AIDA-2020 kick-off meeting

L. Serin (CNRS/LAL)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654168.

Outline

- **Project history**

- **Overview of scientific content**
  - Networking Activities
  - Transnational Access
  - Joint Research Activities

- **Collaboration members -Management structure – Budget**

- **Main AIDA 2020 steps** :
  - Resources utilisation justification
  - Milestones / deliverables
  - Periodic reporting
  - Publication

- **Conclusion**

Project History (1)

- **Nov 2012** : EC consultation on possible topics :contribution from AIDA community, similar to contribution sent to European Particle Physics Strategy
- **Feb 2013** : "AIDA" topic included in the list of high priority projects. List was about 2 times more than what could be really funded.
- **October 2013** : looked like that our topic would be in the first call in " Advanced Physics community". Call was opened in December 2013 with submission dead line September 2nd 2014

→ Decided to go through a large consultation

→ Call for Expression of Interest (sent to HEP communities through project/experiments). Received about 50 documents with a total about 70-80 expression of interest

→ Open meeting summarizing these EoI by topics on **Feb 2014**. Promising topics identified with working groups to build concrete proposal, grouping EoI. Set up a coordination team with members of each scientific community (LHC, ILC, CLIC, neutrinos).

Project History (2)

- Converged on work package definition & budget sharing/allocation per work package in June 2014, and beneficiary list in July2014. First Draft was circulated in July/August 2014 → submitted on **September 2nd**

- Project selected on **January 18th 2014**, ranking 14.5/15

  Excellence : 5/5

  Impact : 5/5

  Quality and efficiency of the implementation : 4.5/5

Minor shortcomings are:

- The consortium partners UCLouvain, UoB, ITAINNOVA, RBI and JSI participate only in the transnational access activities, but they are not part of any networking or joint research activity.

- The description of "novel magnetisation schemes" is vaguely presented.

- Networking workshops for new detector communities are mentioned but not included in the workplan as a task, deliverable or milestone.

Project History (3)

- Strict delay to prepare & sign Grant Agreement (< 3 months from invitation letter received on January 18th)

  Only minor modifications with respect to proposal :

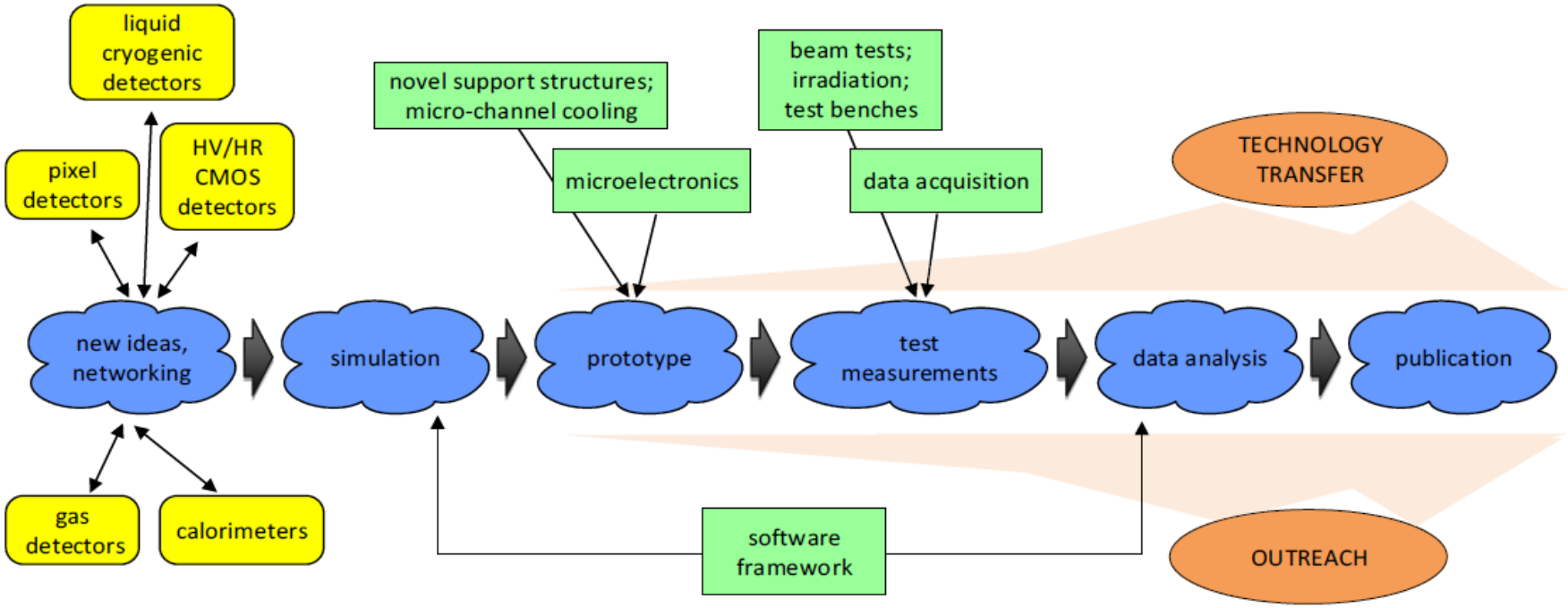
  - more detailed description of deliverables/milestones
  - TA resources corrected following EC requests
  - Reduced the total eligible cost from 110 to 100 % except for two partners (AGH, CNRS) willing to declare their total costs.
  - Added two new collaborating Institutes : IHEP (China) and Gangneung-Wonju National University (Korea)

→ Was tough to get all administrative inputs from beneficiaries but succeed to submit GA on **March 27th** and get all signatures by **April 28th**

Project officially started on **May 1st** !

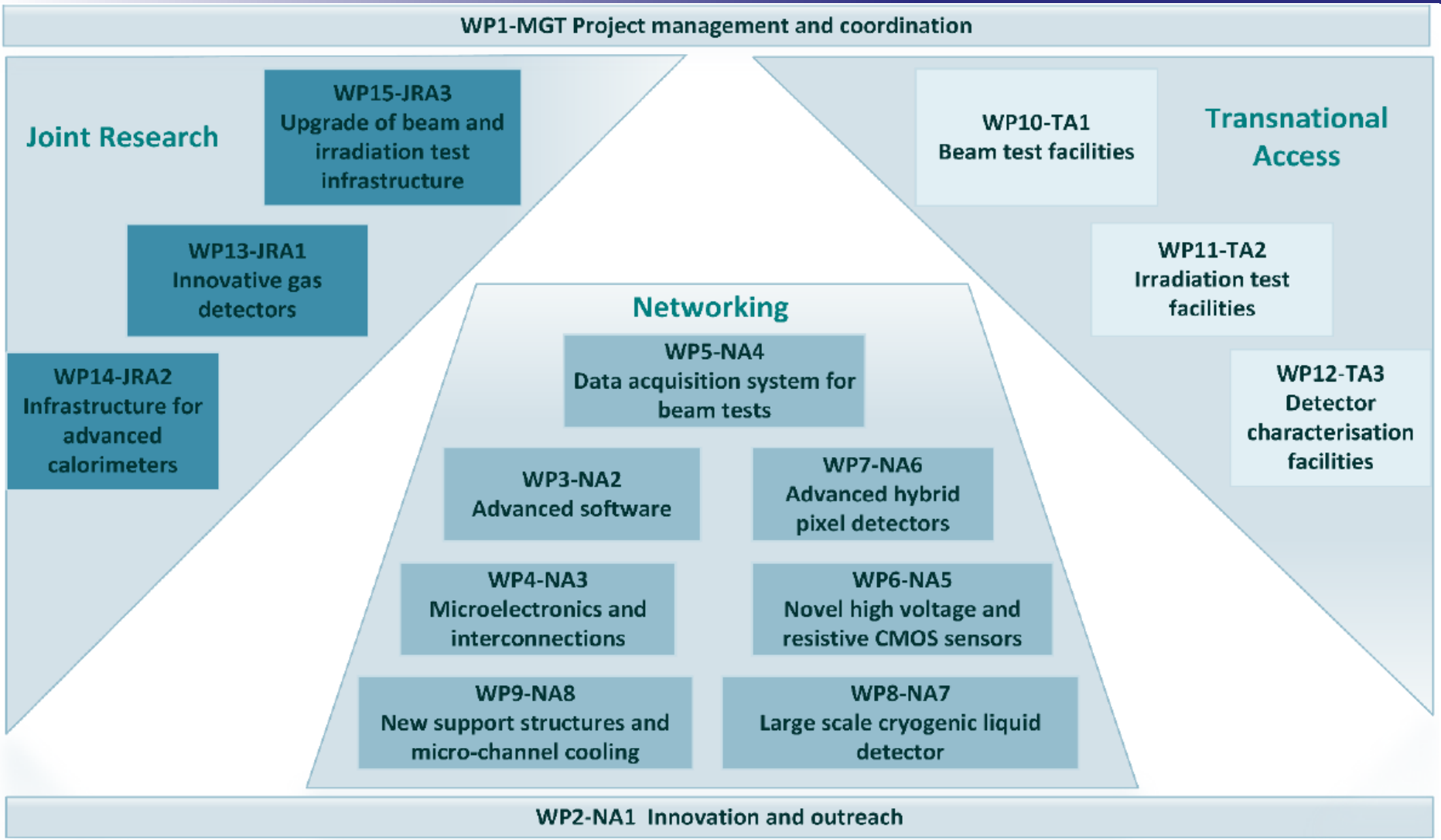
AIDA-2020 overview

» AIDA-2020 aims at pushing detector technologies beyond the state-of-the-art and offering highly equipped infrastructures for testing of detector systems.



Covers mostly all steps in detector R&D life-cycle

Scientific contents



Trans-national Access

Financial support to facilitate access and use of test facilities :

- WP10 : **Beam Test at CERN & DESY** (beam is "free", support mainly subsistence fee for user on site, try to facilitate PhD & postdoc)
- WP11 : **Irradiation test facilities** : try to cover (LHC) community needs in terms of particle type, flux and energy : Birmingham cyclotron, CERN (IRRAD + GIF++), JSI, KIT, UCL
  Budget mainly to pay beam "hours" and subsistence fees/shipments of components depending of the way the facility is used
- WP12 : **Detector characterisation facilities** : new with respect to AIDA
  ITANOVA : EMC measurements on components & detector elements
  RBI : micro ion beam to study characterise solid state detectors

Reminder :

- Do not need to be AIDA-2020 member to benefit from TA
- European people are eligible if not from same country as facility used
- Non European also if member of a European group
- Need to fill application form (available from AIDA-2020 web) with formal acceptation by facility leader and AIDA-2020 user selection panel

Networking activities

Organised around :

- **Two specific "community" oriented WP** :
  - WP5 : Data acquisition system/framework for beam test of LC detectors
    → achieve combined sub-detector test beams
  - WP8 : Large scale cryogenic liquid detector (neutrinos)
    → R&D and assessment of keys elements for large scale cryogenic liquid detectors (purification charge and light readout, very high voltage…)

- **Two networking WP transversal to all communities and AIDA-2020 WP** :
  - WP3 : Advanced software
    → Continuation/improvement of AIDA developments + implementation of parallel mechanisms/software
  - WP4 : Micro-Electronics & interconnections
    → Provide access to (and develop) micro-electronics for detectors in AIDA (trackers, calorimeters, gas detector, neutrinos…)
    Provide interconnection process for pixel detector (WP6 and WP7)

Networking activities

- **Three specific NA covering in a coherent way "pixel detectors" aspects** :
  - WP6 : Novel resistive and High Voltage CMOS sensors
    → investigate / assess performance of CMOS sensors for HL-LHC environment
  - WP7 : Advanced hybrid pixels detectors
    → Technological guidelines for production of advanced hybrid pixels (HL-LHC/CLIC)
    Investigate LGAD technology performances
  - WP9 : New support structure and micro channel-cooling
    → sharing expertise on support structure characterisation and cooling
    Standardisation of production techniques

+ interconnection aspects in WP4

Expect regular common discussion between these three NA.

Innovation and outreach

- Innovation / TT was specifically recommended in ECcall. Long discussion during proposal submission how to implement it * .
  Decided to have a specific networking WP including
  - TT networking + academic-industry workshop + link with other fields
  - Proof of Concept task (mechanism will be explained in WP2 plenary talk by Marcello)

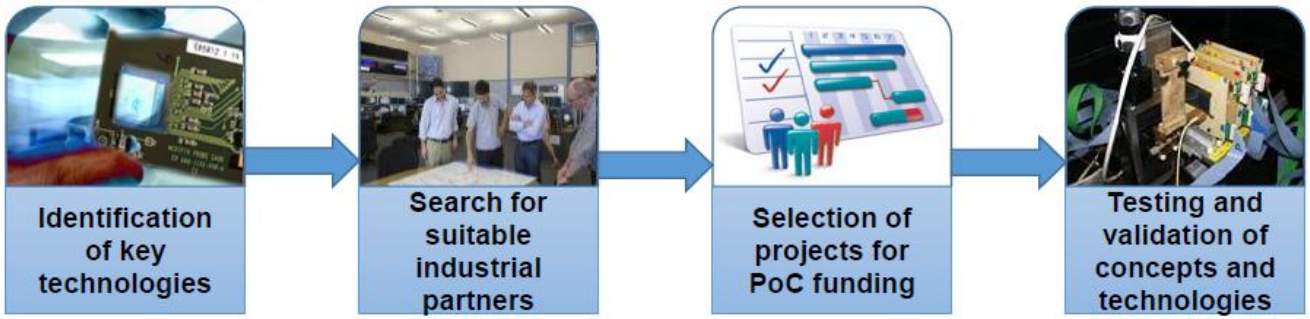


Figure 2.1: Schematic presentation of the Proof-of-Concept Fund that will be available in AIDA-2020

  - European industry survey/ assessment for large production Si detectors
  - Communication/outreach (more visibility &weight / AIDA). Any new idea welcome
    → Today's talk by Agnes

** Non selected project (ENSAR3 and Hadron physics project) paid less attention to this recommendation, not including specific WP and new ideas*

Joint Research Activities

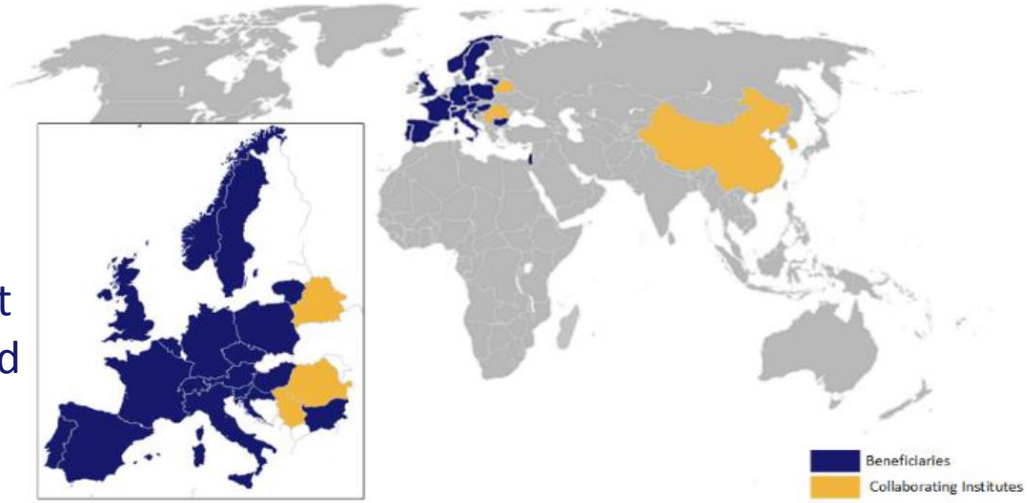
- **Two JRA centred on two detector topics** :
  - WP13: Innovative gas detectors
    → R&D on RPCs and MGPDs (gas, high rate performance…) , common tools and infrastructure to prepare low cost large series production
  - WP14 : Advanced calorimeter infrastructure
    → R&D on highly granular calorimeters and associated infrastructures

- **One JRA centred on test facility upgrade** :
  - WP15 : Upgrade of beam and irradiation test infrastructure
    → **Beam test** : permanent pixel telescope on CERN PS + user support for beam telescope, Si strip telescope for DESY PCMAG facility , additional beam line at LNF
    Irradiations facilities : upgrade at IRRAD/GIF++@CERN, JSI and Birmingham

AIDA-2020 collaboration

19 countries involved and three different status for institute involved :

1) Beneficiaries : received contribution from EC (except CH)
   Duties with respect to EC and AIDA consortium : scientific (milestones/deliverables) and administrative reporting/resource utilisation declaration (Form C)
2) Partner organisations : Received indirectly EC grant through a beneficiary, or commit funds in project receiving specific funds from their agency (Gangneung-Wonju).
   Duties with respect to AIDA-2020 consortium (agreed commitments) and to linked beneficiaries
3) Collaborating institutes :
   Scientific collaboration
   No duty



1) Is defined by Grant agreement
2) Is defined by Consortium Agreement
1) + 2) are members of governing board body

Consortium agreement to be validated at Friday GB and signed by the 38 beneficiaries + 14 partner organisations

AIDA 2020 Beneficiaries (38)

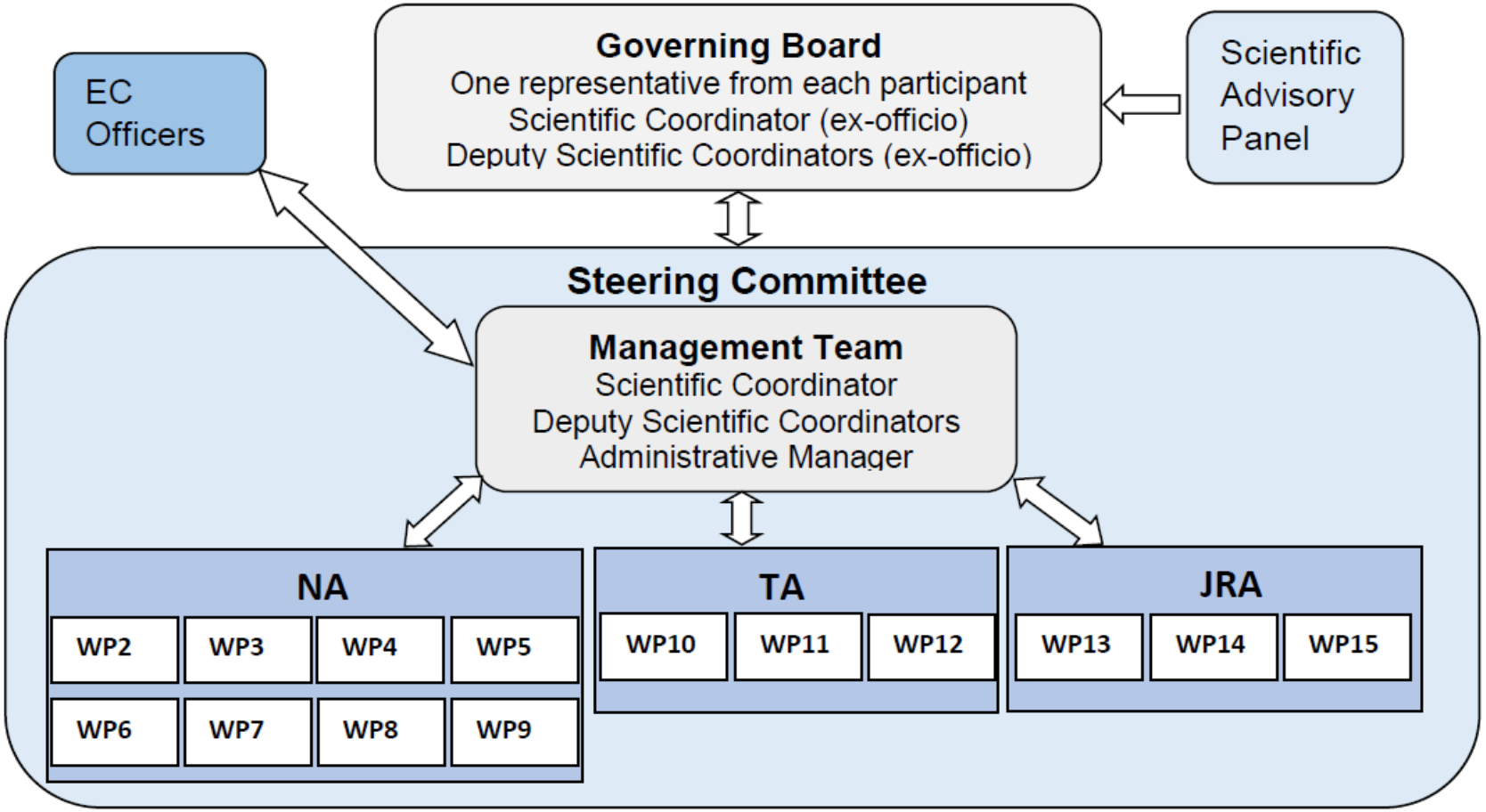
CNRS, INFN & CSIC are national consortia of Institutes

Partner organisations and collaborating institutes






Management structure



Administrative Manager should be from project Host lab (CERN)

Scientific coordinator should be validated by CERN DG

Management team + steering group to be endorsed by GB on Friday for project duration

Management team

L. Serin (CNRS/LAL)	Scientific Coordinator
S. Stavrev (CERN)	Administrative manager
P. Giacomelli (INFN/Bologna)	Scientific Deputy coordinator
F. Sefkow (DESY)	Scientific Deputy Coordinator

Were members of AIDA-2020 coordination team during proposal preparation
To be endorsed on Friday
As announced at proposal submission time, I will step down as scientific coordinator at the latest in May 2016. (discussion at GB meeting)

AIDA 2020 Steering group

Try to select expert persons while respecting community/geographic balance….

No	Type	WP	WP Coordinators	Institute
WP1	MGT	Project management and coordination	Laurent Serin	CERN, CNRS
WP2	NA1	Innovation and outreach	Marcello Lossasso Agnes Szeberenyi	CERN CERN
WP3	NA2	Advanced software	Witold Pokorski Frank Gaede	CERN DESY
WP4	NA3	Micro-electronics and interconnections	Christophe De La Taille Valerio Re	CNRS INFN
WP5	NA4	Data acquisition system for beam tests	Matthew Wing David Cussans	UCL UNIBRIS
WP6	NA5	Novel high voltage and resistive CMOS sensors	Ivan Peric Gianluigi Casse	KIT UNILIV
WP7	NA6	Advanced hybrid pixel detectors	Anna Macchiolo Ivan Vila	MPG-MPP CSIC
WP8	NA7	Large scale cryogenic liquid detectors	Dario Autiero Sebastien Murphy	CNRS ETHZ
WP9	NA8	New support structures and micro-channel cooling	Paolo Petagna Georg Viehhauser	CERN UOXF
WP10	TA1	Beam test facilities	Henric Wilkens Natalia Potylitsina	CERN DESY
WP11	TA2	Irradiation facilities	Marko Mikuz	JSI
WP12	TA3	Detector characterisation facilities	Stjepko Fazinic Fernando Arteche	RBI ITAINNOVA
WP13	JRA1	Innovative gas detectors	Silvia Dalla Torre Imad Laktineh	INFN CNRS
WP14	JRA2	Infrastructure for advanced calorimeters	Roman Poeschl Frank Simon	CNRS MPG-MPP
WP15	JRA3	Upgrade of beam and irradiation test infrastructure	Federico Ravotti Marcel Stanitzki	CERN DESY

Scientific Advisory Panel

External committee with internationally known experts (not involved in the project)

- 4-5 members covering the various AIDA-2020 activity fields & community

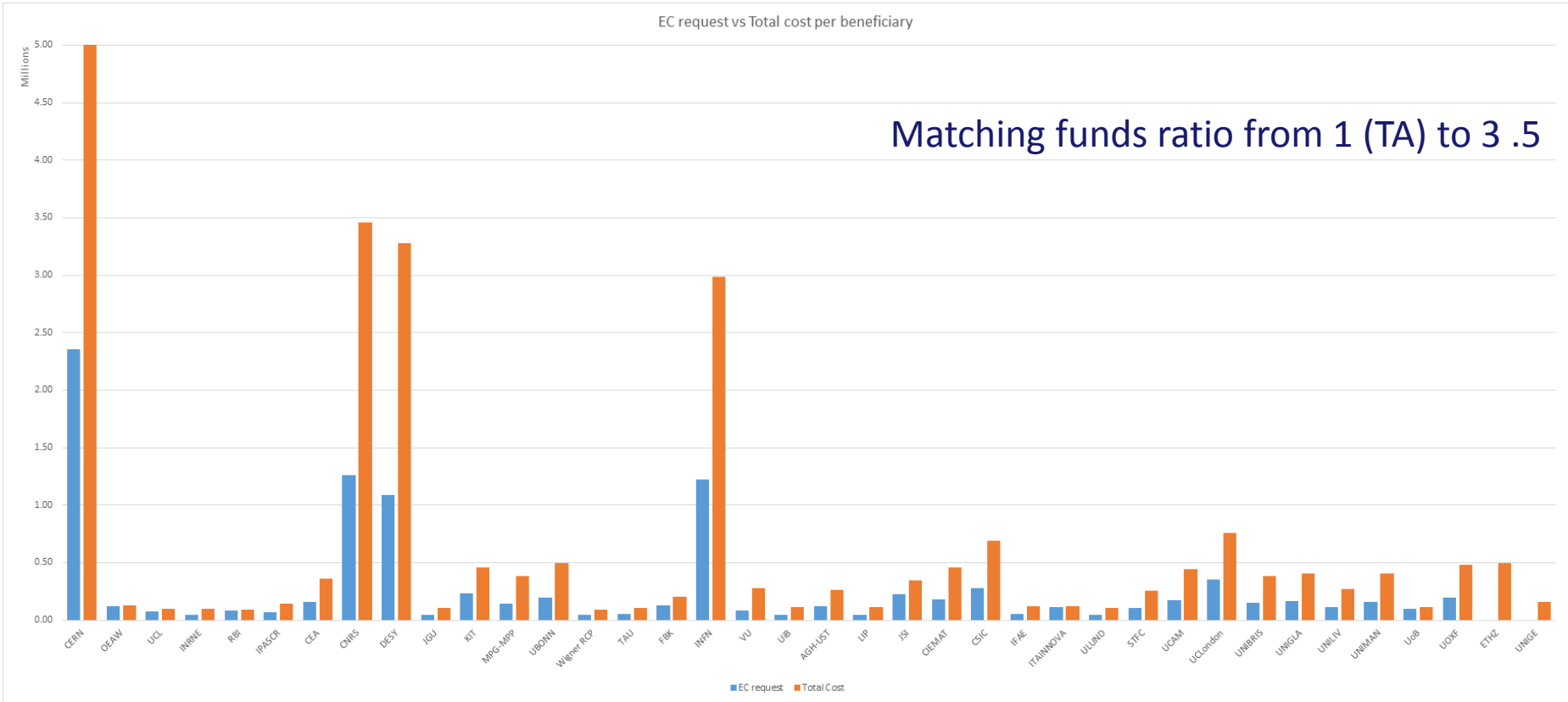
- Attend Annual Meeting and make suggestions/recommendations to GB. Short written document.

→ Demonstrated to be useful in AIDA for discussion with CERN management with respect to PS-IRRAD upgrade and for the Mid Term review with project officer.

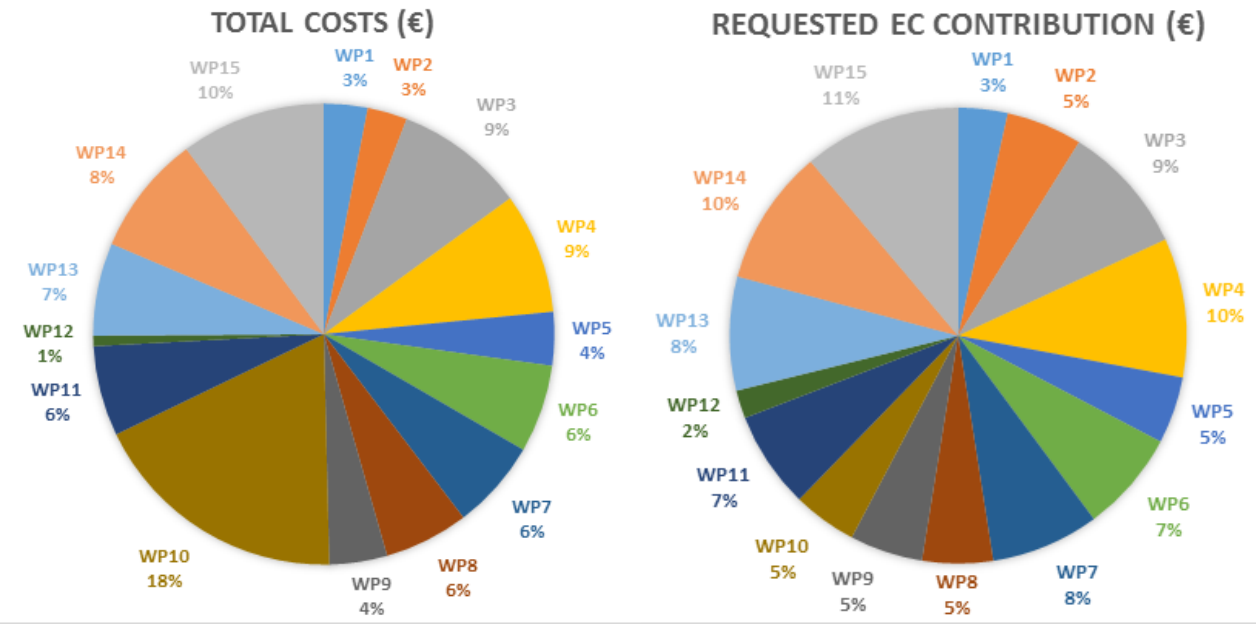
Composition to be discussed at GB meeting
Would like to have it ready by September/October

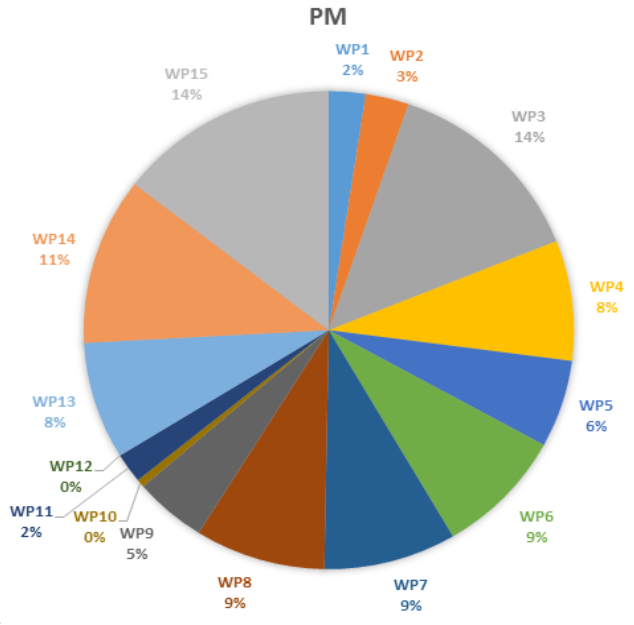
Budget sharing (I)

Budget sharing is fully defined by Grant Agreement signed by all beneficiaries
Most of the matching funds are man-power.
Total budget : 29.0 M€ (beneficiaries) + 1.2 M€ (Partner organisation)
Total eligible budget for EC : 13 M€
EC grant : 10 M€



Budget sharing (II)





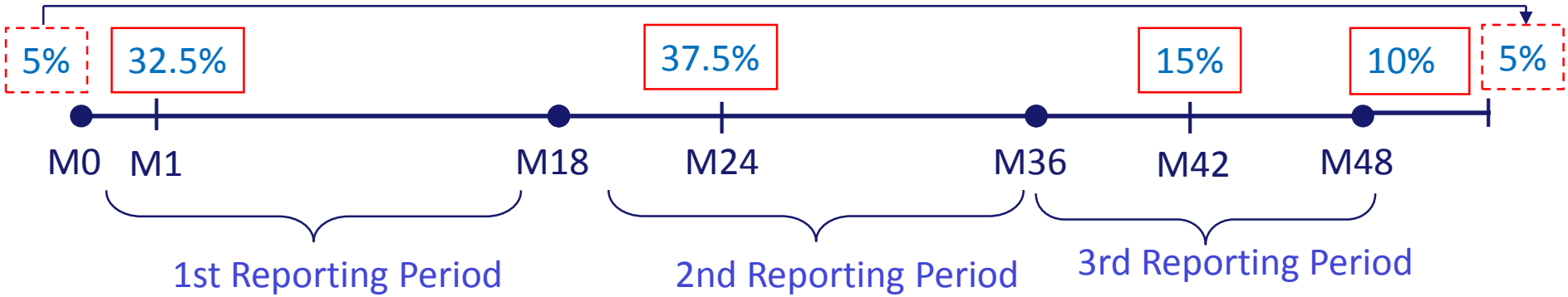
- Large fraction of WP10 (CERN&DESY TA) only due to the access costs are included, while free
- 14 % of budget in TA, 5 % Innovation & communication and other WP from 5-10 %
- Large fraction of matching funds are manpower : up to 2500 PM

EC payments to AIDA-2020

- Max. EC Grant = 10 M€
- Pre-financing = 37.5 %, including 5% withheld for H2020 Guarantee Fund, to be reimbursed at the end
- Effective pre-financing received = 32.5% of the 10 M€ of which 70% will be paid to each participant (pro-rata to project share) a.s.a.p. and the other 30% will be distributed after the end of the first year.

  → Received at CERN. 70 % to be delivered after CA signature : 15-19/06, 22-26/06 or later

  (100 % for beneficiary with less than 100 k€ EC contribution)
- Second EC payment – at (M18+2-3) = reimbursement of costs for the first Reporting Period ~ 37.5% assuming uniform spending profile (18 / 48)
- Third EC payment (limited by 85% of the 10 M€) – at (M36+2-3) ~ 15%
- Final EC payment (10% + 5%) – after the Final Report is approved



There will a detailed presentation by Svet at the GB meeting

AIDA-2020 steps – reports

Success of AIDA-2020 will rely on few important steps (some being contractual by GA or CA) :

- Interim Resource utilisation at M12, M18, M36 and M48

- Periodic reporting : scientific (all) and resource utilisation for beneficiaries at P1 (M18), P2 (M36) and P3 (M48). Reimbursement of cost by EC only under validation of periodic report. To be delivered at Px + 2 months
  → Any delay or mistake in resource declaration of one beneficiary impact **ALL** beneficiaries
- Final Report : Last 15 % of EC grant delivered under validation of final report

In AIDA, even it was quite tough, always succeed to deliver Periodic/Final report in time or with minor delays (a few days) negotiated with EC officer. Project ended 31/01/15, final payment received in May.

→ SHOULD BE SIMILAR IN AIDA-2020

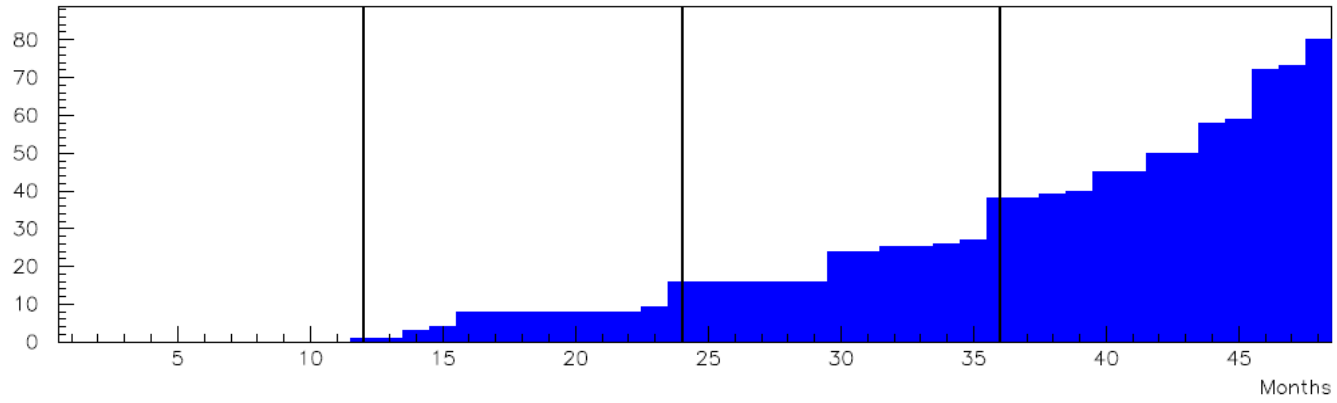
AIDA 2020 steps-deliverables

Success of AIDA-2020 will rely on few important steps (some being contractual by GA external or CA internal) :

- Deliverables : produced "objects" if any + written report
  Responsibility of the Lead beneficiary of the deliverable as defined in GA
  Has to be approved last day of contractual month by Steering Group
  Small delays (< 3 months) can be managed internally by Coordination, longer delays will need justification with respect to EC.

Producing the deliverable reports in time is essential for the success of the project.
Would like to improve the process / AIDA.

80 deliverables
No deliverable in Y1
First peak before
Mid-term review

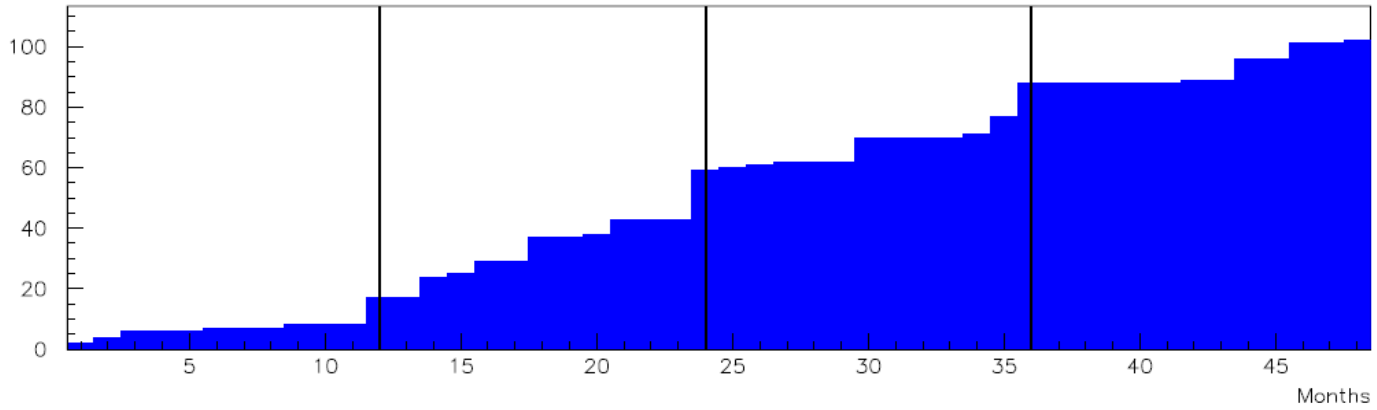


AIDA 2020 steps - milestones

Success of AIDA-2020 will rely on few important steps (some being contractual by GA external or CA internal) :

- Milestones : There are defined in the GA but not contractual as the deliverables yes/no
  but not achieving the milestones would be the sign of a bad project…
  Responsibility of the lead beneficiary
  Short (1-2 page) document requested by management and delay justification if exceeds 3 months

100 milestones



AIDA 2020 steps :

Objectives	AIDA-2020 targets
Scientific dissemination	**180 publications** including: 60 journal publications 50 conference contributions
General communication and news	**10 articles** in newsletters and other communication channels
Cross-border cooperation	**38** beneficiaries from **19 countries**
Knowledge sharing in the community	**450 project members** in 15 work packages
Enhanced Transnational Access	Up to **300 TA user projects** with **940 users**
Knowledge exchange with industry and other scientific communities	**5 workshops**
Pre-industrialisation of novel detector technologies	**3-4 projects** supported by the Proof-of-Concept fund
Training of PhD scientists and engineers	**60 PhD students**
Exploiting the innovation potential	**4 innovation disclosures** and **2 patent applications**

Please :
- use the AIDA-2020 acknowledgement sentence in publication and conference proceedings, and AIDA logo on conference slides
- Send us or upload them on AIDA-2020 repository system (in discussion with CERN If CDS used or new system for EC project)

Expect 2-3 academic-industry and 2-3 detector workshop intra-communities during Annual Meeting
→ WP2

Let's us know when students are working in AIDA-2020 even if only part time.
Upload PhD thesis document if contains fair fraction of work in AIDA-2020

AIDA 2020 mailing list / web

AIDA-2020 web page http://aida2020.web.cern.ch/ or
http://cern.ch/aida2020

It contains link to Indico, repository document system

Member registration : Please do subscribe of the email lists

Conclusion

AIDA-2020 is started since May 1st !

The success of AIDA paves the way to AIDA-2020 project which should continue on the same way

Success will be based on the deliverable reports (quality of scientific activity) and periodic reports (scientific and resource utilization) submitted to the EC

→ **Can be achieved by the commitments and cooperation of ALL the AIDA-2020 participants**

Reminder : Cocktail-Diner at R1 Thursday from 19h00
Friday plenary starts at 8h30 !