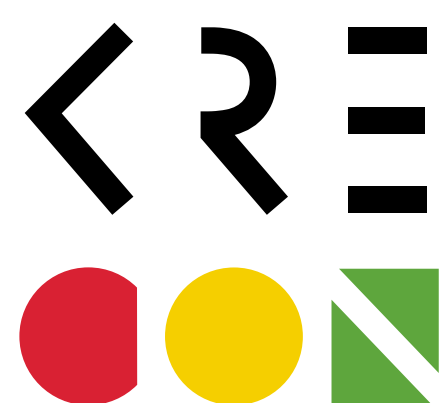




Knowledge
Research
Education
Conference
2024

14.–15. 11. 2024

**Strategic Support for Science: Main directions
and challenges**

Austria: What to learn from two decades of catching up on R&D?

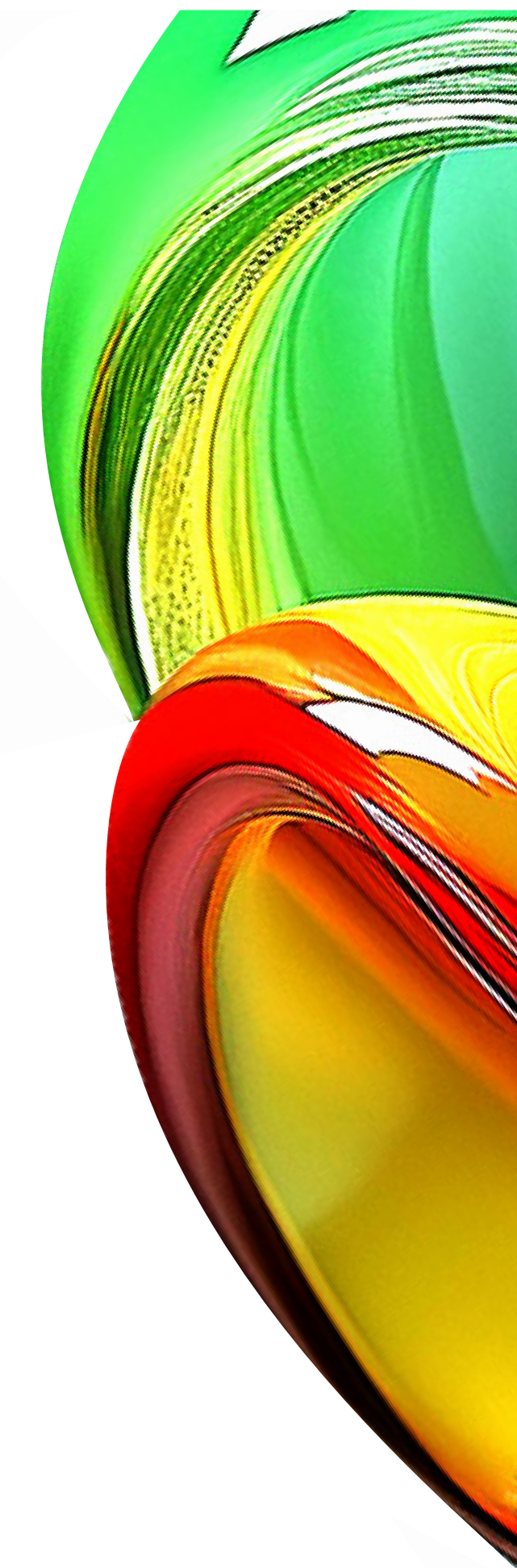
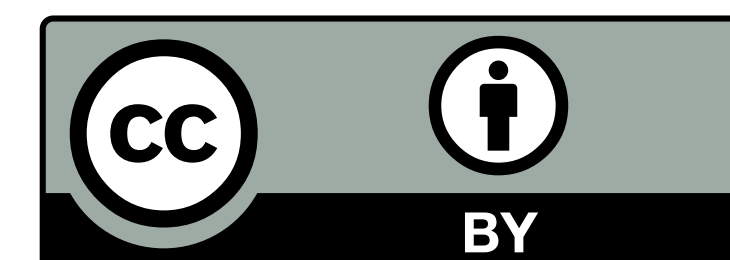
Thomas König

Austrian Council for Sciences, Technology, and Innovation

NTK
50°6'14.083"N, 14°23'26.365"E
Národní technická knihovna
National Library of Technology

Národní centrum
pro informační podporu výzkumu,
vývoje a inovací

MŠMT
MINISTRY OF EDUCATION,
YOUTH AND SPORTS



Austria: What to learn from two decades of catching up on R&D?

KRECON, Prague, 14.11.2024

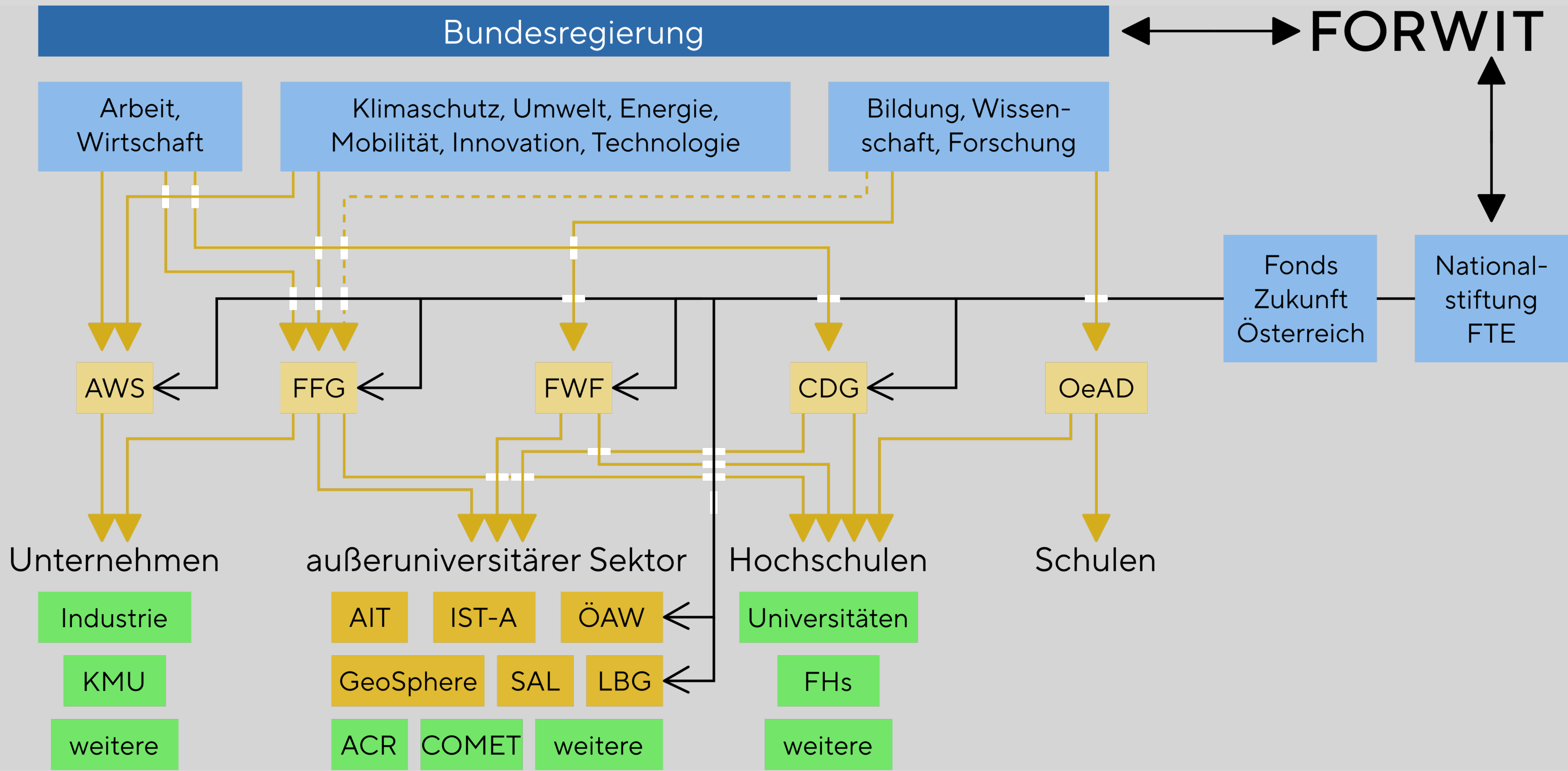
Thomas König

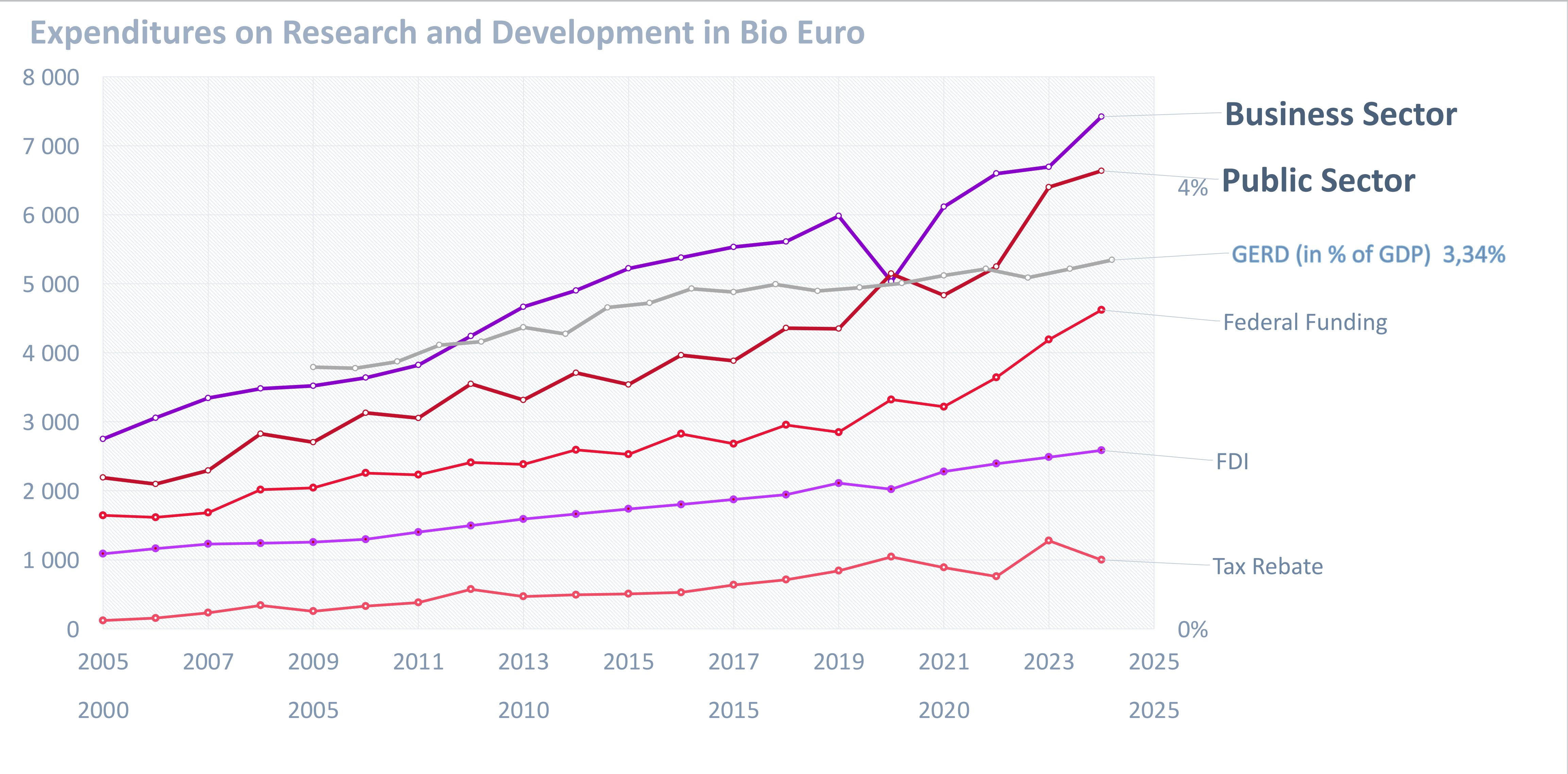
Austrian Council for Sciences, Technology, and Innovation

Content

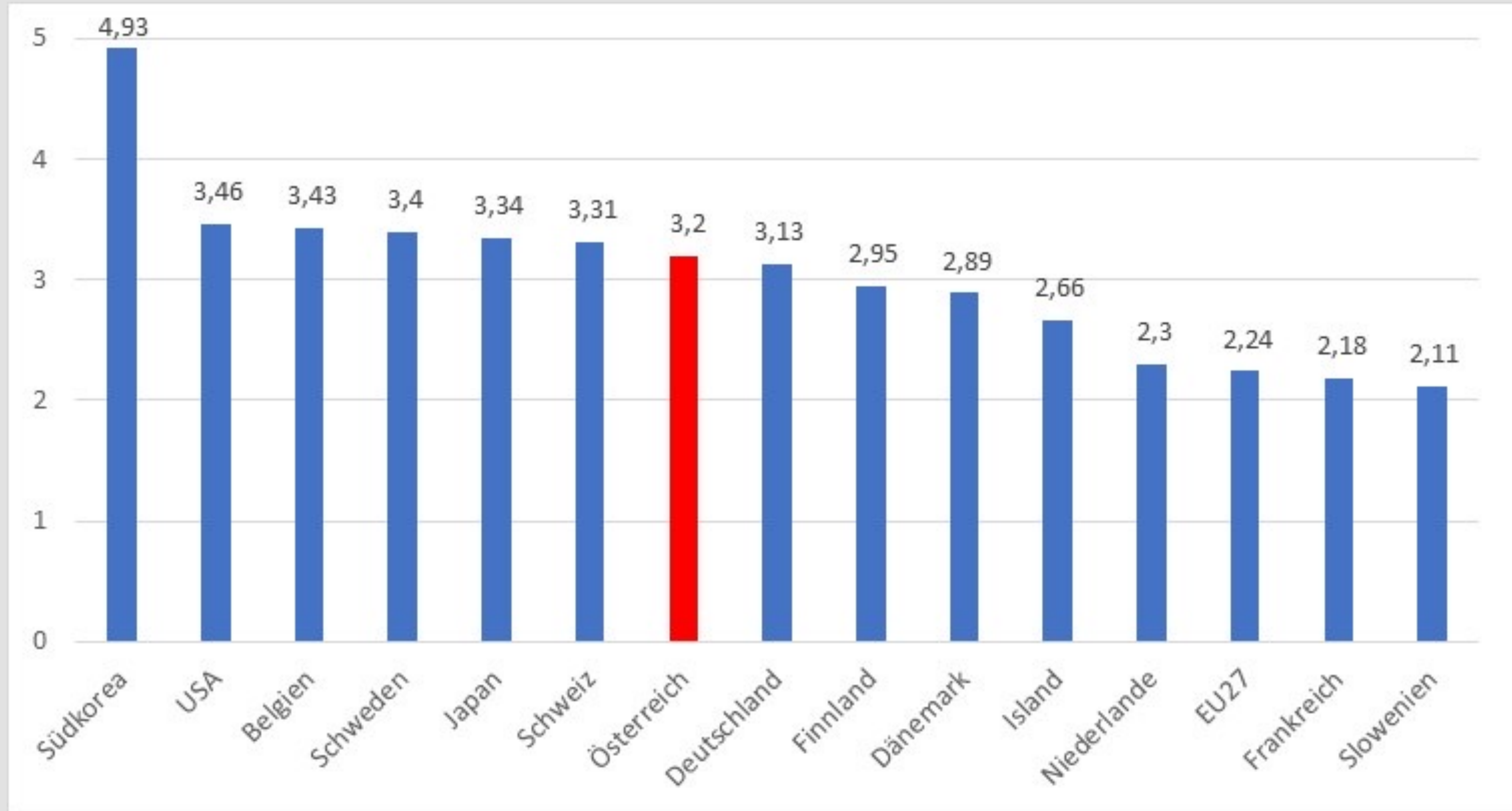
- The Austrian R&D System
- Strategic Ambition
- Twenty years of R&D policy: an emerging narrative
- Current (non-)debates in Austria

The Austrian R&D System





R&D quotas 2022 (countries with quotas > 2%)



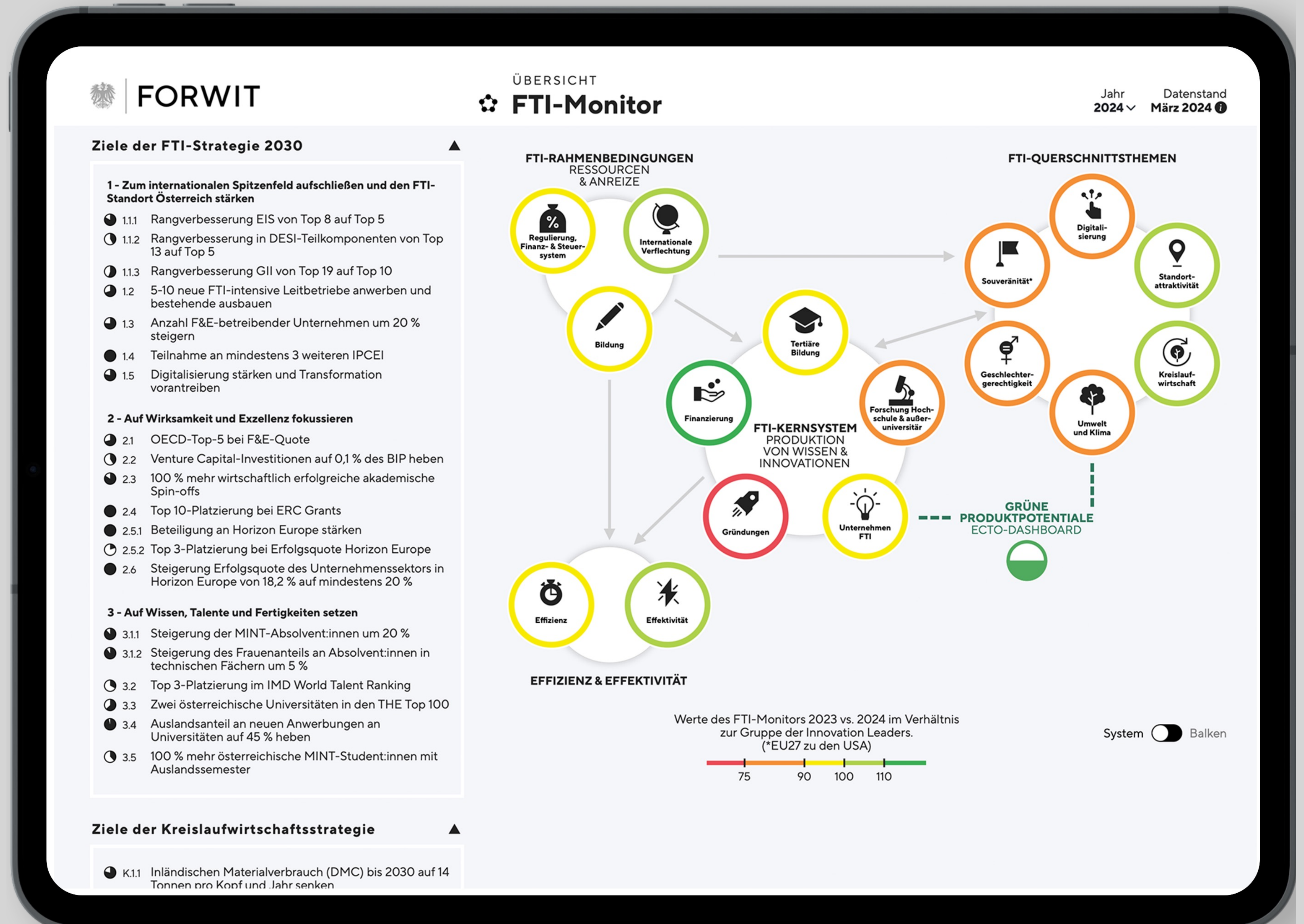
Strategic Ambition

- Since 2000: R&D Strategy adopted by the government (Lisbon Strategy!)
- Currently: R&D Strategy 2030
- Goals:
 1. “Strengthen Austria’s R&D position to align with international standards.” (EIS innovation leader)
 1. “Focus on effectiveness and excellence in research and innovation.”
 2. “Emphasize the importance of knowledge, talent, and skills.”
- > Operationalization through “pacts” with RFOs and RPOs
- > Monitoring efforts



Monitoring

- In comparison to “innovation leaders”
- Core strength: Funding
- Weaknesses: venture capital, research output



Main reform efforts

1994: introduction of “universities of applied sciences” (“FH”; colleges)

2002: university law (UG02), autonomy to public universities (“managerial turn”)

2018: university funding reform

2020: introduction of research funding law (FoFinaG) and “FTI Pakt” (mid-term funding agreements)

Key funding instrument: performance agreement
(both in university funding and in FoFinaG)

Coordination and innovation

Emerging narrative

- For the past 20 years, Austria has put many efforts into “catching up”
 - > increasing public funding as well as unlocking private funds
 - > “innovation leader” (?)
 - > diversifying landscape (76 HE org., + non-univ. RPOs)
- This period is coming to an end:
 - Austria has actually caught up
 - major shifts (demographics, (geo-)politics, ...)
 - tightening budget restrictions - public (~4 Bio Euro) as well as private (weak growth)
- Shift from input to output (consolidation?)
- What's next?



Current (non-)debates in Austria

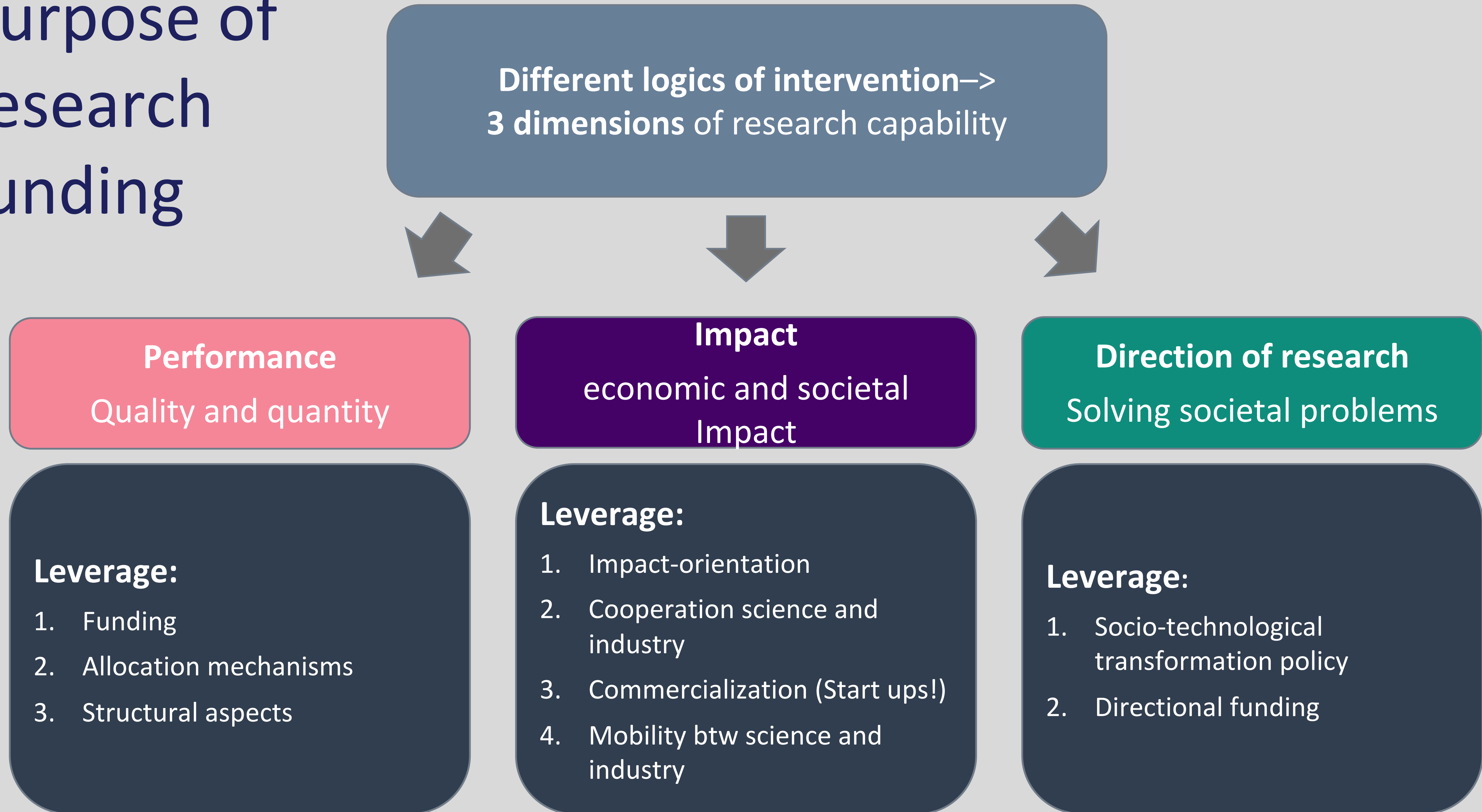
- Fault lines
- Purpose of research funding
- Target of funding level
- Knowledge utilization

Fault lines (what we know but do not like to talk about)

1. Divide between “basic” and “applied” research; research skewed heavily towards economic impact
2. Lack of competition, as well as competitive funding opportunities
3. Lack of coordination among different types of organisations
4. Organisational innovations vs. attempts to align frameworks for more efficiency

FORWIT

Purpose of research funding



Target of funding level

- History: 3% target until 2010 / 3.76% target until 2020 (RTI-strategy 2020)
- 4% claim emerged as of late
- **Possible reason:** pre-emptive measure in light of probable overall budget cuts
- Calculations **highly dependent on GDP forecasts** (which usually – in the long run – converge to potential GDP) and the share of public R&D expenditures (currently at 38% of total)
(R&D growth rates until 2030 vary between 2% and 7% p.a., dependent on scenario)
- **OECD innovation review Austria:** more efficiency needed

Public R&D expenditures Austria, based on path to 4%-quota until 2030



Knowledge Utilization

	(scientific) knowledge used in ...	
	... the economy	... policymaking
Scientific practice	“pre-competitive research”, applied res.	“regulatory science”, commissioned res.
Knowledge translates into	Technology	Expertise
Policy frame	Innovation	Regulation
Expected impact	Productivity, economic growth	Efficiency, sound (evidence-based) decision-making

FORWIT

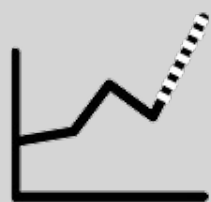
Thank you very much!

forwit.at

CUT-off



The areas of the RTI system are bi-directional and linked to the objectives of the **RTI strategy** in terms of impact



Graphics visualize the status of **target achievement** and the **projected degrees** of target achievement



All data is **publicly available** and free for further analysis and calculations



Relevant areas link to the **ECTO dashboard** for green production potential and their skilled labor requirements



Long-term contributions to change show the positive or negative influence of individual indicators on the following areas



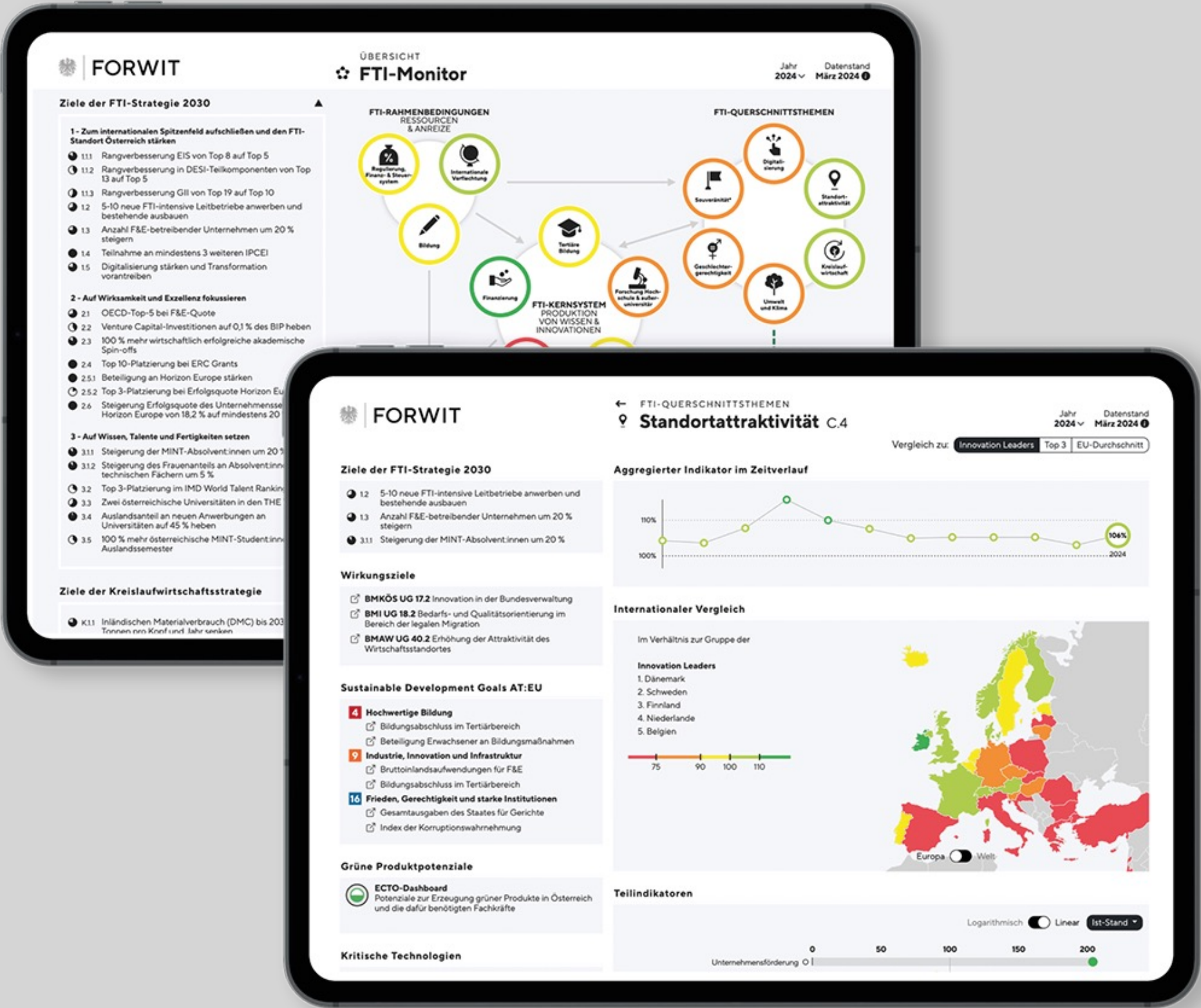
Austria's RTI performance compared with the **Innovation Leaders**, the Top 3 and the EU average



Relevant **recommendations, studies** and **statements** provide **context** and background knowledge



Time series show the historical development of individual indicators over the years



240+

More than **240 indicators** from data from OECD, Eurostat, CIS, WGI and other sources are analyzed

Attractiveness of location

Ziele der FTI-Strategie 2030

- 1.2 5-10 neue FTI-intensive Leitbetriebe anwerben und bestehende ausbauen
- 1.3 Anzahl F&E-betreibender Unternehmen um 20 % steigern
- 3.1.1 Steigerung der MINT-Absolvent:innen um 20 %

Wirkungsziele

- BMKÖS UG 17.2 Innovation in der Bundesverwaltung
- BMI UG 18.2 Bedarfs- und Qualitätsorientierung im Bereich der legalen Migration
- BMAW UG 40.2 Erhöhung der Attraktivität des Wirtschaftsstandortes

Sustainable Development Goals AT:EU

- 4 Hochwertige Bildung**
 - Bildungsabschluss im Tertiärbereich
 - Beteiligung Erwachsener an Bildungsmaßnahmen
- 9 Industrie, Innovation und Infrastruktur**
 - Bruttoinlandsaufwendungen für F&E
 - Bildungsabschluss im Tertiärbereich
- 16 Frieden, Gerechtigkeit und starke Institutionen**
 - Gesamtausgaben des Staates für Gerichte
 - Index der Korruptionswahrnehmung

Grüne Produktpotenziale

- ECTO-Dashboard**
Potenziale zur Erzeugung grüner Produkte in Österreich und die dafür benötigten Fachkräfte

Kritische Technologien

Aggregierter Indikator im Zeitverlauf

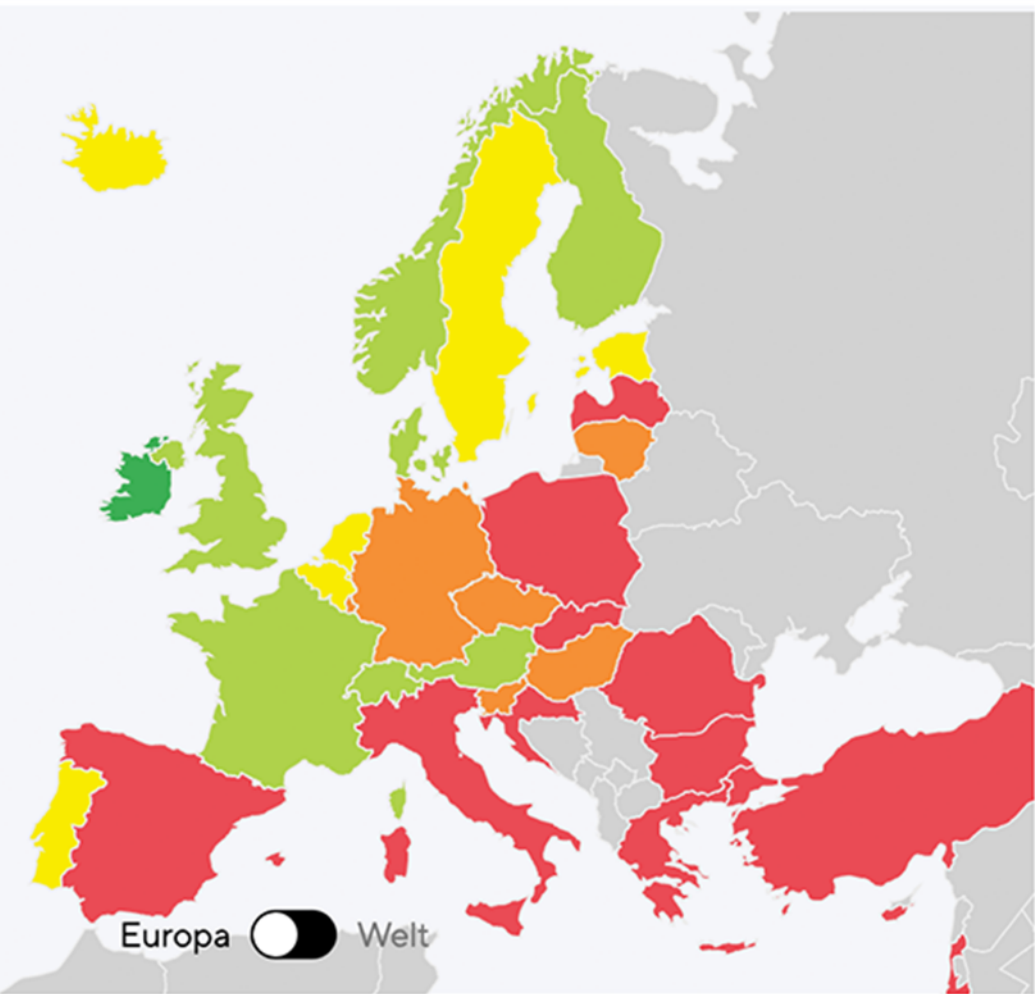
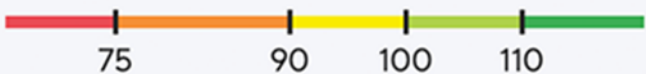


Internationaler Vergleich

Im Verhältnis zur Gruppe der

Innovation Leaders

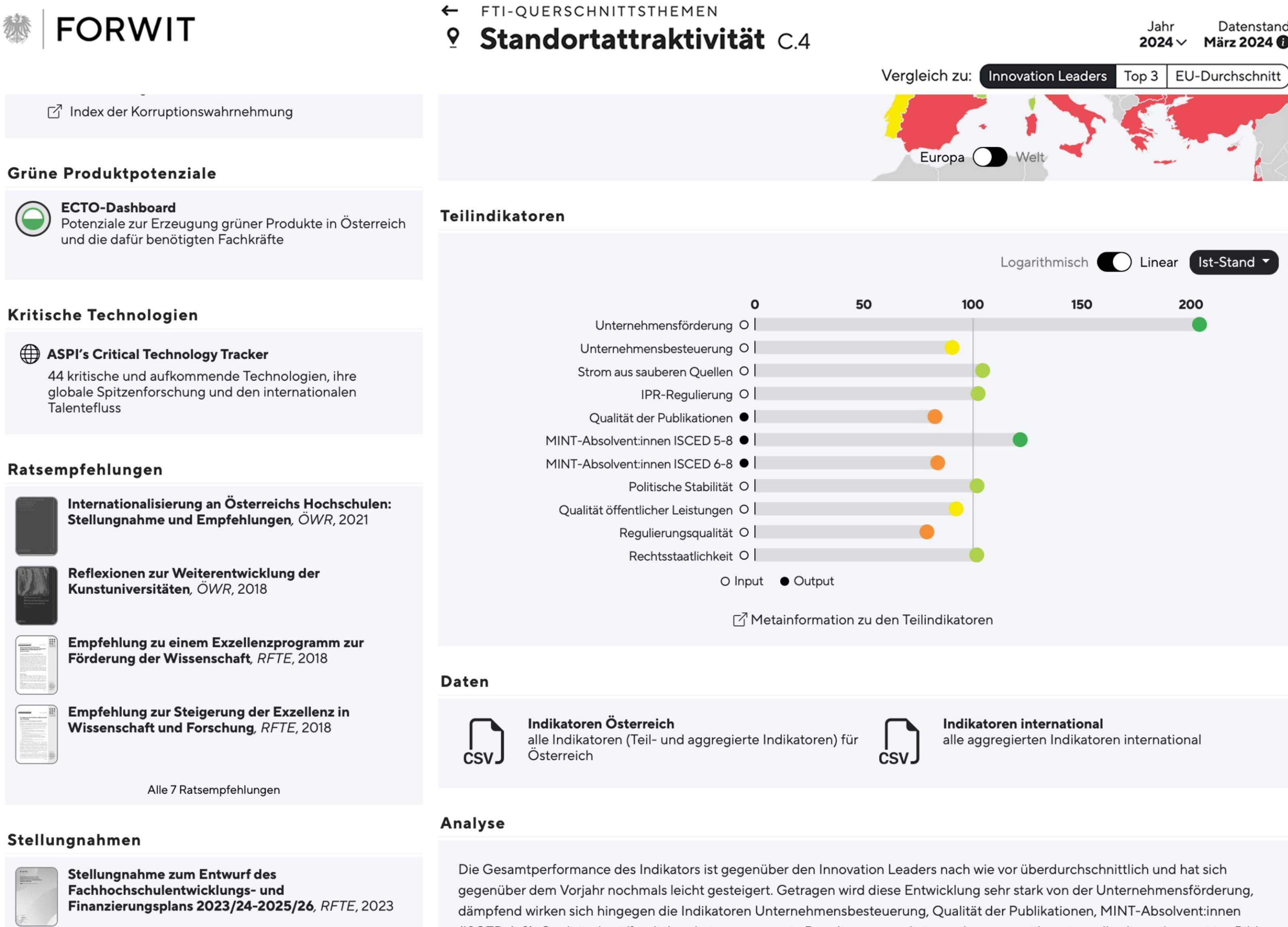
- 1. Dänemark
- 2. Schweden
- 3. Finnland
- 4. Niederlande
- 5. Belgien



Teilindikatoren



- Business promotion
- Corporate taxation
- Electricity from clean sources
- IPR regulation
- Quality of publications
- STEM graduates
- Political stability
- Quality of public services
- Regulatory quality
- Rule of law



Index der Korruptionswahrnehmung

Grüne Produktpotenziale



ECTO-Dashboard
Potenziale zur Erzeugung grüner Produkte in Österreich und die dafür benötigten Fachkräfte

Kritische Technologien



ASPI's Critical Technology Tracker
44 kritische und aufkommende Technologien, ihre globale Spitzenforschung und den internationalen Talentefluss

Ratsempfehlungen



Internationalisierung an Österreichs Hochschulen: Stellungnahme und Empfehlungen, ÖWR, 2021



Reflexionen zur Weiterentwicklung der Kunstuniversitäten, ÖWR, 2018



Empfehlung zu einem Exzellenzprogramm zur Förderung der Wissenschaft, RFTE, 2018



Empfehlung zur Steigerung der Exzellenz in Wissenschaft und Forschung, RFTE, 2018

Alle 7 Ratsempfehlungen

Stellungnahmen

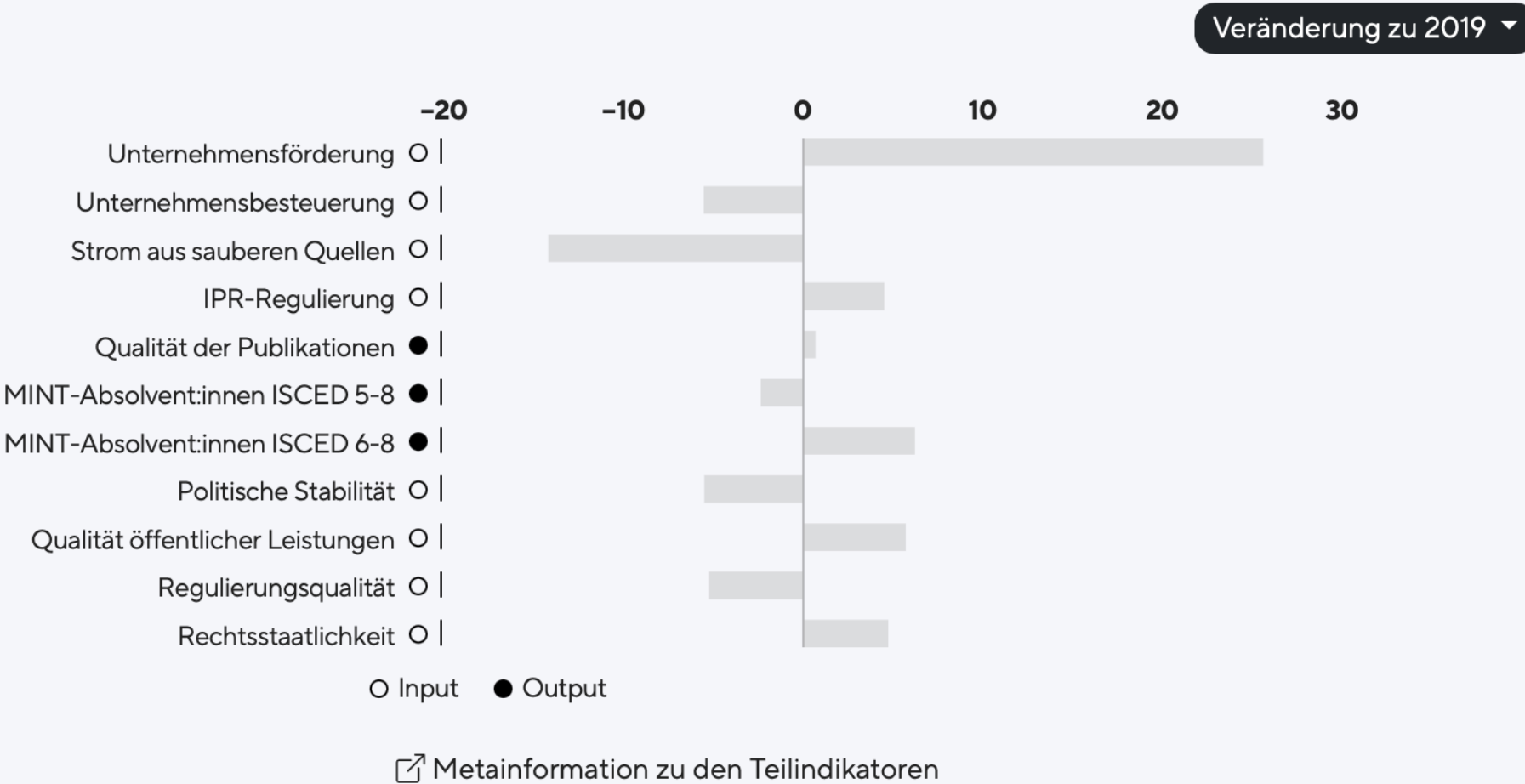


Stellungnahme zum Entwurf des Fachhochschulentwicklungs- und Finanzierungsplans 2023/24-2025/26, RFTE, 2023

Vergleich zu: Innovation Leaders Top 3 EU-Durchschnitt



Teilindikatoren



Daten



Indikatoren Österreich
alle Indikatoren (Teil- und aggregierte Indikatoren) für Österreich



Indikatoren international
alle aggregierten Indikatoren international

Analyse

Die Gesamtperformance des Indikators ist gegenüber den Innovation Leaders nach wie vor überdurchschnittlich und hat sich gegenüber dem Vorjahr nochmals leicht gesteigert. Getragen wird diese Entwicklung sehr stark von der Unternehmensförderung, dämpfend wirken sich hingegen die Indikatoren Unternehmensbesteuerung, Qualität der Publikationen, MINT-Absolvent:innen (ISCED 6-8), Qualität der öffentlichen Leistungen sowie Regulierungsqualität aus. Insgesamt überwiegt allerdings das positive Bild.

RTI Monitor

- Monitors Austria's performance in achieving the goals set in the federal RTI Strategy 2030.
- Combines data and resources to create a structured, visual, and comprehensive knowledgebase.
- STI Monitor is significant contribution to science-based policymaking in Austria: Visualisation of the development of indicators over time and their long-term contributions to change as well as trends provide stakeholders and political decision-makers with a basis for strategically and systemically effective decisions and actions