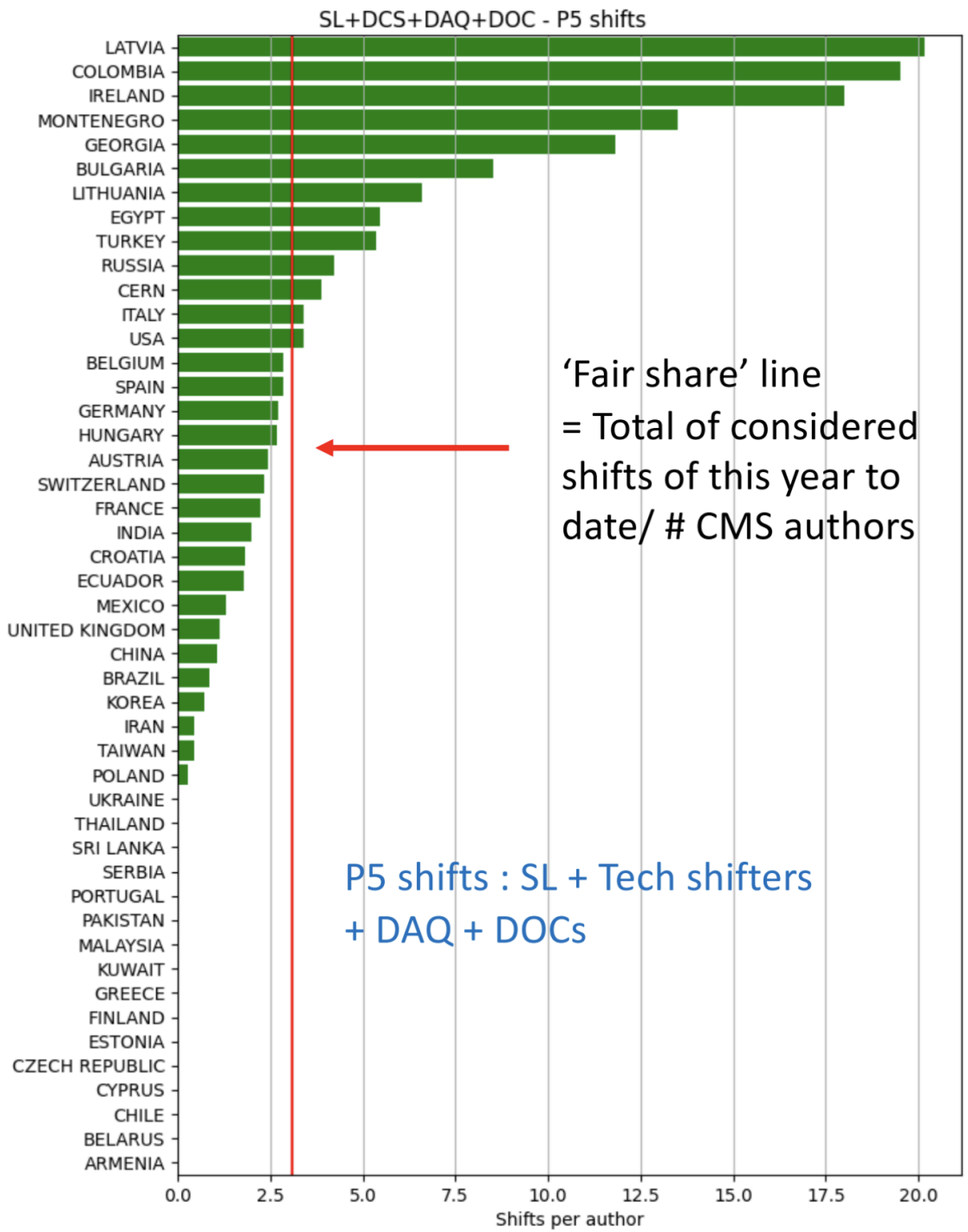
LATVIA - CERN: STATE-OF-PLAY

Prof. Toms TORIMS
CERN National Contact point of Latvia

CERN Baltic Group General Meeting, 22.03.2024

researchLatvia
Value Through Knowledge

Latvia is reliable and honest partner of CERN


SL+DCS+DAQ+DOC - P5 shifts
LATVIA
COLOMBIA
IRELAND
MONTENEGRO
GEORGIA
BULGARIA
LITHUANIA
EGYPT
TURKEY
RUSSIA
CERN
ITALY
USA
BELGIUM
SPAIN
GERMANY
HUNGARY
AUSTRIA
SWITZERLAND
FRANCE
INDIA
CROATIA
ECUADOR
MEXICO
UNITED KINGDOM
CHINA
BRAZIL
KOREA
IRAN
TAIWAN
POLAND
UKRAINE
THAILAND
SRI LANKA
SERBIA
PORTUGAL
PAKISTAN
MALAYSIA
KUWAIT
GREECE
FINLAND
ESTONIA
CZECH REPUBLIC
CYPRUS
CHILE
BELARUS
ARMENIA
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Shifts per author
‘Fair share’ line
= Total of considered shifts of this year to date/ # CMS authors
P5 shifts : SL + Tech shifters + DAQ + DOCs

Latvia - CERN strategy

Publicly available, including its English translation

- Approved by Government in Dec 2022
- Has very clear and detailed implementation plan
- Is being successfully **coordinated** by CERN National Contact Point of Latvia and **implemented by all** involved parties
- Is benefiting from **comprehensive** public **funding** mechanism and **stakeholder engagement**
- The main **goals are** being **steadily assured**
  1. Meaningful and coordinated participation of Latvia at CERN in the Associate Member state status
  2. To become Full Member state within 2-3 years

researchLatvia
Value Through Knowledge

I.

Meaningful and coordinated participation of Latvia at CERN in the Associate Member state status

Where Latvia is today?

Meaningful and coordinated participation of Latvia at CERN

1. Benefiting from the **opportunities** at CERN – in the best possible way and at all levels
2. Providing sustainable contribution in attaining the **State priorities** in education, science, economic development and R&D
3. To foster environment of the **scientific excellence and industrial leadership**
4. To concentrate available and to attract new **human resources** / to use strategically available **financial instruments**
5. Within the next years to achieve "**well balanced country**" status and to ensure **60/40 proportion** for scientific HR / industrial return

Where Latvia is today?

Benefiting from the **opportunities** at CERN – **in the best** possible **way** and **at all levels -** *participation and contribution*

1. Consortium (RTU+LU) in the **CMS experiment – since 2017**
2. Consortium (RTU+LU) in the **MEDICIS experiment – since 2020**
   - The European medical isotope programme: Production of high purity isotopes by mass separation (**PRISMAP**) project **– since 2021**
3. LU in **AEgIS** experiment **– since 2021**
4. LU in **ISOLDE** experiment **– revitalised in 2023**
5. Participation of the RTU in CERN **accelerator technology projects**
   - Future Circular Collider (**FCC**) **– since 2015**
   - International Muon Collider Collaboration (**IMCC**) **– since 2023**
   - Next Ion Medical Machine Study (**NIMMS**) project **– since 2019**
   - Innovation Fostering in Accelerator Science and Technology (**I.FAST**) project
   - Heavy Ion Therapy Research Integration plus (**HITRIplus**) Project **– since 2021**

Where Latvia is today?

Benefiting from the **opportunities** at CERN – **in the best** possible **way** and **at all levels** - *Where you can physically find Latvia @CERN?*

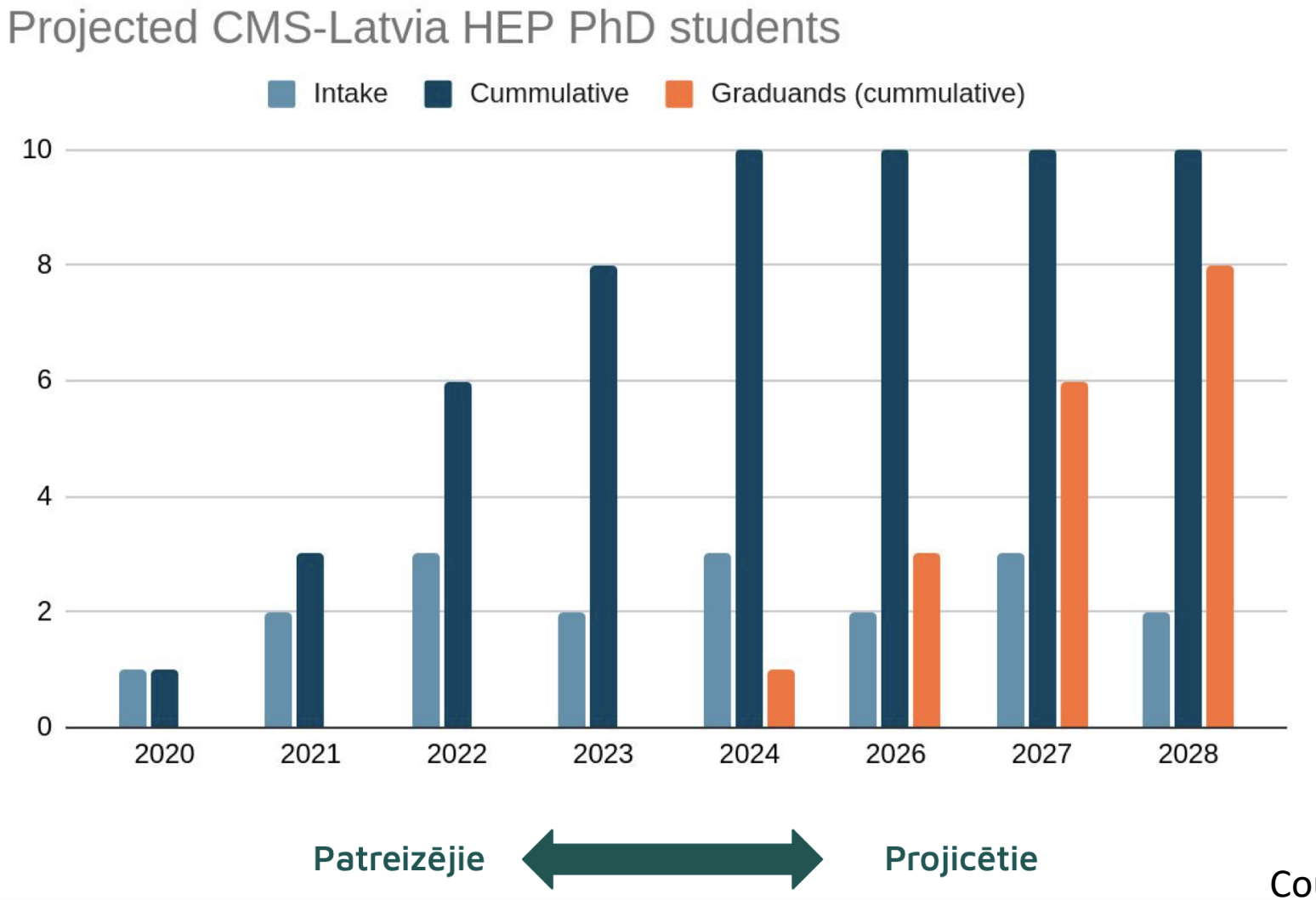
1. Latvia Accelerator Technology team is fully integrated within CERN
   - ATS-DO and @Kamchatka
2. Close collaboration with Groups at CERN: Beams; Cryogenics and Vacuum
3. Leading role in CMS MTD and BTL in particular
   - CMS Tracker Integration Facility (TIF)
4. CMS and CMS Technical Coordination – @B40, @Prévessin site and Point5
5. AEgIS experiment – @Antimatter Factory
6. MEDICIS experiment - @ISOLDE/MEDICIS
7. + groups in Latvia @Riga Technical University and University of Latvia + Tier2 federative partners

Where Latvia is today?

Benefiting from the **opportunities** at CERN – **in the best** possible **way** and **at all levels – reminder – Latvia joined CERN in Aug 2022!**

1. CERN **Doctoral** Student Programme (DOCT) – 7
2. CERN – Latvia **Doctoral** Programme – 100% paid by Latvia - 4 so far
3. CERN **Technical** Student Programme (TECH) - 1
4. CERN **Summer** Student Programme (2+2 every year) – 20 since 2013
5. **Internship** at CERN (STAG programme) – 1
6. Participation in CERN **Graduate** Programmes
   - Early-Career Professionals
   - Project Graduates (GRAD) - 1
   - Research Fellows (FELL) – 4
7. CERN (**STAF**) - 5 staff

Where Latvia is today?



Courtesy of K.Dreimanis

Where Latvia is today?

- To concentrate available and to attract new **human resources** / to use strategically available **financial instruments – 2M+/annum + ILO costs**
- To foster environment of the **scientific excellence and industrial leadership**

1. National **Research Programme** "High-Energy Physics and Accelerator Technologies" **– 300 000 EUR in 2024 – will be doubled at least**
2. CERN **membership** payments **– 1.066 250 CHF in 2024**
3. Comprehensive **public funding** package **- 950 788 in 2024**, of which
   - participation in CERN experiments **– 511 282 EUR**
   - CERN National Contact Point, incl. Outreach and education activities **– 339 506 EUR**
   - Tier2 Computing Center **– 100 000 EUR**

researchLatvia
Value Through Knowledge

State Research Programme

Strengthening the development of the Latvian scientific community in the field of **high-energy physics** and **accelerator technology** in cooperation with the CERN

Programme call (2020-2022)
to be finalized 31.10.2022

900 000 EUR

Project leader: RIGA TECHNICAL UNIVERSITY

Project partners: UNIVERSITY OF LATVIA

INSTITUTE OF SOLID STATE PHYSICS
UNIVERSITY OF LATVIA

- Develop world-class knowledge
- Develop human capital & technologies
- Create products & services
- Involve scientific & academic staff, students, PhD applicants & young scientists

Programme call (2022-2026)
to begin implementation **Autumn 2022**

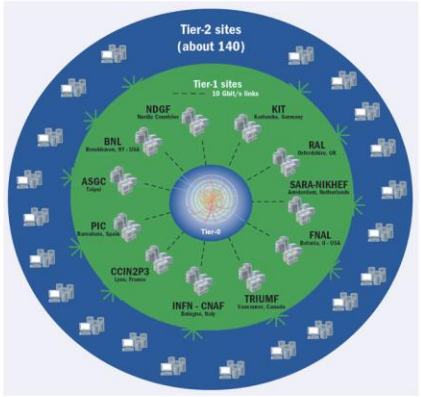
1 500 000 EUR

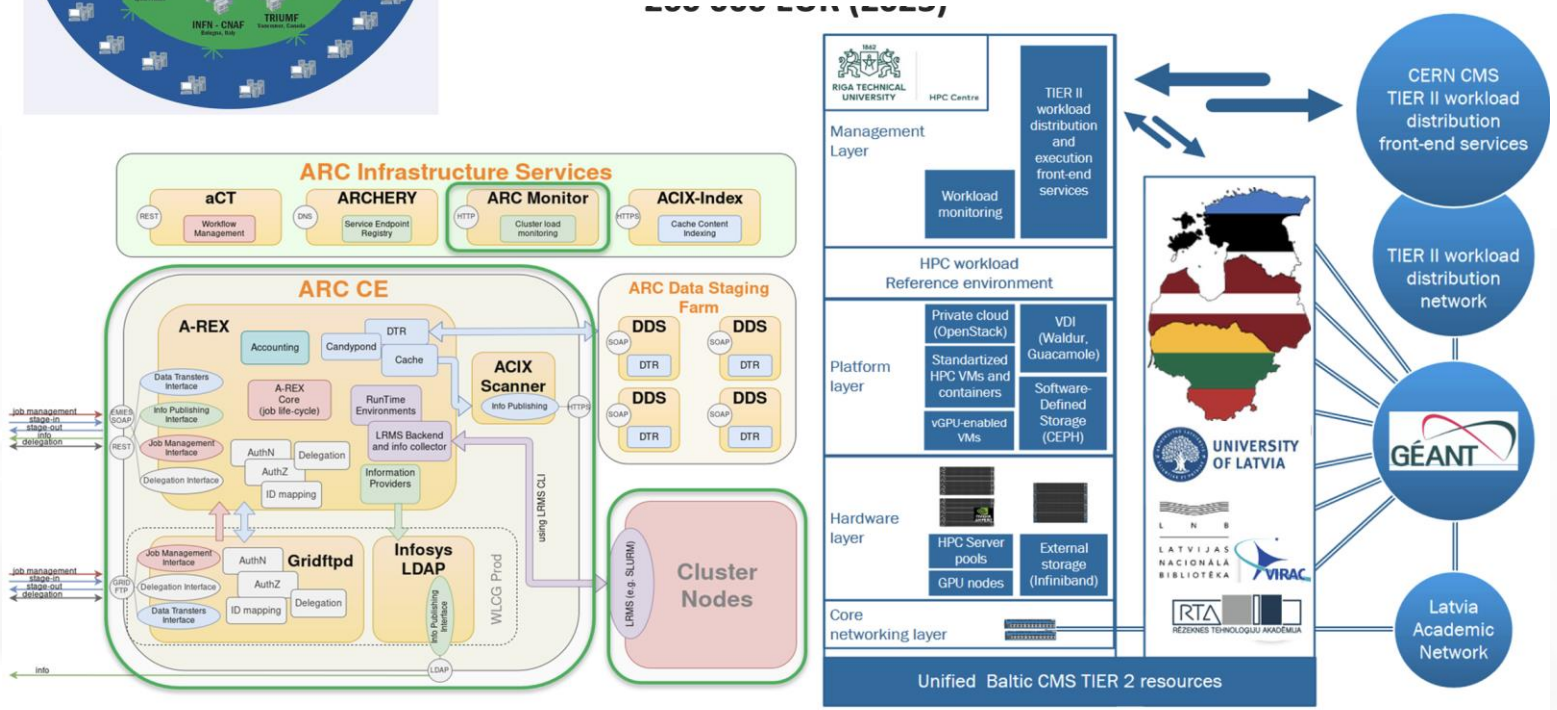
Eligible participants of the open call:

Research organizations, public organizations. Several partners must be involved

- Ensure the programme's continuity
- Foster research capacity

Where Latvia is today?





Where Latvia is today?

Providing sustainable contribution in attaining the **State priorities** in education, science, economic development and R&D
Outreach / annual activities – fully paid by Latvia

There were 1000+ LV nationals visiting CERN

1. "**shadowing**" of the LV scientific and technical personnel at CERN - 31
2. High School pupil visits to CERN - 49
3. Pupil visits to CERN – the **School of Young Physicists** - 3
4. The **TechGirls** visits to CERN - 4
5. Master and doctoral students (groups) **educational visits** to CERN - 65
6. Participation in the **CERN Teacher Programme** – 100+ teachers

Where Latvia is today?

Providing sustainable contribution in attaining the **State priorities** in education, science, economic development and R&D

Outreach / annual activities – fully paid by Latvia

1. CERN **permanent exposition** in the LV National Library – inauguration
2. i.e. lecture course for the RSU Doctoral students: "Particle Physics technologies for the health care" – ongoing

+ active at

- CERN Teacher and Student Forum
- CERN 70

Where Latvia is today?

Within the next years to achieve "**well balanced country**" status and to ensure **60/40 proportion** for scientific HR / industrial return

1. CERN based ILO as of Feb 2024
2. Fulfilment and coordination of the ILO functions with the LV scientific and technical groups at CERN
3. CERN Latvia Liaison Committee

+ active at:

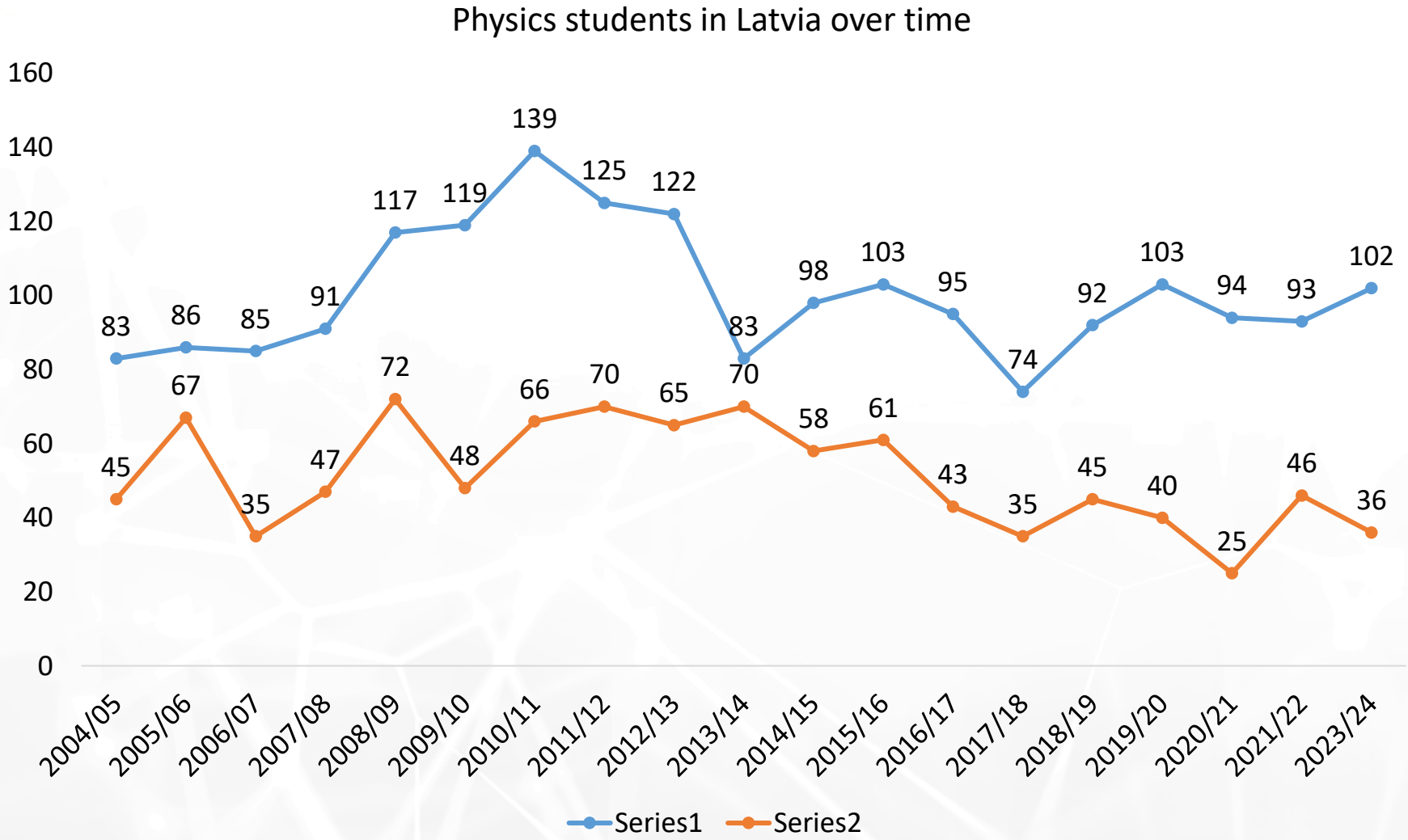
- CERN ILO forum
- CERN KT forum
- etc.

Where Latvia is today?

Providing sustainable contribution in attaining the **State priorities** in education, science, economic development and R&D
- To promote collaboration between Latvia and CERN, scientific groups and entrepreneurs

1. CERN **Latvia** (stakeholder) **Group** and close link with Latvian **staff at CERN – 14th meeting will be held in Apr @CERN**
2. Joint **doctoral study programme** "Particle Physics and Accelerator Technologies" by the RTU and LU **– up and running – thanks to CBG!**
3. Federated **Tier-2** CERN/CMS computing centre – inauguration
4. **Institute of Particle Physics and Accelerator Technologies – up and running**

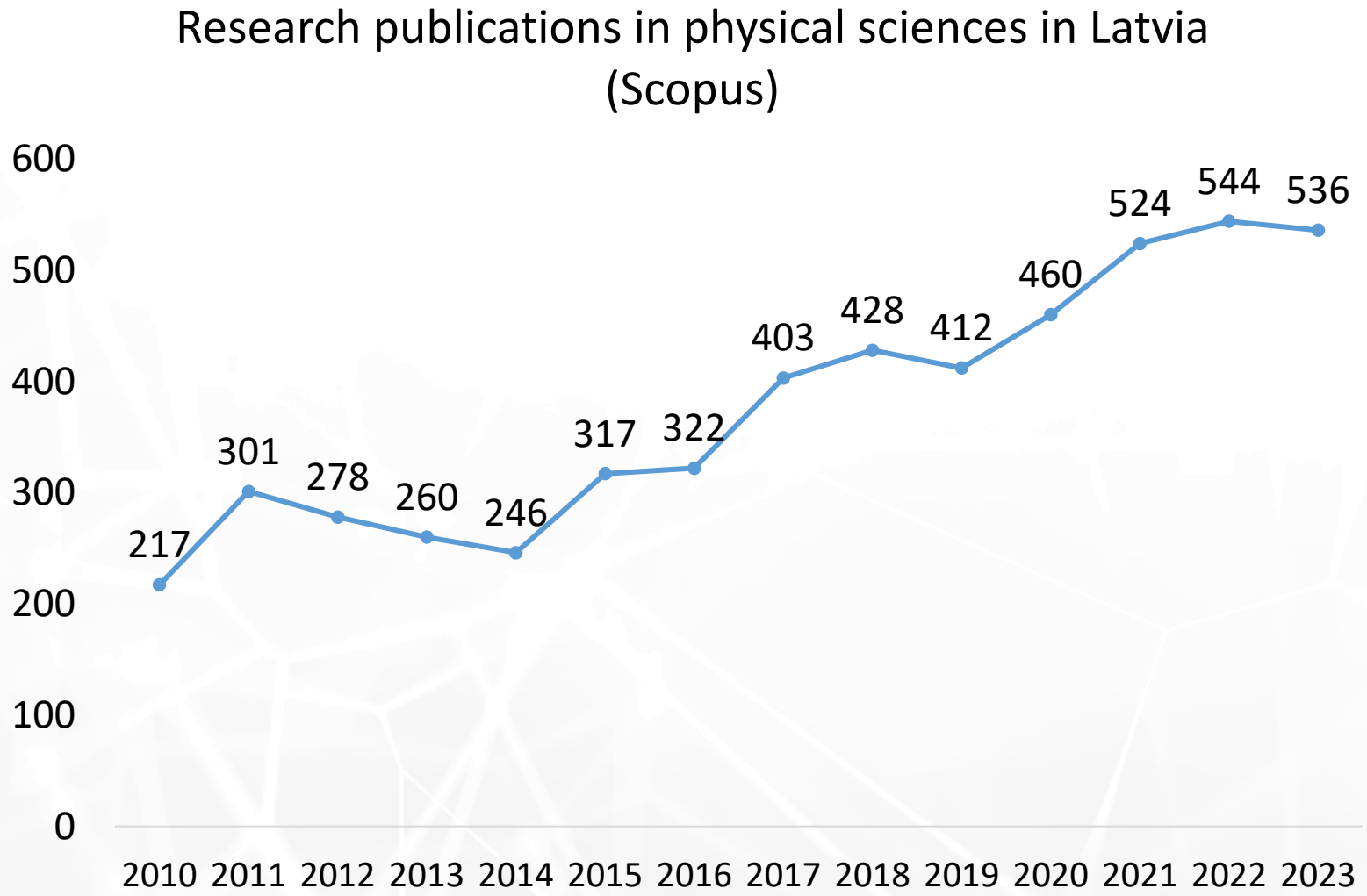
Overall dynamics of physics higher education in Latvia



Sensitive to demographic factors.

Increased enrollment since 2017 (positive effect from CERN)

Overall dynamics of physics research in Latvia



Physics research output has doubled since 2014

It amounts to 16% of total research output in Latvia

researchLatvia
Value Through Knowledge

II.

To become Full Member state within 2-3 years

Where Latvia is today?

Engagement of decision-makers and partners

1. To ensure **support from CERN** management and **Member States**
2. To actively participate in the work of the **CERN Council** and committees by forming a positive opinion about Latvia's eligibility for the status of a full-fledged Member State
3. To **coordinate** the participation of Latvia in the work of the CERN Council and its committees
4. To promote coordination at the level of the **Baltic States**, which involves speaking with one single voice in the context of CERN at the level of the **CERN Baltic Group** and **Baltic Assembly**

Where Latvia is today?

Engagement of decision-makers and partners

1. To **ensure** unwavering **support** from the Latvian government, Parliament, scientific community, entrepreneurs, and collaboration partners
2. To promote indirect support from the European Commission
3. Regular high-profile **decision makers and stakeholder** visits to CERN and events in Latvia
4. Strong policy makers **commitment to the 50/50 principle**!

Where Latvia is today?

Scientific and technical measures

1. To ensure **stable** State **funding** for CERN activities in Latvia – multi-annual budget planning with the steady growth
2. To **increase the capacity and competence** in the field of high-energy physics and accelerator technologies (done!):
   - Establishment of a scientific institute associated with CERN in LV
   - A stable team of LV scientists operates independently at CERN
3. To promote the awarding of **industrial contracts** from CERN (ILO)
4. To build a **positive image** of collaboration with CERN in Latvia **#LatvijaCERN**

Latvia @ CERN

Personal based long term @CERN: USER, COAS, PJAS, DOCT, FELL - 22/03/2024

CMS-Latvia HEP group

*Users (rec. COLA) 100% **at CERN - 7***

- Senior researcher PhD in HEP - CMS Team Leader [K.Dreimanis]
- Senior researcher PhD in HEP - SM & Top physics [M.Seidel]
- 3rd year PhD student - Top physics & MTD DPG [N.Strautnieks]
- 2nd year PhD student - Top physics & CMS comp. [D.Sidiropoulos Kontos]
- 2nd year PhD student - Top physics & PF calib. [C.Munoz Diaz]

CERN-Latvia Doctoral Programme

- 2nd year PhD student - Top physics & MTD DCS [D.Osīte]
- 4th year PhD Student Radiation Chemistry – MEDICIS [E.Mamis]

CERN Doctoral Programme

- 3rd year PhD Student Higgs physics – CMS [A.Gaile]
- 3rd PhD Student Atomic physics – AEGIS [V.Krumins]

+ numerous short (2-3 months) term stays @CERN paid from the Latvian budget

Latvia @ CERN

Personal based long term @CERN: USER, COAS, PJAS, DOCT, FELL - 22/03/2024

Latvia Accelerator Technology group

PJAS and COAS 100% ***at CERN - 8***

- Senior researcher – COAS / ATS-DO [A.Ratkus]
- Senior researcher – COAS / ATS-DO [T.Torims]
- Senior researcher – accelerator physics USER / CMS+ATS-DO [A.Degiovanni]
- PhD Student AT – COAS / ATS-DO+CMS [G.Pikurs]

CERN Doctoral Programme

- 3rd year PhD Student Accelerator Technology – ATS-DO [K.Palskis]

CERN Doctoral Programme

- 3rd year PhD Student Accelerator Technology – ATS-DO [L.Piacentini]
- 3rd year PhD Student Accelerator Technology – ATS-DO [L.Nikitovic]
- 1st year PhD Student Accelerator Technology – ATS-DO [V.Sansipersico]

+ numerous short (2-3 months) term stays @CERN paid from the Latvian budget

Take away messages

Latvia is reliable and honest partner of CERN

CERN – Latvia membership was and is a very good deed

Latvia has delivering tangible contribution to the CERN scientific programme

Latvia is ready to take the next step – to become full member of CERN

Latvia is navigating steadily

at cruise speed and with straight-forward course