INTERNATIONAL DATA SHARING COLLABORATION AND IMPACT

DR. KATHRYN GRAHAM, PME
ALBERTA INNOVATES, CANADA

Strategy of Impact Conference 2018
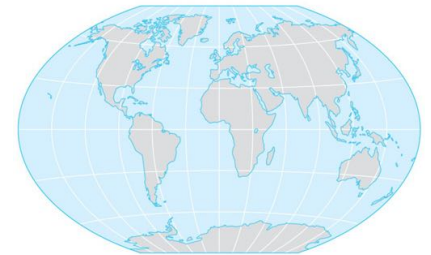## London, November 15, 2018

ALBERTA INNOVATES

OVERVIEW

1. International impact strategy

2. A tale of three international funders on a collaborative journey to data sharing

    - Use of key four elements to maximize the use of Researchfish

    - Exploring "proof of concept"

2. Lessons learned
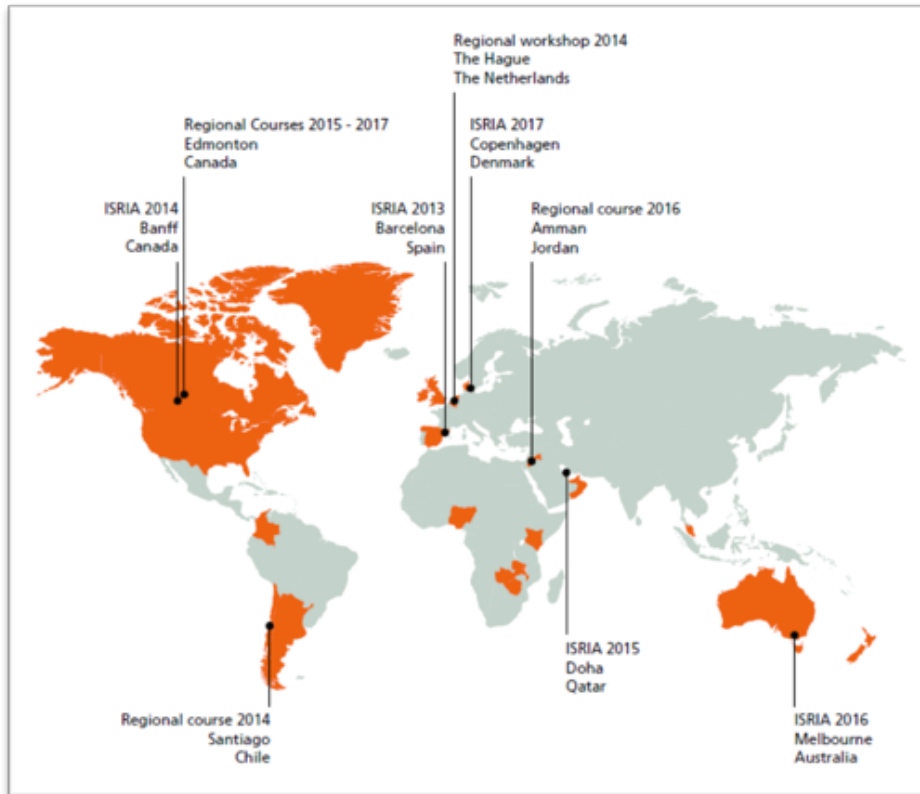

3. Future directions

1. INTERNATIONAL IMPACT STRATEGY

A TALE OF THREE INTERNATIONAL FUNDERS

ALBERTA **INNOVATES**

SETTING THE INTERNATIONAL STAGE – IMPACT FIVE YEARS AGO

- Too academic and not practitioner focused debate

- Poor ongoing local debate and isolation of interested stakeholders except in few countries

- A nascent but diffused community of practice

- A need to build **international capacity, share practice and develop standards**

- A need to create a context where people could **learn from experts and peers**
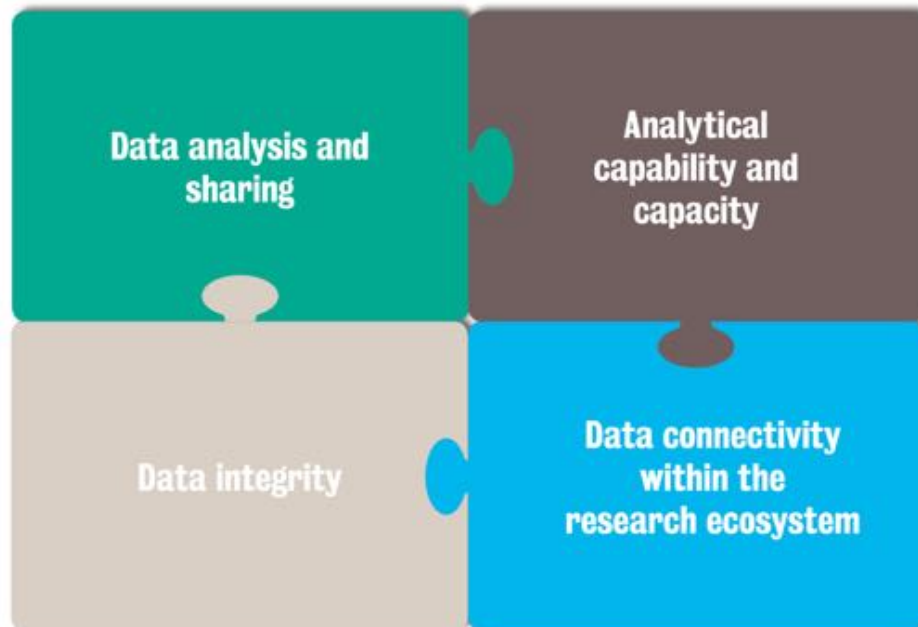
FUNDERS CAME TOGETHER TO BUILD GLOBAL CAPACITY FOR LOCAL NEEDS….

Regional workshop 2014
The Hague
The Netherlands

Regional Courses 2015 - 2017
Edmonton
Canada

ISRIA 2017
Copenhagen
Denmark

ISRIA 2014
Banff
Canada

ISRIA 2013
Barcelona
Spain

Regional course 2016
Amman
Jordan

ISRIA 2015
Doha
Qatar

Regional course 2014
Santiago
Chile

ISRIA 2016
Melbourne
Australia

www.theinternationalschoolonria.com

The International School
on Research Impact Assessment

WE WANTED TO MAXIMIZE THE USE OF RESEARCHFISH DATA

Data analysis and sharing

Analytical capability and capacity

Data integrity

Data connectivity within the research ecosystem

King's College London

Researchfish: A forward look

Challenges and opportunities for using Researchfish to support research assessment

Saba Hinrichs, Erin Montague, Jonathan Grant

November 2015

We had to start with a "safe harbor" of trust as there was no established roadmap for us to follow

Source; https://www.kcl.ac.uk/sspp/policy-institute/publications/Researchfish%20A%20forward%20look.pdf

ISRIA PROVIDED A COMMON LANGUAGE
SHARED TAXONOMY AROUND PURPOSE

To support the development of effective funding strategy

To promote responsible management of funds

Advocacy

Allocation

Analysis

Accountability

4 A'S OF
RESEARCH IMPACT
ASSESSMENT

To demonstrate the benefits of research, education and innovation to society

To answer questions about 'what works'. Make improvements based on data

Jonathan Grant
King's College

USE OF KEY FOUR ELEMENTS TO MAXIMIZE THE USE OF RESEARCHFISH

ALBERTA INNOVATES

SHARED UNDERSTANDING

1 Data analysis and data sharing → Provide a 'safe harbour' for sharing of data to encourage data sharing across multiple funders

ALBERTA INNOVATES

NHS National Institute for Health Research

novo nordisk fonden

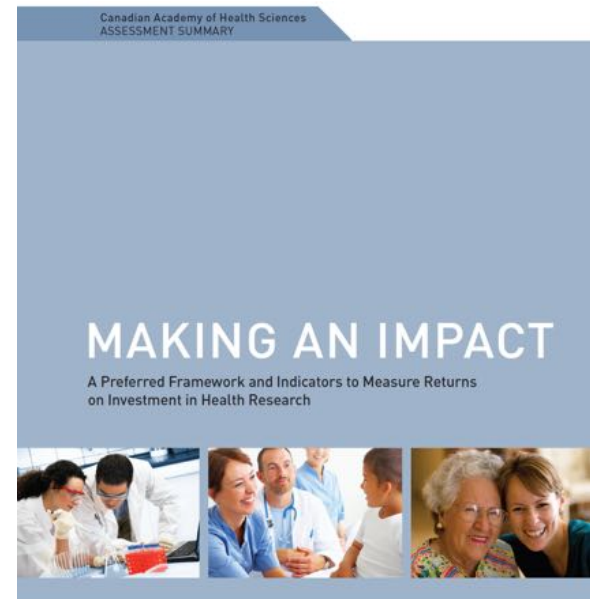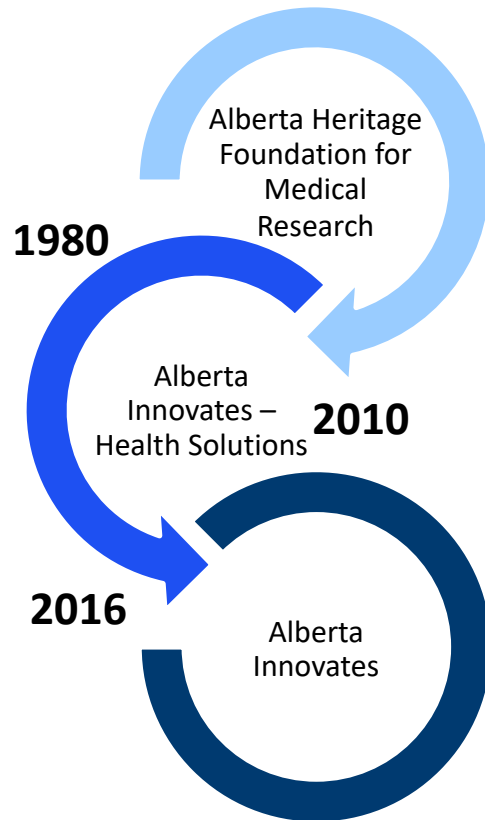| ALBERTA INNOVATES	NIHR	NOVO NORDISK FOUNDATION
To be indisputably recognized as a leader – provincially, nationally and internationally in catalyzing R&I in Alberta	To improve the health and wealth of the nation (UK) through research	To contribute significantly to research and development that improves the lives of people and the sustainability of society.

ALBERTA INNOVATES

Alberta

ALBERTA INNOVATES AND CANADIAN CONTEXT

Our mandate includes a "focus on outcomes"

1980

Alberta Heritage Foundation for Medical Research

2010

Alberta Innovates – Health Solutions

2016

Alberta Innovates

Canadian Academy of Health Sciences
ASSESSMENT SUMMARY

MAKING AN IMPACT

A Preferred Framework and Indicators to Measure Returns on Investment in Health Research

Summary of the Report on the Return on Investments in Health Research
January 2009

http://cahs-acss.ca/making-an-impact/

The Canadian community is taking a bottoms up approach to implementing impact – many alliances

AI'S IMPACT STRATEGY:
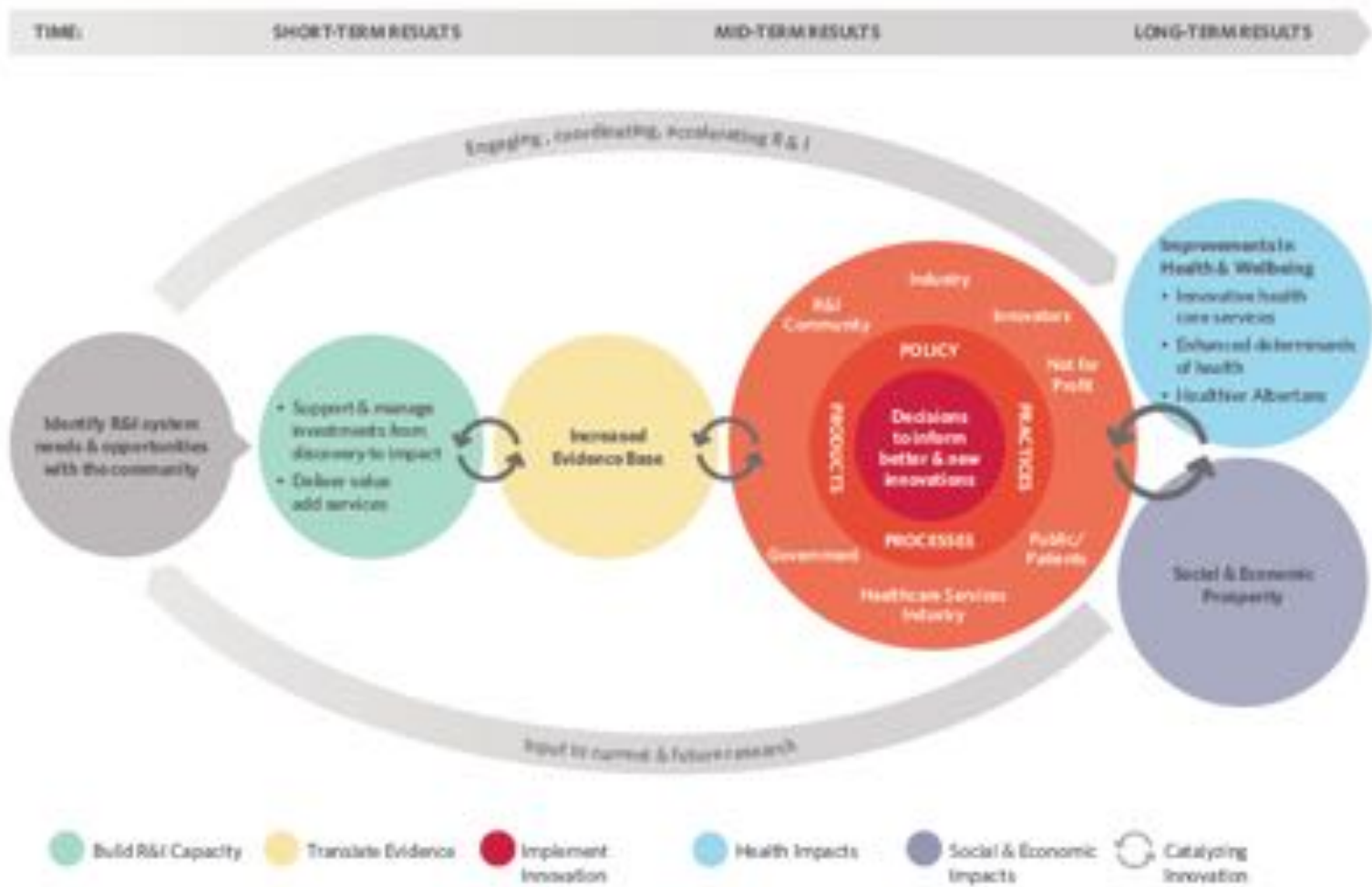
Performance Measurement, Evaluation and Assessment Activities

USE A "FIT FOR PURPOSE" 6 BLOCK

1. Understand the context
2. Identify the assessment purpose
3. Define indicators of success
4. Develop the design, methods & data collection
5. Communicate and use findings
6. Manage the assessment

The International School
on Research Impact Assessment
"Learning to assess research with the aim to optimise returns"

ISRIA developed an impact assessment plan (strategy) using the 6 block protocol

Alberta continues to deliver regional training courses on Research Impact Assessment

ALBERTA INNOVATES

# National Institute for Health Research (NIHR)

- Aim: Improve the health and wealth of the Nation
- Public funder overseen by the UK's Department of Health and Social Care
- Health, public health and social care
- Integrated research system
  - Infrastructure and support
  - Training
  - Research delivery
- Support translational research, addressing gaps in the translational pathway

Our Impact Approach

- NIHR-wide approach is currently in development
- Pockets of good practice
- Underpinned by basic logic modelling
  - What is the purpose of the funding?
  - How was it expected to work?
  - What has happened?
  - What has been produced?
- Development of 'value framework'
- Data audit currently underway
- Focus on our contribution rather than attribution
- Recognising the cultural and behavioural challenge as well as the practical

The Research Pathway

Invention → Evaluation → Adoption → Diffusion
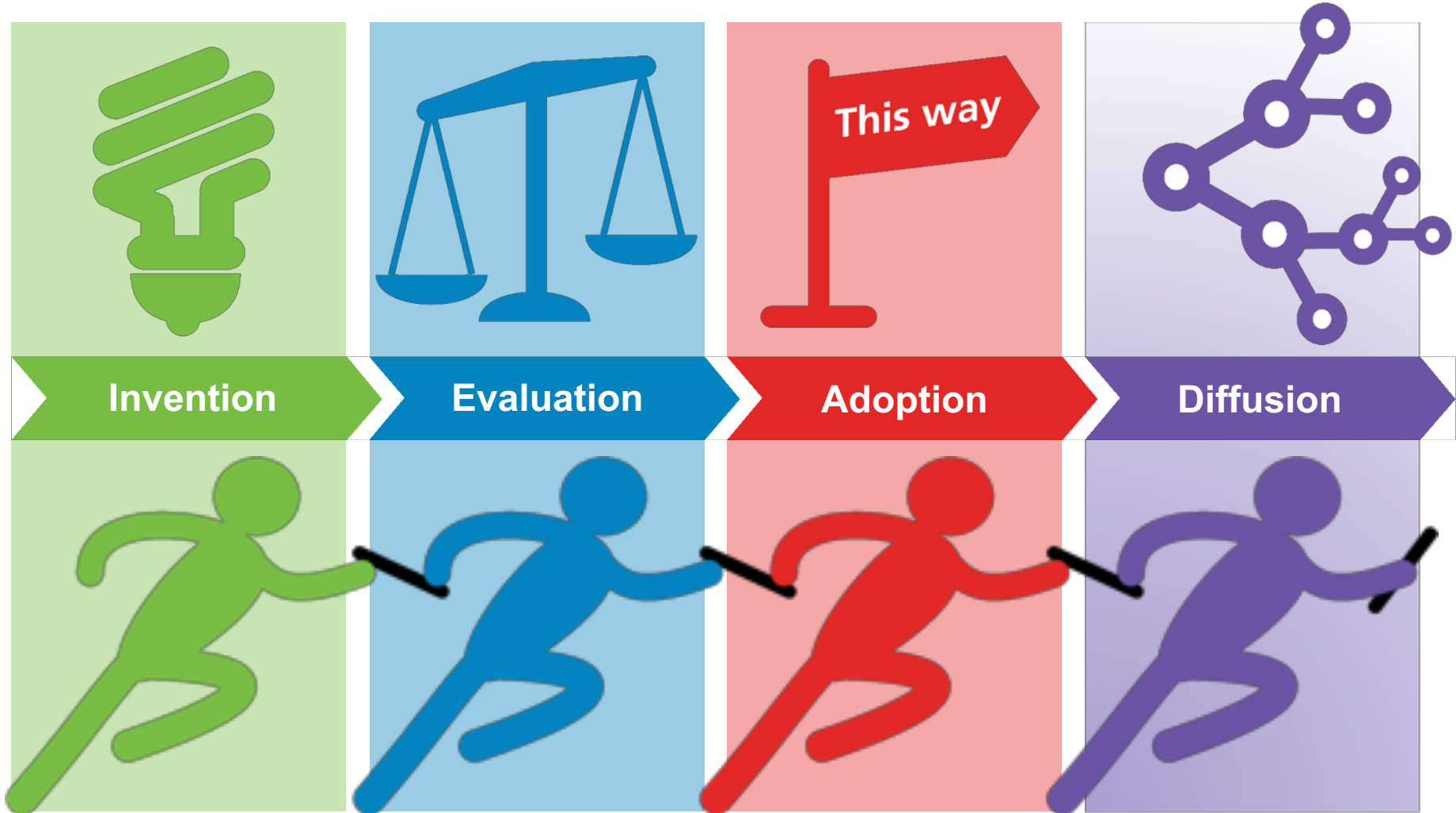
The Research Pathway
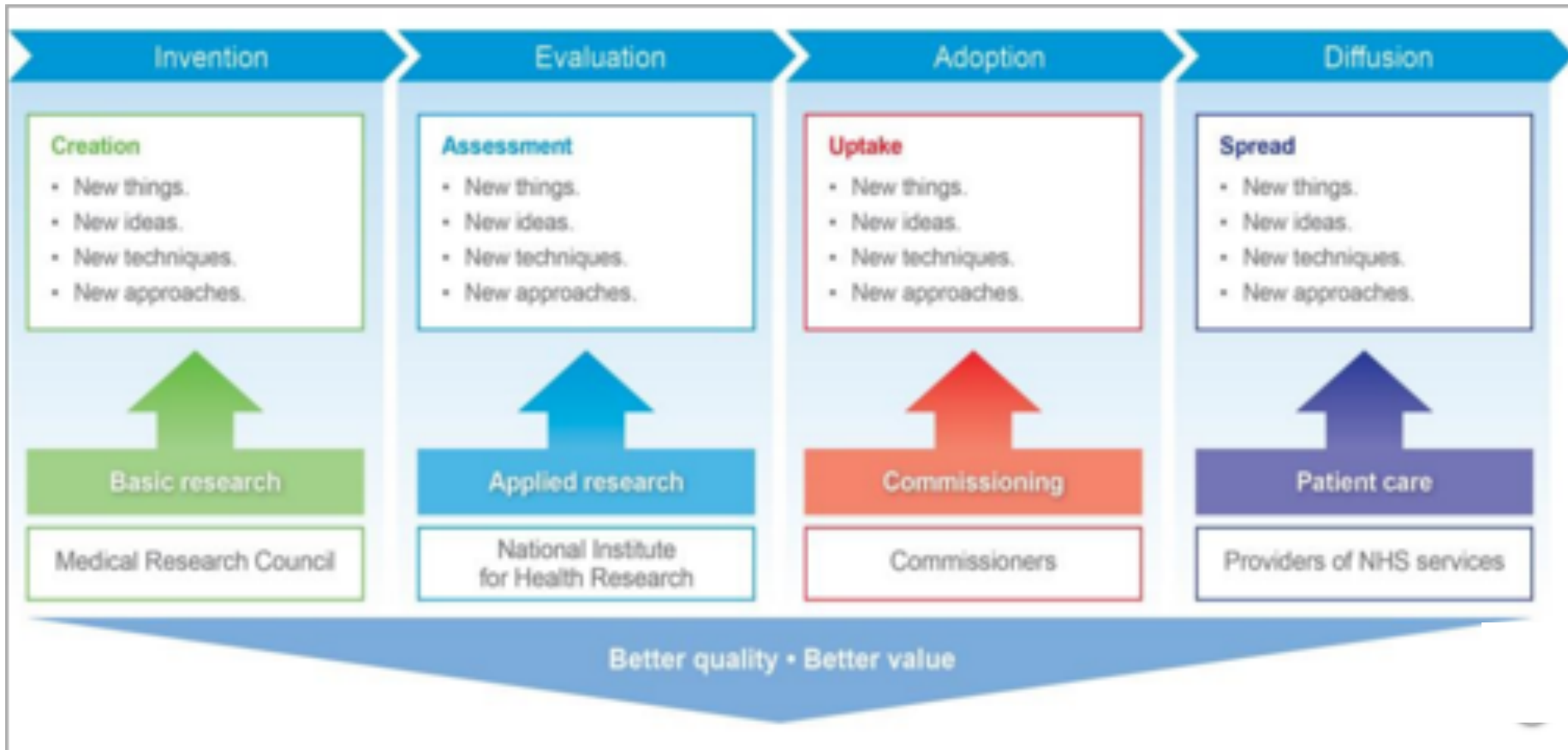
Novo Nordisk Foundation (NNF)Independent Foundation with Corporate Interests

novo
nordisk
fonden

Dividende

novo
holdings
Investors in life science

Dividende

75% VOTES   70.9% VOTES

novo nordisk®   novozymes
                       Rethink Tomorrow

Grant-awarding

New grants in i 2017:
DKK 5.2 bn
(EUR 0.7 bn)

Scientific research
Diabetes treatment
Innovation
Education and outreach
Humanitarian and social purpose

Investments

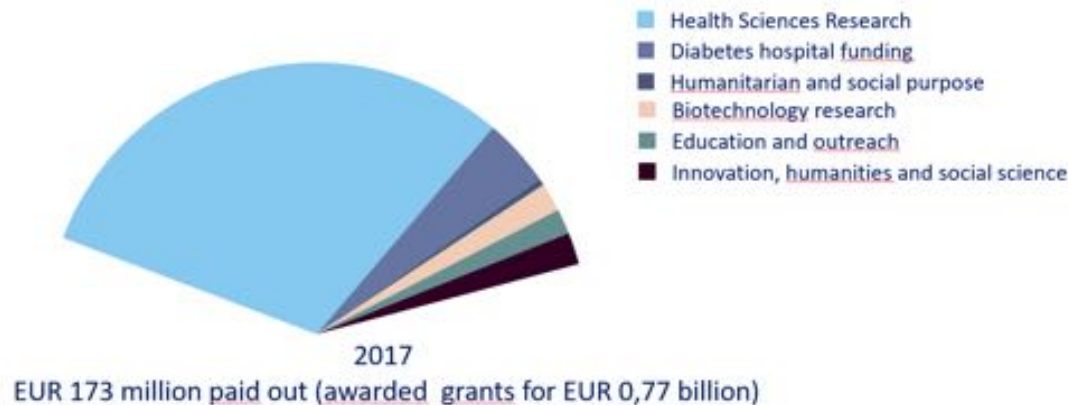**Net profits in 2017:**
DKK 19.1 bn
(EUR 2.6 bn)

Principal investments
Venture investments
Seed investments
Financial investments

Knowledge is the key
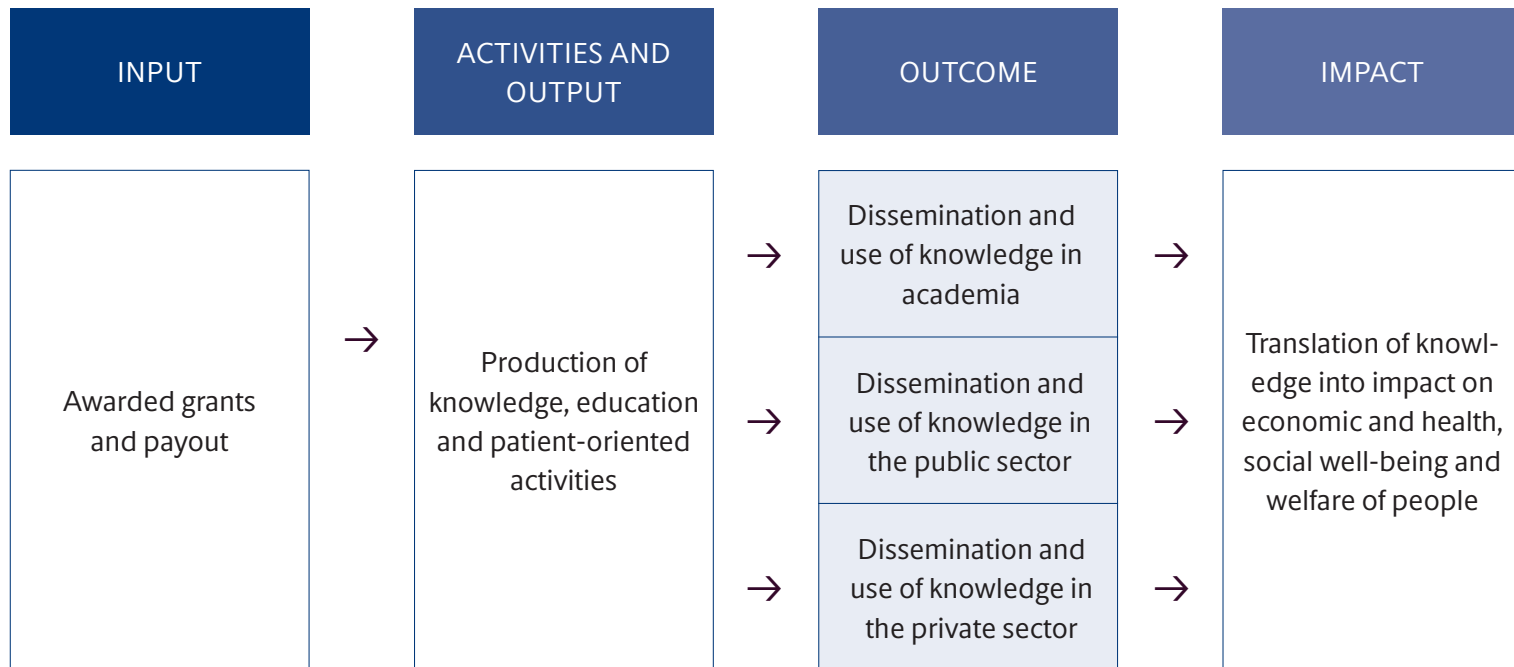
Areas of Support and Purpose

Areas of Support

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

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

2017
EUR 173 million paid out (awarded grants for EUR 0,77 billion)

Purpose of impact assessment

- Develop novel and research-based impact assessment, analysis of funding science and capacity building

- Document and measure the impact of public research in Denmark

- Develop, collect, process and analyze information on all activities the Foundation supports

novo nordisk fonden

NNF Model

INPUT	ACTIVITIES AND OUTPUT	OUTCOME	IMPACT
Awarded grants and payout	Production of knowledge, education and patient-oriented activities	Dissemination and use of knowledge in academia Dissemination and use of knowledge in the public sector Dissemination and use of knowledge in the private sector	Translation of knowledge into impact on economic and health, social well-being and welfare of people

novo nordisk fonden

2. GLOBAL IMPACT STRATEGY

PROOF OF CONCEPT EXPLORATIONS

ALBERTA INNOVATES

DATA INTEGRITY
DATA CHECKING PROCESSES

2 Data integrity

Continue efforts in achieving data integrity and achieving high data quality

| COMPLETNESS | ACCURACY | TIMING |

All organizations conduct quality data checks – Future opportunity to share integrity protocols

ANALYSIS EXPLORATIONS

3 Analytical capability and capacity → Develop opportunities for building capacity and capability to benefit from the potential in analysis

HARMONIZE FUNDING INVESTEMENTS	IMPACT ANALYSIS EXPLORATIONS	SHARE PROMISING PRACTICES

We have started to share practices with each other that we each would like to adopt

HARMONIZE FUNDING MECHANISMS

RESEARCH AWARD (Including Intramural Programme)	CAPITAL/ INFRASTRUCTURE AWARDS	FELLOWSHIPS AWARDS	STUDENTSHIP AWARDS	TRAVEL/SMALL PERSONAL
The primary purpose of the award is to undertake research (e.g. projects, programmes etc.) of interconnected research. These awards typically support all the direct costs involved in conducting specific research projects performed by identified researchers. Operating grants typically cover salaries for laboratory staff and research assistants/associates/trainees, costs of research equipment and supplies, and other specific research-related expenses.	The primary purpose of the award is to support research infrastructure, provide capital and or equipment. These awards cover, in part or in full, the costs of construction or major remodelling of new research facilities, and/or the purchase, housing, and installation of equipment, scientific collections, computer software, information databases, and communication linkages used primarily for conducting research. It includes funding for costs associated with cohort establishment.	The primary purpose of the award is to enhance and develop an existing research career. These awards provide protected time for research on either a long- or short-term basis to outstanding researchers who have demonstrated high levels of productivity and research accomplishments. These awards are given to only a small percentage of all researchers. (They may also be called salary awards.)	The primary purpose of the award is to kick start an interest in developing a research career. These awards recognize outstanding students and support them during their undergraduate and masters. Block training grants given to institutions that in turn distribute the monies to students through a competitive process are also included under this funding award type. These awards are in addition to trainee salaries covered in operating grants.	The primary purpose of the award it to provide comparatively small amounts of financial support to support researchers and research. These awards support travel, workshops/symposia, and researcher time for proposal development/letters of intent.
Operating grant

Collaborative awards

Industry collaborations | Infrastructure, equipment and/ or maintenance

Research platforms | Salary award

Research chair

Doctorate

Post-Doctoral/Fellowship | Undergraduate/

Masters

Mentoring program | Knowledge exchange/mobilization

Visiting Lecture |

Harmonization of award types and programs will help us characterize our investment strategies internationally

IMPACT ANALYSIS EXPLORATION

Timeline
- 2015 to 2017

Analytic Groupings

1: (Projects) 0-3 years,
   0 - €400.000

2: (Small programs) 3-5 years,
   €400.000 - €2.7M

3: (Large programs) 5-7 years
   €2.7 million - €8M

Group 4: (Very large programs/ Research Centers) >5 years,
   €66,7 - €267 million.

5: Fellowships/post-docs

Impact Results
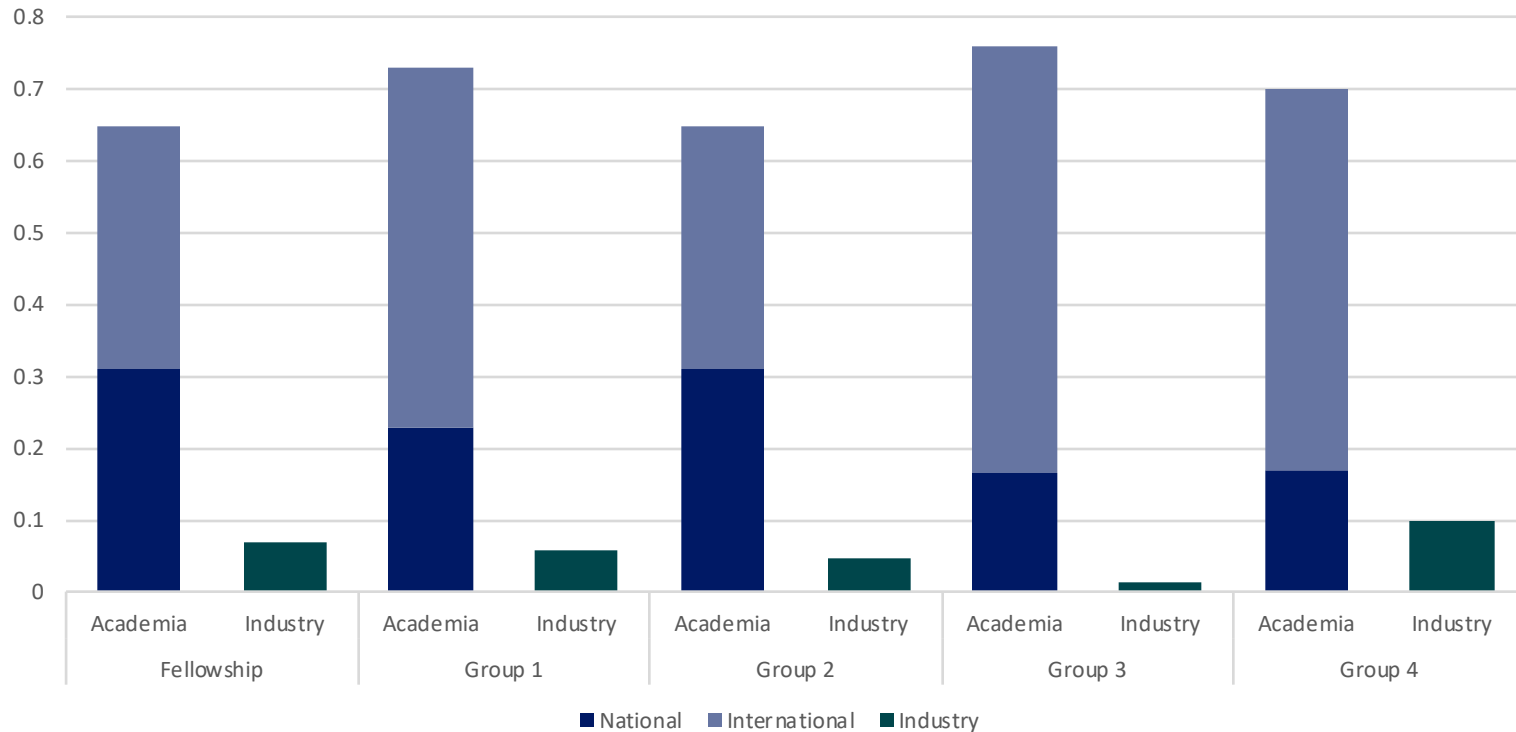- Publications
- Collaborations
- Promising practices

*All organizations report annually -
future opportunity to harmonize and do deep dive analysis*

NNF Promising Practice – Bibliometrics

Share of journal articles by co-authorship, NNF

We can start to do deep dive on co-authorship analytics

NNF Promising Practice – Bibliometrics
Co-authorships distributed on WoS subject categories, NNF
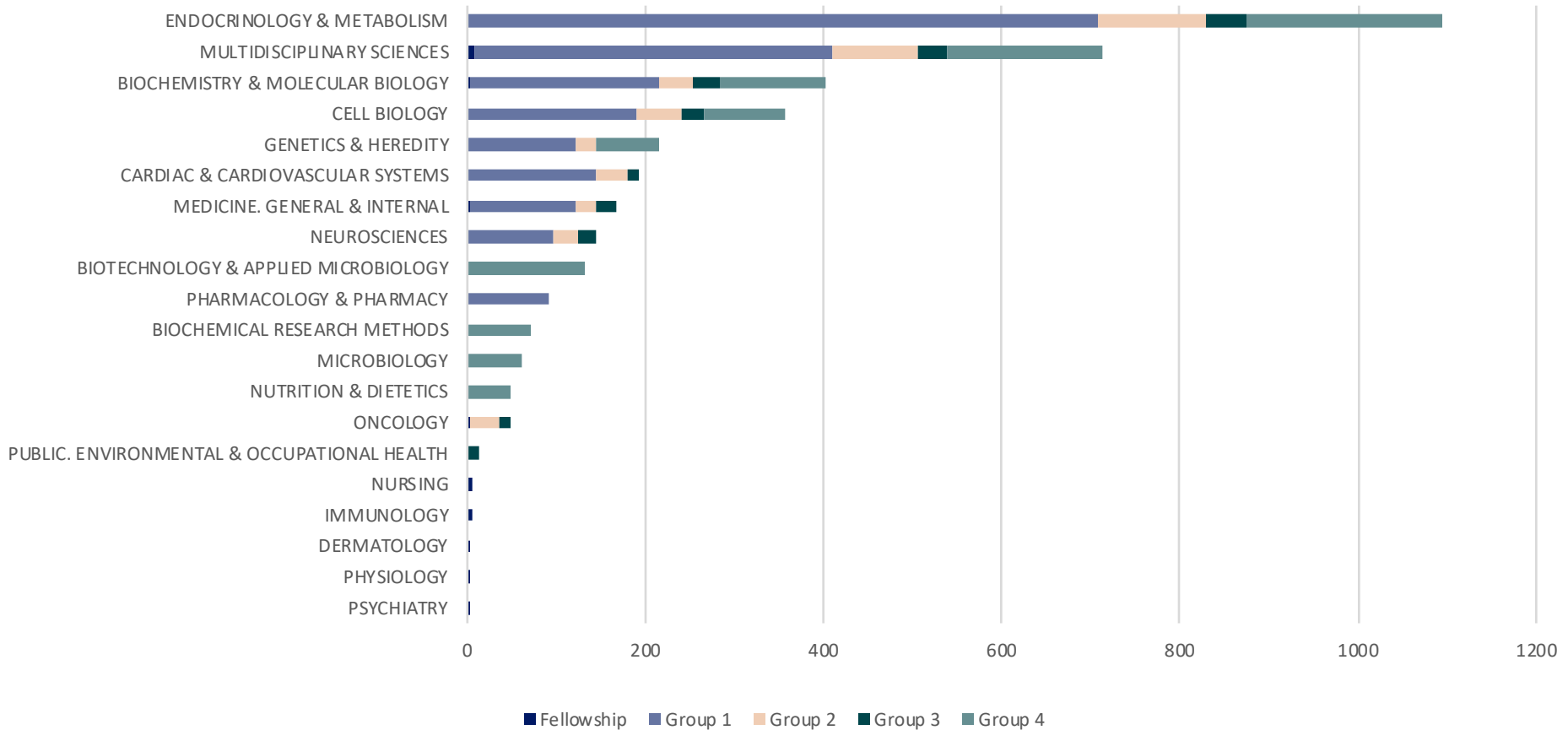
We can start to do deep dive on subject categories

AI PROMISING PRACTICE – HARMONIZE BIBLIOMETRIC ANALYSIS IN CANADA

The National Alliance of Provincial Health Research Organizations
NAPHRO
L'alliance canadienne des organismes provinciaux de la recherche en santé

NAPRHO Indicator	CAHS Indicator
B5 Publications	• Share of Publications
B15 Publications in top journals	• Publications in high-quality outlets (or desired outlets)
B1 Life Science Specialization Index (SI)	• Relative activity index
B12 Comparative publication rates (CPR)	• Share of Publications • Field Citation Analysis
B3 Average Relative Citation (ARC)	• Relative Citation Impact
B6 Interprovincial collaboration rates	• Co-author analysis
B8 Interprovincial field comparisons	• Field Citation Analysis • Relative activity index
B9 International collaboration rate	• Co-author analysis
B11 Academic user collaboration rate	• Co-author analysis • Collaboration with Industry
NAPHRO Added Indicators	
B10 Publications by top 20 researchers	
B2 Average Relative Impact Factor (ARIF)	
B7 ARIF of interprovincial collaboration	
B13 International collaboration – top 10	
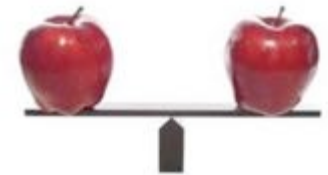
Advancing Knowledge Impact is broken down by: Quality, Activity, Outreach, Contextual. Taxonomy can be used to structure analysis in the future.

Illustration Only - Collaborators Distributed by Sectors, NIHR, NNF
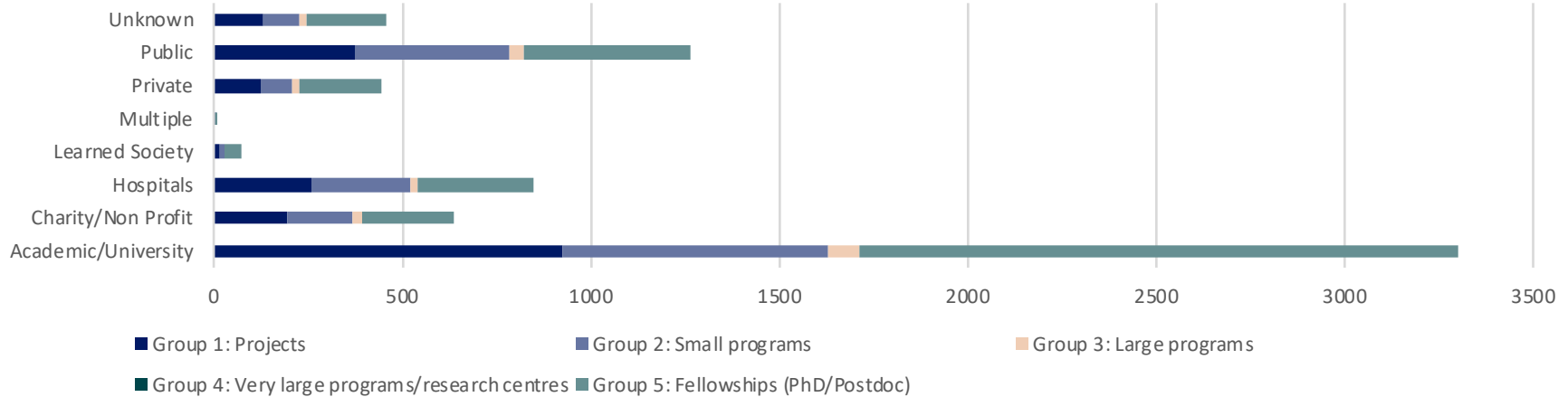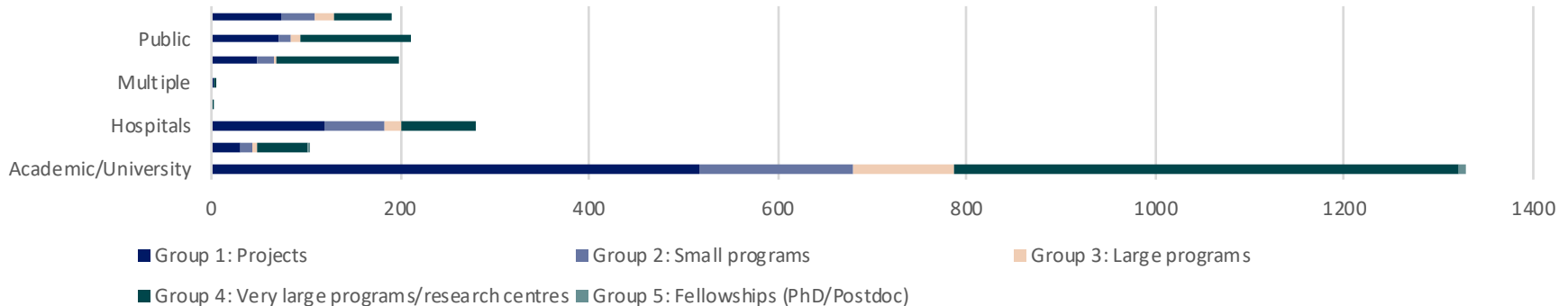
We can start to analyze collaborators across sectors

NIHR PROMISING PRACTICE
KEEPING PATIENTS AT THE HEART OF RESEARCH

Reporting public involvement since 2012

3,951 in design & development

1,386 in study management

1,225 in reporting & dissemination

724 in undertaking & analysis

www.nihr.ac.uk
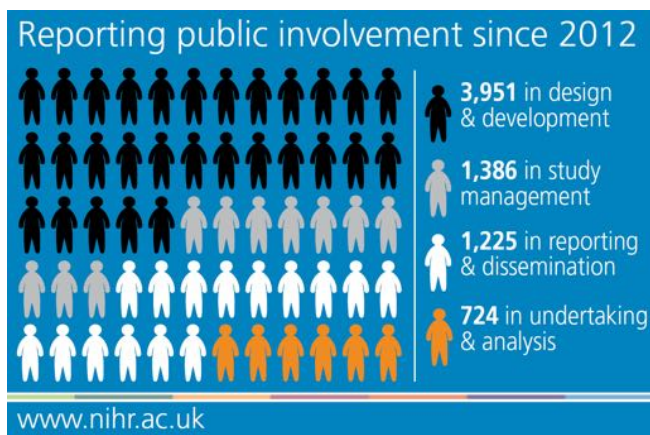
- Sample PPI* questions

Q1: Have you involved patients and/or members of the public in your research?
A1: *Yes/No/**Not applicable/Unknown

**Q2 [Only for those answering Not applicable to Q1] Why was PPI not applicable in your research?
A2: [Free text]

*Patient and Public Involvement

"Involving patients and the public is very important in helping address some of the most important challenges in healthcare. Using tools to document it further encourages researchers and funders to engage them by showing examples of how this involvement can help make their work even better. It will also encourages more patients and members of the public to get involved by showing them that it is an interesting and good use of their time and how their experiences can be used to help others. Data already captured on Researchfish shows a wide range of ways

*If Q1 answered Yes.

Q3: How have patients and the public been actively involved in your research? (Please indicate all that apply)
A3:
1. Prioritising the research question(s)
2. Developing the application for funding
3. Design of the research
4. Management of the research
5. Undertaking the research

AI PROMISING PRACTICE
HEALTH TAXONOMY FROM CAHS

- Aadditional questions on six dimensions of health and sample indictors
- Taxonomy also used by Alberta's health system
- We are using to assess the scale up and spread of research evidence to impact

Acceptability	Accessibility	Appropriateness	Effectiveness	Efficiency	Safety
• Self-reported patient satisfaction	• Wait times • Appointment statistics	• Adherence to clinical guidelines	• Re-admission rates	• Actual vs. expected • Hospital stay • Cost input versus output	• Adverse drug effects • Hospital acquired infections

BETTER COMMUNICATE - IMPACT NARRATIVES

ALBERTA **INNOVATES**

novo nordisk fonden

Collaborating from 'Door to Needle' to Implement New Stroke Therapy

A team of researchers led by Dr. Michael Hill is using an endovascular treatment (ET) to improve the quality of stroke care. Stroke patients receive ET treatment during transport on specialized ambulances to improve health outcomes. This is integrated health service delivery in action.

Classification and prognostification of colorectal cancer

Colorectal cancer is known to have great inter-tumour diversity which means that the cells in the tumors can be very different. Tumours at the same stage can equally be very diverse and unpredictable. Due to this great diversity in colorectal cancer prognosis and response to treatment can be difficult to predict leading to both under- and overtreatment.

The research group under Jesper Bertram Bramsen has found a molecular-subtype-specific biomarker that can be used to improve the prognosis for patients with colorectal cancer. The research group has analysed 1,100 colorectal cancer samples, discovered three different cancer cells and five tumour archetypes and made it possible to find specific subtype-biomarkers. This subtyping-framework and the newly discovered biomarkers can be an important factor in improving the treatment and prognostics for colorectal patients.

aths of colorectal cancer s. The findings are published w subtypes-framework

The beautiful game

We all use impact narratives –
Future opportunity share templates and products

FUTURE DIRECTIONS

ALBERTA INNOVATES	NIHR	NOVO NORDISK FOUNDATION
• Ex-ante focus - impact planning • Schedule follow up analysis • Assessing scale up and spread • Apply across sectors	• Build data collection into business as usual • Develop value framework	• Ex-ante focus • Impact assessment on patient oriented initiatives, educational grants and humanitarian and social grants • Follow up analysis on industry collaboration

We need new ways of working to move collaborations forward and new governance mechanisms for connecting and sharing data. We will continue to work on expanding the "elements" and proof of concept as a means of understanding "what works, does not work, under what conditions".

ALBERTA INNOVATES

REFLECTIONS ON INCREASING THE USE OF IMPACT DATA

TRACKING IMPACT ACROSS THE RESEARCH CYCLE
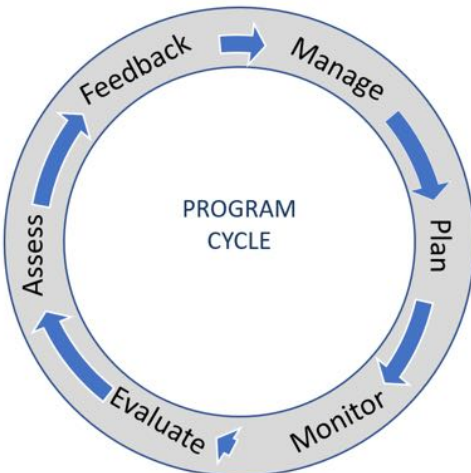
LESSONS LEARNED

- Need a collaborative **protocol** for sharing, querying analyzing data
  - Establish principles
  - Identify assessment questions to drive meaningful analysis
- Adopt **international** standards, guidelines, and taxonomies to make more use of the data
- **Add a fifth element –** application and sharing of leading and promising practices in health (aka international alliance) and across sectors
- Having theme working groups helps increase use:
  - Public and patients
  - Impact narratives

Need a safe place to test ideas – a safe to fail Innovations such as Implementation labs

THANK YOU

kathryn.graham@albertainnovates.ca