



Goals of science communication

An analysis of the strategic goals set by relevant actors within German institutional science communication

Executive Summary

Based on data published on the 23rd of November 2020



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1 – The Impact Unit

A short introduction

The Impact Unit

- A project by Wissenschaft im Dialog (science in dialogue)
- Funded by the Federal Ministry of Education and Research
- Goals of the project: Make a contribution to
 - **impact-oriented evaluations** of science communication activities
 - **evidence-based discussions** about science communication
 - development of German science communication towards more **impact orientation**

2 - Starting point and central research question



Starting Point

- Demands for more science communication (e.g. by the Federal Ministry for Education and Research)
 - It's not only about **Quantity**, but about **Quality** of science communication
- Evaluations are necessary in order to make statements about the impact and effectiveness of science communication
- To conduct meaningful evaluations, the goals of science communication need to be **clearly defined**

Central research question

What are the strategic goals of science communication that central science communication institutions in Germany are currently pursuing?

3 – Design and methods



Definition of relevant institutions

Criteria:

- Active everywhere in **Germany** - reach not limited locally or regionally (exception: education ministries of the federal states)
- Considerable **influence** on science communication activities conducted by other actors in Germany. influence exerted through:
 - Position papers and official statements; or
 - funding decisions; or
 - Political guidelines and decisions

= 39 institutions

Definition of relevant documents

Types of included documents:

- **Official Documents**, which have been approved by the institution and therefore represent its positions
- Statements or contributions by **high-ranking representatives** of the institution, who have the capacity to speak for the institution

Additional selection criteria

- **Timeframe**: published between the 1st of January 2014 and the end of the document search on the 1st of April 2020
- **Language**: Exclusively documents written in German
- **Content**: Clear focus on external science communication

Document search and analysis

Search strategies

1. Systematic **keyword search** via the **internal search engines** of the institutional websites
2. A **systematic search of the Websites** of the institutions. Including especially subpages like e.g. “About us”, “Mission”, etc.

= **120 Documents**

Qualitative Content Analysis

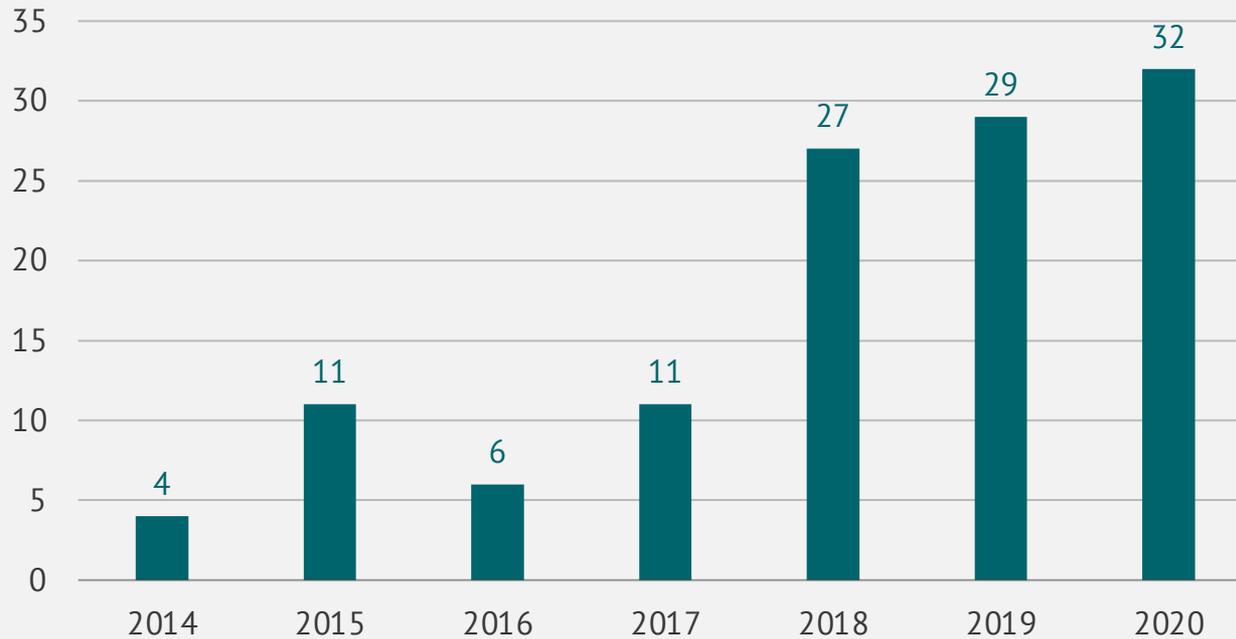
- deductive coding by two independent coders based on a codebook
- Using the content analysis software atlas.ti

Central research question

Which strategic goals are pursued by key actors within institutional science communication in Germany?

4 - Results

Documents per year



Methods at a glance:
n(institutions) = 39
n(documents) = 120

Presentation of the results

Qualitative results

- Overview of the main thematic issues of each code

Quantitative results

- Need to be understood in terms of **trends and tendencies**
(representativity and generalisability cannot be guaranteed due to low reliability of small sample)

4.5 – Results:

Analysis of the status quo – problems



Problems: society

Meaning of the code: problematic issues or developments in society

Main issues:

- **Polarisation and fragmentation** of society, intensified through echochambers and the strengthening of populist movements
- **Overwhelming** of society by the sheer mass of information available

Methods at a glance:

n(institutions) = 39

n(documents) = 120

n(quotes: problems - society) = 87

Problems: science and research

Meaning of the code: problematic issues or developments in science and research

Main issues:

- The **competition** within academia puts science under enormous pressure
- The way academic reputation is structured is too oriented towards quantitative indicators, science communication, however, is not appreciated
- Although science has to continuously prove its impact, there is currently no sufficient definition of impact

Methods at a glance:
n(institutions) = 39
n(documents) = 120
n(quotes: problems - science
and research) = 79

Problems: relationship between science and the public

Meaning of the code: problematic issues or developments of the relationship between science and the public

Main issues:

- The public is **sceptic** towards science, scientific evidence and scientific experts
- The public becomes increasingly **fragmented**, scientific evidence is being disregarded and doubted through populism and misinformation
- The public does **not trust** science and research
- Science and public are increasingly **distanced and alienated**

Methods at a glance:
n(institutions) = 39
n(documents) = 120
n(quotes: problems – relationship
between science and society) = 145

Problems: science communication

Meaning of the code: problematic issues or developments in science communication

Main issues:

- Science communication also suffers from the driving forces of competition and is being dominated by **self-promotion and marketing**
- Science journalism is under **great financial pressure** and is about to vanish as a key actor of science communication
- Science communication is **overwhelmed** by new channels and formats, so it **reverts back to the old ways** of doing things

Methods at a glance:
n(institutions) = 39
n(documents) = 120
n(quotes: problems – science communication) = 117

4.6 – Results:

Analysis of the status quo – positive assessments

Positive assessments: society

Meaning of the code: positive state or developments of society

Main issues:

- Society is **oriented towards the future**
- A **knowledge-based society** is developing in which science and research play a key role

Caution: Only 8 quotes! No reliable inferences possible

Positive assessments: science and research

Meaning of the code: positive state of/or developments in science and research

Main issues:

- Science and research have **high societal relevance**
- Science and research support **political decision-making**
- Science and research are a **catalyst** of innovation, progress and societal change

Methods at a glance:

n(institutions) = 39
n(documents) = 120
n(quotes: positive assessments – science and research) = 91

Positive assessments: relationship between science and the public

Meaning of the code: positive state in/or developments of the relationship between science and the public

Main issues:

- Science and research **contribute to society** and the public often relies on scientific expertise
- Science and the public are **opening up** to each other and participation becomes possible
- There is great **interest** of the public in science and research

Methods at a glance:
n(institutions) = 39
n(documents) = 120
n(quotes: positive assessments – relationship between science and the public) = 70

Positive assessments: science communication

Meaning of the code: positive state of/or developments in science communication

Main issues:

- Science communication has **improved** over the years and achieved much
- There is a **demand** for and and **interest** in science communication

Methods at a glance:

n(institutions) = 39

n(documents) = 120

n(quotes: positive assessments – science communication) = 43

4.7 – Results:

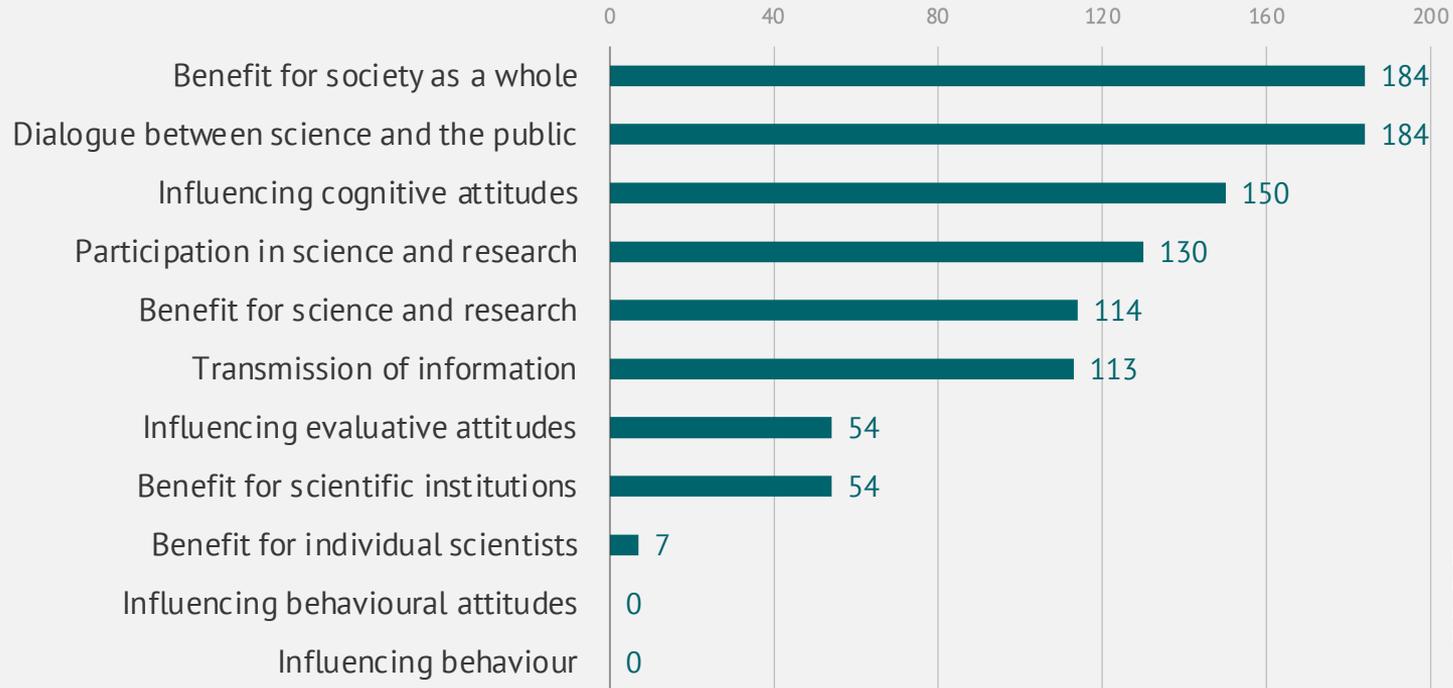
Goals of science communication

Goals and motives of science communication

Systematic analysis according to the following categories:

Form Dimension	Attitude Dimension	Motives
Transmission of information	Influencing cognitive attitudes (e.g. influence on knowledge or skills)	Benefit for individual scientists (e.g. reputation)
Initiation of a dialogue	Influencing evaluative attitudes (e.g. opinions)	Benefit for scientific institutions (e.g. visibility)
Enabling participation in science and research	Influencing conative attitudes (behavioural intentions)	Benefit for science and research (e.g. legitimacy)
	Influencing conative attitudes (behaviour)	Benefit for society as a whole (public good)

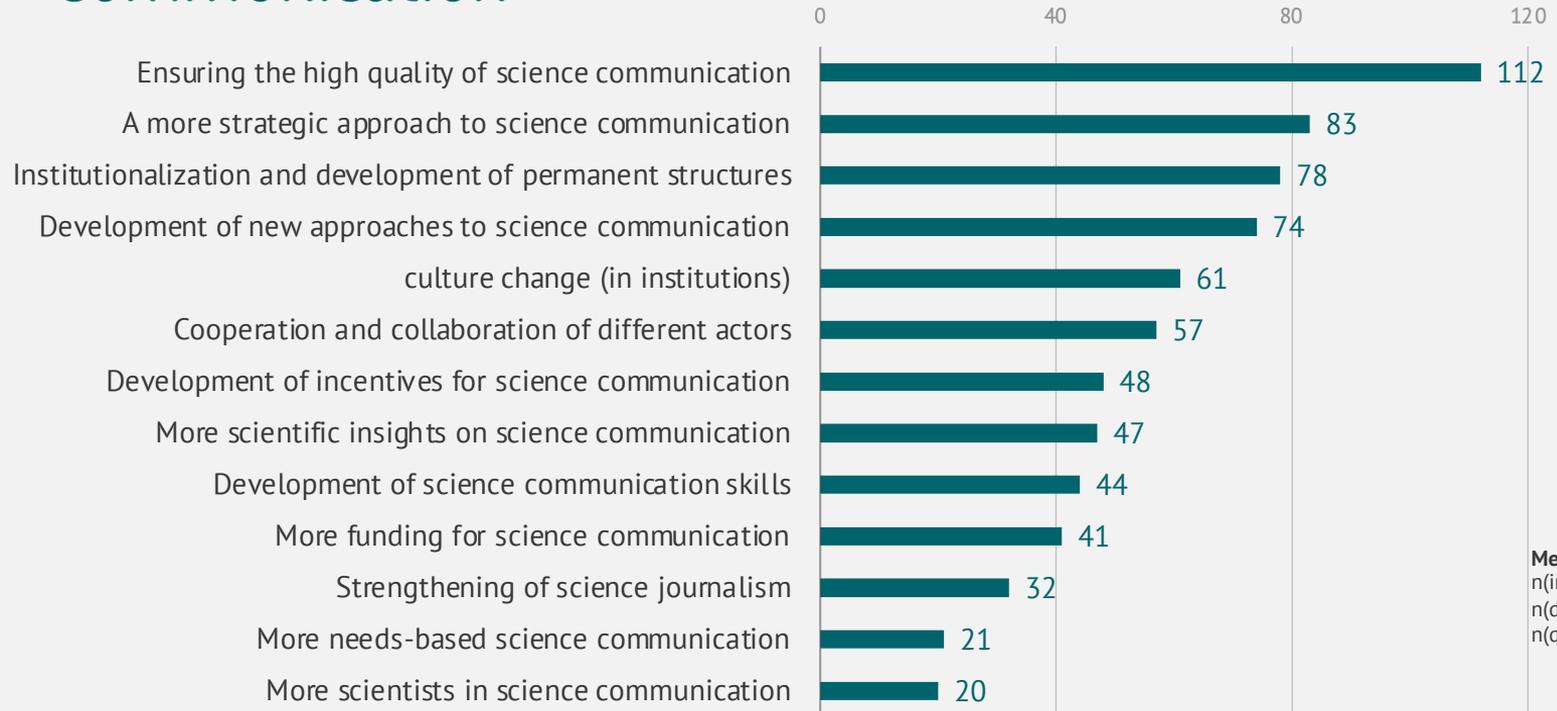
Goals and motives



Methods at a glance:
 n(institutions) = 39
 n(documents) = 120
 n(quotes: goals) = 724

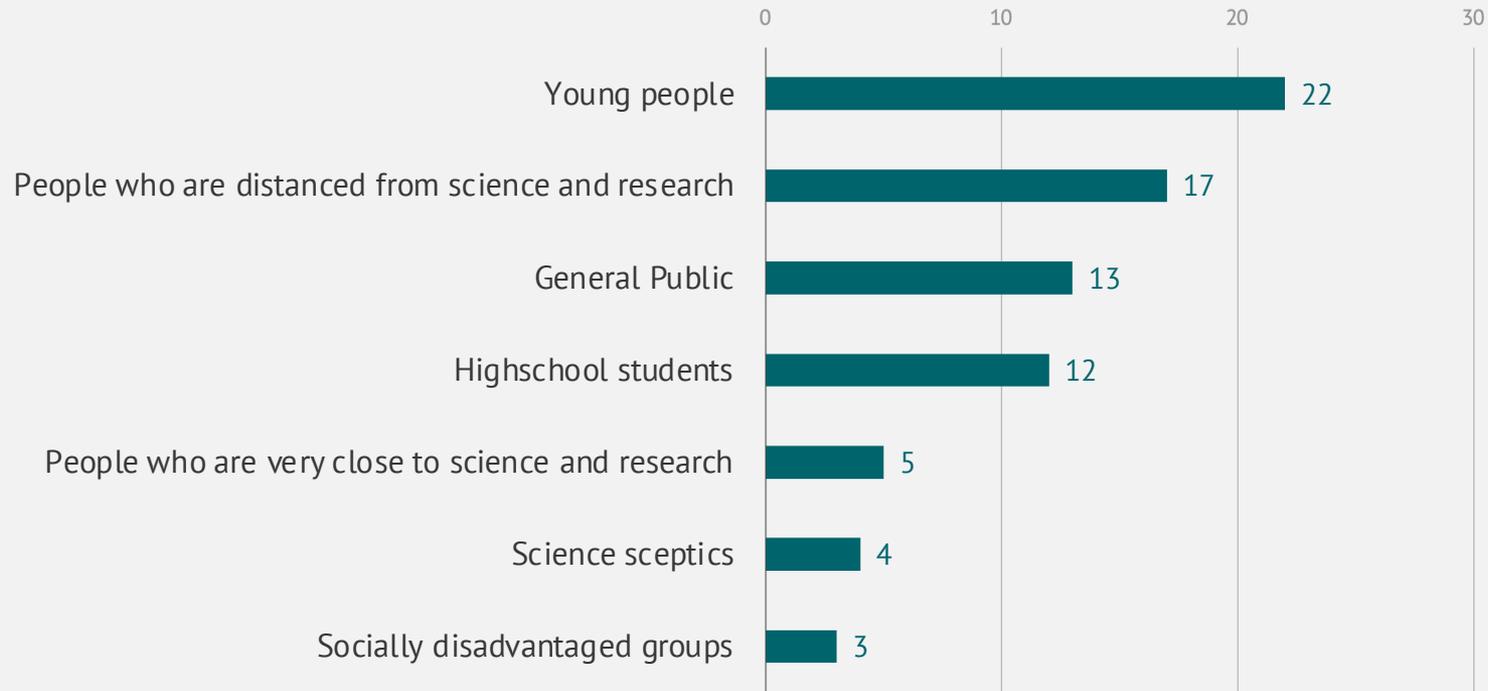
4.8 - Further results

Necessary changes for the improvement of science communication



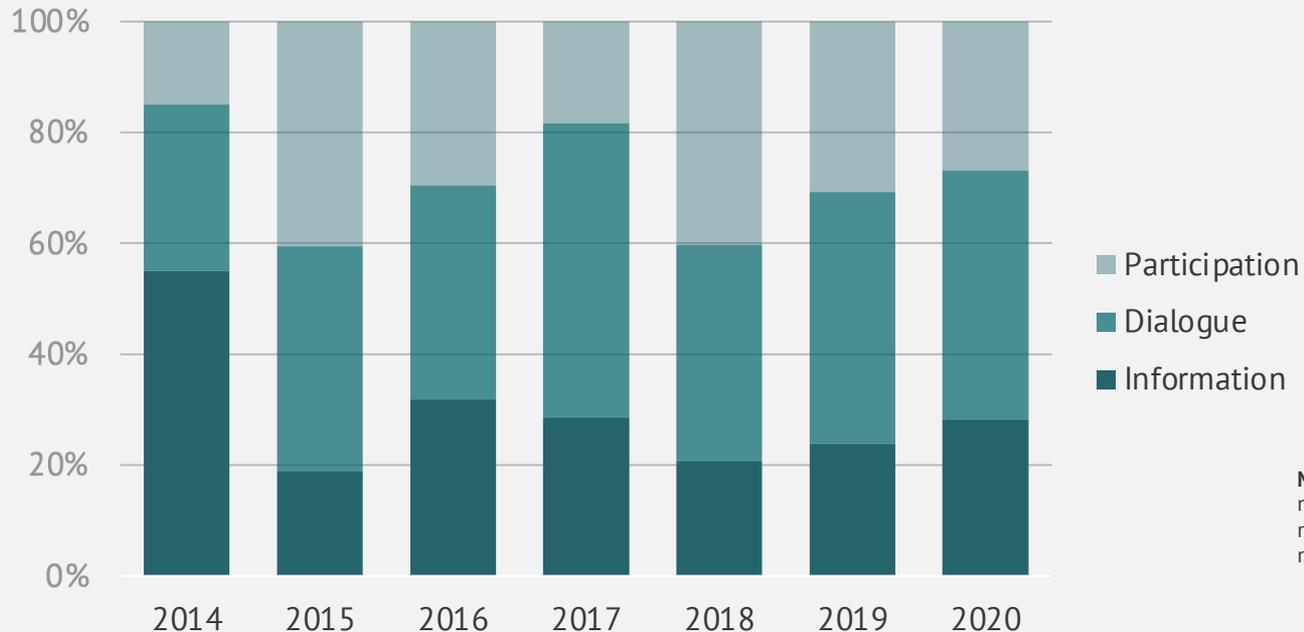
Methods at a glance:
 n(institutions) = 39
 n(documents) = 120
 n(quotes: changes) = 652

Target groups of science communication



Methods at a glance:
 n(institutions) = 39
 n(documents) = 120
 n(quotes: target group) = 76

Changes in the conduct of science communication over time



Methods at a glance:
 n(institutions) = 39
 n(documents) = 120
 n(quotes: goals) = 724

5 - Discussion

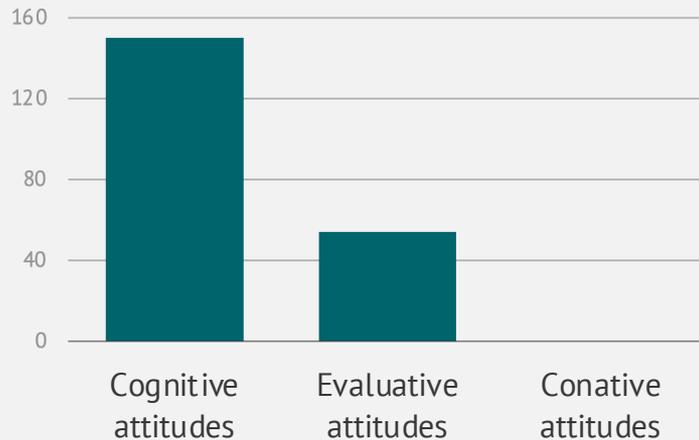


Reflecting on the results

- No mention of an influence on conative attitudes: behaviour and behavioural intentions
 - However, goals focused on these attitudes are quite frequently mentioned in research and practice – why is there no mention in the documents?
- Rare mentions of motives apart from the benefit for society
 - Many studies have discussed the role of these motives – why are they not mentioned in the documents?
 - Maybe they are not considered socially desirable or appropriate?

Are the strategic goals reflected in practice?

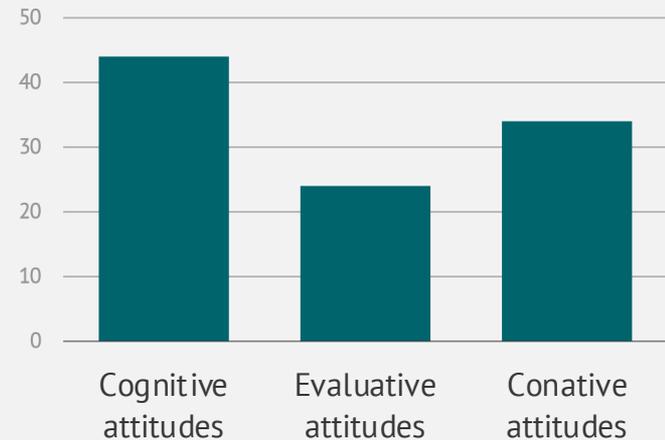
Strategic Goals



Methods at a glance:

n(institutions) = 39, n(documents) = 120, n(quotes: goals) = 724

Goals in science communication practice

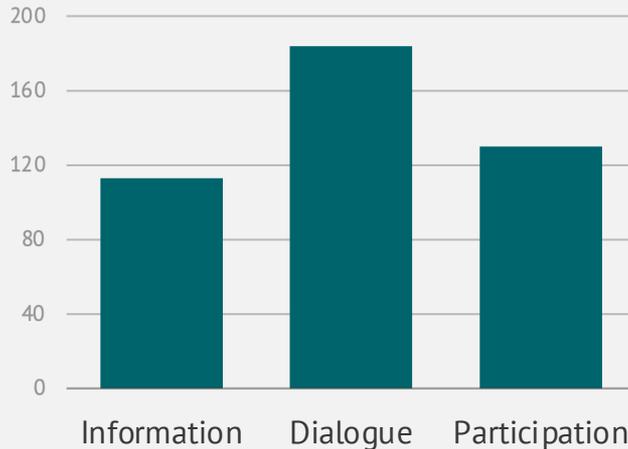


Methods at a glance:

51 evaluation reports, 55 science communication projects

Are the strategic goals reflected in practice?

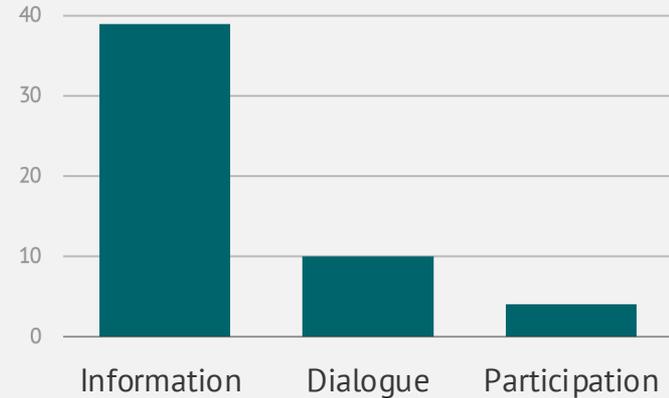
Strategic goals



Methods at a glance:

n(institutions) = 39, n(documents) = 120, n(quotes: goals) = 724

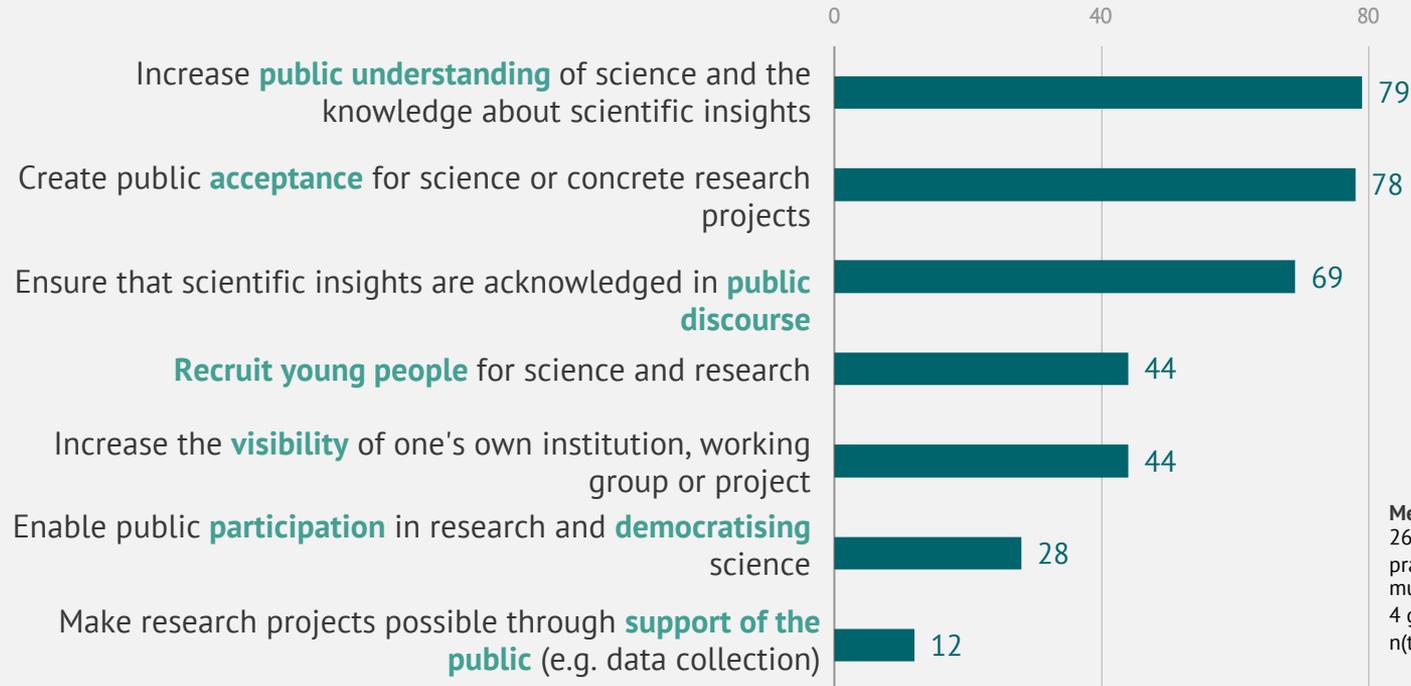
Goals in science communication practice



Methods at a glance:

51 evaluation reports, 55 science communication projects

Are the strategic goals reflected in practice?



Methods at a glance:
 26/11-26/12/2019: survey of 109 practitioners of science communication, multiple selection possible but limited to 4 goals maximum
 n(this question) = 103

6 - Results at a glance



Results at a glance: goals

- The **benefit for society** and the **dialogue** between science and the public are strategically at the forefront of science communication
- Over the past years, **information** has lost its importance as a strategic goal – dialogue and participation have become more important
- **Behavioural intentions and behaviour** are not mentioned, motives benefitting institutions, or single actors are rarely mentioned
- There is a **discrepancy** between strategic goals and those in practice
 - In science communication practice, influencing information transmission is relatively more important, conative attitudes play an important role
 - Strategically dialogue and participation are more important, conative attitudes are not mentioned

Results at a glance

- The strategically most important target groups are:
 - Young people
 - The general public
- The central changes that need to be undertaken to improve science communication are:
 - Ensuring the high quality of science communication
 - A more strategic approach to science communication
 - The institutionalisation and development of permanent structures

7 - Outlook



Outlook

- There is a need for more **coordination** between central strategic actors and science communication practice
- There is a need for more **research** exploring the goals of science communication, with a focus on
 - Comparisons between strategic goals and goals in practice (what is the reason for the discrepancy between the goals?)
 - Transnational comparisons
- There is a need for an **evidence-based discussion** about the goals and impact of science communication