

The Novo Nordisk Foundation's Impact work

Thomas Alslev Christensen
Senior Vice President, Impact

29 August 2024
novo nordisk **fonden**



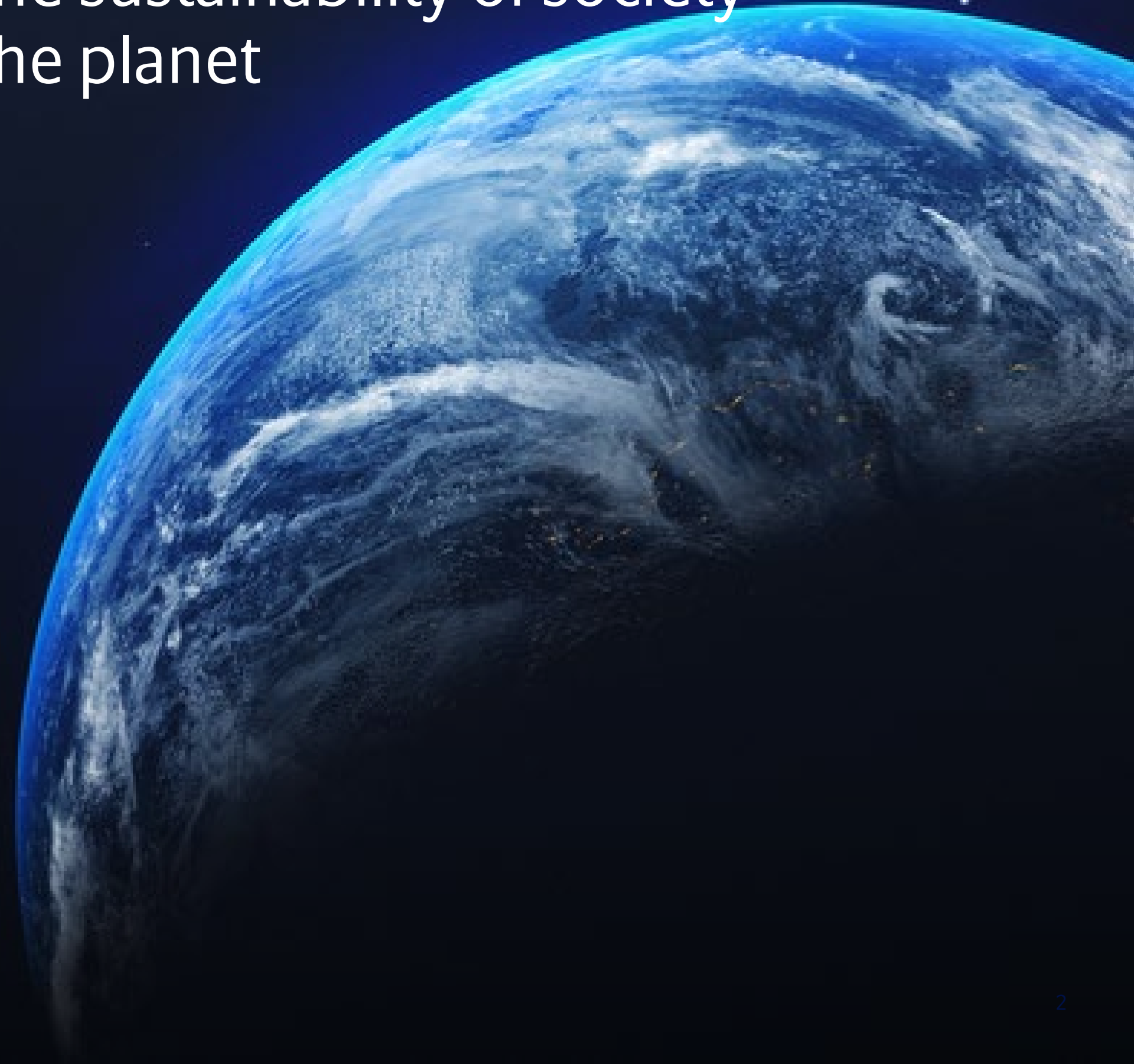
Corporate purpose

- To provide a stable basis for the commercial and research activities of the Novo Group companies.*

Philanthropic purposes

- To support physiological, endocrinological, metabolic and other medical research,
- To support research hospital activities within diabetes in Denmark, and
- To support other scientific as well as humanitarian and social purposes.

Our vision is to improve people's health
and the sustainability of society
and the planet



Philanthropic models - How we award grants

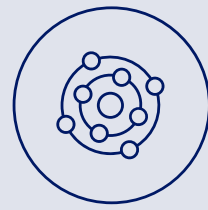


Open competition

E.g. projects, fellowships, prizes, etc.

Examples

- Research projects
- Collaborative research programmes
- Research leader programmes
- Investigator grants (career programme in the Nordic)
- Natural Science Education and Informal Learning Research infrastructure



Strategic and mission-driven

E.g. research centres, stand-alones, own initiatives (new foundations)

Examples

- NNF research centres within medical science, natural and technical science and life sciences
- BII Foundation, LIFE Foundation, Healthy Weight Center
- Large infrastructure
- Education platforms and PhD academies
- Professorship programmes



Partnerships

E.g. public-private, private-private, etc.

Examples

- Steno Diabetes Centres (diabetes research hospitals)
- Partnerships with: Danish Refugee Council, UNICEF, World Diabetes Foundation
- PAD partnership with Gates Foundation and Open Philanthropy



Impact investments and philanthropic strategic investments

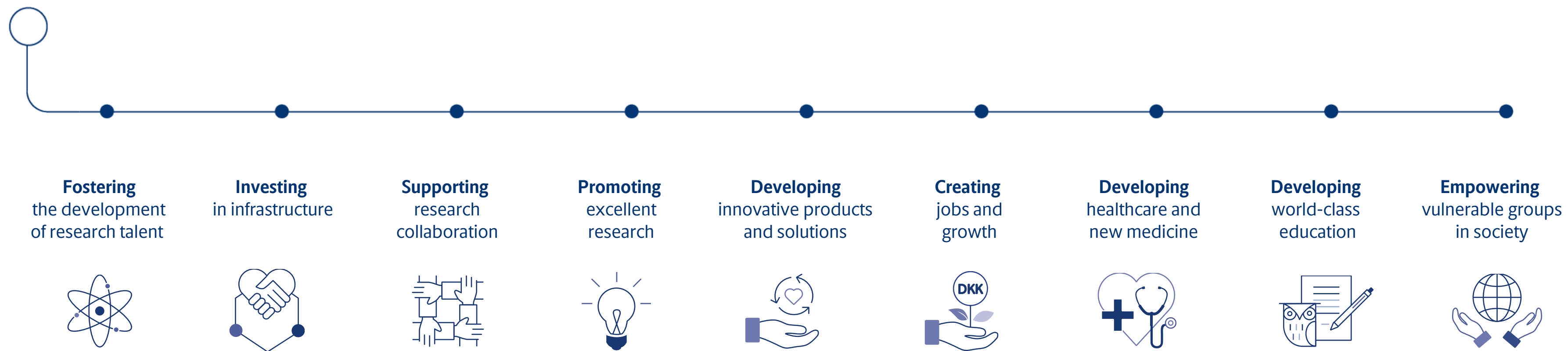
E.g. impact bond, equity loans, companies, etc.

Examples

- Repair Impact Fund
- Den Sociale Kapitalfond Invest
- P/S companies

Highlights from the Impact Report 2023

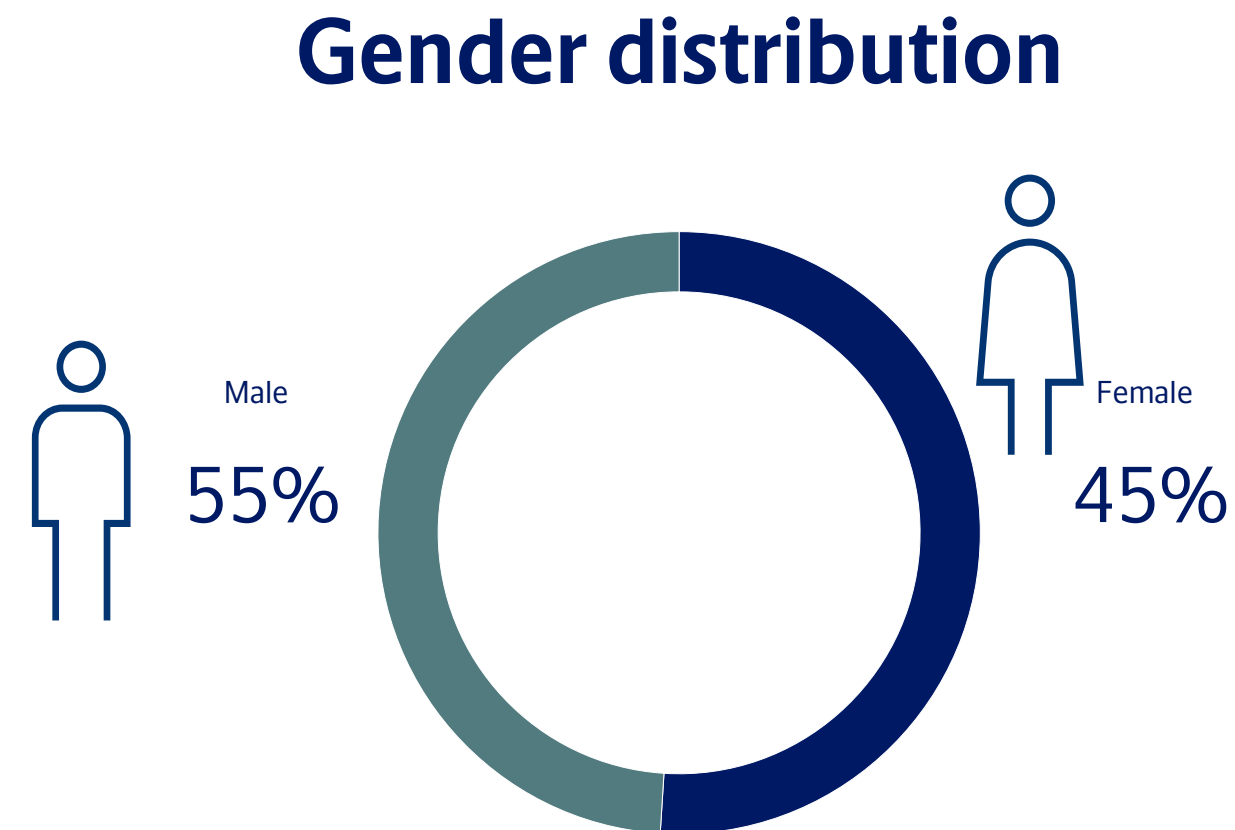
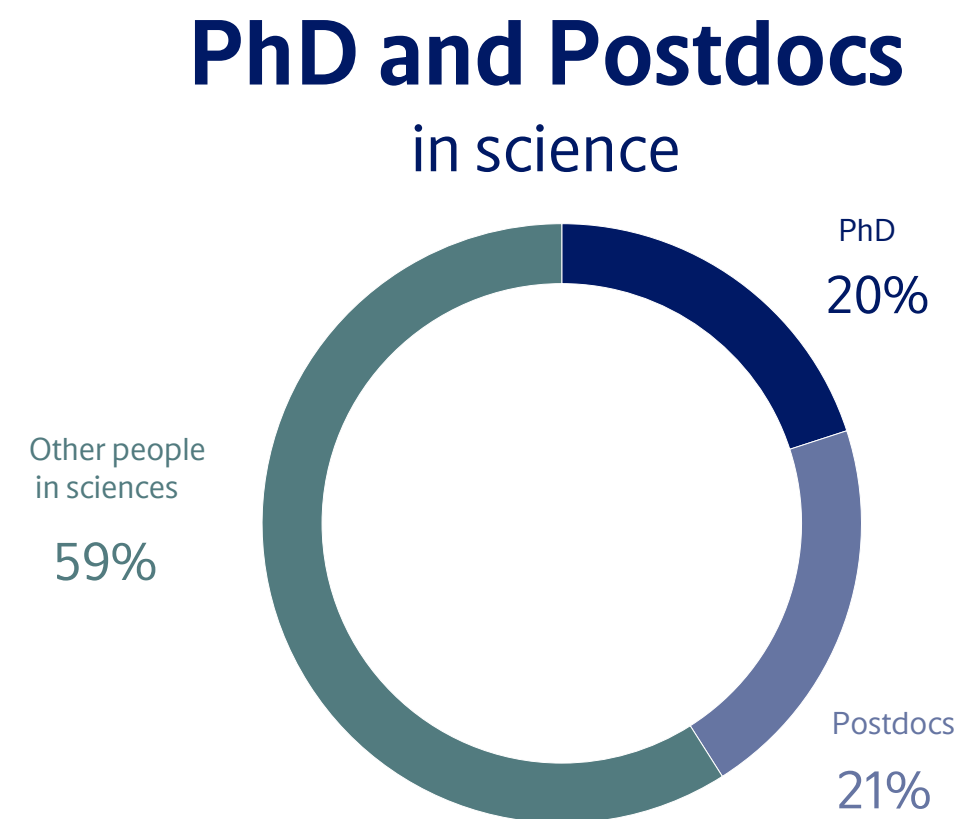
Our nine principles for societal impact



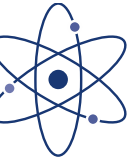
Increase in number of people in science since 2022

fully or partly supported by the Foundation

8,877
people in science in 2023
+35% since 2021

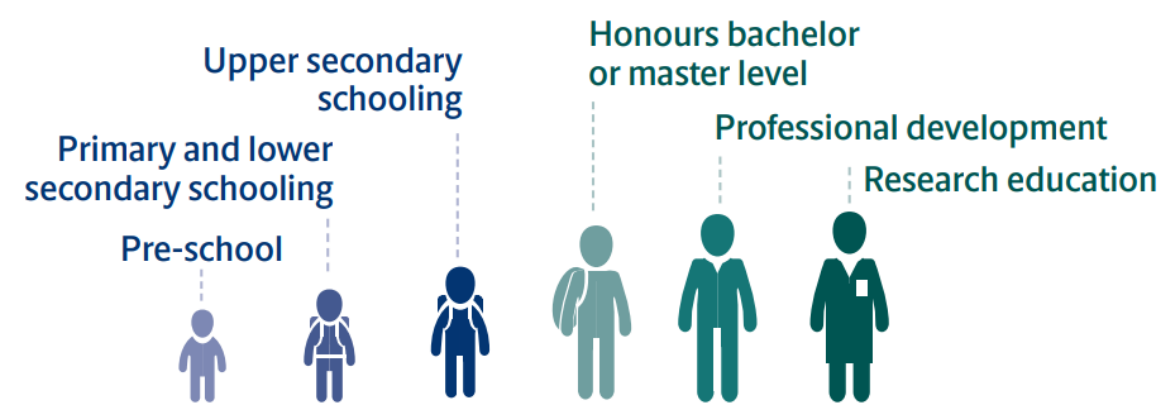


Fostering
the development
of research talent



Novo Nordisk Foundation has awarded EUR 4.2 billion to infrastructure initiatives since 2010 (EUR 0.5 increase in 2023)

In **education** we support initiatives at all levels



In the **health sector** we support hospital and patient care initiatives on



Within **research and innovation**, we support NNF research centres, build new research facilities, and provide equipment for existing facilities

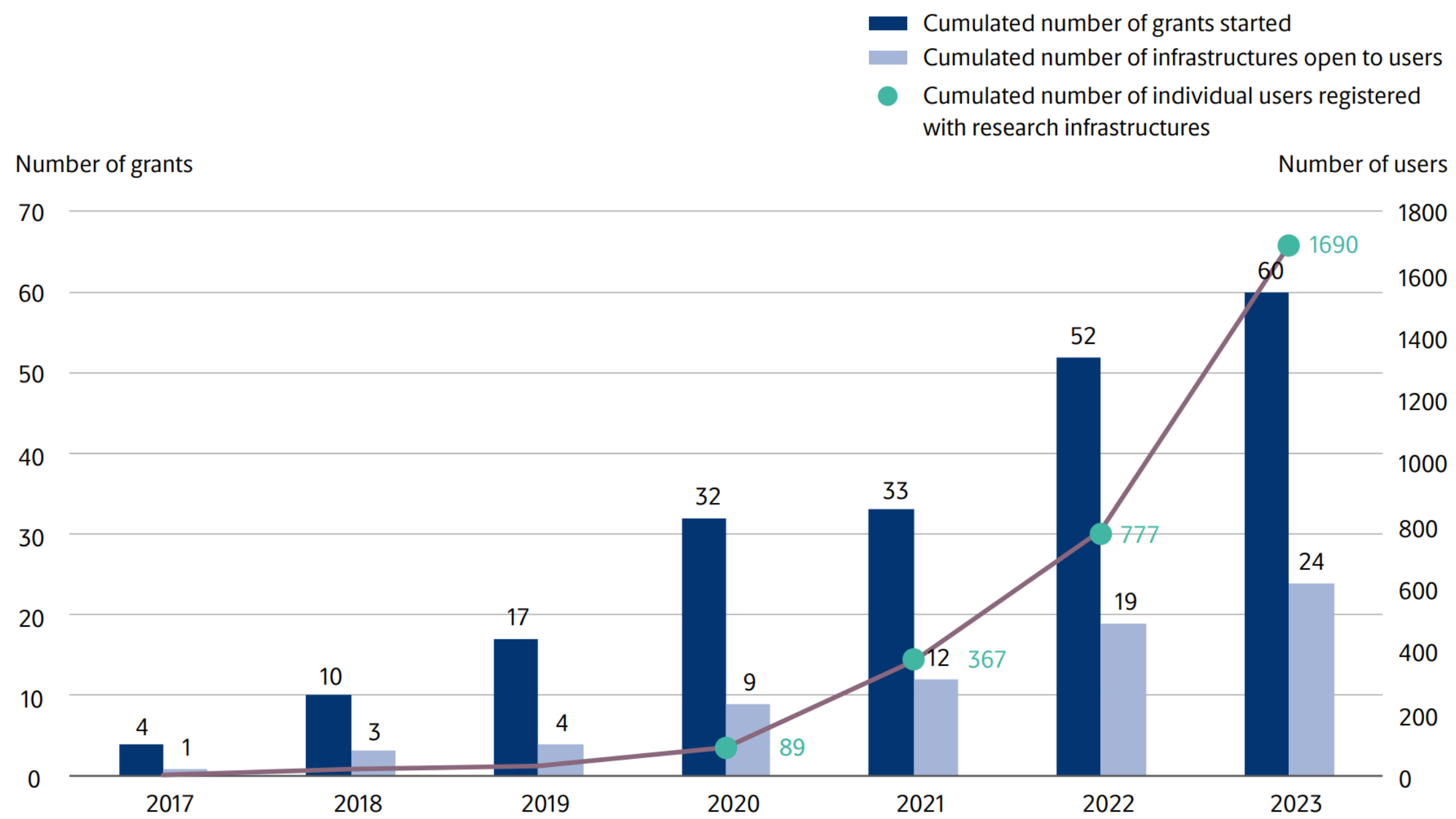


Fostering the development of research talent

Investing in infrastructure

25% more research infrastructures are open to user. Nearly 1000 more users since 2022

Development in the number of research infrastructure grants and availability for users



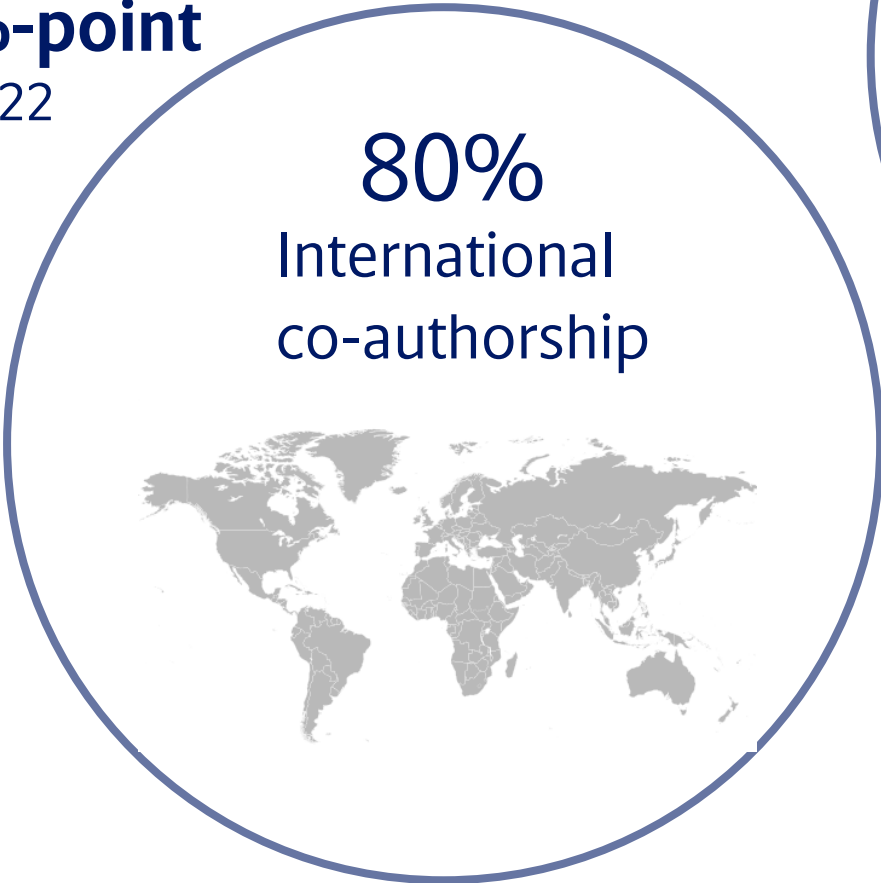
Source: Novo Nordisk Foundation and Foundgood

Fostering the development of research talent

Investing in infrastructure

International research collaboration in 14,600 journal articles funded by NNF since 2019

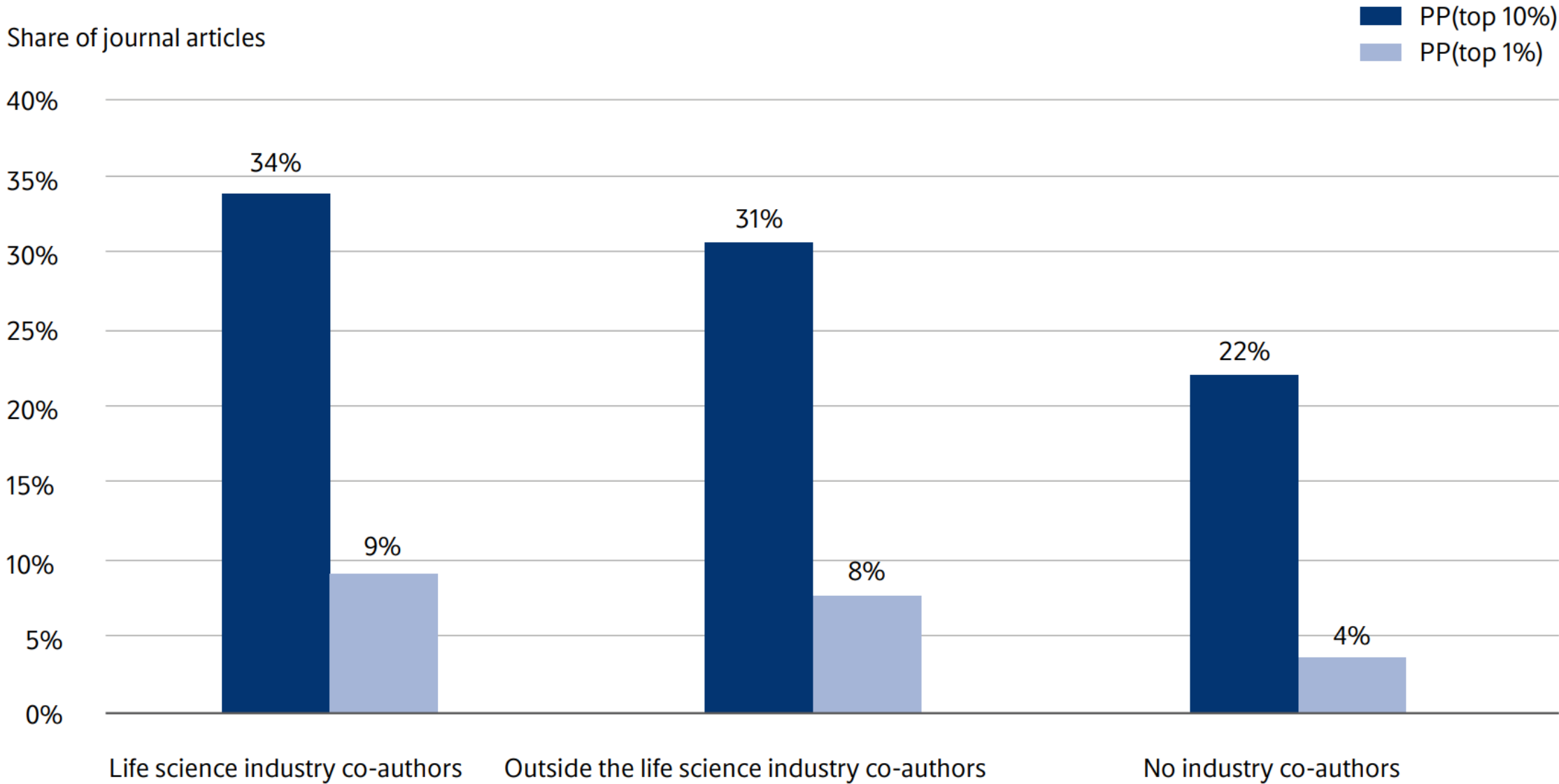
+ 10%-point
since 2022



-
- **Fostering**
the development
of research talent 
- **Investing**
in infrastructure 
- **Supporting**
research
collaboration 
-
-
-
-
-
-

Journal articles co-authored with the industry are highly cited

PP(top 1%) and PP(top 10%) for Foundation-funded journal articles co-authored with industry researchers, 2018–2021



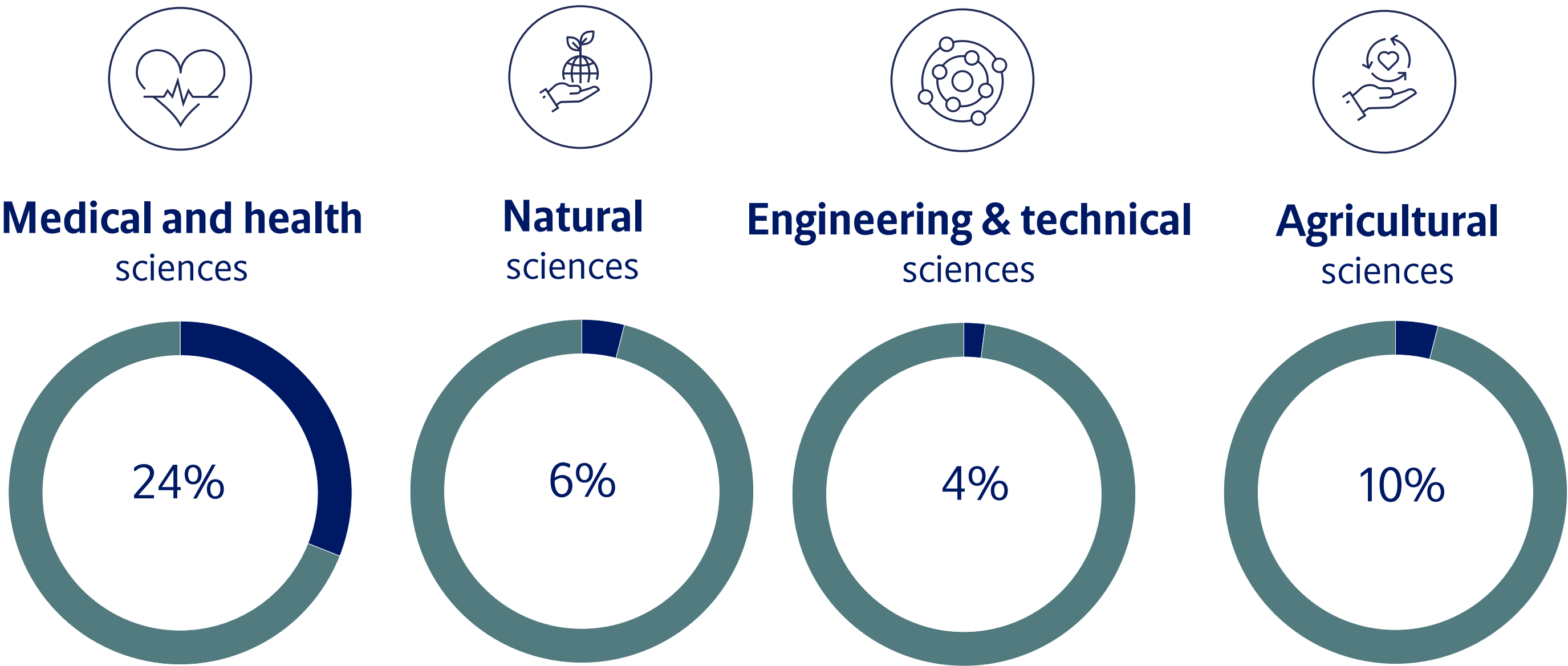
Note: Preliminary estimate.
Sources: Novo Nordisk Foundation/Impact-of-Science.

Fostering the development of research talent

Investing in infrastructure

Supporting research collaboration

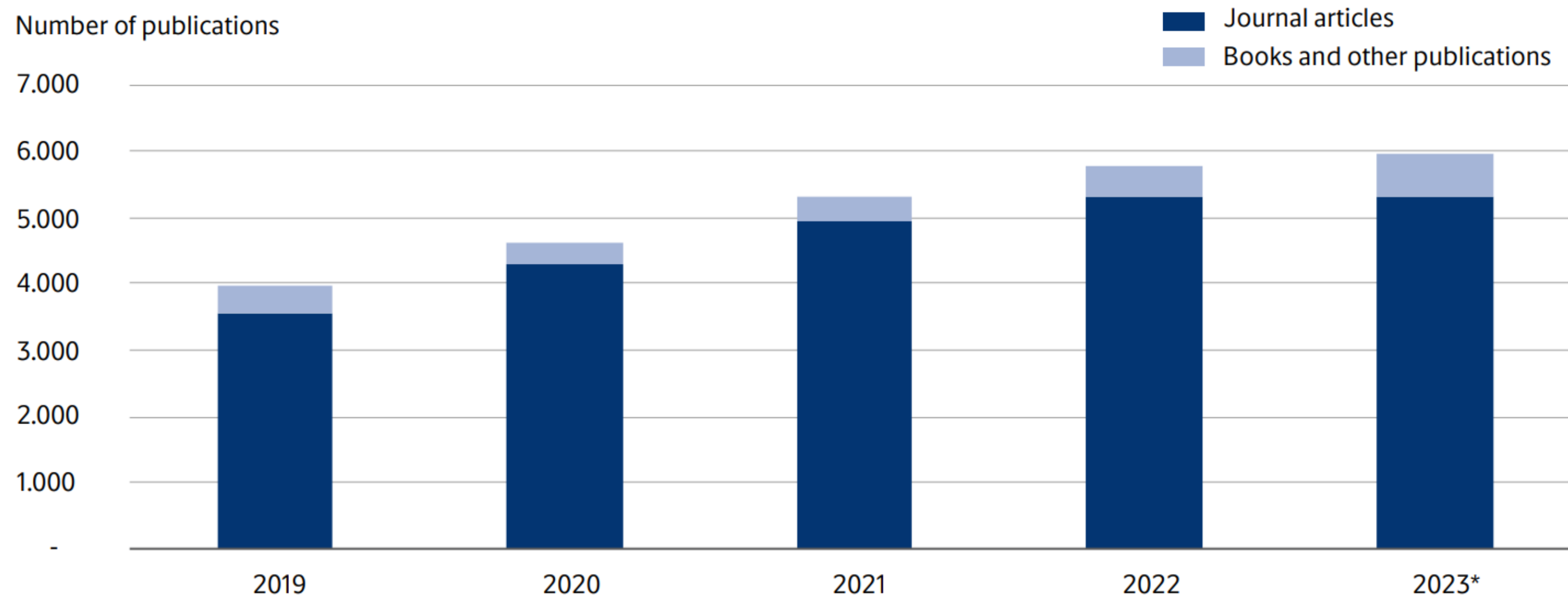
The grant-giving finances 24% of public research in medical and health sciences and 6% in natural sciences in Denmark (2023)



- **Fostering** the development of research talent 
- **Investing** in infrastructure 
- **Supporting** research collaboration 
- **Promoting** excellent research 
-
-
-
-

The total number of publications continues to rise but lagged and slower than current grant awarding

Total number of publications by recipients of Foundation grants, 2019–2023



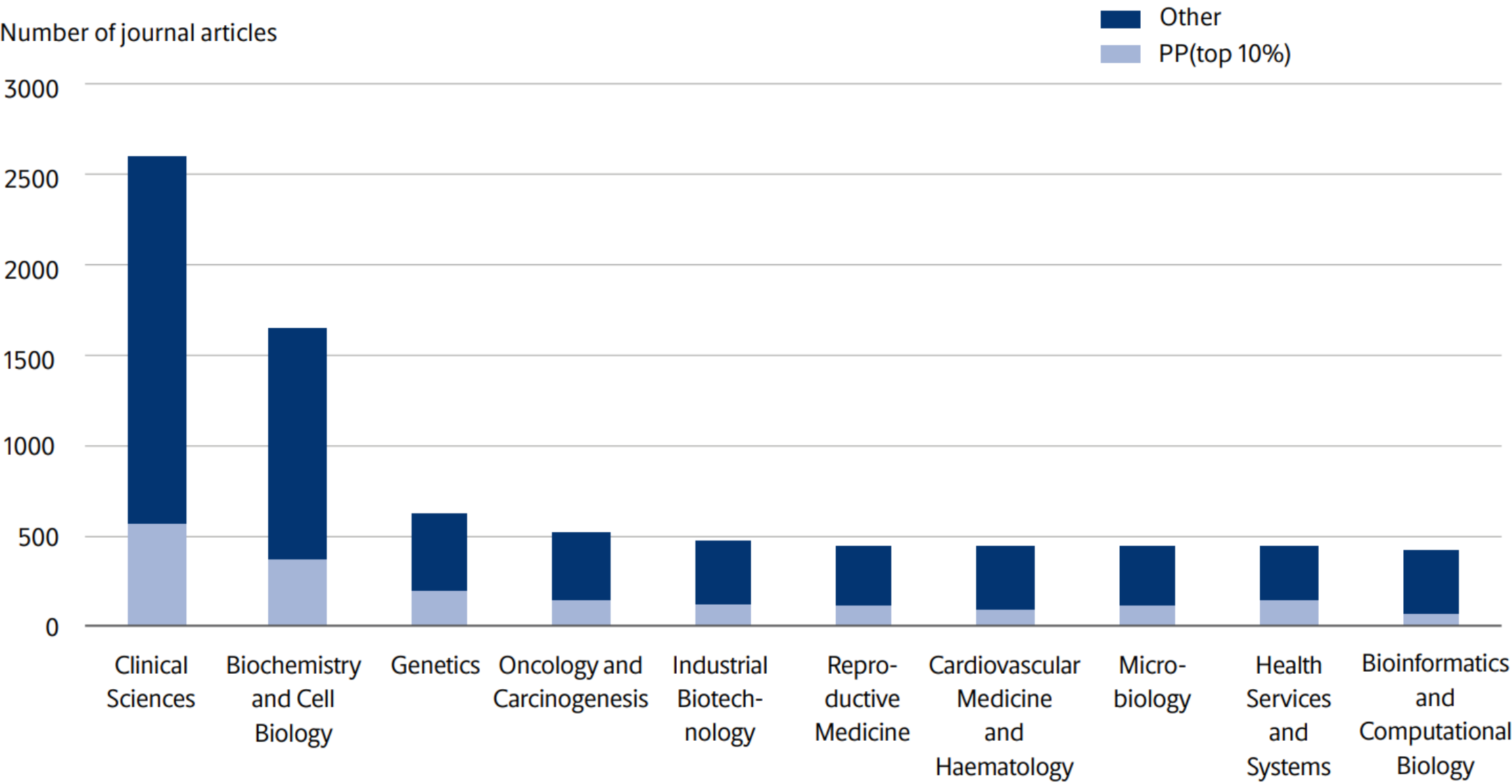
Note: *Preliminary estimate. The actual figure is likely to be higher, since every year grant recipients report publications previously omitted.

Sources: Novo Nordisk Foundation, Researchfish®, Foundgood, Impact-of-Science and Dimensions

-
- **Fostering** the development of research talent 
- **Investing** in infrastructure 
- **Supporting** research collaboration 
- **Promoting** excellent research 
-
-
-
-

Journal articles co-authored with the industry are highly cited

Number of journal articles among the top 10% most frequently cited in the world – PP(top 10%), 2018–2021, and volume of journal articles in the 10 most represented fields of research.



Note: A journal article can be categorised in multiple fields of research.
Sources: Novo Nordisk Foundation, Researchfish®, Foundgood and Dimensions

Fostering the development of research talent

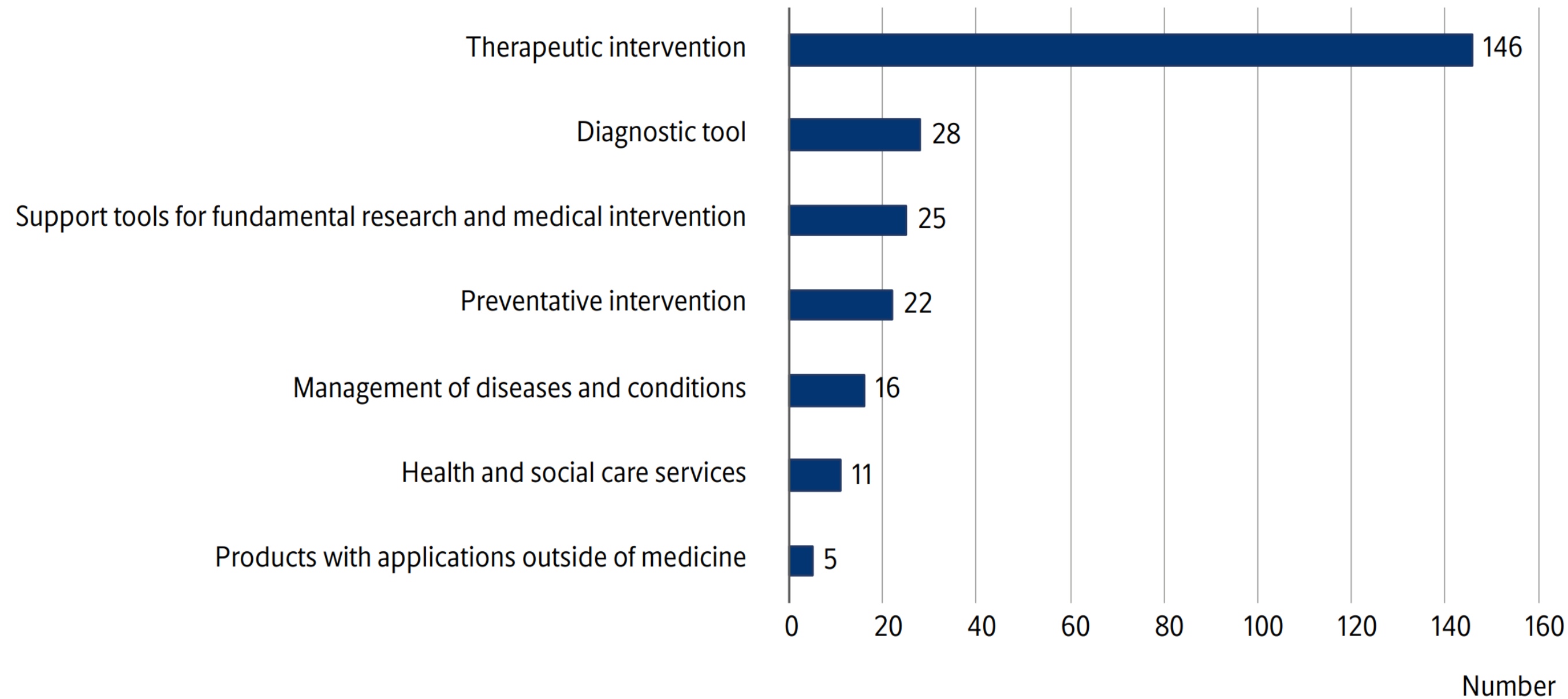
Investing in infrastructure

Supporting research collaboration

Promoting excellent research

Our funded researchers primarily report therapeutic interventions as important outcomes

Products and interventions 2019–2023

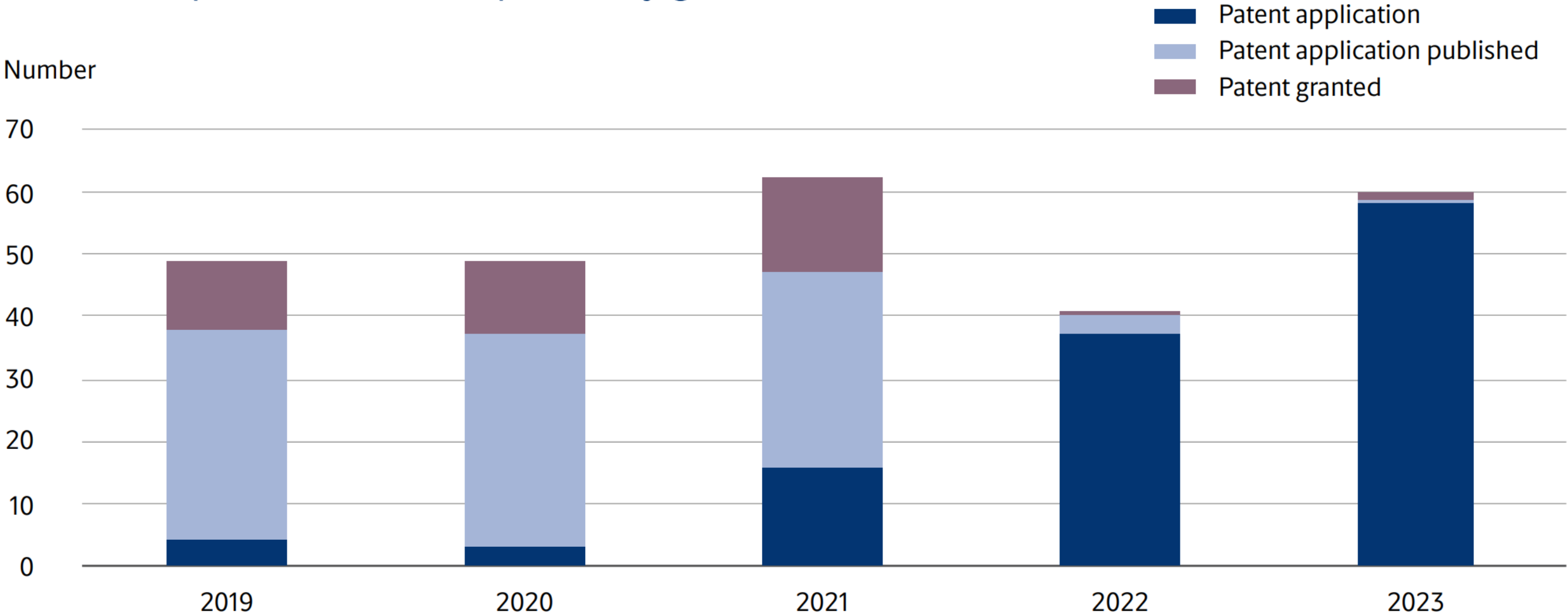


Sources: Novo Nordisk Foundation/Researchfish®



They reported a record-high number of patent applications in 2023 – a number likely understated

Number of patent activities reported by grantees, 2019–2023



Sources: Novo Nordisk Foundation/ Researchfish®/ Foundgood

-  **Fostering** the development of research talent
-  **Investing** in infrastructure
-  **Supporting** research collaboration
-  **Promoting** excellent research
-  **Developing** innovative products and solutions

The number of spin-outs consistently grows year by year

Spin-outs and start-ups based on grants from the Foundation

Figure 2.6.1a
Reported number of new spin-outs and start-ups based on Foundation grants

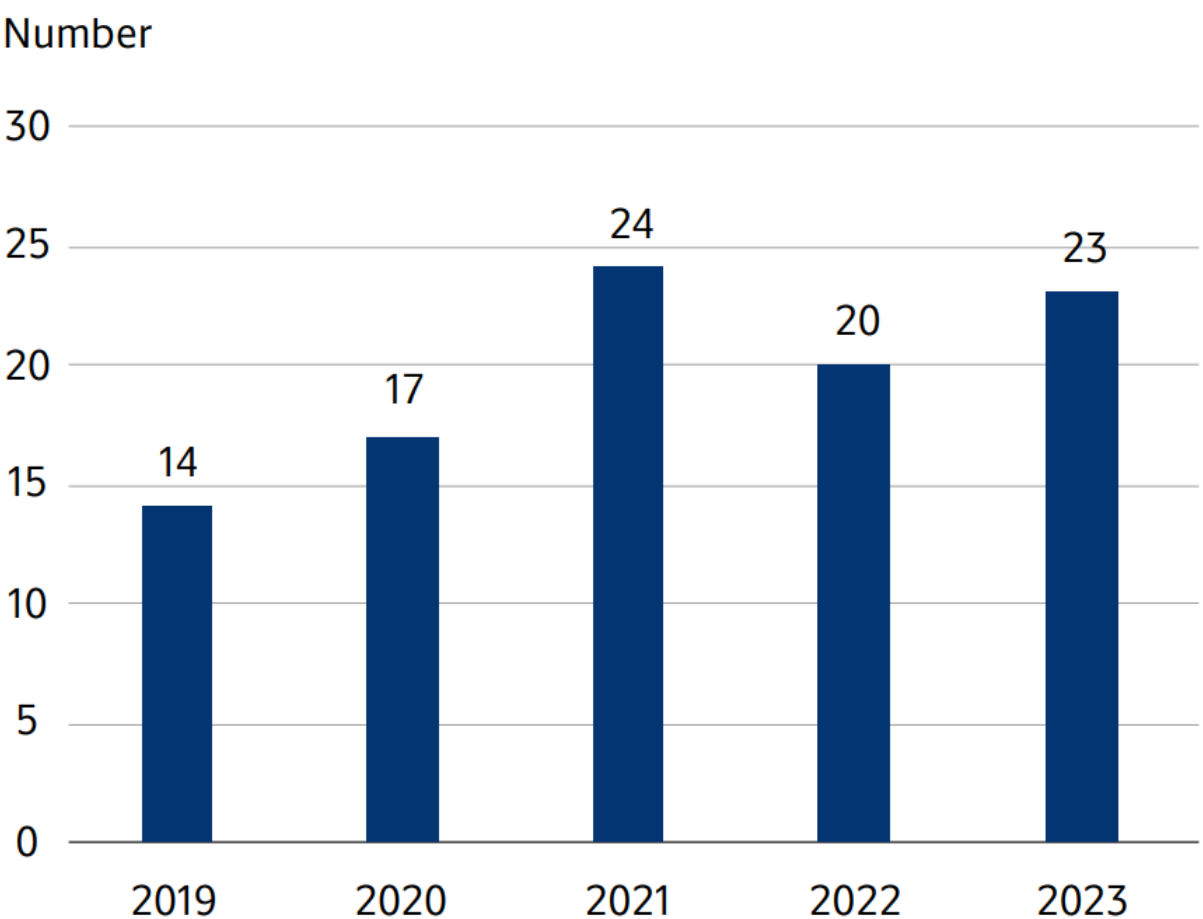
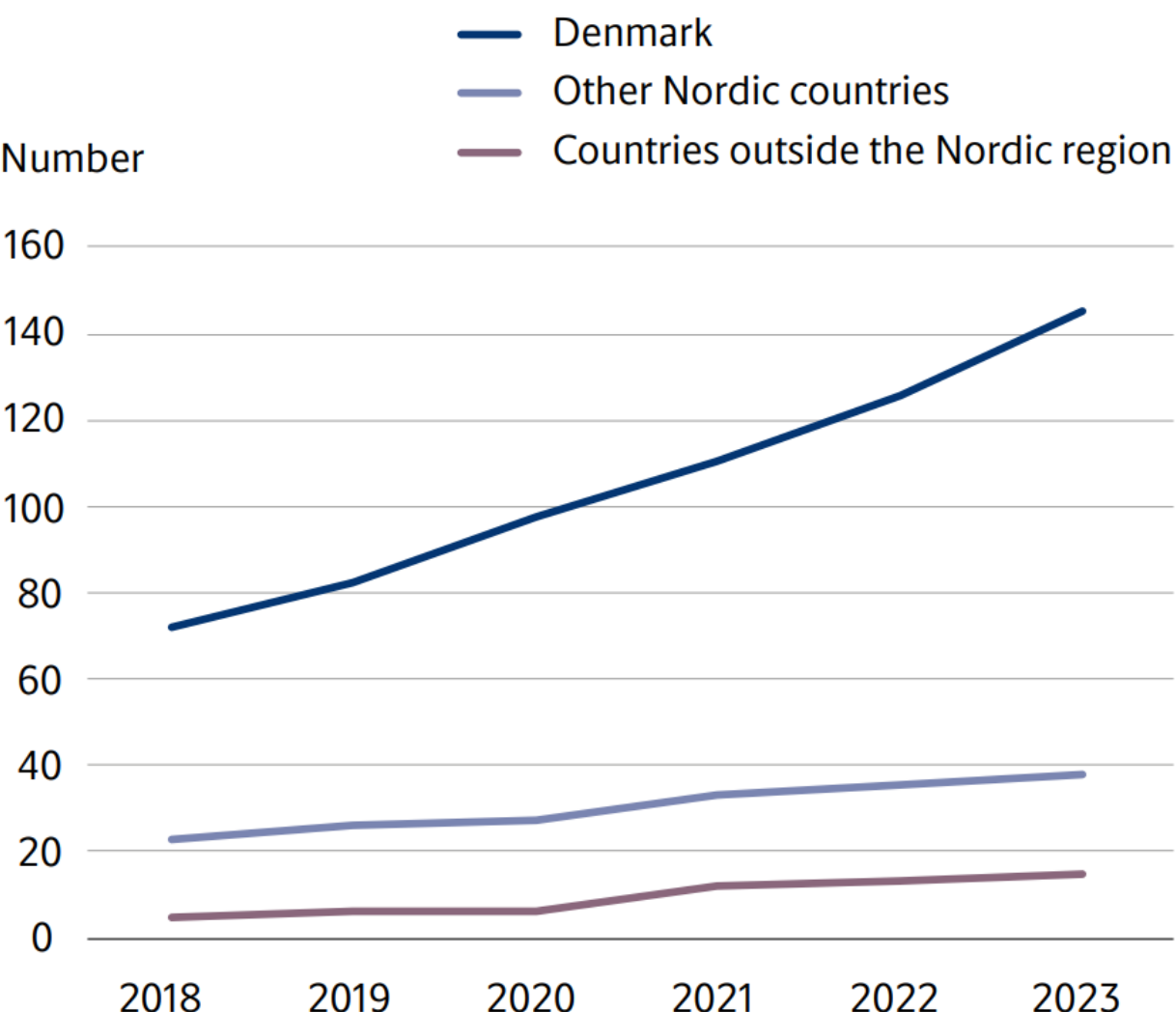


Figure 2.6.1b
Number of spin-outs and start-ups based on Foundation grants



Source: Novo Nordisk Foundation/Researchfish®/ Foundgood

Fostering the development of research talent

Investing in infrastructure

Supporting research collaboration

Promoting excellent research

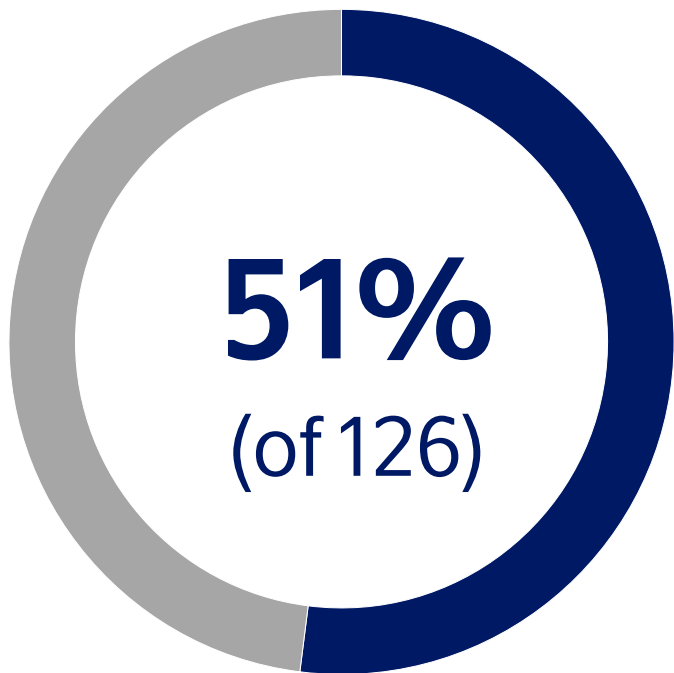
Developing innovative products and solutions

Creating jobs and growth

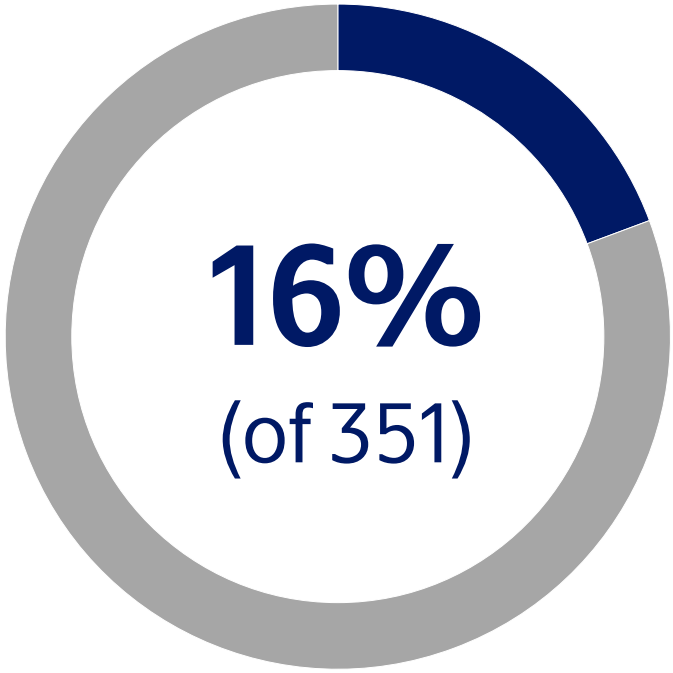
15%, or 162 of 1,103 clinical guidelines currently used cite Foundation-funded research



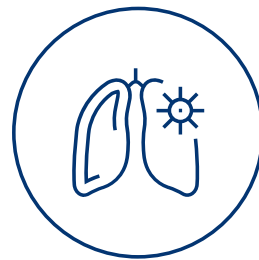
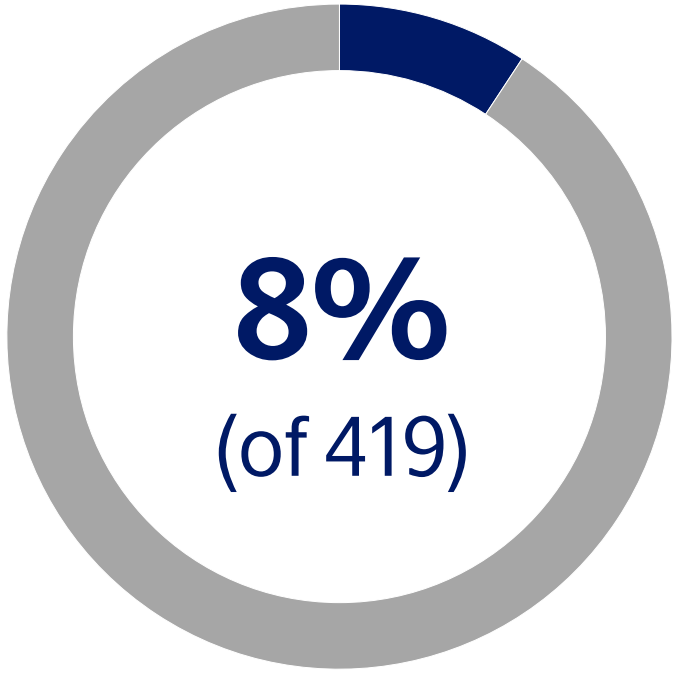
Diabetes



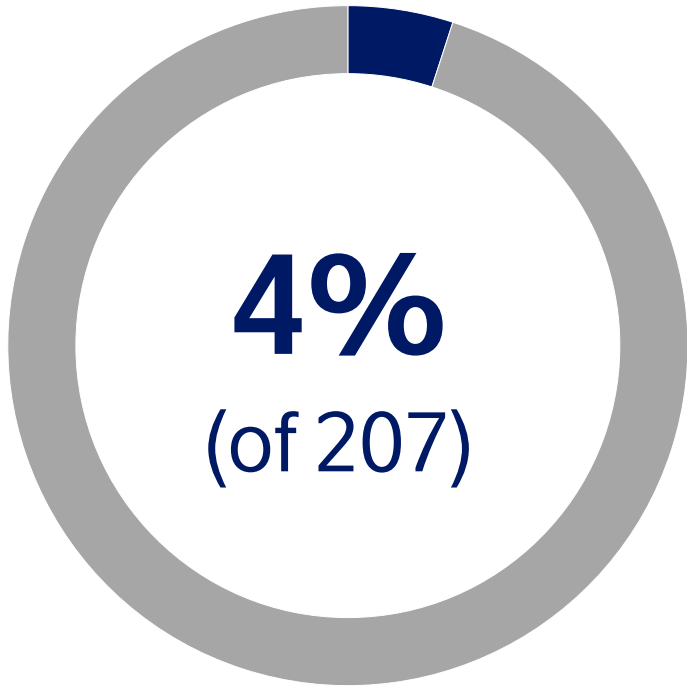
Cardiovascular



Cancer

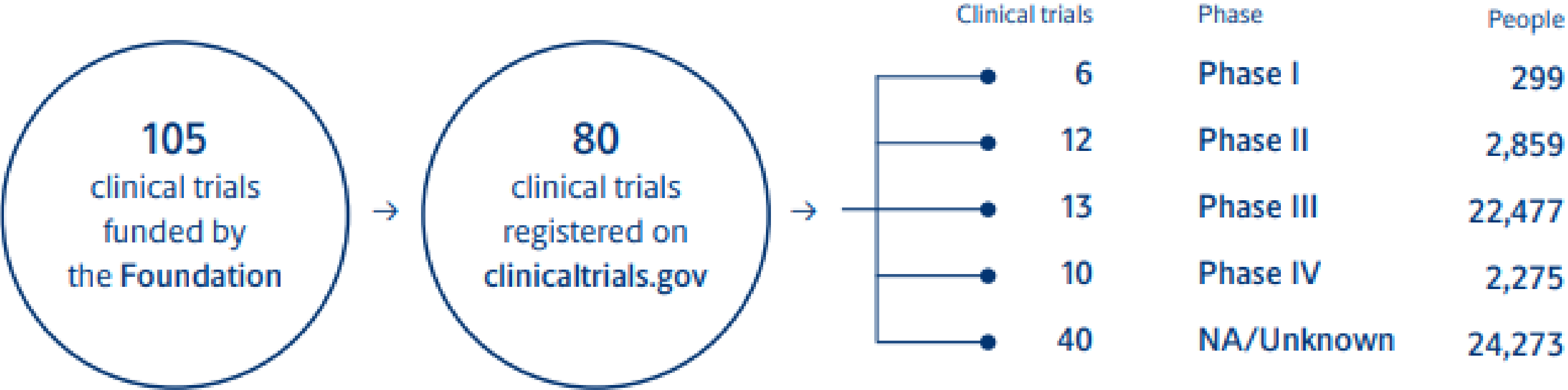


Respiratory diseases



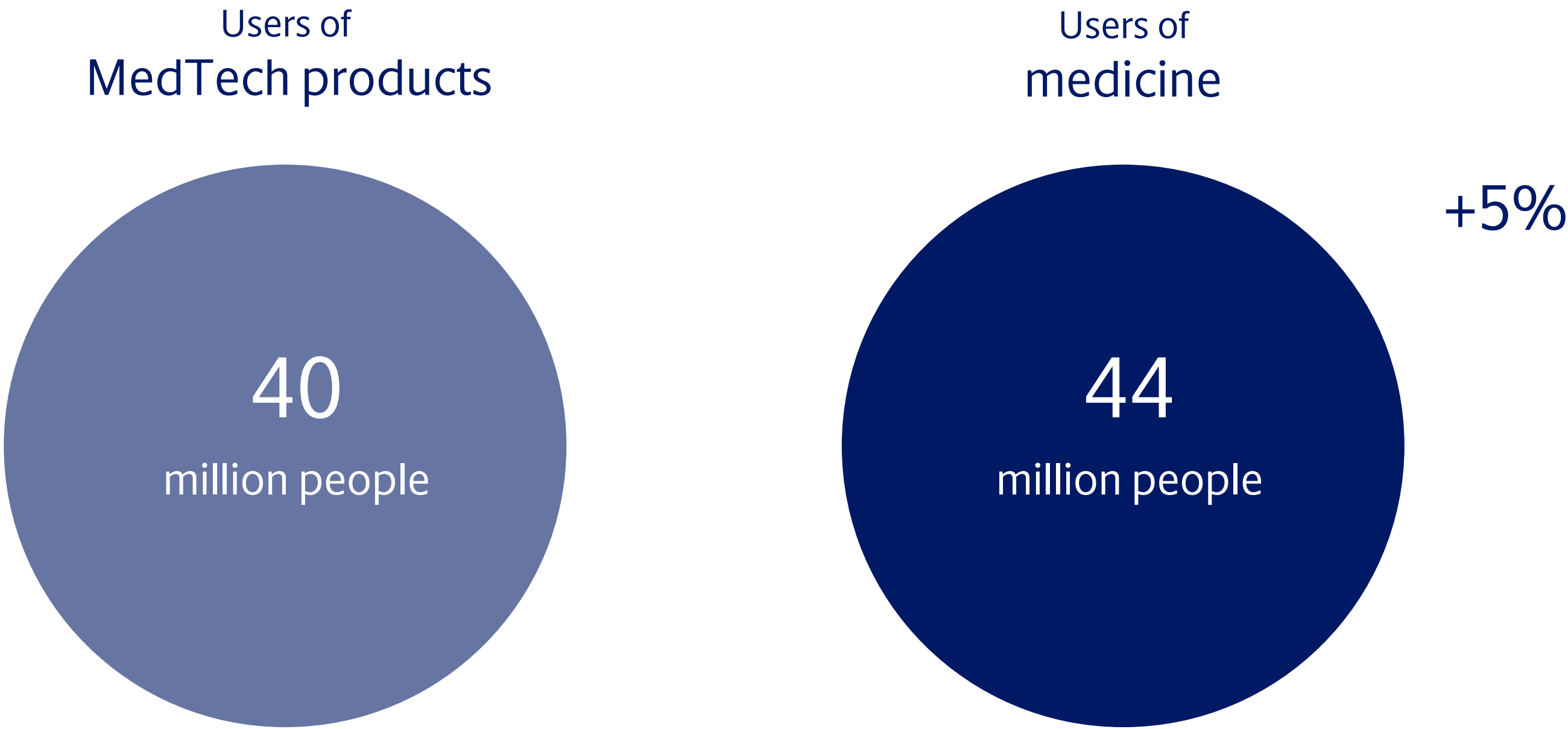
- **Fostering** the development of research talent
- **Investing** in infrastructure
- **Supporting** research collaboration
- **Promoting** excellent research
- **Developing** innovative products and solutions
- **Creating** jobs and growth
- **Developing** healthcare and new medicine

Accumulated number of clinical trials in Foundation-funded research since 2014



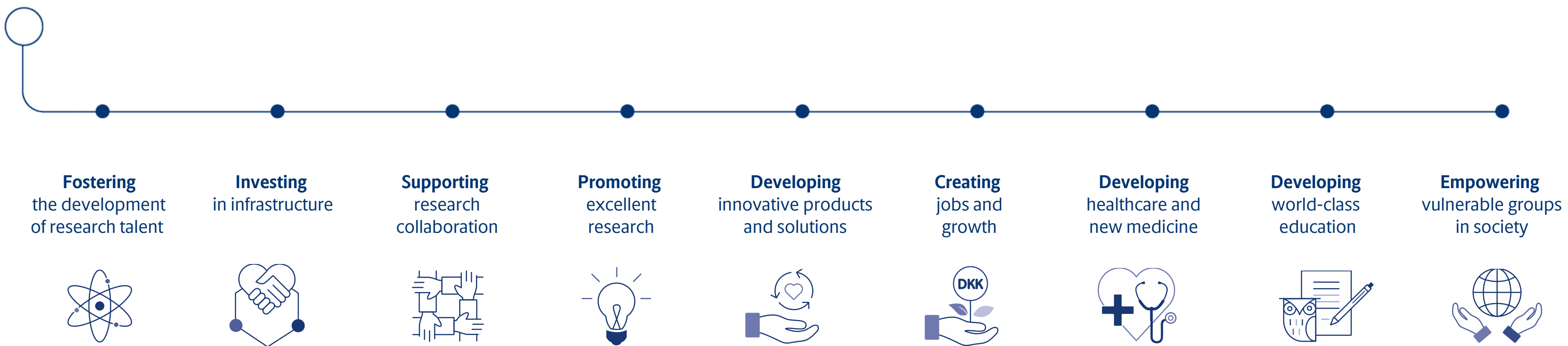
- **Fostering** the development of research talent 
- **Investing** in infrastructure 
- **Supporting** research collaboration 
- **Promoting** excellent research 
- **Developing** innovative products and solutions 
- **Creating** jobs and growth 
- **Developing** healthcare and new medicine 
-
-

Number of people using the products from the Novo Nordisk Foundation Group in 2023

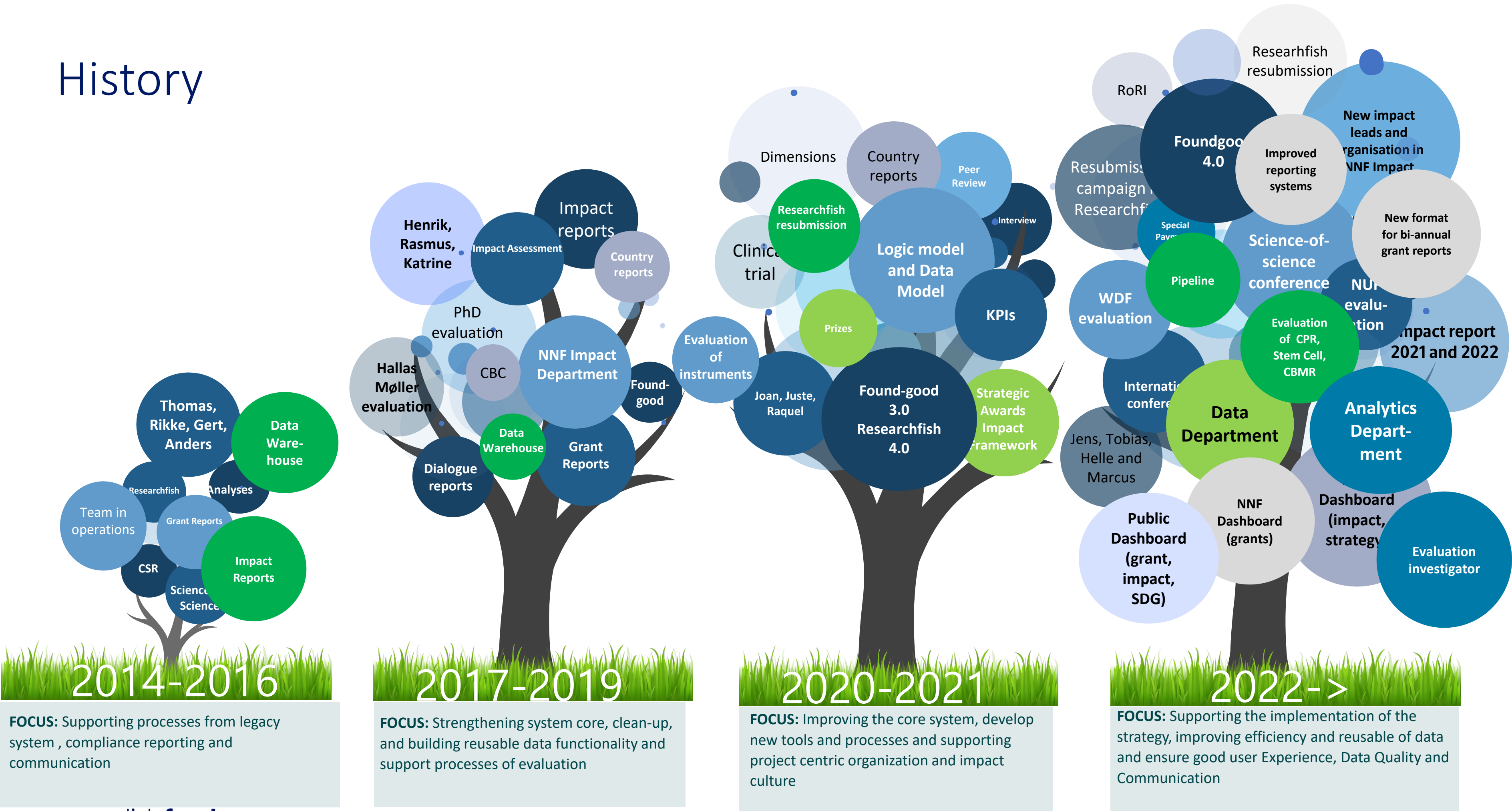


- **Fostering** the development of research talent 
- **Investing** in infrastructure 
- **Supporting** research collaboration 
- **Promoting** excellent research 
- **Developing** innovative products and solutions 
- **Creating** jobs and growth 
- **Developing** healthcare and new medicine 
- **Developing** world-class education 
- **Empowering** vulnerable groups in society 

End of selected results within our nine impact principles

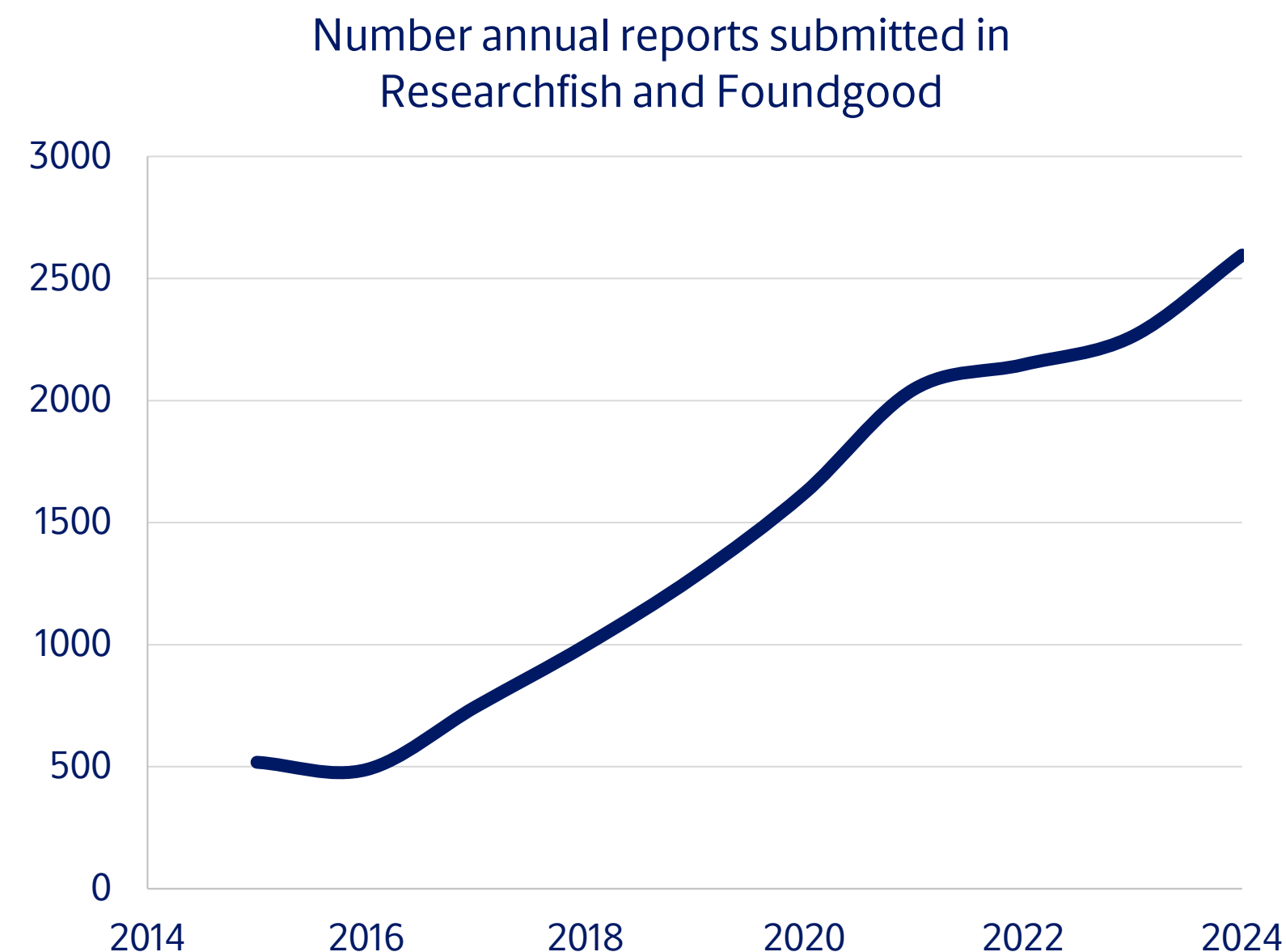


History

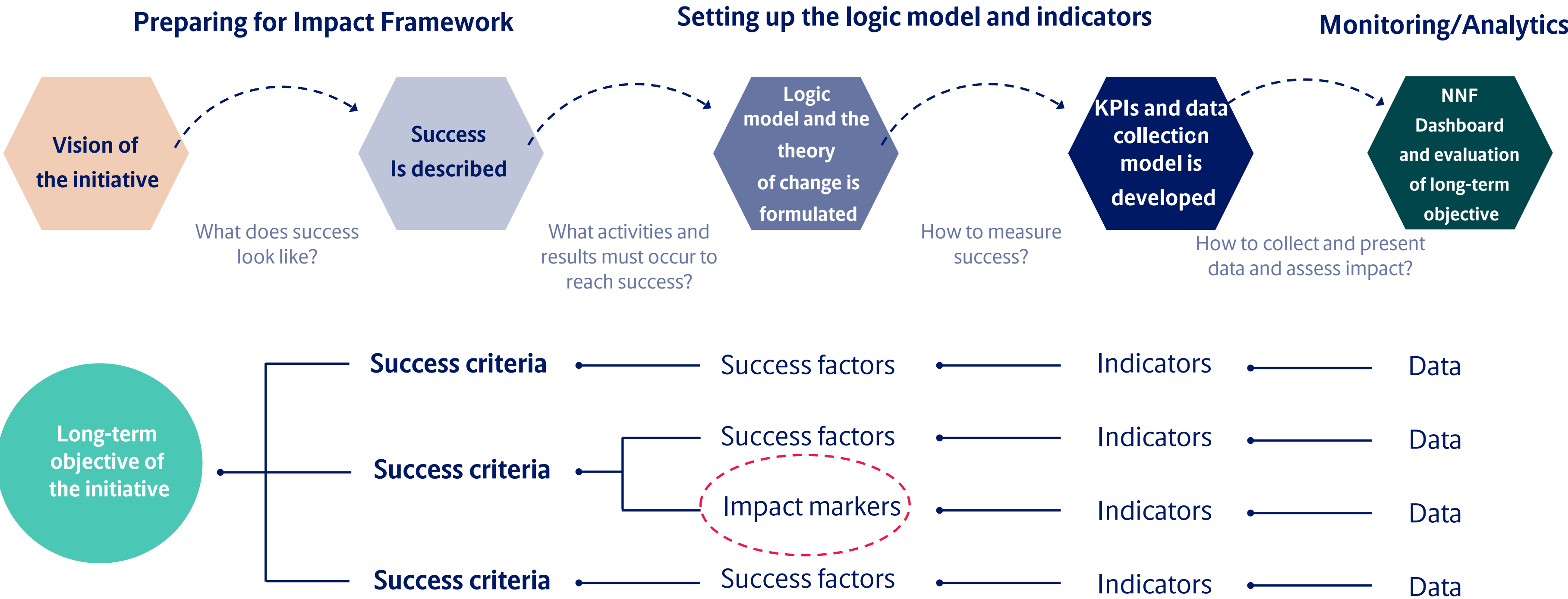


History (from impact assessment to impact management)

- 2014, impact assessment mandate and strategy approved
- Since 2015, 10 years of systematic annual output and outcome reporting from all grantees and 9 impact reports
- Since 2019, impact assessment of NNF's impact in society focuses on the BoD's nine principles for societal impact
- Since 2021, impact management is introduced with focus on an impact culture and impact frameworks in the project-centric organisation

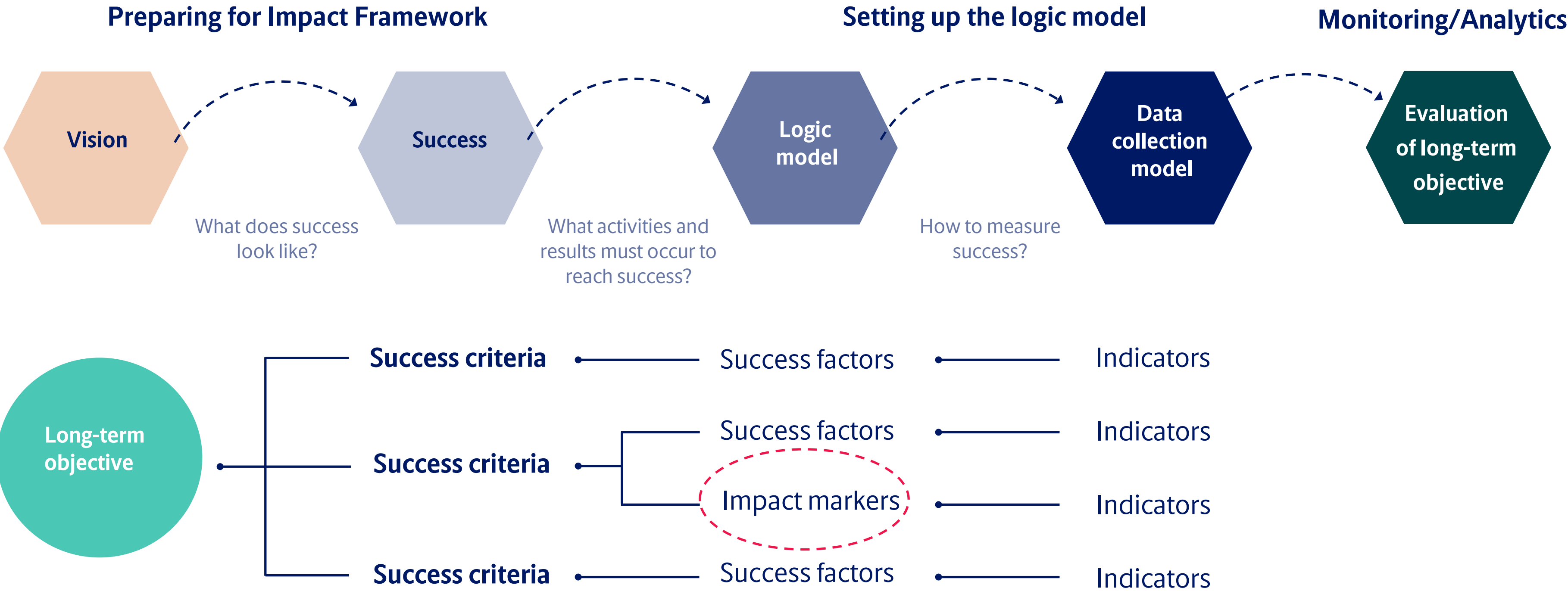


Development of initiatives: From vision and success criteria to interdependent success factors, impact markers, indicators, data collection and evaluation



From Impact framework via impact management to impact assessment

Matching the cycles: From vision and success criteria to interdependent success factors, impact markers, indicators, data collection and evaluation



Intelligent technology to track research and evidence impact

We help research funders, charities, research organisations and research centres to collect impact-related data to advocate research and inform funding strategies.

[EXPLORE RESEARCHFISH](#)

Novo Nordisk
Foundation

Global filters

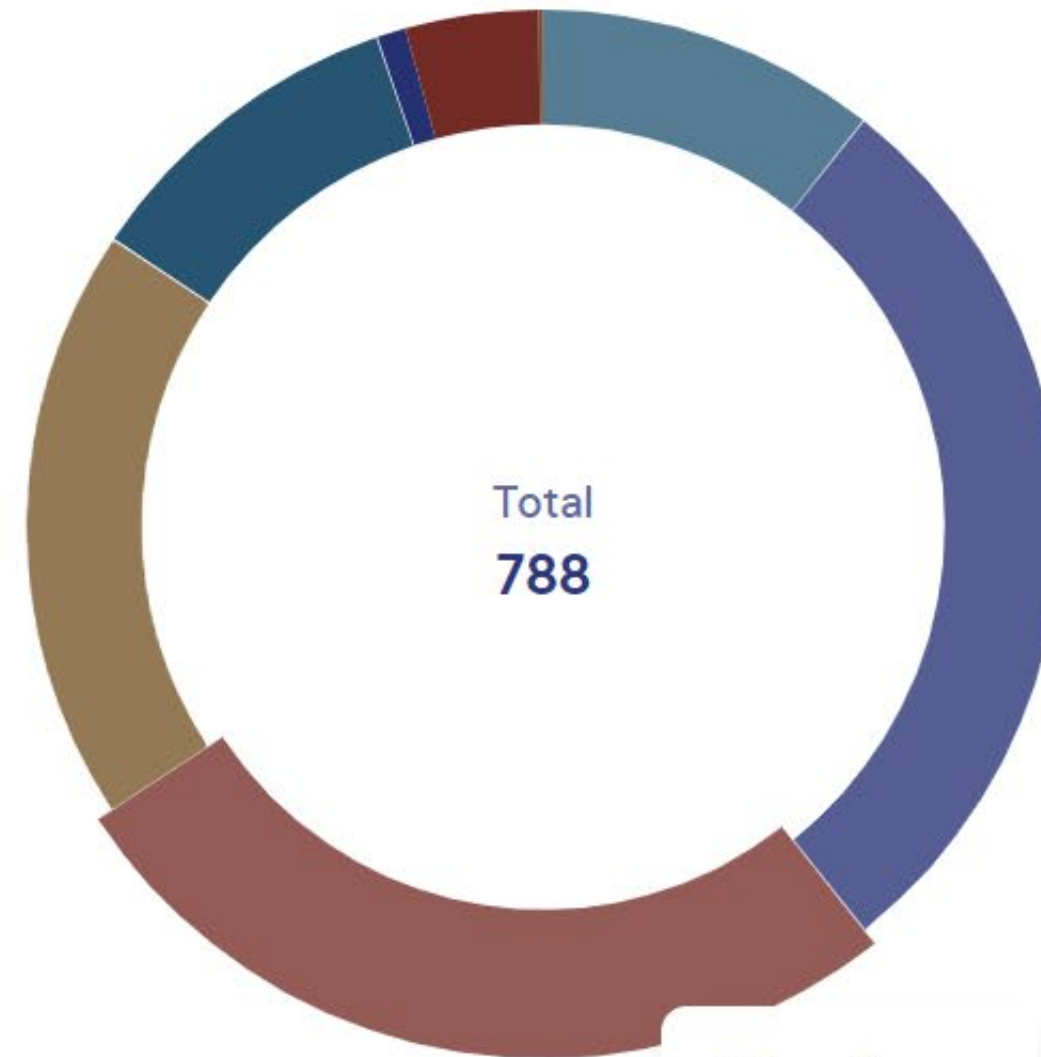
No filters applied
788 initiatives showing

Add filter

Initiatives

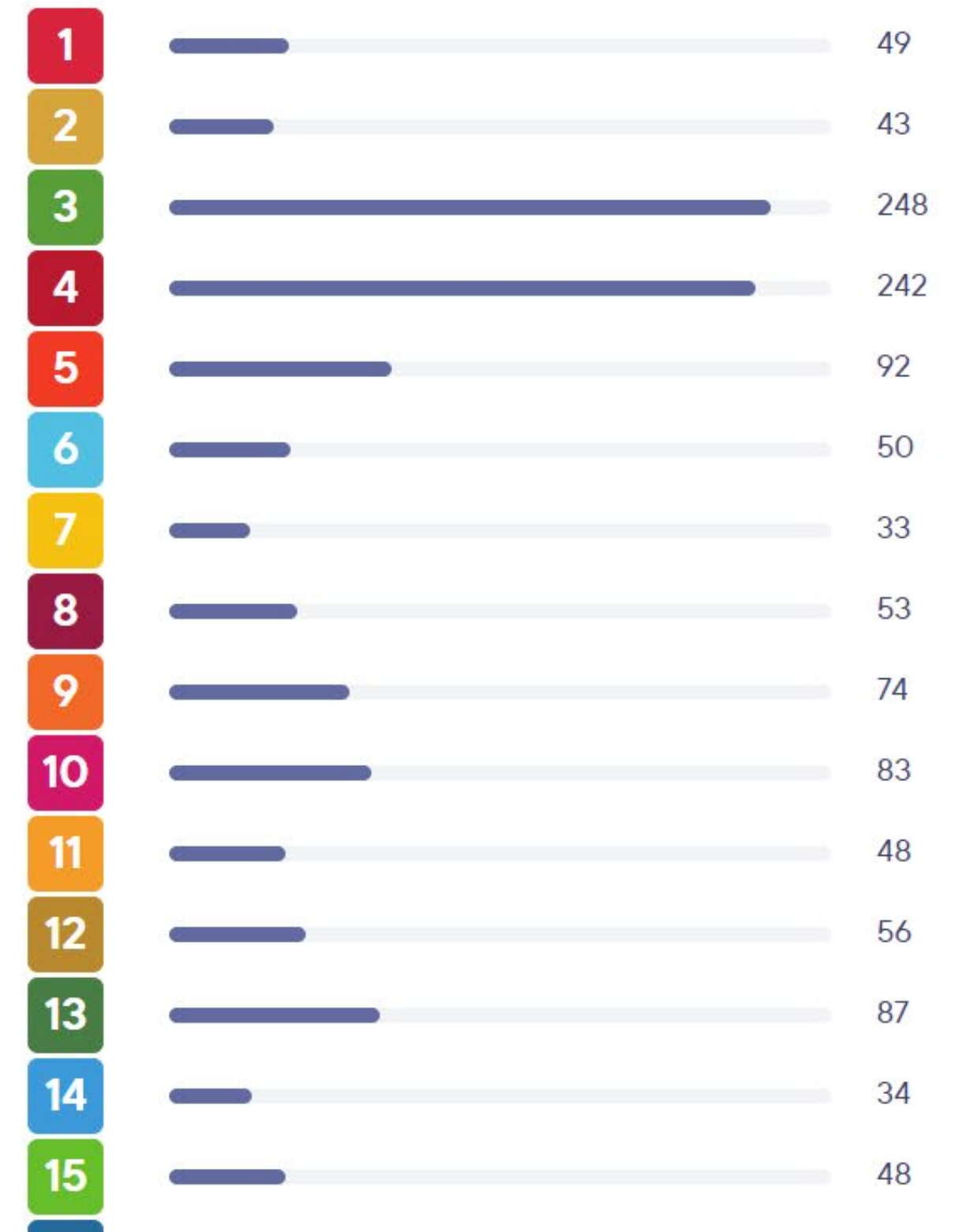
\$ Funding

Organisations

The number of initiatives that your
organisation is funding by category

Categories

- Culture - 1
- Education - 208

Education
208 initiative(s)The number of initiatives your organisation
is funding per SDG

Our value creation philosophy



Supply side
Funder/investor



Demand side
Grantee/investee



Society
Equilibrium for
People/citizens

The level of funder intent and input resources to create real-world impact via.....

Strategy, vision, missions, themes & key objectives

Impact mechanisms: Grant-giving models & instruments to optimise impact

Align funding with the NNFs strategy, vision, three focus-missions and nine impact principles

Contribute with non-financial support and co-development of initiatives in project centric organisation

Funding is directly linked to one of NNFs 12 themes and one or more of the NNFs 49 key objectives

Contribution with financial support, funding instrument, impact framework and KPIs signaling signal that societal impact matter

activities that the grantee carries out which result in production of

the **outputs** that the grantee generates...

to achieve the desired medium and long term **outcomes** and tangible short-term results

so they create the **strategic impact changes** that we ultimately seek

in order to fulfill our **vision** and **long-term objective**

- ❑ Operations of initiative and project intervention
- ❑ Monitoring of activities initiated and in progress

➤ Direct and immediate results of activities in terms of products or operations that intend to deliver future changes

❖ Changes in outcomes as result of activities

❖ Evaluate critical success criteria ("impact markers")

❖ Reduced or minimal control by recipient of grants

- ❑ Full control over initiated activities by recipient
- ❑ Monitor critical success criteria ("impact markers")

➤ Very high degree of influence over direct results from activities by recipient

- ✓ Changes in long-terms outcomes caused by activities, interventions and outputs
- ✓ Verify or reject long-term impact goal hypothesis

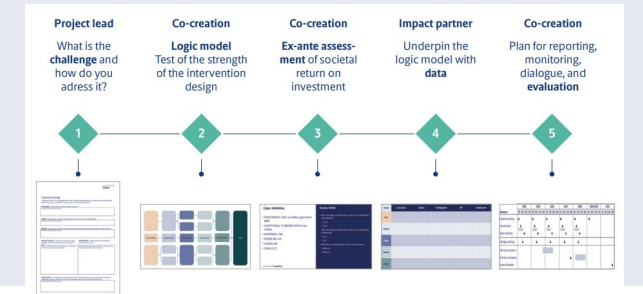
- ✓ Very little or no influence over medium and long-term outcome
- ✓ Evaluate strategic objectives and critical success criteria ("impact markers")

Societal change measured (additionality for society) in terms of before and after situation or in terms of differences for treatment group versus control group

Prioritised impact activities since 2022

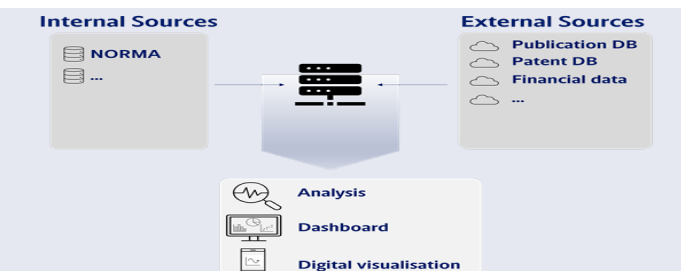
Implementation of impact management for all new initiatives

(Impact culture in NNF and by universities and research hospitals. Broad use of theory-of-change.)



Excellent and Broad Data Platform

(Make Data Platform ready for future technology development and AI)



Working with new evaluation criteria in Open Competition

(Quality, Scientific Approach, Societal Impact, Past Performance, Leadership and collaboration/research environment)

Methods of peer-review
Submission and initial screening: Research proposals submitted to the Novo Nordisk Foundation will undergo an initial screening to ensure compliance with submission guidelines and relevance to the funding call.
Assignment to reviewers in committees: Proposals that pass the initial screening will be assigned to domain-specific experts for peer-review. Reviewers in the committees will be selected based on their expertise, experience, and absence of conflicts of interest and will be asked to assess a certain number of proposals so all proposals before a committee meeting are assessed by minimum 3 committee members.
Evaluation based on criteria: Reviewers will assess proposals based on the six key areas outlined by the Foundation: Project Quality, Scientific Approach, Societal Impact, Past Performance, Research Leadership and Potential, and Collaboration and Research Environment.
Scoring and comments: Each proposal will be scored and provided with comments. The scoring system will be standardized to ensure consistency across reviews. Reviewers will also make a summary statement for each proposal providing the overall recommendation for funding for the proposals they have assessed.
Committee review and decision: The committee will review the scores of all proposals and comments, discuss the proposals, and make funding decisions.

Public view dashboards for all grants: input, output, outcome and impact



Collaboration with the largest international foundations and universities

(Common funder data platform at Aarhus University, common analysis, and data sharing)



Use of AI – Solving tasks in seconds or minutes instead of days

Researcher profiling

(Recommender algorithm for the matching process of committee member competences with application topic. The manual analysis takes +10 hours per researcher. → The automatization using ML and LLM takes 30 seconds per researcher.)

Classify grants and applications in “green and other” categories requested by the Ministry of Research

(The manual classification takes +55 hours of manual work. → The automatization using ML and LLM takes a few minutes.)

Diverse Output and Outcome Index as supplement to H-Index

(Societal impact evaluation of researchers takes +8 hours of manual work. → The automatization using ML and LLM takes three minutes.)

Matching committee members and applications (review recommender)

(Recommender algorithm for the matching process of committee member competences with application topic. The manual classification takes +200 hours of manual work. → The automatization using ML and LLM takes 5-10 hours)

Simulation of Science for Society

(Research project using AI, Network Science and Big Data to predict societal impact of research and NNF initiatives)

Thank you
for your attention

novo
nordisk
fonden
Benefiting people and society

Thomas Alslev Christensen
Senior Vice President
Impact

novo nordisk **fonden**