2nd Annual Meeting

26th April 2023
Valencia

WP2
Communication, Outreach and Knowledge Transfer

Ana Rita Pinho (CERN), Anne Dabrowski (CERN), Beatrice Mandelli (CERN),
Antoine Le Gall (CERN), Antoine Laudrain (DESY)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004761.

Task 2.1 Work Package Coordination

Rita Pinho (CERN)

Objectives

- **Task 2.1. Work Package coordination**
  - Coordinate the WP.
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- **Task 2.2. Communication, dissemination and outreach**
  - Define and implement a communication strategy to address key stakeholders in particle physics.
  - Ensure the flow of information within the project (internal).
  - Report the results of the project to a wider audience (external).
  - Engage the detector community and industry to enhance societal impact of fundamental research.

- **Task 2.3. Careers of young detector scientists**
  - Enhance recognition, training and career opportunities for detector scientists.

- **Task 2.4. Industrial relations and Knowledge Transfer**
  - Promote co-innovation with industry to demonstrate societal impact of fundamental research.
  - Impact analysis of innovation aligned with UN Sustainable Development Goals.

Deliverables & Milestones

	Deliverable	Due date	Status
D2.1	Presentation video	M3	Achieved
D2.2	*Final report on career actions for young scientists*	*M47*	
D2.3	*Report on Communication, Dissemination and Outreach*	*M48*	
D2.4	*Impact Analysis*	*M48*	

	Milestones		Status
MS4	Launching of project website	M1	Achieved
MS6	Young Scientist Publication Committee	M15	Achieved
MS7	Analysis of innovations needed in markets and technologies	M12	Achieved
MS5	*Academia Meets Industry Symposium*	*M24*	*Tomorrow!*

Knowledge Transfer Network

- **Create a network of Knowledge Transfer Officers**
  - 46 beneficiaries, 35 academics;
  - Spreadsheet to be shared with beneficiaries to add the contact of the TT office of your organisation.

- <u>Future</u>:
  - KT workshop with the members of the network?

Synergies with Innovation Pilots

- **Contribute to the RI Innovation Coordination Group**:
  - Next joint meeting: discuss KT challenges and industry partnerships:
    - What has worked, and what could be improved;
  - Other topics for discussion: possible areas of cooperation cover technology transfer, models and schemes for cooperation with industry, standardisation of equipment, training, etc

- **Strength interaction with other innovation pilots:**
  - RI-Innovation Knowledge and Technology Transfer Network formed together with other pilots under the INFRAINNOV-04 call;
  - Discuss with **LEAPS and I.FAST representatives.**

How can you help?

- Are you a **WP leader?** Please find me at the end of the session, so I get to know you!

- Do you have a point of **contact in your Tech Transfer Office?** Please send it my way: ana.rita.pinho@cern.ch

- Do you have **ideas** on how we can strengthen the relationship with the other **Innovation Pilots**? Talk to us!

Task 2.2 Communication

Antoine Le Gall (CERN), Antoine Laudrain (DESY)

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Communication channels

Project website
aidainnova.web.cern.ch

Mailing lists,
including internal newsletter

External newsletter
On Track (quarterly).

Participants channels,
including social media

Events
Workshop, conference, nights

Communication over the past year

- **Market-innovation trends in Europe** -> Featured in CERN annual report and other publication.
- **Blue sky projects** (one article about each project).
- **Introduction to WP** (WP5 & DMAPS).
- **Publication committee** (explanation & advertisement).
- **Reports** (ICHEP 2022, European roadmap for detector R&D).
- **Announcement** (school + hackathon)

It is time to focus on **impact**.

Results/highlights
Task 2.2: Output

Logo and branding

Website
>4000 unique visitors
20 articles

MS4

Newsletter
>400 subscribers
5 issues

Introduction video
On CERN YouTube
>5000 views

D2.1

Publication targets

Objectives	AIDAinnova targets	P1 Report
Scientific dissemination	**180 publications** including 60 journal publications and 50 conference contributions	**26 publications** including 23 journal publications and 3 conference contributions
General communication and news	**10 articles** in newsletters and other communication channels	**39 articles** in newsletters and other communication channels (including 20 on the main website)
Other communication	N/A	**>20 presentations** at international physics workshops, 1 technical report, 2 posters

Communicating the Annual Meeting

- **During** the event:
  - **Social media kit**: image template (adaptable) and hashtags (#AIDAinnova; #H2020; @EU_H2020).
  - **Google Drive** to drop the pictures you took during the event.

- **After** the event:
  - Article reporting on the event.
  - Articles following contacts (sustainability, society, innovation & more!).

What can AIDAInnova do to build a more effective, engaging communication

A more effective, engaging comms

How can we help:

1. **Provide** a service Website updates, creation (flyer, poster, video, photo).
2. **Build** a story
3. **Disseminate** with general public (e.g. Pint of Science), detector community (e.g. comms workshop), among others **for recognition and funding.**

How can you help:

1. **Explain** your activity & find nice stories
2. **Coordinate** your communication with us
3. **Involve** your institute and the beneficiaries you work with

Task 2.3 Careers of young detector scientists

Anne Dabrowski (CERN) ,
Beatrice Mandelli (CERN), Antoine Laudrain (DESY)

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Results/highlights
Task 2.3: Platform for publication

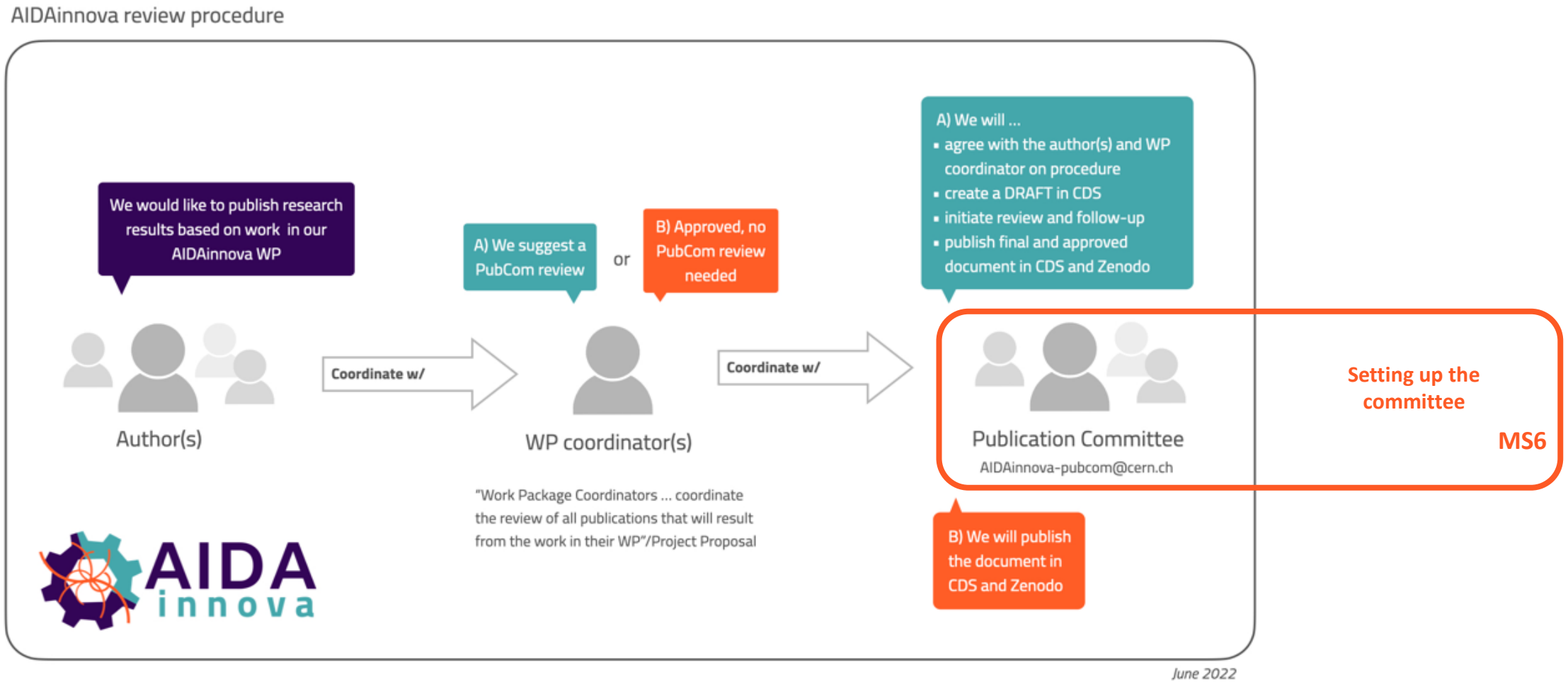
Publication committee set to ensure a well-structured peer-review process and publishing of AIDAinnova documents.

MS6

- **Junior:**
  - Camila Pedano (CERN)
  - Matias Senger (U. Zurich)
- **Senior:**
  - Brieuc Francois (CERN)
  - Anna Zaborowska (CERN)




Results/highlights
Task 2.3: Platform for publication



Input from Young Scientists

We need input on best initiatives to support the careers of young scientists.

Topics to be considered:

- opportunities for young scientists detector seminars;
- Competitive scholarships to attend the Annual Meeting:
  - One based on scientific results.
  - One based on outreach.
- opportunities for career or network events:
  - Team up with other events, e.g. LHC Networking Event
    - See whether detector Alumni are included.
    - Advertise job opportunities open inside AIDAinnova institutes
- support with publications;
- Training opportunities: careers, CV, soft skills, KT, IP, etc.
- mentoring.
- **Explore synergies with ECFA Young scientists community**

Thanks to Ivan and Sune for the excellent lectures!

Task 2.4 Industrial relations and Knowledge Transfer

Rita Pinho (CERN)

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Results/highlights
Task 2.4: Analysis of innovations

- **Aim:**
  - Provide insight into the innovation drivers of particle detectors.
  - Look at particle detectors technology trends by R&D area, by industry application.
  - Report on relevant policy-making initiatives in the EU and in the USA, focusing on semiconductors.
- **Methodology:**
  - Combination of market research, patent database analysis and market survey with AIDAinnova participants and industry.
- **Conclusion:**
  - Particle detector market expected to grow by 60% by 2028. Currently dominated by USA, Europe and Japan but with growth stalemate and innovation decrease.
  - Soon to be disrupted by China: fastest growing region for particle detectors, country with the most patent applications for particle detectors filed since 2016.
  - Innovation trends: Dominated by gas ionisation (42%) and scintillation detectors (31%); mostly aimed to medical applications.

MS7

Grant Agreement No: 101004761

AIDAinnova

Advancement and Innovation for Detectors at Accelerators

Horizon 2020 Research Infrastructures project AIDAINNOVA

MILESTONE REPORT

ANALYSIS OF INNOVATIONS NEEDED IN MARKETS AND TECHNOLOGIES

MILESTONE: MS7

Document identifier:	AIDAinnova-MS7
Due date of milestone:	End of Month 12 (March 2022)
Report release date:	17/05/2022
Work package:	WP2: Communication, Outreach and Knowledge Transfer
Lead beneficiary:	CERN
Document status:	Final

Abstract:

This report provides an overview of market-innovation trends of particle detectors, both by technology and by market application, as well as a summary of key policymaking initiatives that will impact the market. The methodology used in the first section is a combination of market research, patent database analysis, and market survey with AIDAinnova participants industry participants. The second part of the report summarises recent policymaking initiatives affecting the market, with a particular focus on semiconductors.

Results/highlights

Task 2.4: 1st Academia meets Industry event

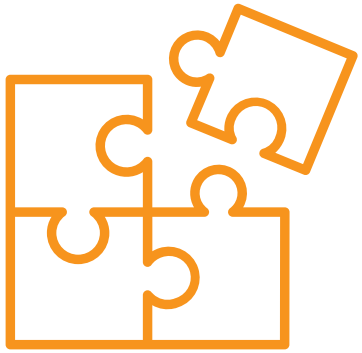
- **Aim:**
  - Fostering synergies between detector R&D programmes of AIDAinnova members and the industry;
  - Creating awareness of strategic R&D topics in academia and of strategic industry needs for which industry-academia collaborations could be envisaged.
- **Theme:** Advanced Mechanics.
- **Programme:**
  - Technical talks by industry and academic partners;
  - Industrial exhibition for industrial partners;
  - Network cocktail reception.
- **Location:** Valencia, Spain.
- **Date:** tomorrow!

MS5

What else?

- **Knowledge Exchange Workshops with Industry and other scientific communities:**
  - 1 “Academia Meets Industry” event - happening tomorrow
  - 1 workshop (e.g. with other TT offices) - tbd
  - 1 event (e.g. another academia meets industry in the next annual meeting our roundtable with industry on needs and how our technologies might help)- tbd

- **Technology Disclosure Forms (target is 5)**
  - Some of the info requested: description of the technology, the problem that it addresses, potential applications outside HEP, how it compare to the state of the art, maturity, etc
  - Value propositions of the main results per WP?
    - Description of key technological advancements
    - Applications beyond HEP
    - Target markets and costumers



Impact analysis

Ideas for the future:

- Interview with WP leaders on AIDAinnova developments:
  - exploitable foreground;
  - & lessons learned from industry partnerships;
  - that target the UN SDGs;
    (synergies with comms task)

- Report mapping the economic and commercial impact, as well as technological, environmental, social and cultural impacts following UN SDGs (D2.4)

Suggestions?

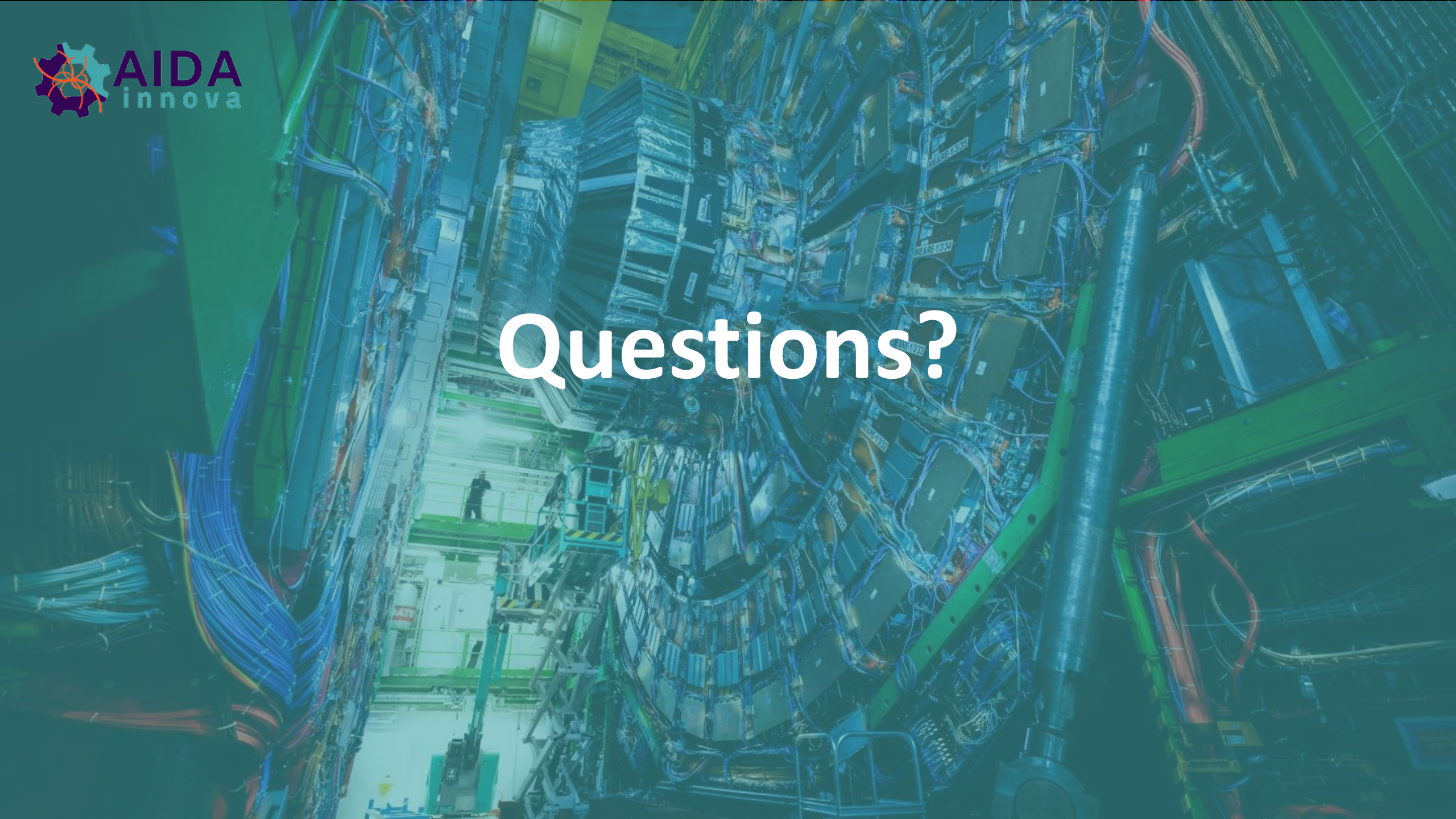
How can we help you?

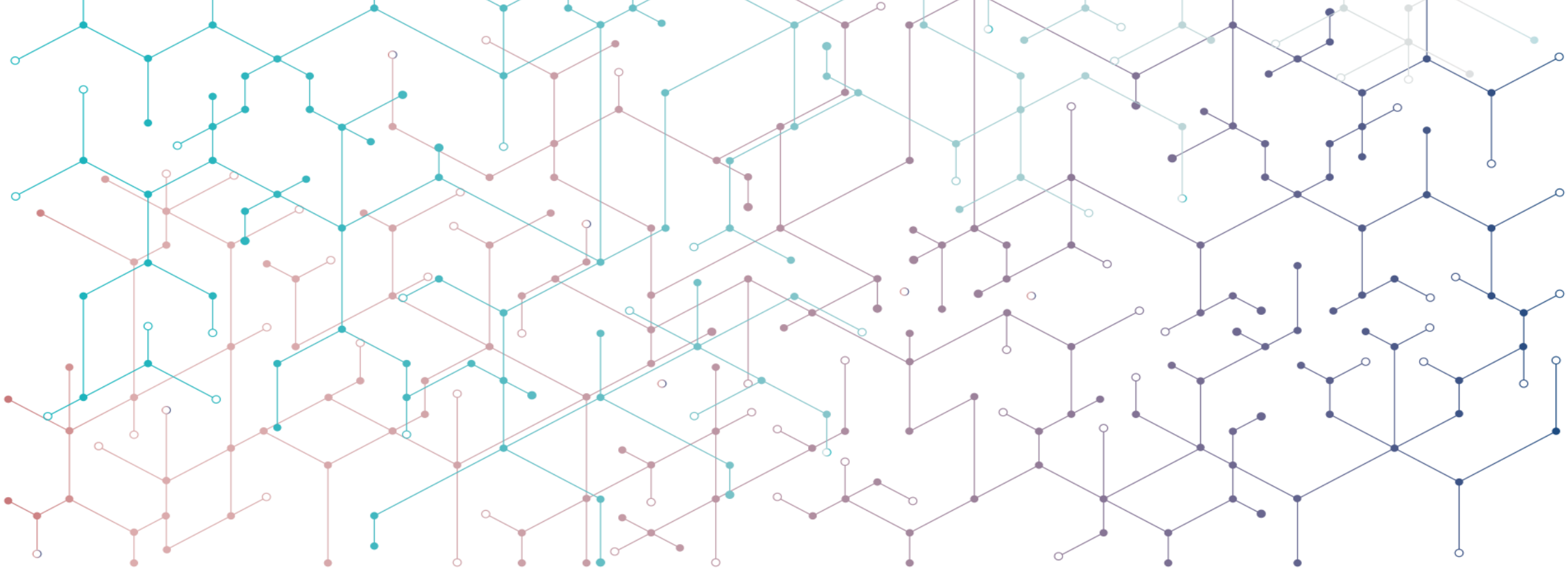
- Do you have IP related questions?
- Are you developing a technology with a company?
- Do you believe your technology has the potential to be used outside HEP?
- Do you have a piece of work you would like to communicate about publicly?
- Do you foresee an impact of your developments in the UN SDGs?
- Are you a young career researcher and would like to benefit from the community?
- Are you looking for opportunities to present and publish your work?

WP2 is here to support you!

Please bear in mind that all we do **aims to maximise the impact of your research** ☺

(Don't forget to acknowledge AIDAinnova, and reach out to Sabrina once you have a new publication)


AIDA
innova
Questions?



BONUS Slides

Particle detectors: innovation-market trends

Market and innovation trends

Particle detectors technology trends

By R&D area
By industry application

AIDAinnova insights

Relevant policy-making initiatives

European Union
United States

Methodology

Market Report

Market trends

Questionnaire

Insight from AIDAinnova consortium

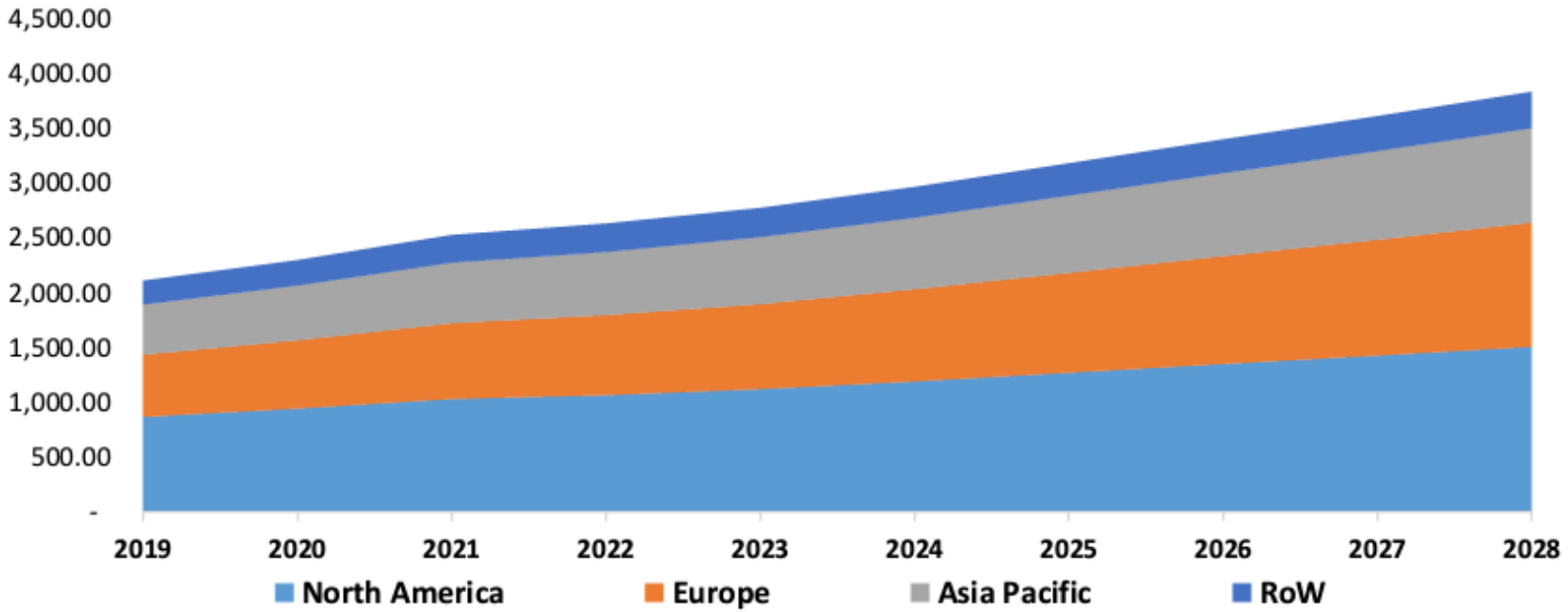
Patent Landscape

Innovation trends

International Policies

Initiatives in EU and USA

Market & innovation trends – global markets



Global particle detectors market (in USD), by geography (2019-2028)

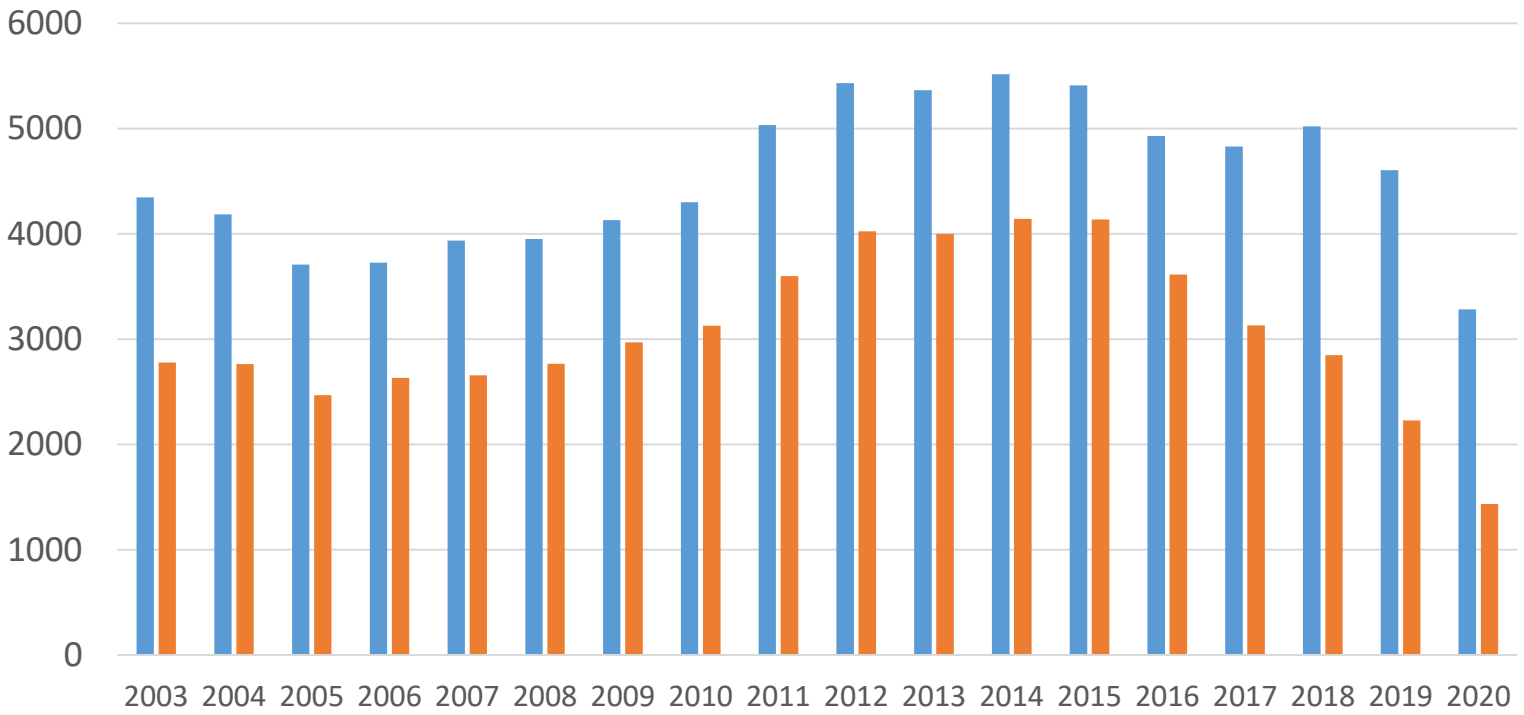
Over 2.3 B in 2020

☑ to 3.8 B in 2028

USA > Europe

Asia has fastest ☑

Market & innovation trends – global patents



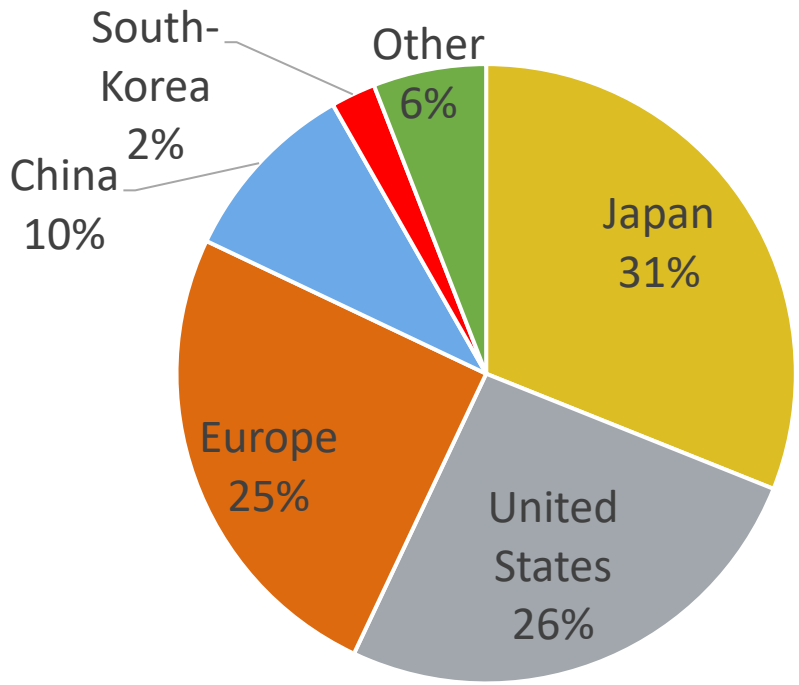
Number of patent applications and granted patents under IPC class G01T, worldwide, by year

in 2005-2014

2015 onwards

Overall stagnation

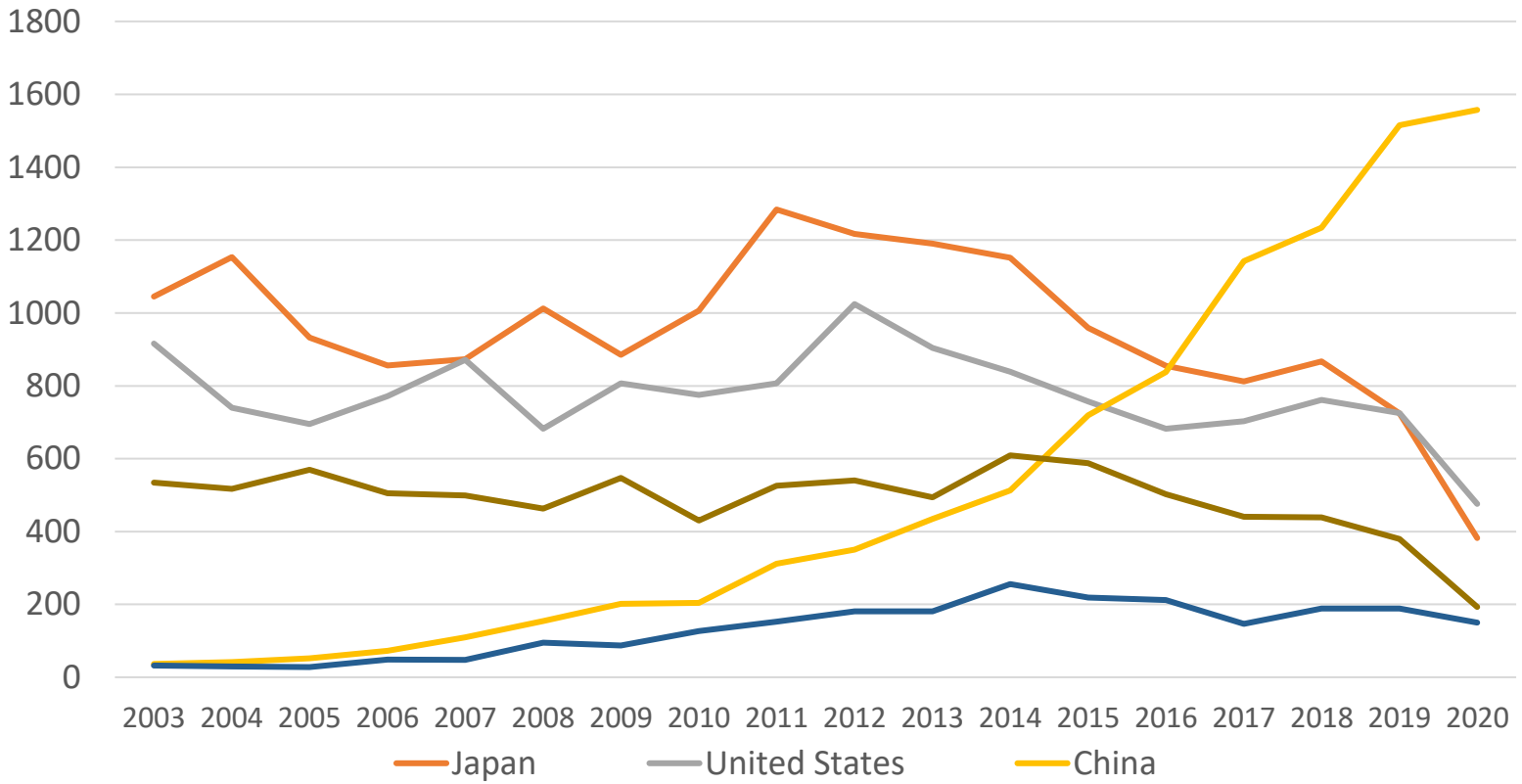
Market & innovation trends – patents by region



- Japan
- USA
- Europe

Geographical origin of patent applications under IPC class G01T, 2003-2020

Market & innovation trends – patent trends by region



Number of patent applications under IPC Class G01T, per country of origin, by year

China ↗

RoW ↘

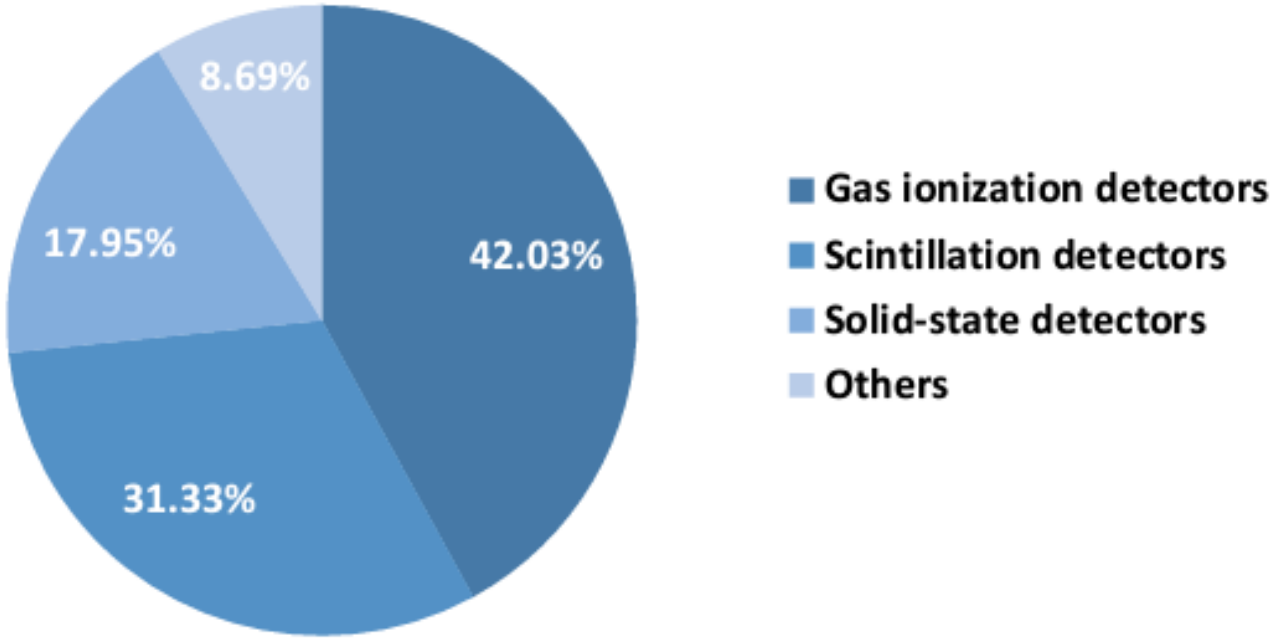
Market disruption

↓

Innovation is needed

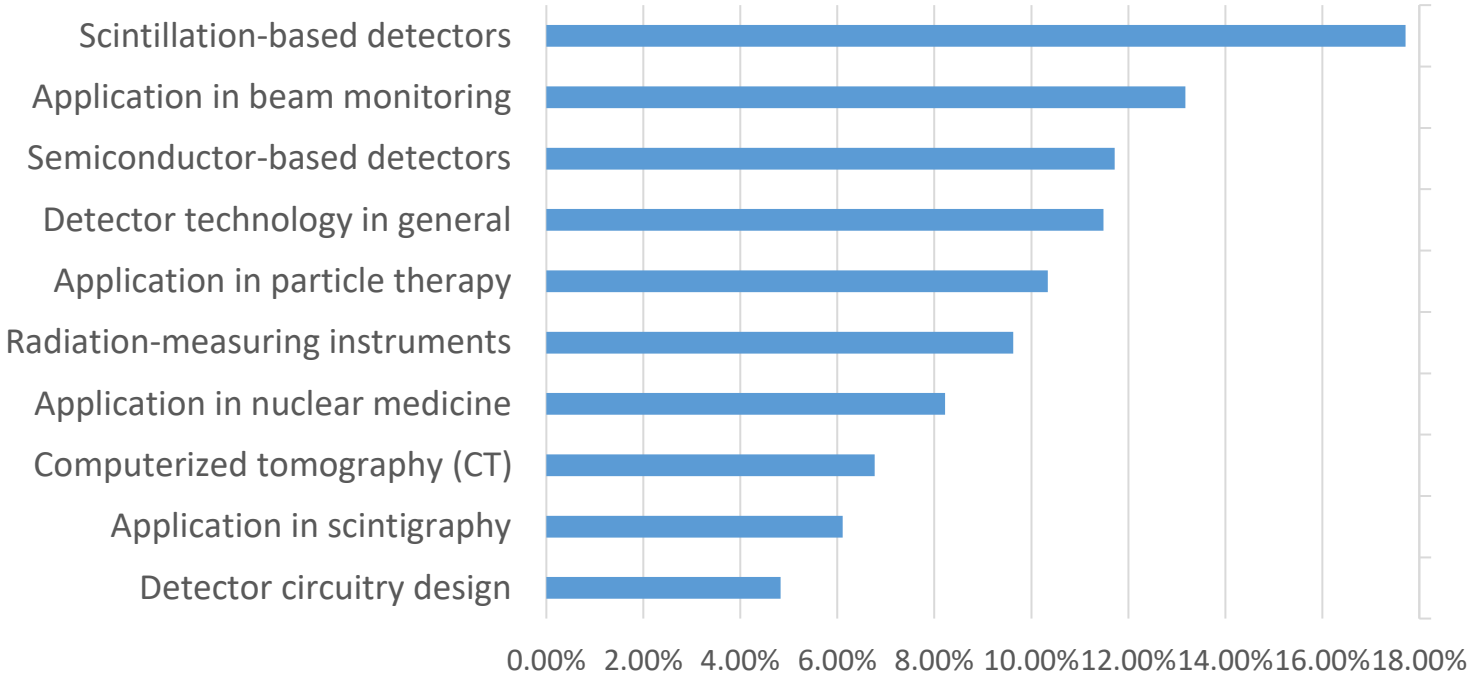
in Europe!

Market share, by R&D area



Market share by detector type, 2020

Innovation, by R&D area

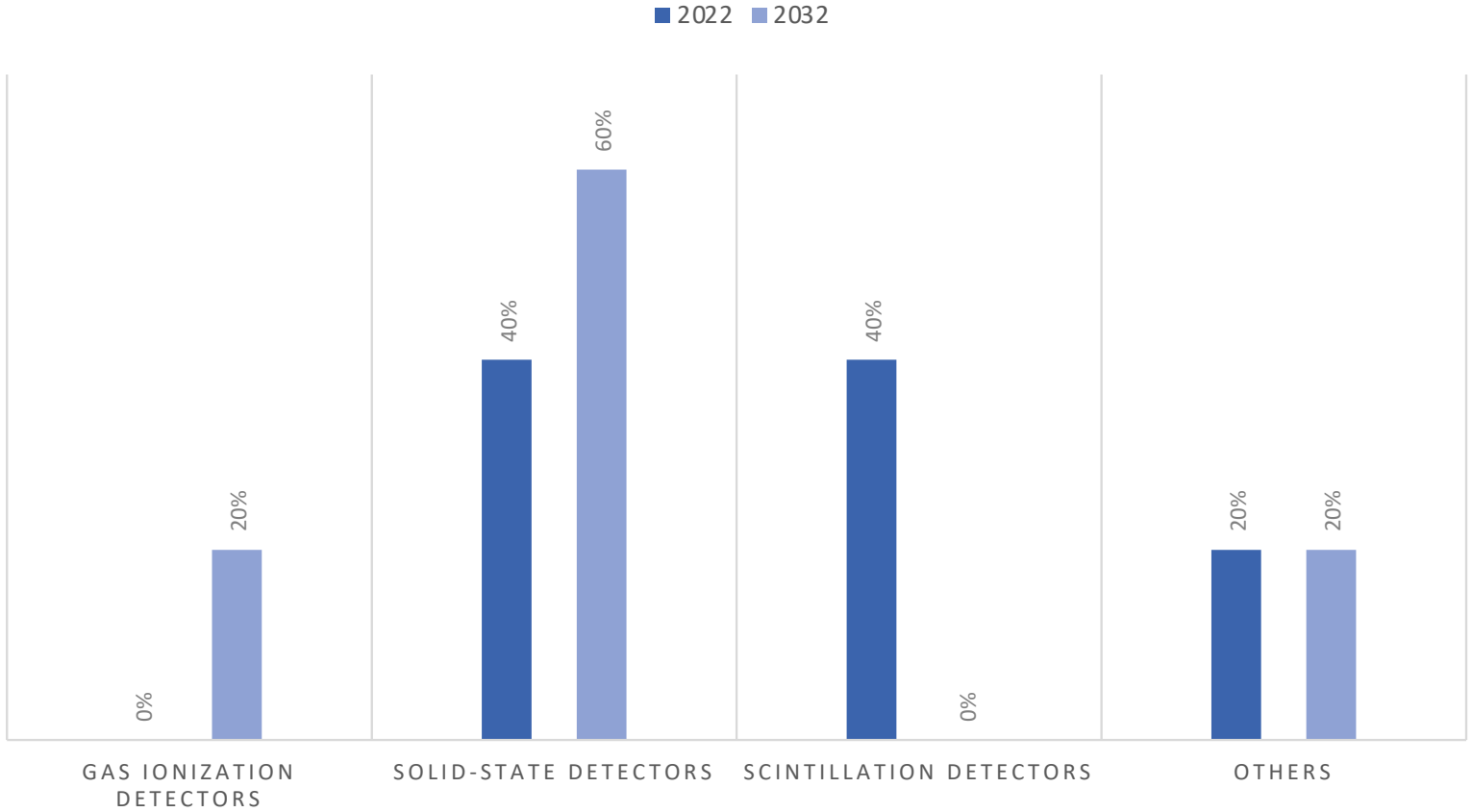


Proportion of granted patents per subclass, filed under IPC class G01T, 2003-2020

Societal importance:

- Nuclear medicine
- CT
- Scintigraphy

AIDAinnova insight. by R&D area



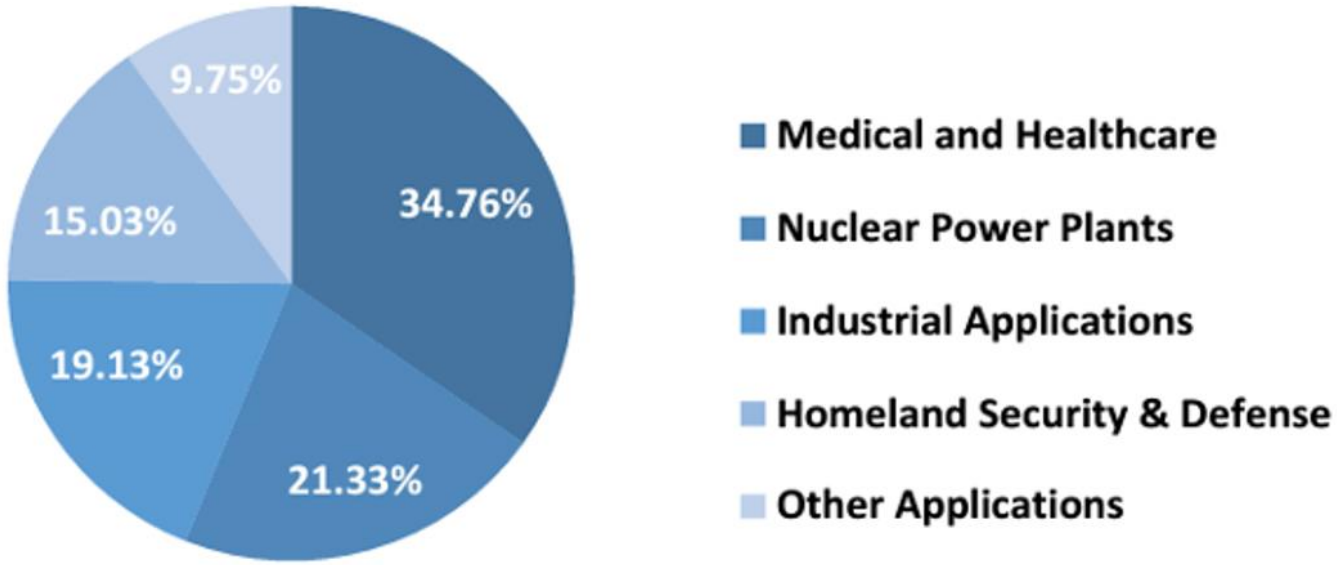
Solid-state

SS and Gas

Scintillation

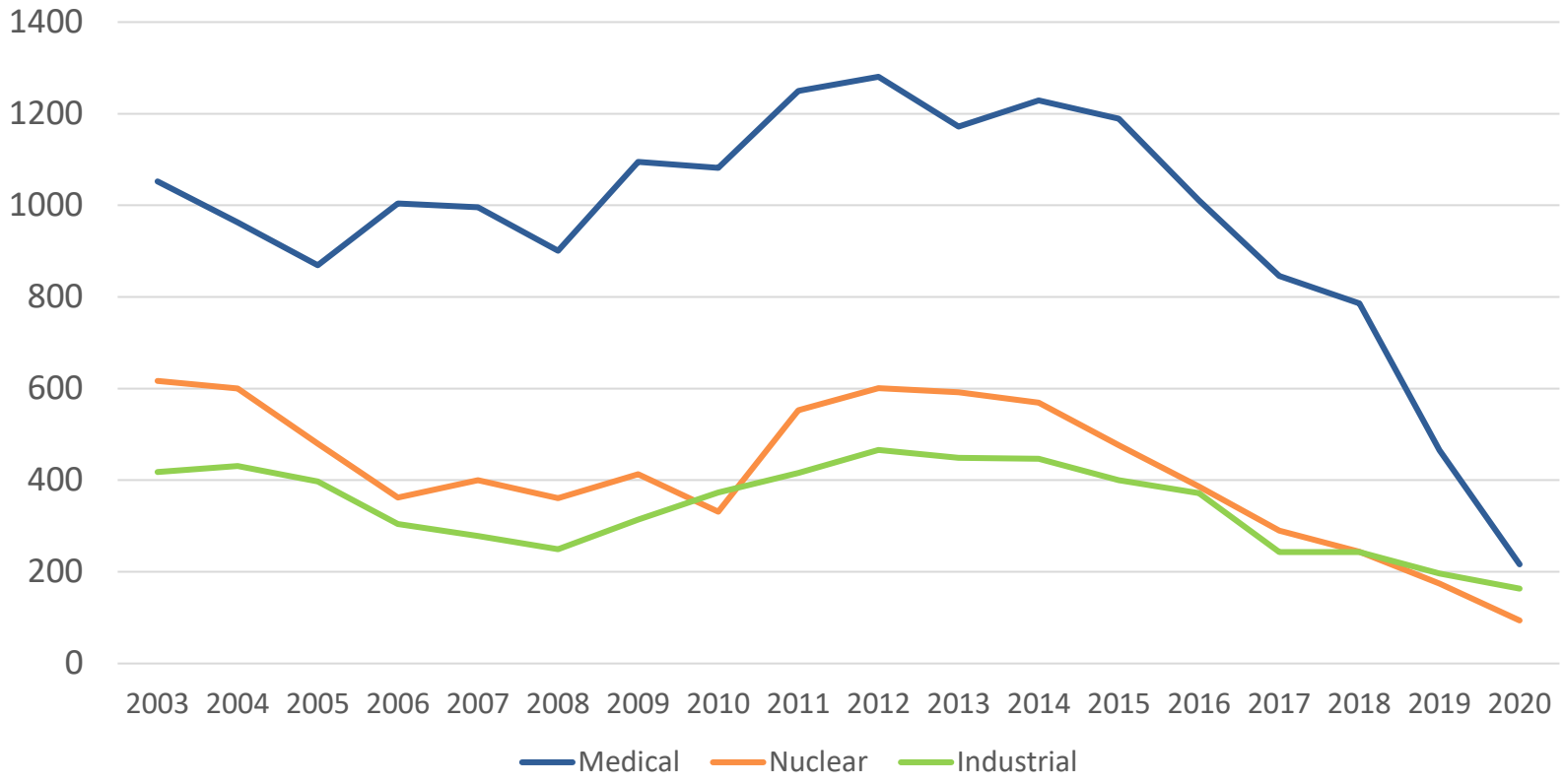
AIDAinnova survey responses for detectors market share, from 2022 to 2032

Market share, by industry application



Market share by application, 2020

Innovation, by industry application



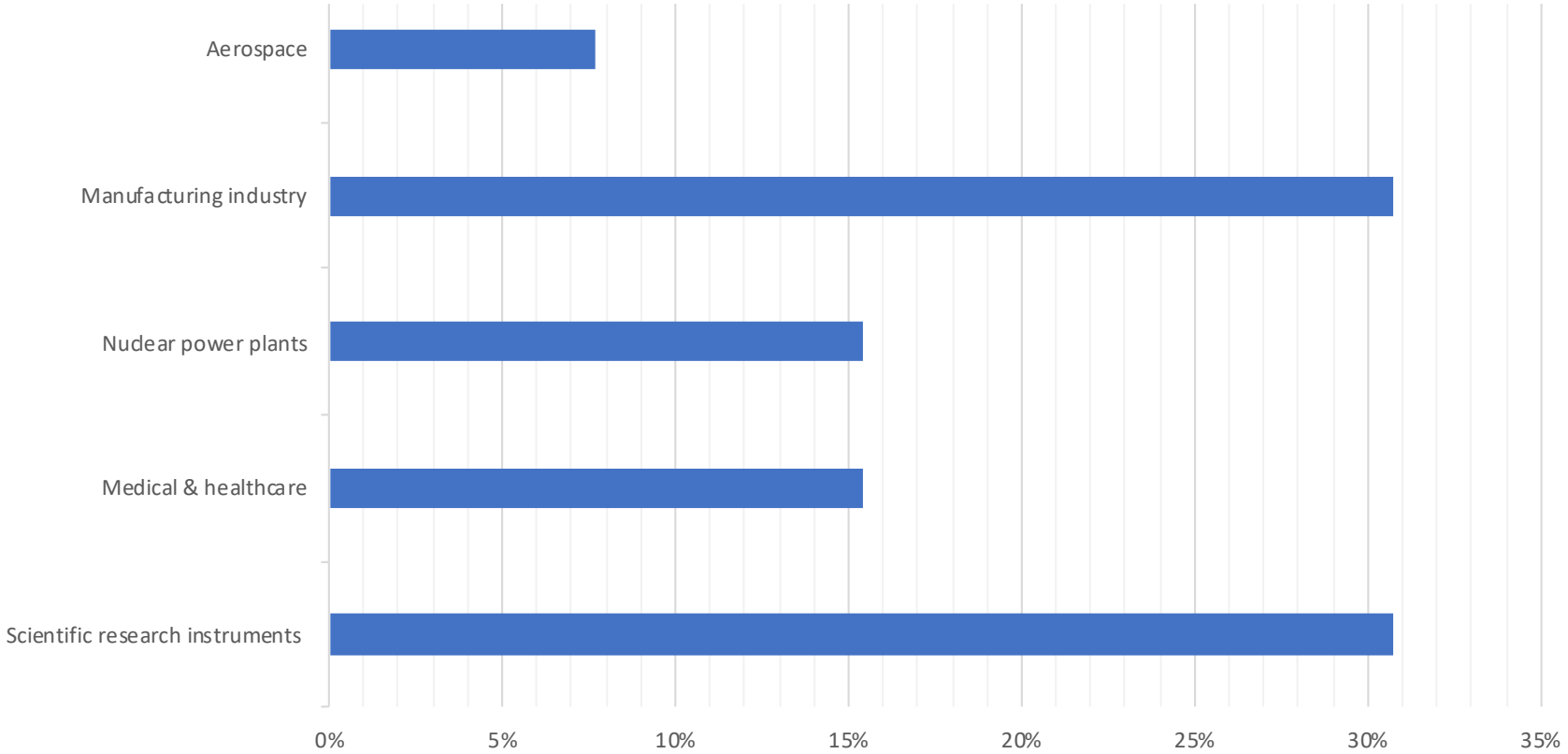
Number of patent applications under IPC Class G01T, by industry

Medical

Main sectors

Efforts in innovation tied to market growth

AIDAinnova insight, by industry application



1 Manufacturing

1 Instrumentation

2 Medical

2 Nuclear

3 Aerospace

AIDAinnova survey responses for industry prelevance, 2022

Policymaking initiatives – focus on semiconductors

EUROPEAN UNION

- EU only 10% of overall semiconductors market share in 2019
- World semiconductors shortages > car production decreased by 1/3 in EU countries

European Chips Act (2022)
→ EU market share to 20% in 2030

September 2021, State of the Union Speech

Policymaking initiatives – focus on semiconductors

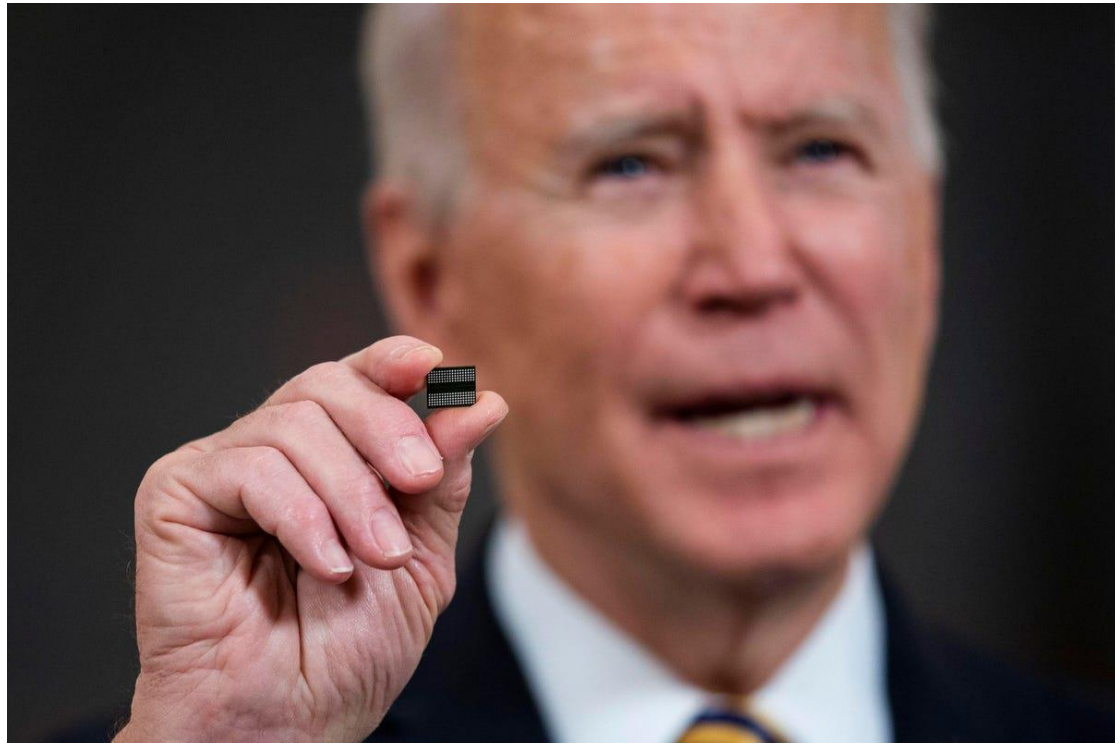
UNITED STATES

- US market share fell from 40% in 1990 to 12% in 2020

US congress concerns:

- Access to secure semiconductors for military systems
- China's emerging strength in semiconductors
- US reliance on global supply chain

CHIPS for America Act (2021)



February 2021, White House executive order on economy

Policymaking initiatives – focus on semiconductors

European Union

- Chips for Europe Initiative: €11billion to finance R&D & manufacturing capacity up to 2030
- Chips Fund: €2billion private equity funding for startups and scaleups in the supply chain
- New enhanced manufacturing framework : production facilities (Open EU Foundries)
- European Semiconductors Board: coordination mechanism to monitor the supply of semiconductors

United States

- Funding programme USD 50 million for 2021-2025 for R&D, testing and manufacturing
- Multilateral Microelectronics Security Fund: USD 750 million to support the development of secure supply chains
- Investment tax credits for manufacturing facilities based in the US
- Funding USD 15 billion for advanced microelectronic packaging and general semiconductors' research