

# NOVO NORDISK FOUNDATION: "Purpose and role of impact assessment"

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# IT BEGAN WITH INSULIN

## The scientists

Marie Krogh

August Krogh

## The clinician:



H.C. Hagedorn

## The investor:



August Kongsted

## The entrepreneurs:



Thorvald Pedersen



Harald Pedersen

# INDEPENDENT FOUNDATIONS WITH CORPORATE INTERESTS

## Vision

To contribute significantly to research and development that improves the health and welfare of people

### Corporate objective

- > to provide a stable basis for the commercial and research activities of the Novo Group companies

(and of companies in which the Novo A/S may hold a material equity interest or over which it may have material influence)

### Grant-giving objectives

- > to support physiological, endocrinological, metabolic and other medical research,
- > to support Danish research hospital activities within diabetes,
- > to support other scientific, humanitarian and social purposes

Novo Nordisk Foundation's vision and objectives



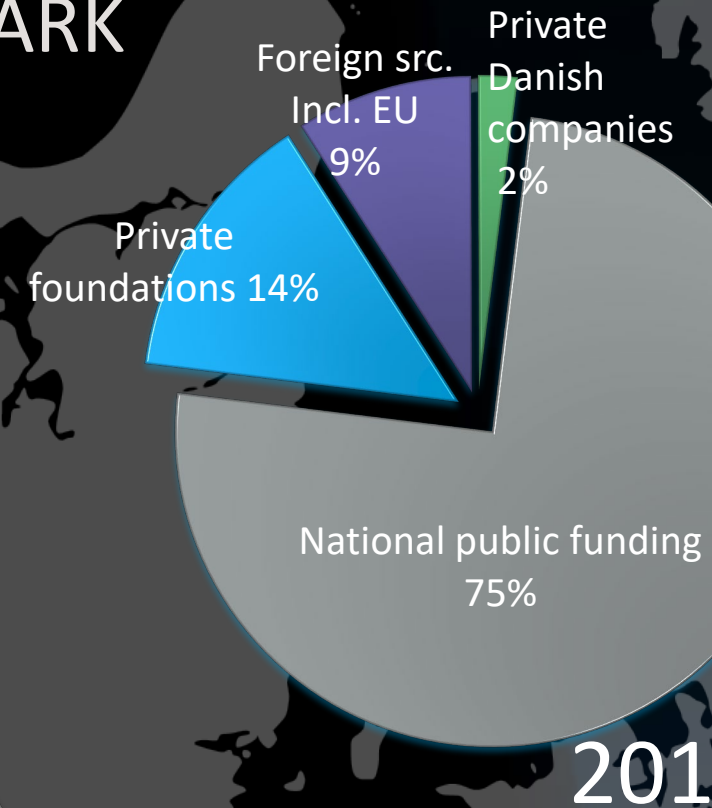
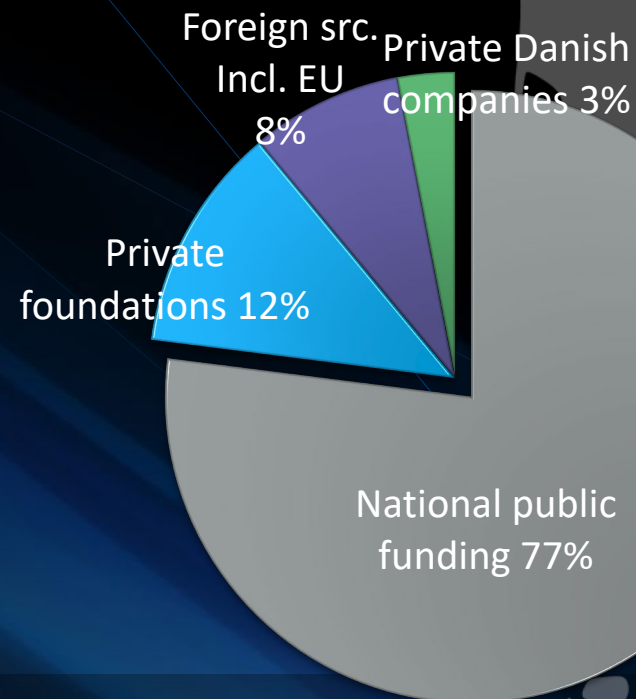
# FUNDING OF PUBLIC RESEARCH IN DENMARK

> Novo Nordisk Foundation's share of the total funding:

- > 2015: 4%
- > 2017: 8% (estimate)

> Novo Nordisk Foundation's share within the life-sciences:

- > 2015: 15%
- > 2017: 25% (estimate)



# IMPACT ASSESSMENT

## PURPOSE

- Why funding scientific purposes?
- How does science affect society?
- Can the impacts of science be documented? And where?
- Does the Foundation live up to its purposes?
- Does the Foundation achieve its grant-awarding goals?
- What works and what does not work?

# DATA COLLECTION NECESSARY

## BUT NOT SUFFICIENT FOR ASSESSING IMPACT

- Systematic quantitative and qualitative data collection
  - online data reporting system researchfish®, interviews, desk research og surveys
- Live data fra databaser
  - NNF budget, administration and application systems
  - Web-of-Science, Scopus, Leiden, Danmarks Statistik, Eurostat

# METODES

## RESEARCH BASED ANALYSES

DESCRIPTIVE, COMPARATIVE, ECONOMETRIC, BIBLIOMETRIC,  
QUALITATIVE SURVEYS, CASESTUDIES:

- Trend analyses:
  - causal relationships and developments over time for input, output and outcome data.
- Benchmarking analyses
- Qualitative evaluations of cases

# SOCIETAL GOALS

With Denmark as the Foundation's centre of gravity the prime focus is:

To promote world-class research and innovation in the medical, biotechnological and natural sciences and help to foster a world-class education system.

To help to develop a knowledge-based society that contributes to long-term economic activity and job creation for improving general health and welfare.



# CORPORATE GOALS

Be a strong owner of the companies in the Novo Group

Generate attractive investment returns to the Foundation on its financial investment portfolio

Make investments with the main goals of promoting knowledge and world class research

# GRANT-GIVING GOALS

Strengthen biomedical  
and biotechnology  
research in selected fields

Advance individual  
scientific excellence

Fuel cross-disciplinarity

Spur imagination,  
inspiration and  
knowledge about science  
and technology

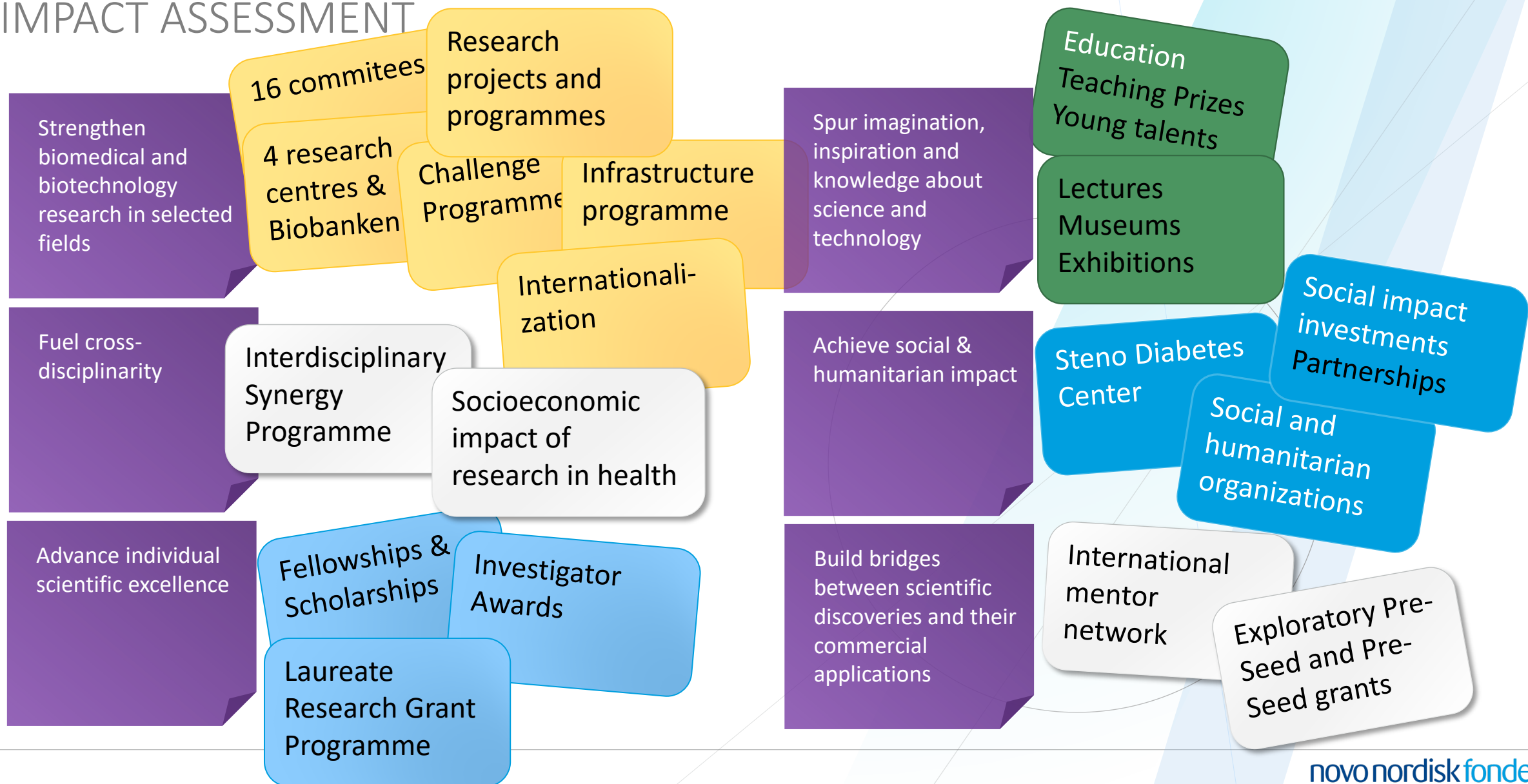
Build bridges between  
scientific discoveries and  
their commercial  
applications

Achieve social &  
humanitarian impact



# STRATEGIC GOALS AND INSTRUMENTS

## IMPACT ASSESSMENT



# EFFECTS

## PROCESSING INDICATORS

### Impact

Effects on individuals,  
organisations and  
society

### Outcome

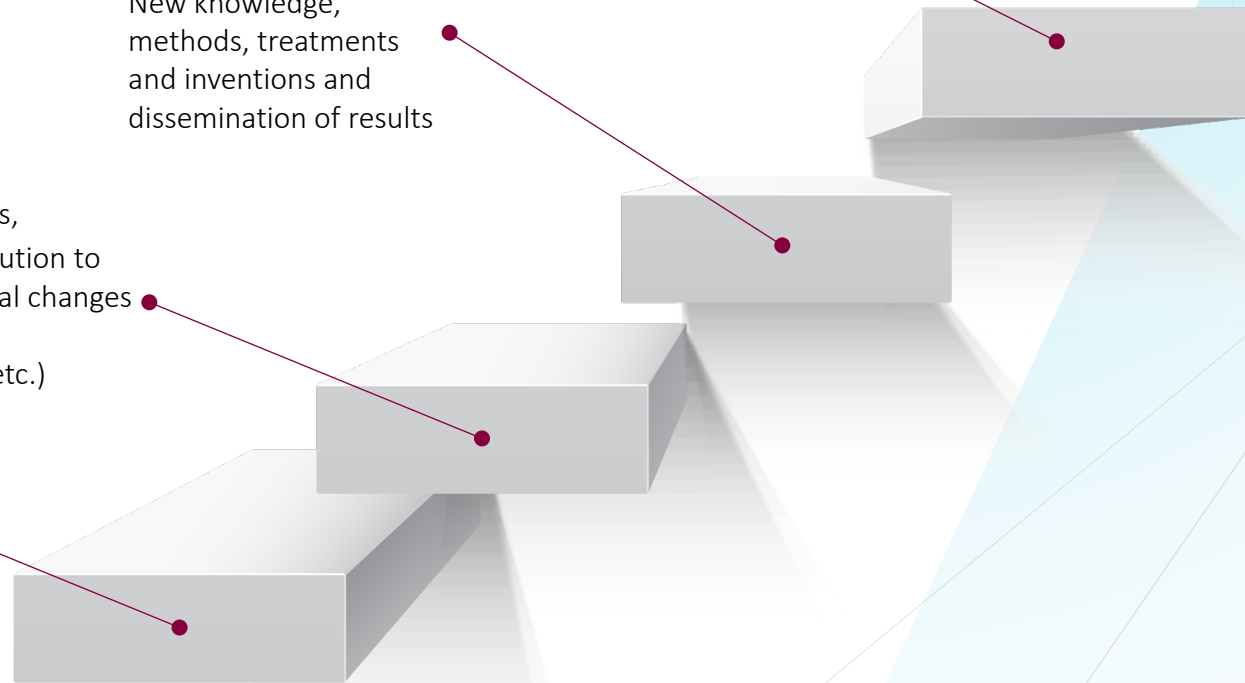
New knowledge,  
methods, treatments  
and inventions and  
dissemination of results

### Output

Activities,  
engagement, contribution to  
policy and behavioural changes  
(collaboration,  
internationalization etc.)

### Input

Funding in research,  
education, innovation, patient  
treatment and social and  
humanitarian causes





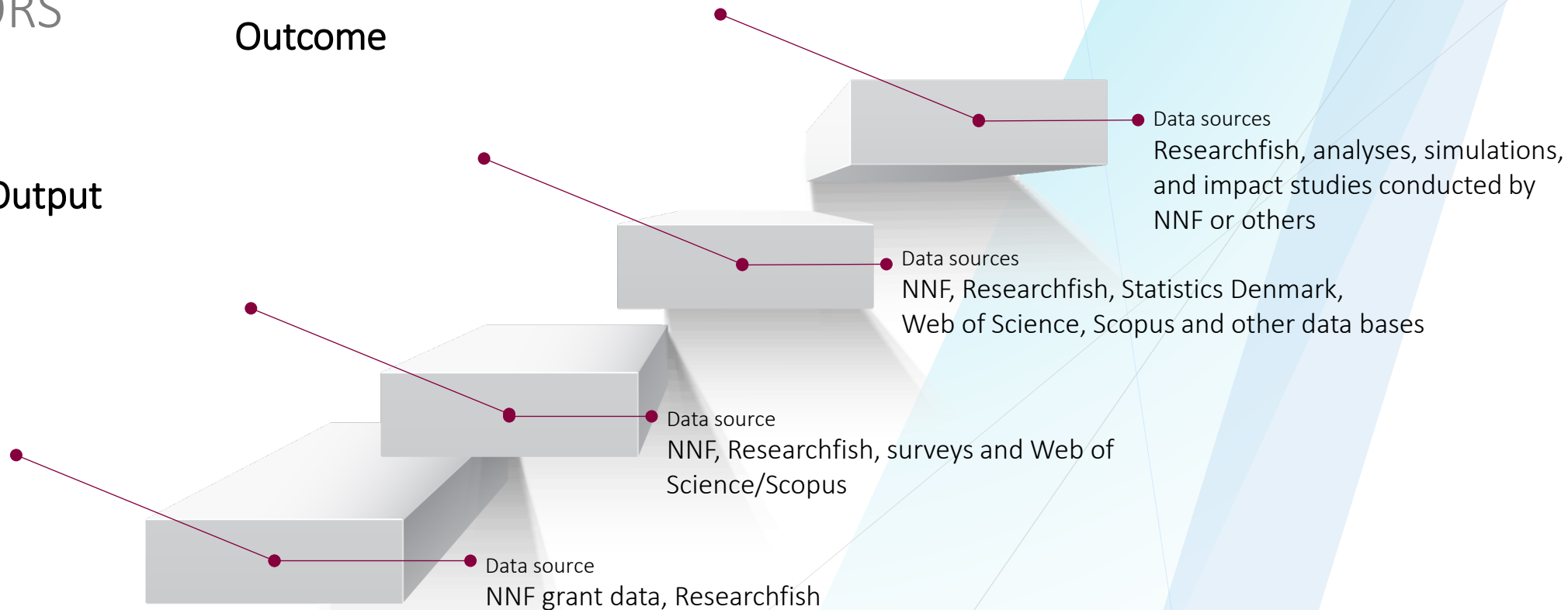
# EFFECTS & DATA

Impact

Outcome

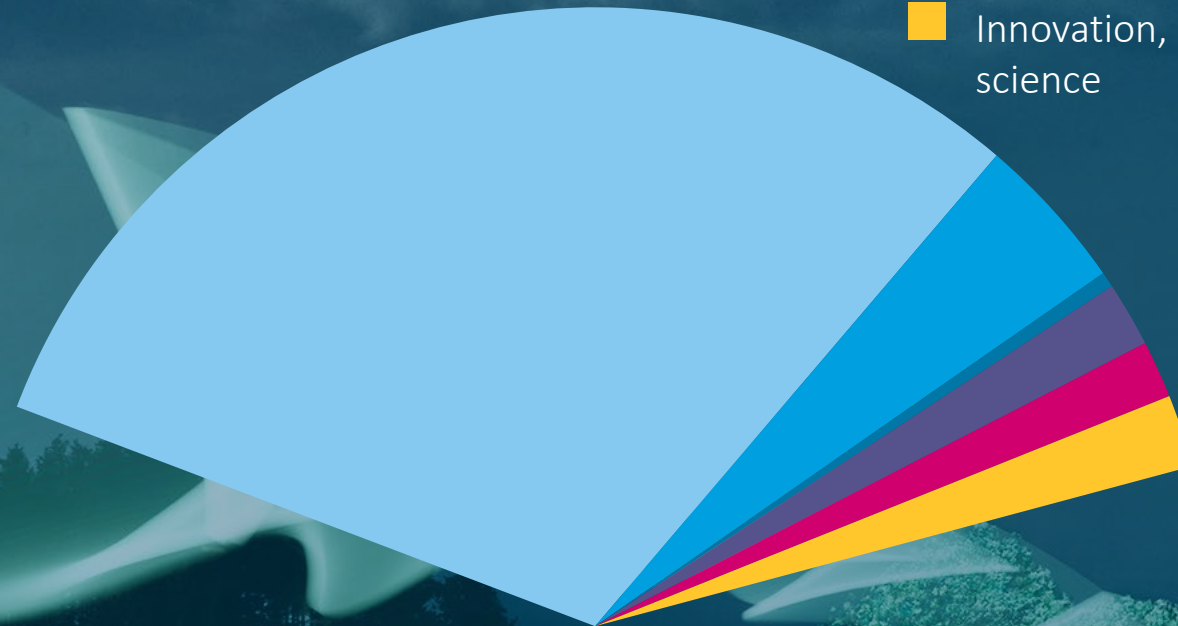
Output

Input



# AREAS OF SUPPORT

- Health Sciences Research
- Diabetes hospital funding
- Humanitarian and social purpose
- Biotechnology research
- Education and outreach
- Innovation, humanities and social science



2016

EUR 152 million paid out

”...to improve the health and welfare of people.”





# FOUR GRANT CATEGORIES

## *Research and Innovation Grants*

Grants awarded in open competition through the permanent committees as well as prizes.

## Strategic Awards

NNF Research Centre Cluster and cluster activities. Standalone Grants and Education and Outreach.

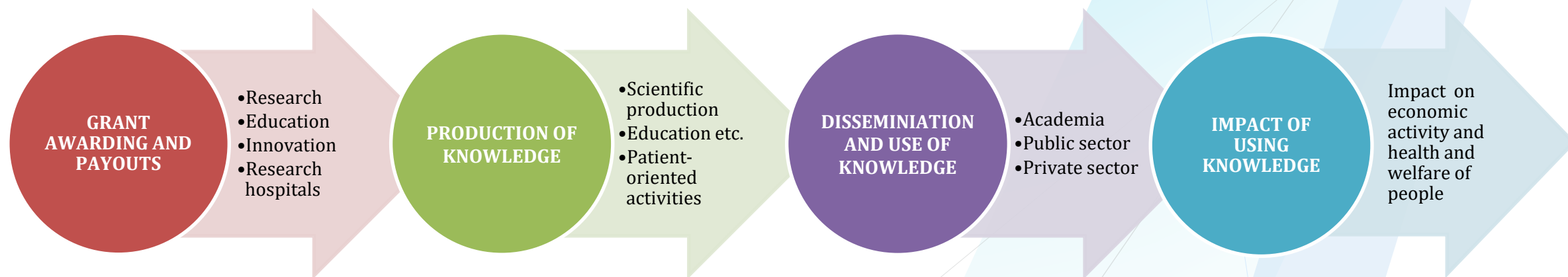
## Social and humanitarian causes

Humanitarian organizations and research into the effects of donations.

## Steno Grants

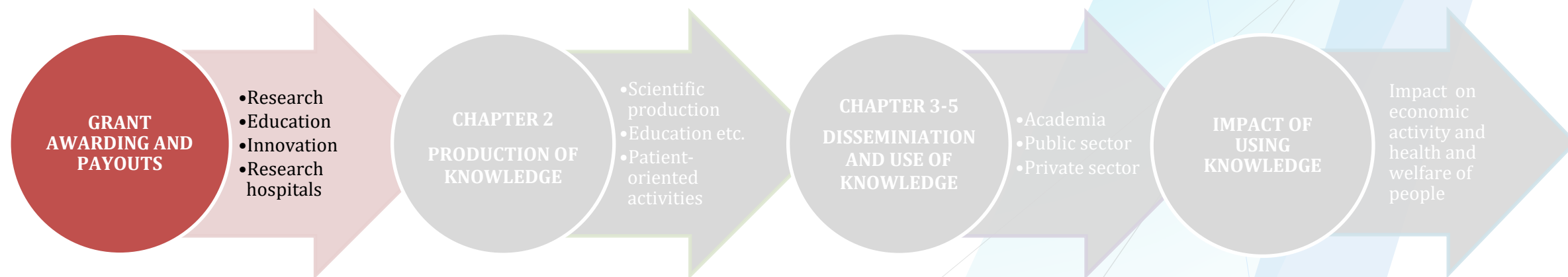
Steno Diabetes Center Copenhagen and the rest of Denmark.

# THE MODEL OF IMPACT



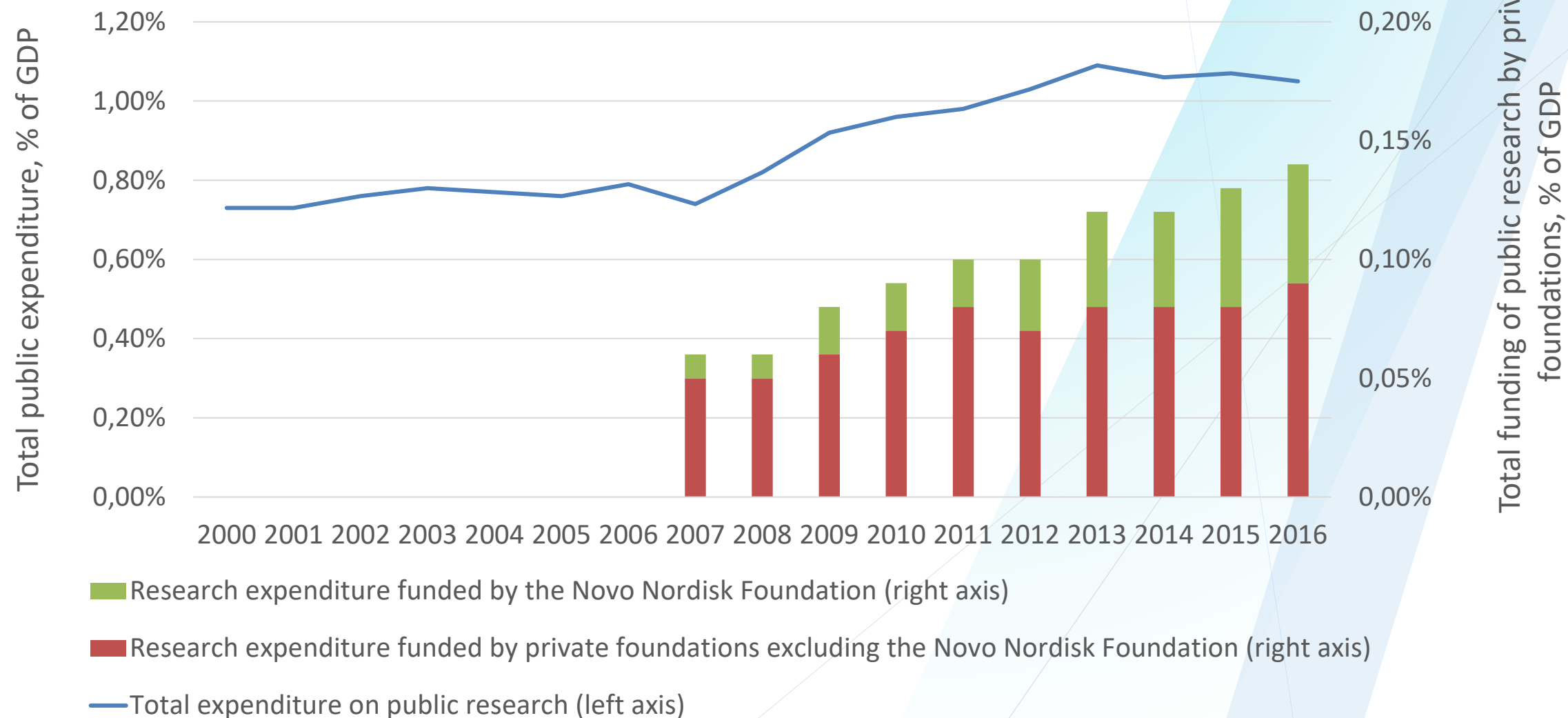


# MONEY AND PEOPLE



# PRIVATE FOUNDATIONS AND INVESTMENTS IN PUBLIC RESEARCH

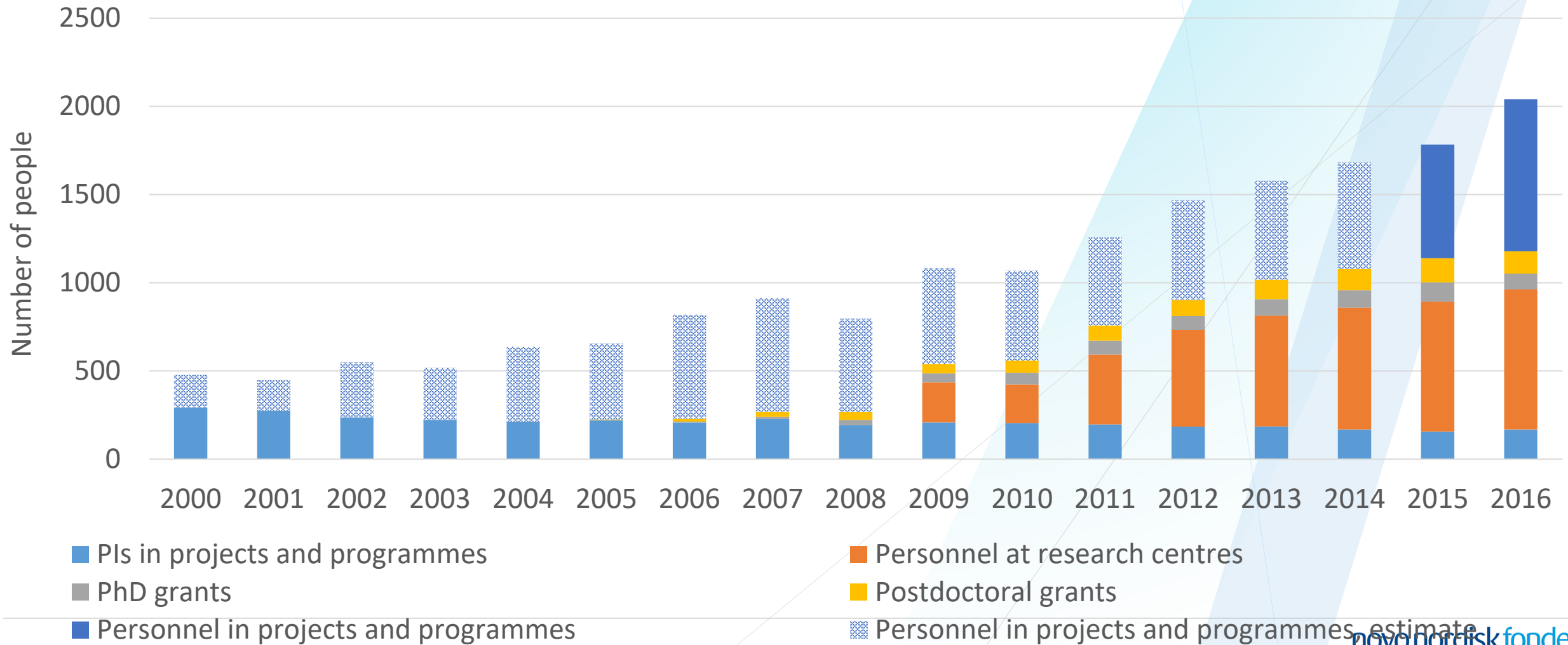
## 2006-2016 (% OF GDP)



487 PhD in progress in 2016

514 postdoctoral fellows in progress in 2016

## NUMBER OF PEOPLE WORKING BASED ON GRANTS

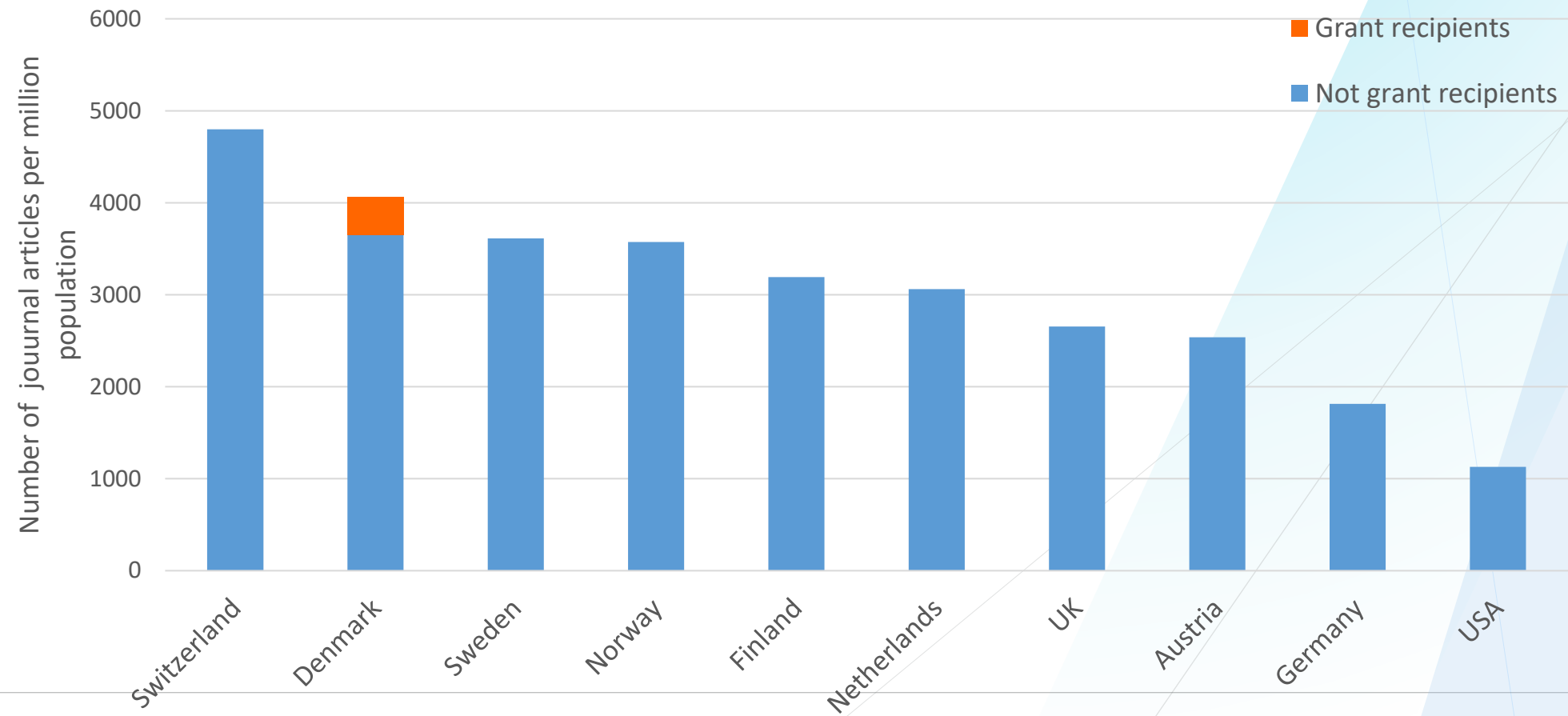


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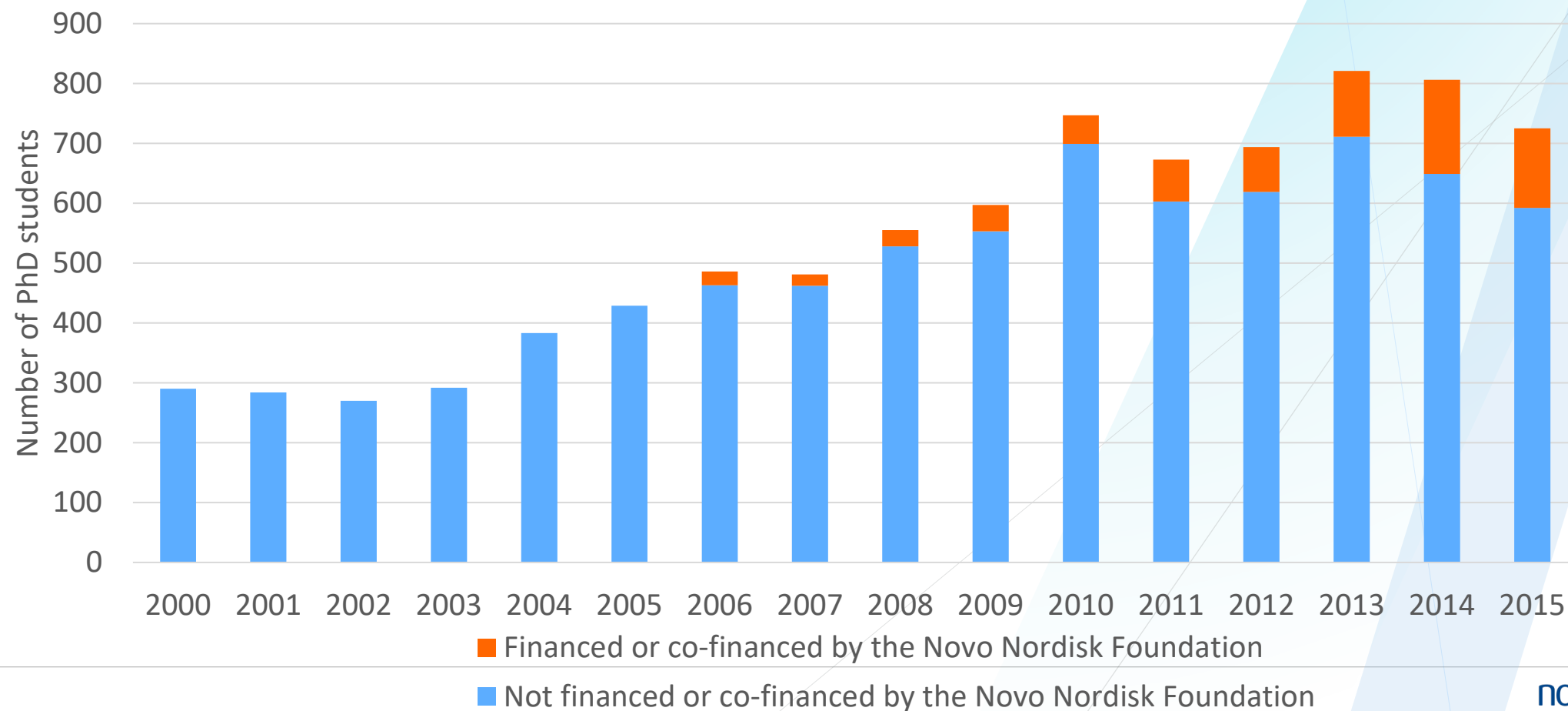
10% of Danish articles

# NUMBER OF JOURNAL ARTICLES PER MILLION POPULATION 2015

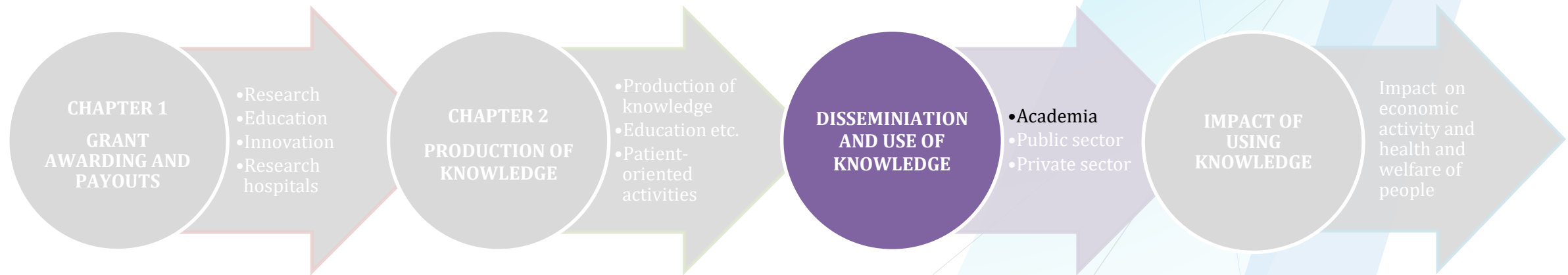


18% new PhD students

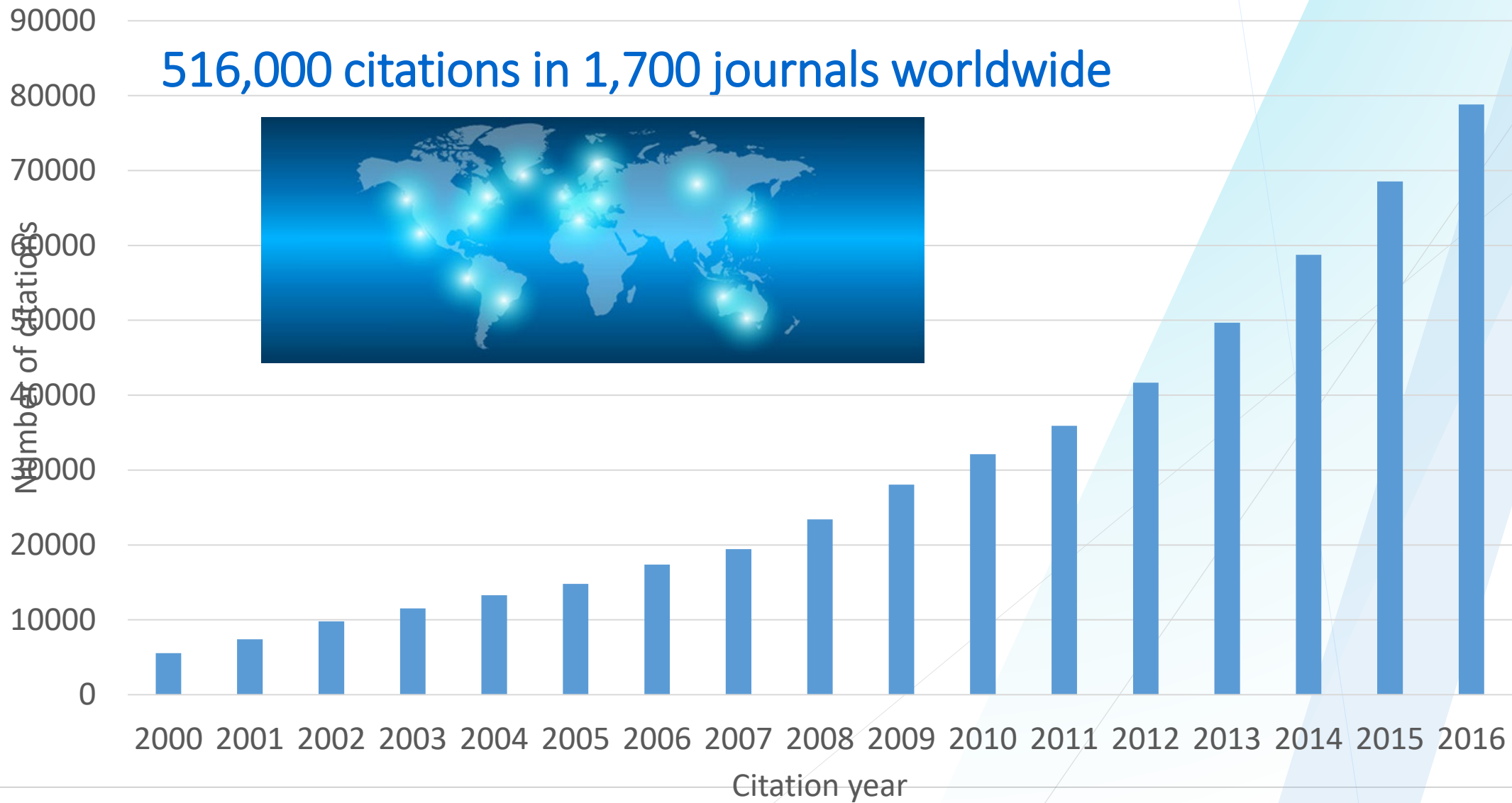
## NEW PhD STUDENTS IN HEALTH SCIENCES NNF AND DENMARK



# SCIENTIFIC IMPACT IN GLOBAL ACADEMIA



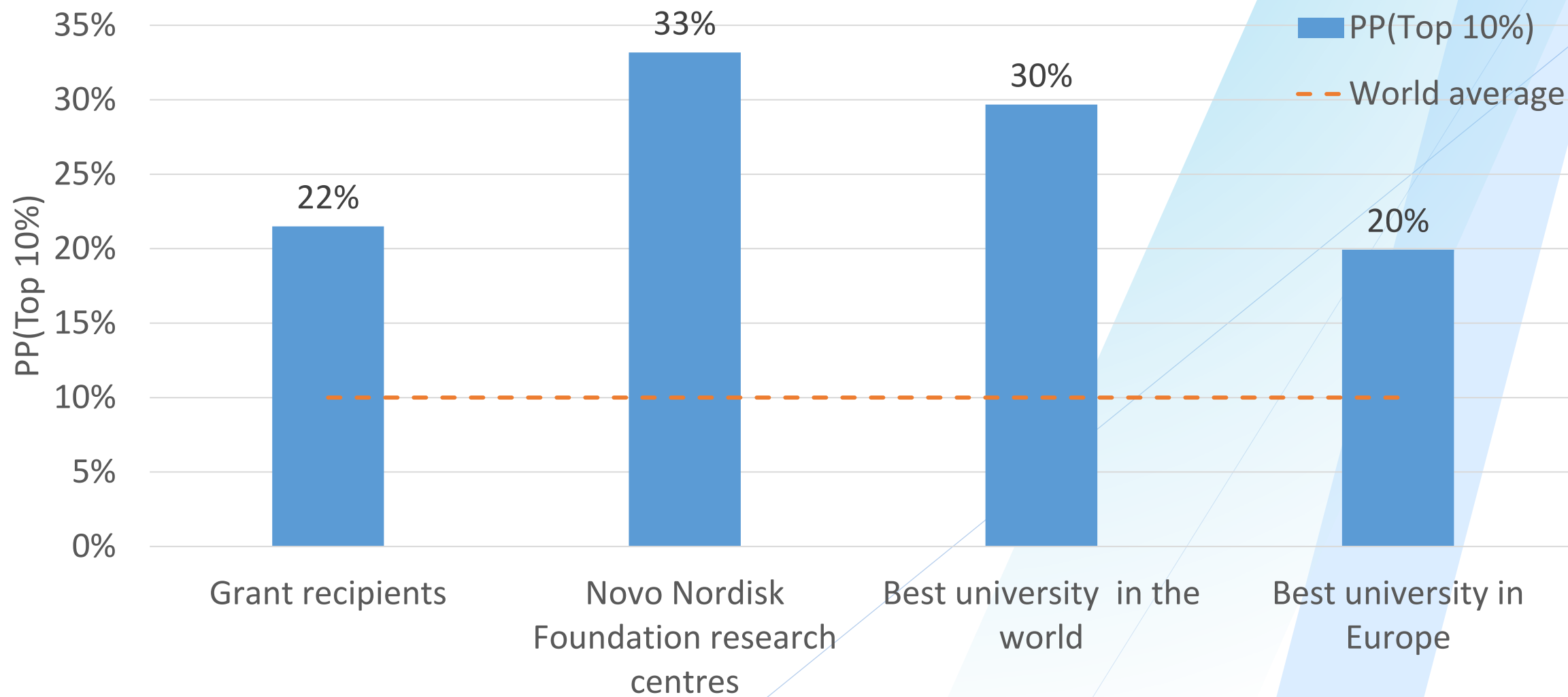
# NUMBER OF CITATIONS



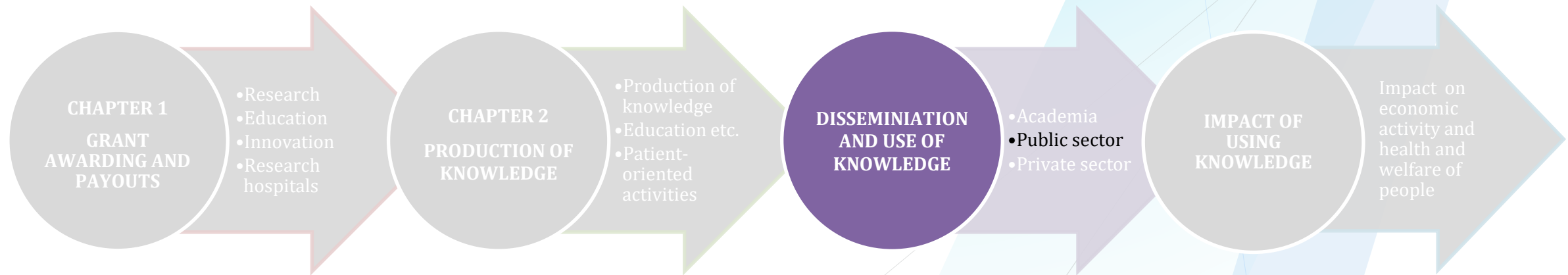


# SCIENTIFIC IMPACT – PP(top 10%)

2011-2014

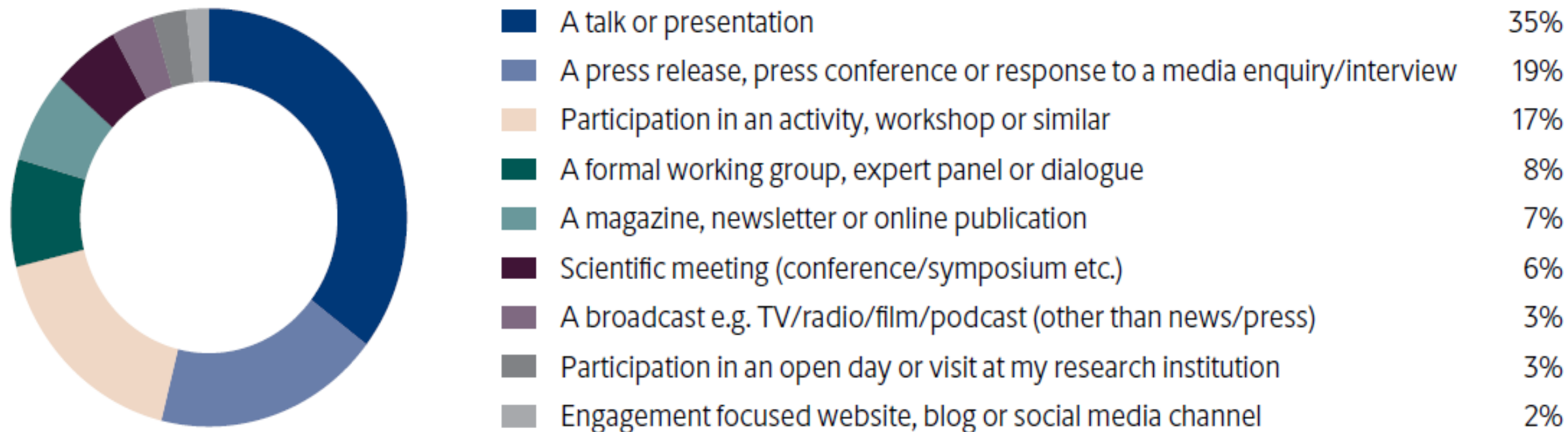


# THE IMPACT OF RESEARCH IN THE PUBLIC SECTOR



# CONTRIBUTION TO COMMUNITY BUILDING AND MEDIA

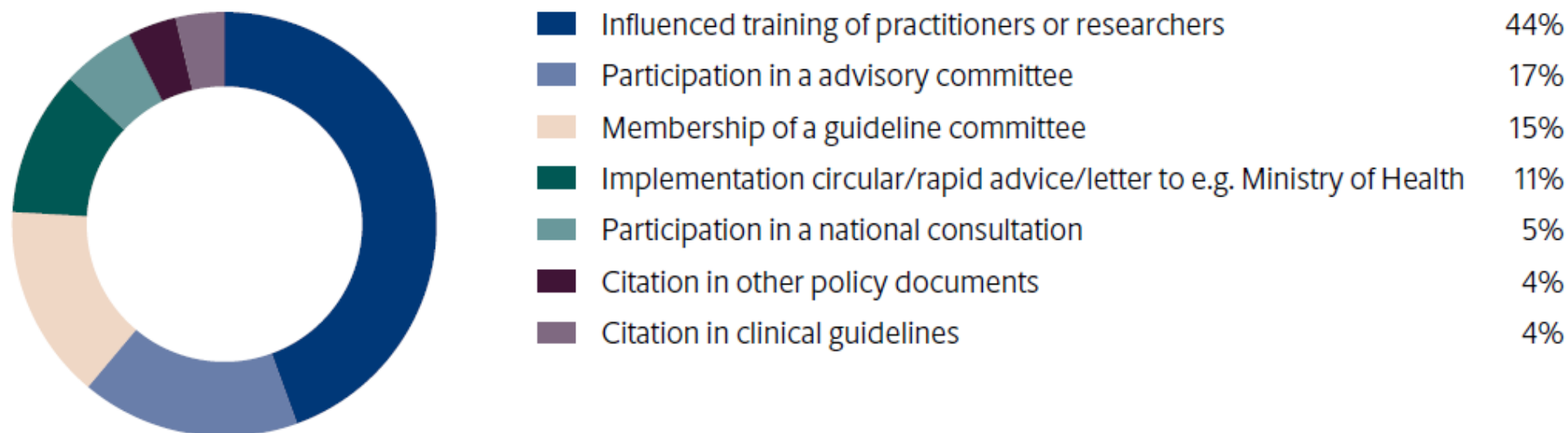
Dissemination activities within the public sector, 2015–2016



Note: The number of dissemination activities is 698.

# CONTRIBUTION TO POLICY AND MINISTRIES

Contributions by grant recipients to practice, guidelines and advisory functions, 2015–2016



Note: The number of reported contributions is 54.

# Diabetes guidelines

2000-2016

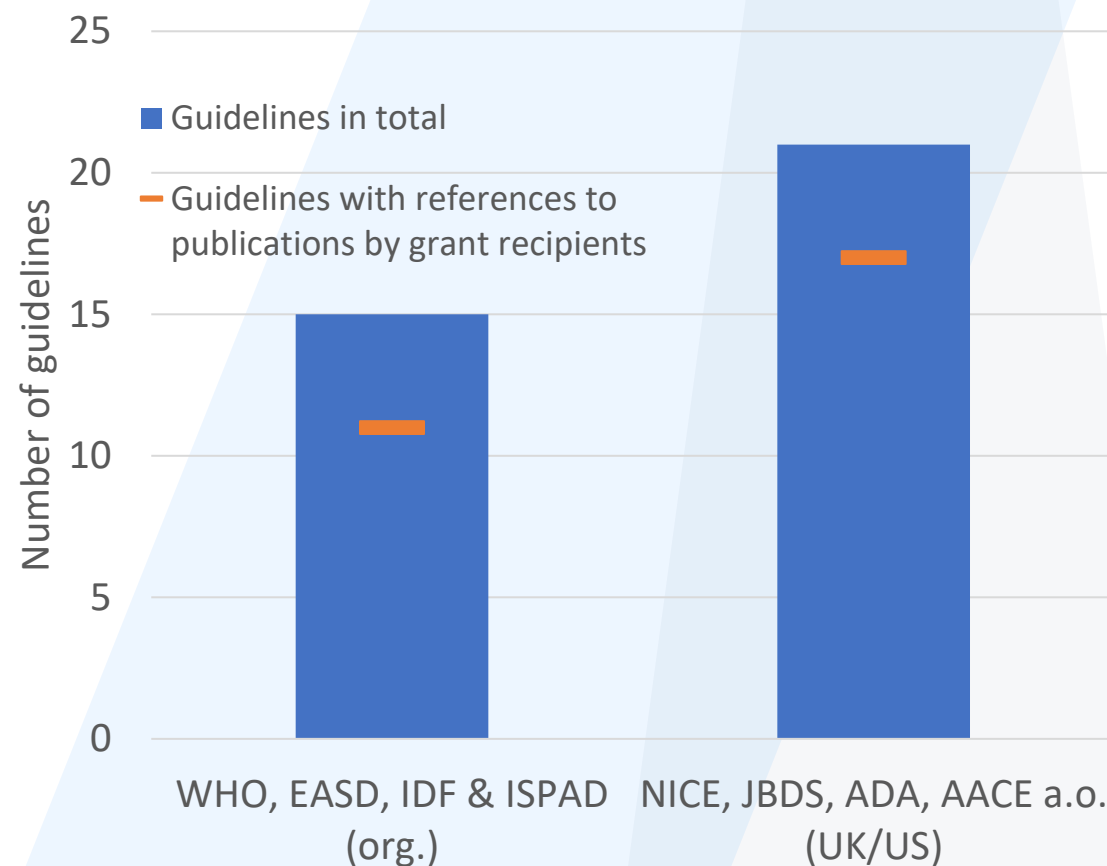


➤ 53% of 100 guidelines have references to research of grant recipients

## Nordic countries



## International





# Cardiovascular guidelines

2000-2016

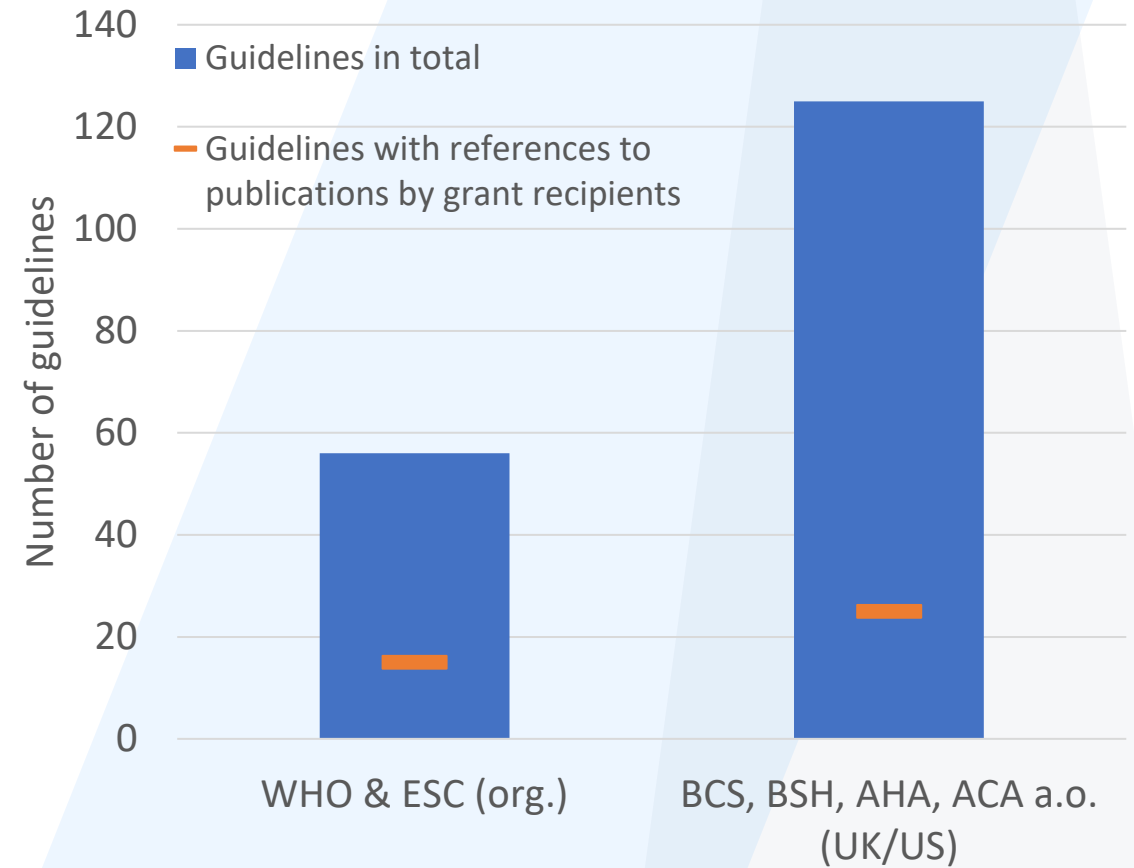


➤ 18% of 276 guidelines have references to research of grant recipients

Nordic countries

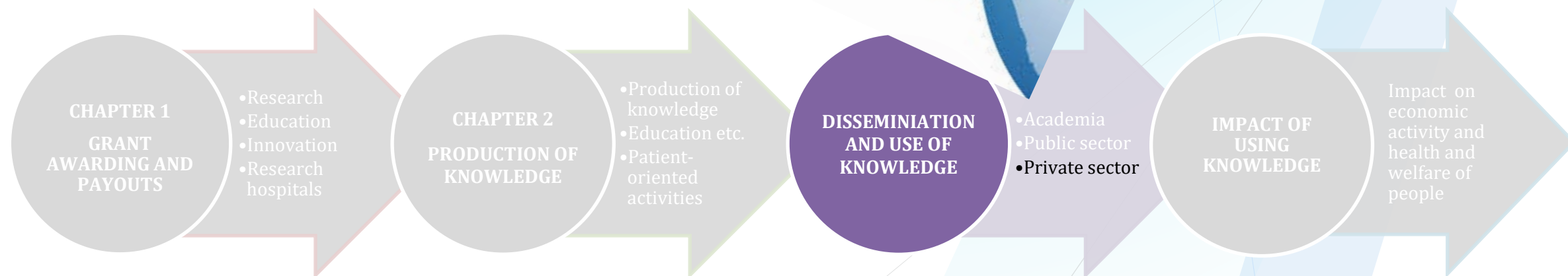


International



# DISSEMINATION AND USE OF RESEARCH IN THE PRIVATE SECTOR

## PUBLIC-PRIVATE COLLABORATION



# COMPANIES COLLABORATING WITH GRANT RECIPIENTS

2000-2015

- 258 companies including 23 university spin-outs (68 Danish companies, including 18 university spin-outs)
- More than 100 research-based products, services and treatments
- Research-based technology-development (inventions, patents, etc.)

