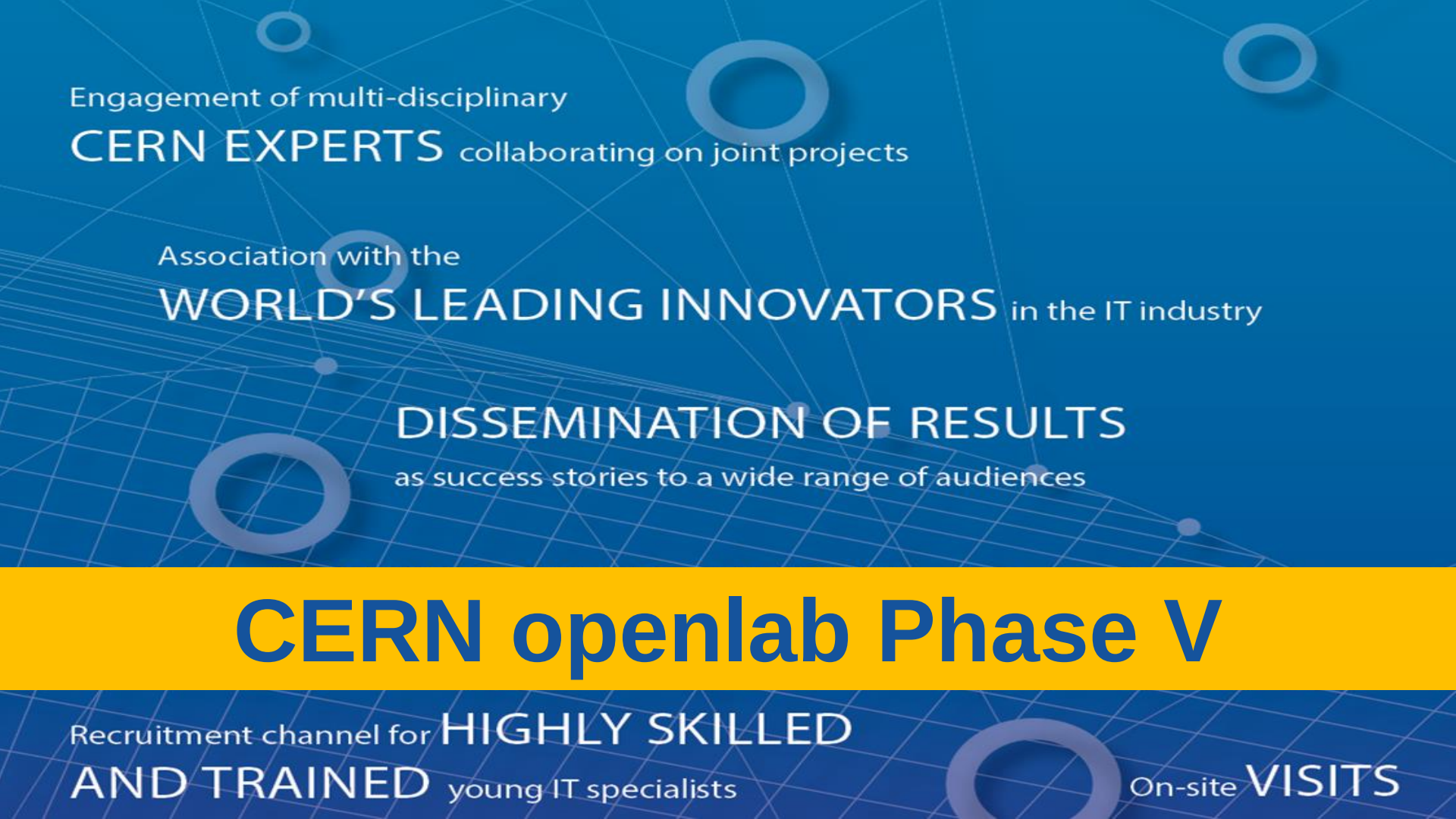
A science – industry partnership to drive R&D and innovation with over a decade of success

- **Evaluate** state-of-the-art technologies in a challenging environment and improve them
- **Test** in a research environment today what will be used in many business sectors tomorrow
- **Train** next generation of engineers/employees
- **Disseminate** results and outreach to new audiences



CERN openlab

Partners	intel ORACLE SIEMENS
Contributors	CISCO rackspace the open cloud company SEAGATE BROCADE IDT
Associates	ComTrade HUAWEI Yandex
Research	Innopolis University Kazan Federal University Newcastle University GSI EMBL-EBI


Engagement of multi-disciplinary
CERN EXPERTS collaborating on joint projects
Association with the
WORLD'S LEADING INNOVATORS in the IT industry
DISSEMINATION OF RESULTS
as success stories to a wide range of audiences
CERN openlab Phase V
Recruitment channel for HIGHLY SKILLED
AND TRAINED young IT specialists
On-site VISITS

15 Years of Successful Collaboration

Set-up
2001

I
2003

II
2006

III
2009

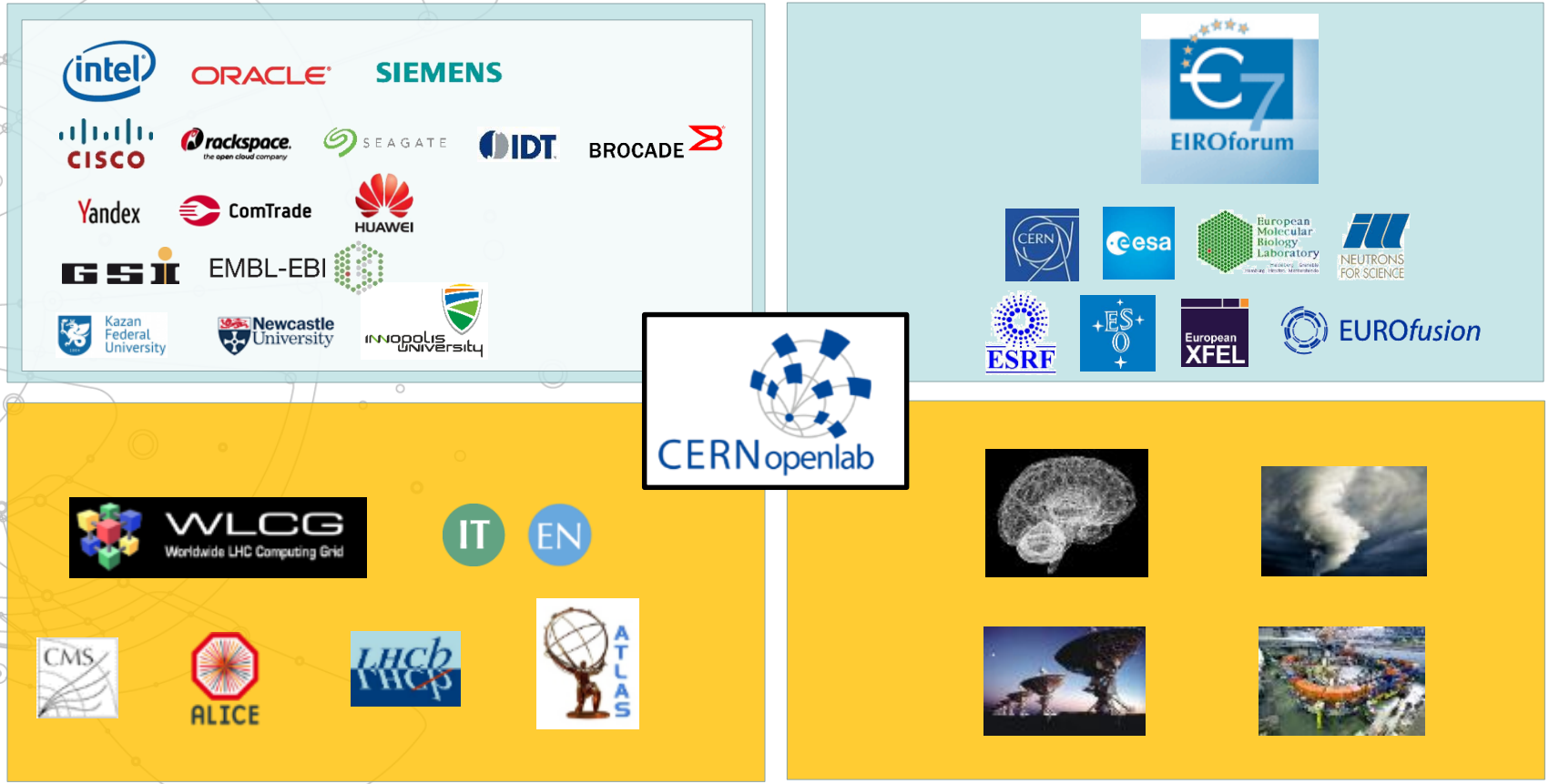
IV
2012

V
2015

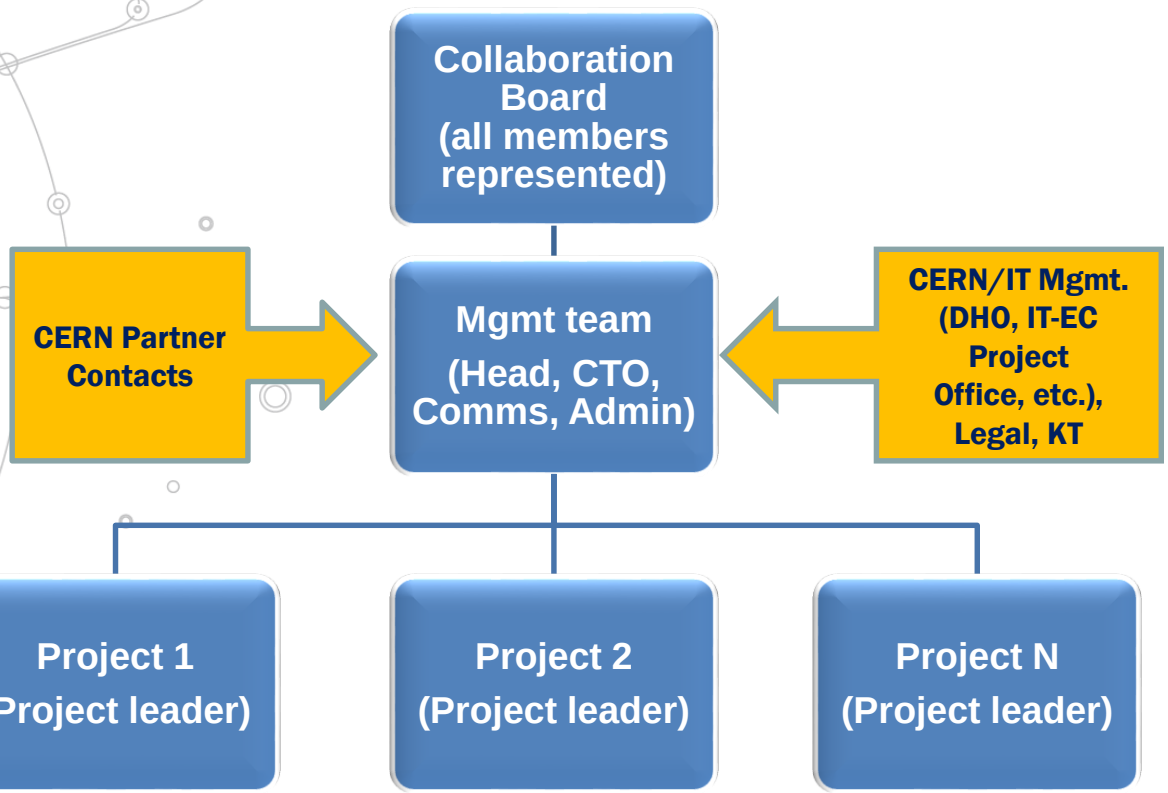
15 Years Anniversary
2016

CERN openlab Collaboration Board 2016

The community



How do we manage it?



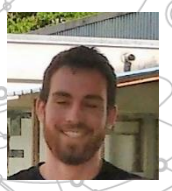
The Team

Maria Girone
CERN openlab
CTO

Kristina Gunne
CERN openlab
Admin/Finance Officer

Fons Rademakers
CERN openlab
CRO

Sotirios Pavlou
Junior Admin Officer



Maria-Athanasia Pachou
Junior Communication Officer

Melissa Gaillard
IT Department
Communication Officer

Alberto Di Meglio
CERN openlab
Head

Andrew Purcell
CERN openlab
Communication Officer

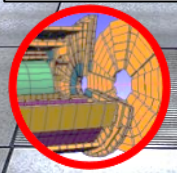
The Technical Programme

Data acquisition and filtering
Collecting data

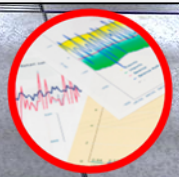
Networks and connectivity
Connecting resources

Data storage architectures
Storing and serving data

Compute management and provisioning (cloud)
Managing resources for processing



Computing platforms, data analysis, simulation
Improving processing and code efficiency



Data analytics/Machine Learning
Extracting information

Medical applications

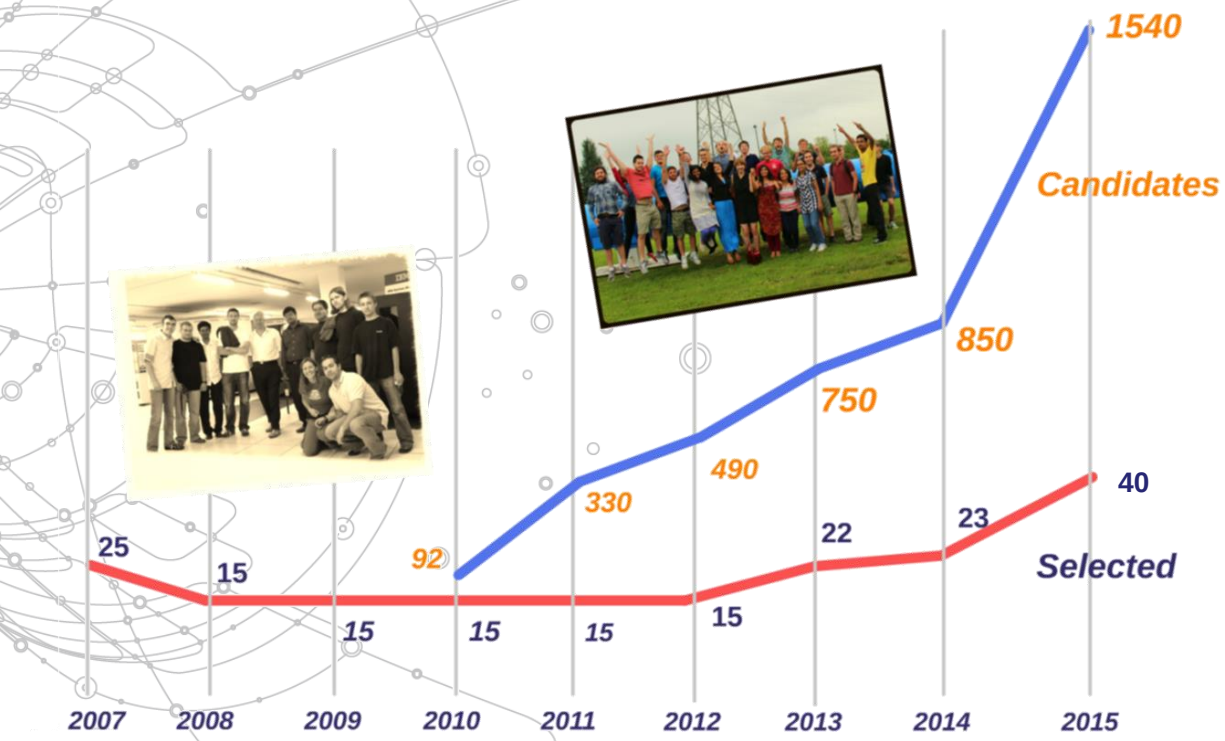
The Educational Programme

Most of the dedicated personnel in CERN openlab are young, talented Fellows receiving hands-on experience on new technologies

A comprehensive offer of general and specific workshops, training events and initiatives

Experts from industry and laboratories give lectures at events inside and outside CERN

Summer Student Programme



In 2016

- ~1500 applicants
- 39 selected students
- Lecture series
- Visits to external labs/companies
- Lightning talks session

Your CERN Experience

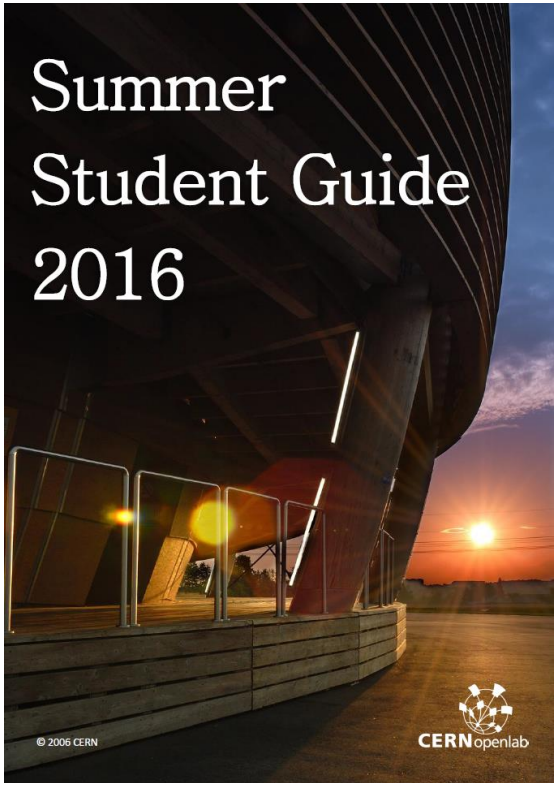
- 9 weeks
- A project to complete
- A report to be submitted
  - Template provided (http://openlab.web.cern.ch/templates)
  - Initial draft after 4 weeks (table of content, main sections)
  - Final draft to your supervisor a week before leaving
- A 5-minute ‘lightning talk’ to describe your project and its outcome
- Visits to external companies and research institutes
- A series of lectures about IT, computing and data management applied to HEP and other scientific domains
  - http://indico.cern.ch/category/8040/

Confidentiality agreement

- Some of you will be carrying out work that is confidential.
- You may be working with technologies from industrial partners that is still under a non-disclosure agreement (NDA).

Summer student guide

http://indico.cern.ch/event/537114/overview



Connect with us – and each other!

http://cern.ch/go/lw7v

http://cern.ch/go/9s9L

EXECUTIVE CONTACT

Alberto Di Meglio, CERN openlab Head
alberto.di.meglio@cern.ch

TECHNICAL CONTACTS

Maria Girone, CERN openlab CTO
maria.girone@cern.ch

Fons Rademakers, CERN openlab CRO
fons.rademakers@cern.ch

COMMUNICATION CONTACTS

Mélissa Gaillard, IT Dep. Communication Officer
melissa.gaillard@cern.ch

Andrew Purcell, CERN openlab Communication Officer
andrew.purcell@cern.ch

Maria Pachou, CERN openlab Junior Communications Officer
maria-athanasia.pachou@cern.ch

ADMIN/FINANCE CONTACTS

Kristina Gunne, CERN openlab Administration Officer
kristina.gunne@cern.ch

Sotirios Pavlou, CERN openlab Junior Administration Officer
sotirios.pavlou@cern.ch