Universität Siegen

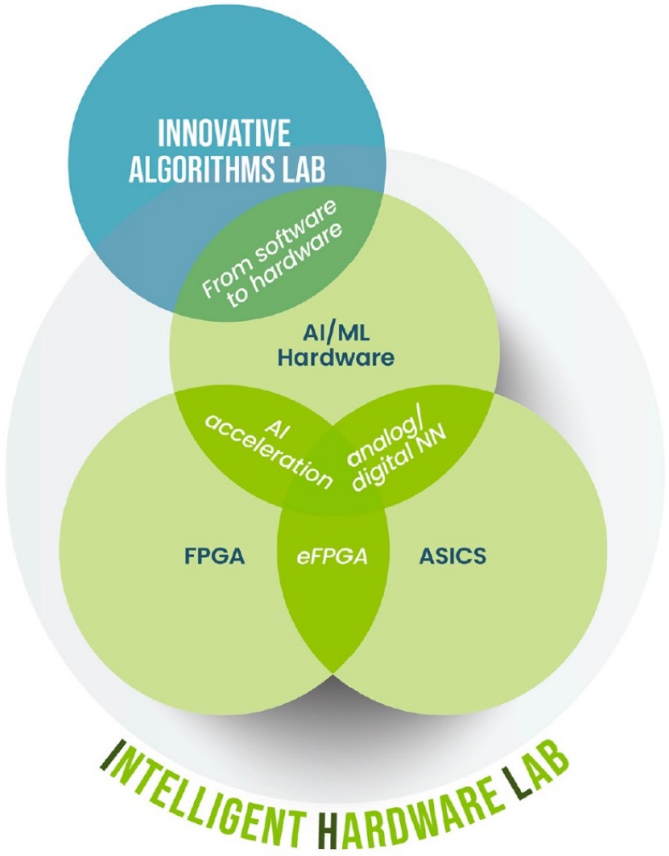
color meets flavor

Intelligent Hardware Lab
Vision and Objectives

uni-siegen.de

Qader Dorosti · IHL Kickoff Meeting

IHL Structure and Expertise Network



+ FPGA & electronics expertise at all CmF sites

From Existing Expertise to CmF Hardware Capability

Existing expertise

- ASIC and detector electronics
- FPGA/microelectronics know-how
- FZJ, FH Dortmund, Cologne Chip, INCYTE

IHL platform

- Fellows and common projects
- FPGA, EDA and design resources
- Training and shared development practice

Institutional capability

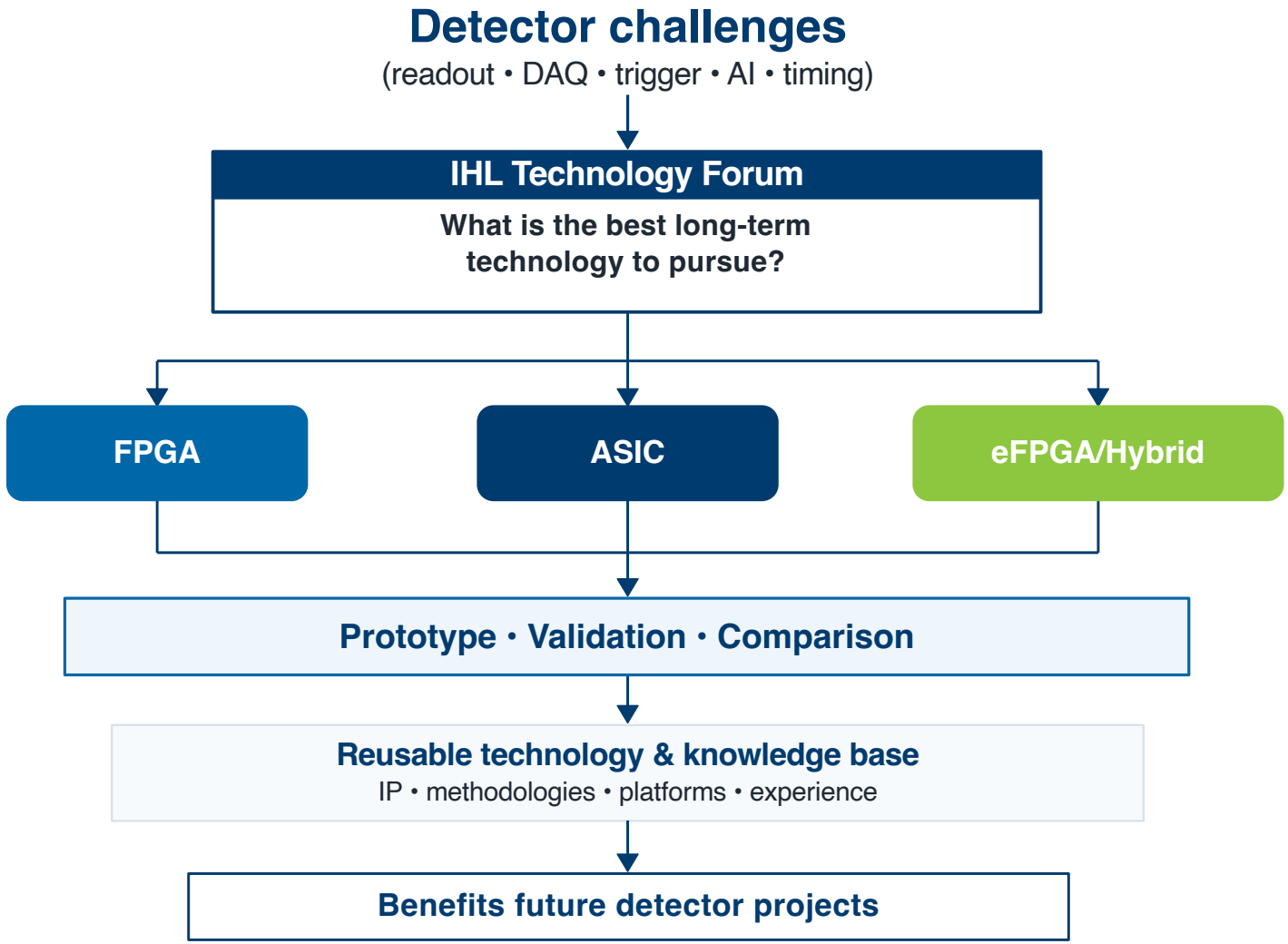
- Technical capability
- Organisational capability
- Infrastructure capability
- Innovative capability
- Community capability

IHL Support Areas and Enabling Resources

Project hardware support	DAQ firmware · FPGA deployment · ASIC adaptation
Reusable technology base	rad-hard IP · eFPGAs and microcontrollers · firmware and design blocks
Intelligent electronics R&D	eFPGA · AI/ML hardware · neural front-end ASICs · in-memory and analog design

Enabling resources: fellows · FPGA/EDA resources · design databases · test-chip access · open-source EDA/PDK training · clean room

Detector Challenges as a Driver for Hardware Innovation



Desired Outcomes of Today's Kickoff

Common direction

Shared understanding of the IHL mission

First activities

A few concrete projects to start

Building the IHL

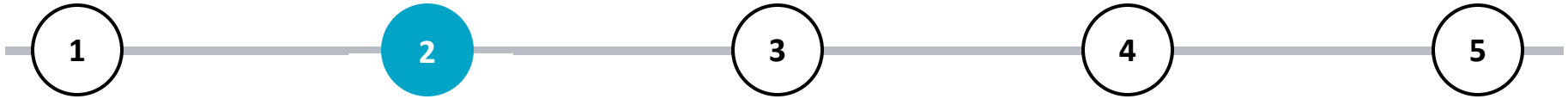
People, tools, infrastructure

Community

collaboration, training

Next steps

Responsibilities and follow-up

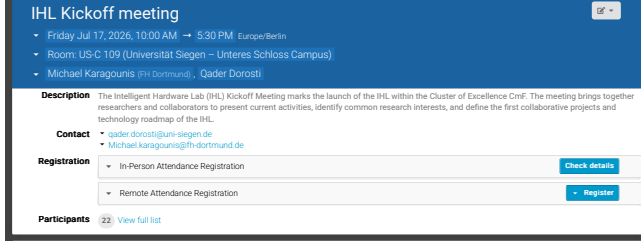


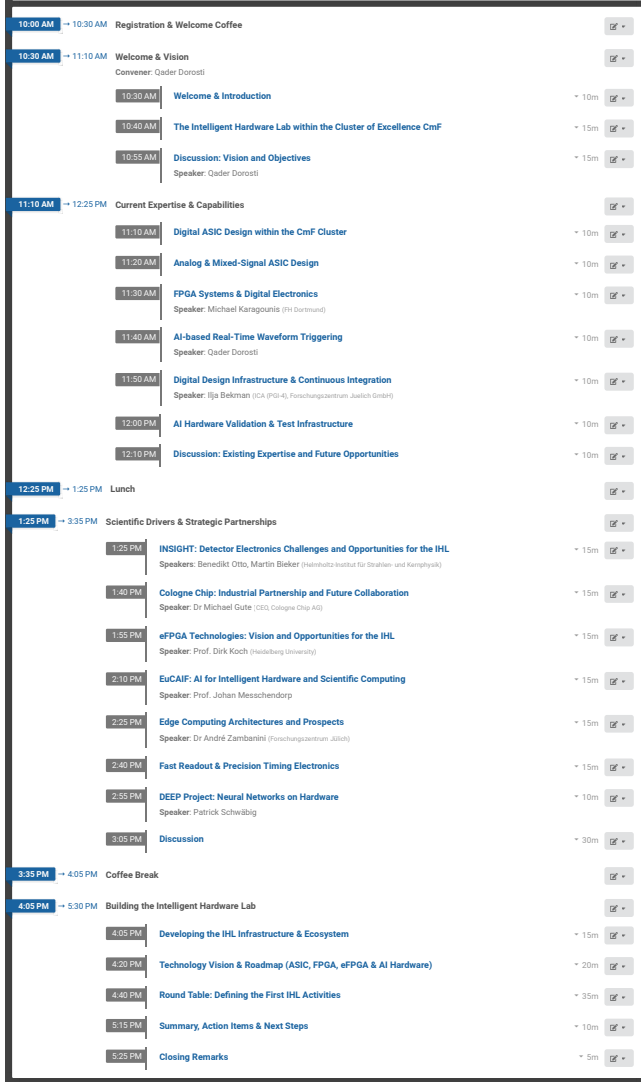
Success is leaving the meeting with a common direction and the momentum to build the IHL together

The Agenda

- At a glance
  - 29 registered participants
  - External speakers:
    - Michael Gude (Cologne Chip)
    - Dirk Koch (eFPGA / Jonas Künstier: Live Demo)
    - Johan Messchendorp (EuCAIF)
  - 3 discussion sessions

Morning: Expertise • Afternoon: Vision • Closing: Action





stay connected

Follow and join the IHL activities

IHL website

color-meets-flavor.de/research/intelligent-hardware-lab-ihl

- IHL overview
- Partners and structure
- Visible entry point

IHL mailing list

listen.uni-bonn.de/wws/info/cmf-ihl

- Announcements
- Training dates
- Project coordination

Next step: make IHL visible, reachable, and useful for the first CmF hardware projects.