AIDA-2020
WP2: Innovation & Outreach

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

Objectives

- Scientific Coordination
- Communication, dissemination and outreach
- Industrial relations and technology transfer
- Management of the Proof-of-Concept (PoC) fund
- Pre-industrialisation of large area silicon detectors

Task 2.3 Industrial relations and technology transfer

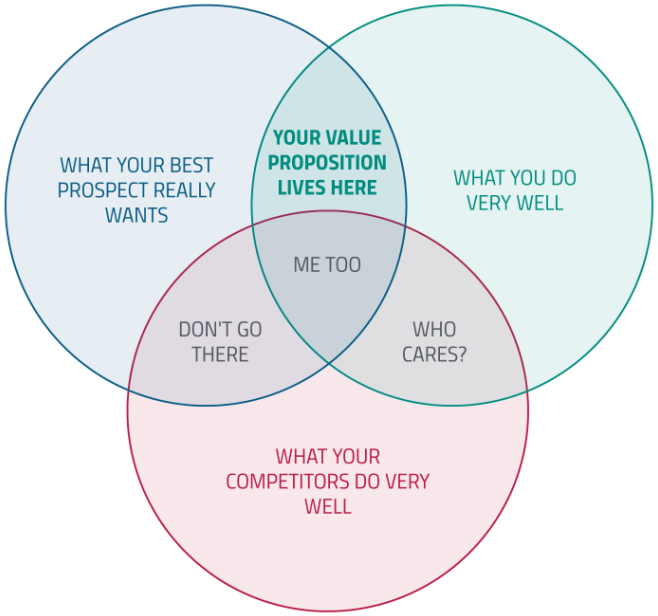
- Academia meets Industry Symposium feedback:
  - 59% of the participants ranked the overall event with maximum grade
  - 53% of the participants ranked the event as not too much technical (which was the goal)

Task 2.3 Industrial relations and technology transfer

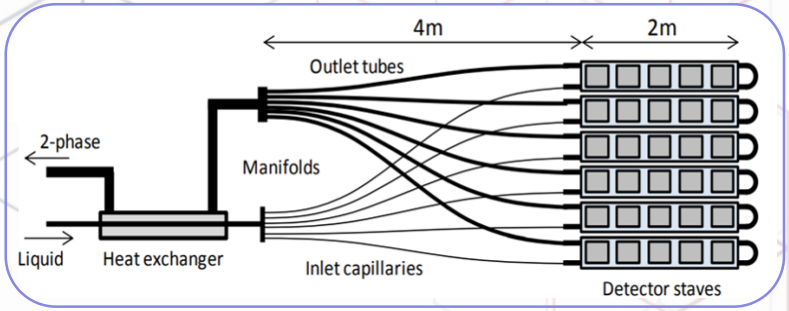
- Feedback concerning the 2 AMI events to be sent after the Annual meeting:
  - https://docs.google.com/forms/d/e/1FAIpQLSdNbldhN7r-n3n2yXRKBUarLi9NHazhoO2LbnwaRozKEDFzPg/viewform
  - Key questions:
    - How many new projects/collaborations came out of this event? Please comment.
    - [For industrials only] Did this event bring you new leads/customers for your business? If yes, how many?

Task 2.3 Industrial relations and technology transfer

- How to improve the KT/TT from AIDA2020 to Industry?
  - Prepare a value proposition of what is unique in each WP:
    - 1slide to explain what is done or what is the specific know-how developpedin AIDA2020, what is in it for Industry and the type of industry that might be interested



Key competence: Thermal management using silicon microchannels



The volumetric power density of a LHC Pixel detector is approximately 100 W/dm3 - comparable to the most demanding high power electronics applications. To provide stable and precisely controlled thermal management, CERN experts have developed know-how in the design and manufacture of ultra-thin microchannel cooling plates.

Cooling of integrated circuits, particularly where stable thermal management is needed, for example…

- Laboratory coolers
- Manufacturing of specialised components
- Data centres

tech specs

- Proven technology - already adopted in two experiments at CERN
- Cooling up to 100s W/cm2 depending on design
- Down to 150um silicon
- Suitable for single- or two-phase refrigerants
- No mismatch in coefficient of thermal expansion (CTE) between integrated circuits
- Significant expertise in the integration of micro-scale components, surface preparation, and bonding techniques
- Ongoing R&D on new microfabrication techniques

added value

- Know-how on designs for high power density cooling:
  → **Increase performance and protect electronic equipment from thermal damage**
- Ultra-compact, integrated cold plate/heat exchanger:
  → **Reduce space requirements**
- Know-how on interconnection of multiple devices:
  → **Large cooling surfaces possible (>300mm)**

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Task 2.3 Industrial relations and technology transfer

- WP9: visit Airbus D&S
- WP9: µchannel cooling value proposition

- WP13: license agreement about APIC in 2017, 1st orders in 2019.

Task 2.4 Management of the Proof-of-Concept (PoC) fund

- Objectives of PoC:
  - General field of detector development
  - Collaborative project industry oriented
  - Bringing technologies closer to the market

→ **Impact beyond high energy physics**

Task 2.4 Management of the Proof-of-Concept (PoC) fund

- 3 projects funded:

Budget €	Title	Lead Institute	Partners
45,600 €	Silicon-based Microdosimetry System for Advanced Radiation Therapies	Instituto de Microelectronica de Barcelona	
74,825 €	Advanced Through Silicon Vias for Pixel Detectors	University of Bonn	Fraunhofer IZM
66,641 €	RaDoM	CERN	Politecnico di Milano, Mi.am

Milestones and Deliverables

- Milestones since last annual meeting:
  - MS79:2nd AIDA-2020 “Academia meets Industry” event (M36)
- Deliverables since last annual meeting:
  - D2.3: Identification of companies (production capabilities including evaluation of possible samples and prototypes) (M44)

Coming year

- Follow-up PoC projects
- Finish value proposition with WP leaders

- AIDA 4 EVER:
  - What? Finding companies interested either in the topic of research either on developping technologies for HEP and other applications
  - When? The sooner the better