



**University of  
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Professorship for Quantitative Research on Higher Education

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# **Sustainability and Perceived Impacts of Funding Programmes and Initiatives for Internationally Mobile Postdocs – Perceived Effects on Individuals, Institutions and Society.**

**An Exploratory Study.**

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## Changing landscape for the internationalisation of higher education and research

*“Until recently, internationalization of higher education was largely considered as an end in itself.(...) An international survey on the benefits of internationalisation suggests institutions are increasingly considering the benefits, not just to students (and postdoctoral fellows), but to universities and society more broadly.”*

Source: Marinoni et al., 2019.

*“Internationalization has been presented as a universal good, as if to create a cross-border, cross-cultural or global connection is to automatically trigger a flow of all-around benefits (...). The claim is made often enough about benefits to the common good ... but the claim has mostly been couched in very general terms.”*

Source: Marginson, 2019.



## The current state of research

- There is evidence for impacts of funding programmes for internationally mobile postdocs at the individual level, some at the institutional level but there is rare evidence at the societal level due to the lack of empirical studies.
- The effects of mobility grants for international study and research stays have not been investigated comprehensively so far.

Individual level	Institutional level	Societal level
Evaluation studies of funding programmes for internationally mobile postdocs have provided evidence for benefits on the individual level, i.e. “the most impact (...) is gained by award recipients themselves.”	However, measurement of mobility programmes’ impacts on the institutions that send and employ scholarship recipients is rare.	“Informants familiar with the scholarship schemes were universal in their belief that they are (...) generating positive national outcomes, such as human-capital expansion, political and economic reform, improved relations with host countries ...”

Source: Engberg, 2014, p. 59-60



# Outline of the research project



## Objective: Exploratory study on perceived impacts of funding programmes for internationally mobile postdoctoral researchers.

### Two foundations

- Volkswagen Foundation (VWS)
- Alexander von Humboldt Foundation (AvH)

### Three programme modes

- Incoming
- Outgoing
- Capacity-building

### Two target groups

- Fellows (alumnae / alumni)
- Hosts

### Levels of analysis

- Individual
- Working group
- Institutional – university and non-university research institutions (host and return)
- Societal – a) research system and b) societal life (politics, economy and culture), in Germany as well as in developing countries



## Main differences between the funding initiatives of the VWS and funding programmes of the AvH under analysis

- The number of funded researchers within the programmes and initiatives under analysis is much higher at the AvH than at the VWS.
- The VWS fellows were neither integrated in working groups nor had they hosts during their research stays.
- With its programmes for individual funding, the AvH pursues goals that go beyond the individual level as well.
- The proportion of women and men among funded researchers is balanced at the VWS. Among AvH fellows and hosts, there is a clear gender gap.
- Capacity-building (CB) mode: The Africa initiative of the VWS funds researchers that conduct their research stays at a university in Africa. The Georg Forster Research Programme of the AvH invites fellows from developing countries for a research stay in Germany.



## Number of alumni per foundation and funding programme / initiative

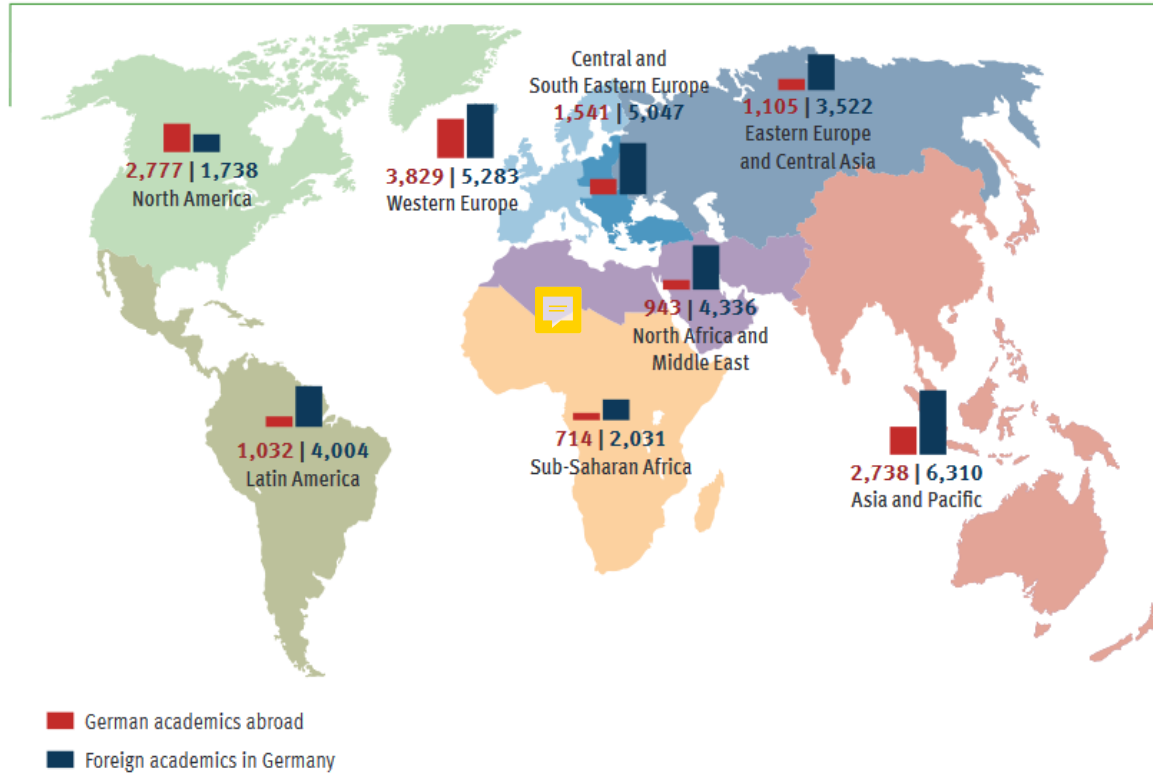
<b>Alexander von Humboldt Foundation: 2013 - 2017</b>	<b># alumni</b>
Humboldt Research Fellowships (HFS, incoming)	2,153
Sofja Kovalevskaja Award (SKP, incoming)	35
Feodor Lynen Research Fellowships (FLP, outgoing)	429
Georg Forster Research Fellowships (GFP, incoming/capacity building)	284

<b>Volkswagen Foundation: 2008 - 2018</b>	<b># alumni</b>
Post-doctoral Fellowships in the Humanities at Universities and Research Institutes in Germany (together with the Andrew W. Mellon Foundation) (incoming)	36
Post-doctoral Fellowships in the Humanities at Universities and Research Institutes in the U.S. and Canada (together with the Andrew W. Mellon Foundation) (outgoing)	54
Knowledge for Tomorrow – Cooperative Research Projects in Sub-Saharan Africa (neglected tropical diseases, humanities, social sciences, livelihood management, natural resources, and engineering) (capacity building)	74

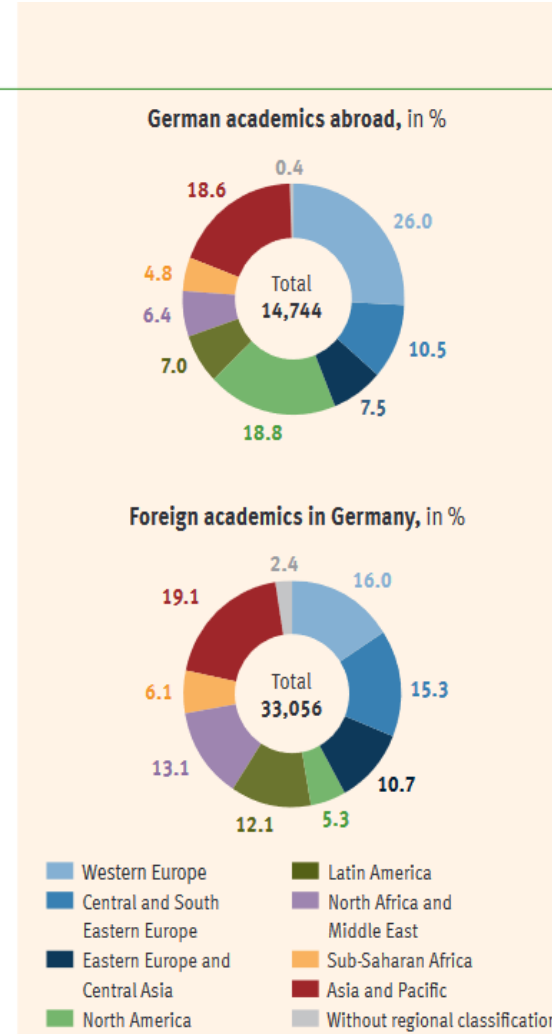
## Professorship for Quantitative Research on Higher Education

29 | Funded visits of German academics abroad and foreign academics in Germany, in 2017, by host region and region of origin



The 65 German and 785 foreign academics whose host regions or regions of origin are not known have not been taken into account.

Fig. 29  
Source: Numbers of the funding organisations; DZHW calculation



Source: Heublein et al., 2020, p. 19.

Notes: Data includes foreign guest researchers in Germany funded by German funding organisations and German guest researchers abroad funded by German funding organisations. Funded groups include postgraduates, postdocs and academics/researchers/university teachers.





## Research methodology: methods and tools

- Analysis of initiatives' / programmes' documentation and reconstruction of intervention logics for the respective funding programmes / initiatives,
- Literature research on selected topics (such as research team diversity and productivity, migrant scientists and international networks, career tracking of international postdocs, return migration),
- Two-stage online surveys of fellows / alumnae and alumni on impacts of funding and on their career paths,
- An online survey of hosts of incoming fellows at German universities and research institutions (only AvH),
- A bibliometric analysis, i.e. mapping of citing authors' institutional affiliations before and after funding (sample).



## Research methodology: methods and tools

- Neither an evaluation nor a comparison of the programmes or the foundations was intended.
- The aim of this study was to explore the broad range of impacts that a) postdoctoral researchers experienced due to individual funding for international long-term mobility they received, and b) the postdocs and their hosts perceived that the fellows' funding has had on the working group, institutions and society.



## Online survey of fellows – 1<sup>st</sup> round

- Timeline: February – April 2019
- Sampling plan: census survey (except for HFS – 20 per cent)
- Qualitative: Open questions on impacts of the fellowships at different levels

(Sample page)

### How has the host institution benefited from your stay in Germany?

Below are some examples to clarify what we mean by "benefited".

*"There was not much benefit, since the bureaucratic effort that my research stay entailed posed a great challenge for the host institution in Germany."*

*"My presence at the host institution also benefited others who were not directly involved with the research project."*

*"I was able to establish contacts between the host institution in Germany and leading academic institutions in my home country."*



## Online survey of fellows – 2<sup>nd</sup> round

- Timeline: July – August 2019
- Sampling plan: census survey
- Quantitative: Fellows were asked to report whether the impacts of the funding reported by the fellows in the 1<sup>st</sup> round of the survey occurred in their case.
- At the different levels, 19 – 43 items / impacts were listed in the questionnaire.

(Sample page)

### The host institution benefited from my stay in the following way:

Benefit occurred

The institution benefited from my industrial outreach activities (e.g. patents, licences).

Other projects at the institution benefited from my contribution.

•••

The institution did not benefit much because it had no interest in my experience from abroad and its application.



## Online survey of hosts (only AvH)

- Time window: July – August 2019
- Only hosts of incoming fellows in Germany
- Sampling plan: census survey
- Hosts were asked to report whether or not the impacts which were reported by the fellows themselves occurred in the case of their working group, institution and for the research system and/or other aspects of societal life.
- At the different levels, 19-38 items / impacts were listed in the questionnaire.
- It was possible to add further impacts.

(Sample page)

**The host institution benefited from the fellow's stay in Germany in the following way:**

Benefit occurred

The fellow helped internationalise teaching at the institution (e.g. organised a journal club, study group).

The institution did not benefit much because there was rather little interest in the fellow's experience and its application.

•••

The fellow strengthened a core activity at the institution.

**Other benefits that occurred for the host institution that were not mentioned in the list above:**



## Response rates for online surveys of fellows

Alexander von Humboldt Foundation	1 <sup>st</sup> round		2 <sup>nd</sup> round	
	#net <sup>c</sup>	Response rate	#net <sup>c</sup>	Response rate
Humboldt Research Fellowships (incoming)	418 <sup>a</sup>	48%	414 <sup>a</sup>	50%
			1,471 <sup>b</sup>	56%
Sofja Kovalevskaja Award (incoming)	33	46%	33	64%
Feodor Lynen Research Fellowships (outgoing)	386	57%	380	62%
Georg Forster Research Fellowships (incoming/capacity building)	266	66%	264	68%

<sup>a</sup> fellows sampled in 1<sup>st</sup> round (20% sampling fraction)

<sup>b</sup> fellows who were not in the sample in the 1<sup>st</sup> round

<sup>c</sup> population size minus those who were not reached (e.g. invalid email address)



## Response rates for online surveys of fellows: VWS

Volkswagen Foundation	1 <sup>st</sup> round		2 <sup>nd</sup> round	
	#net <sup>a</sup>	Response rate	#net <sup>a</sup>	Response rate
Post-doctoral Fellowships in the Humanities in Germany (incoming)	36	69%	36	78%
Post-doctoral Fellowships in the Humanities in the U.S. and Canada (outgoing)	54	72%	54	89%
Knowledge for Tomorrow – Cooperative Research Projects in Sub-Saharan Africa (capacity building)	74	65%	74	76%

<sup>a</sup> population size minus those who were not reached (e.g. invalid email address)



## Response rate for the online survey of hosts

Alexander von Humboldt Foundation	#net	Response rate
Humboldt Research Fellowships (incoming)	1,944	42%
Sofja Kovalevskaja Award (incoming)		
Georg Forster Research Fellowships (incoming/capacity building)		

Number of hosted fellows:

- 50% of the hosts (survey participants) supervised only one fellow,
- 24% of the hosts supervised two fellows, and
- 23% of the hosts supervised three or more fellows.





# Selected results



- 1. General observations for AvH and VWS**
- 2. Results at the different levels of analysis**
- 3. In-depth analyses: - career development for AvH fellows  
- international visibility for a VWS fellow**



# General observations for AvH and VWS



## **Impacts at the different levels**

- The majority of impacts were reported at the individual level. As the levels become more distant from the fellow (the working group, the institution, the research system, society), a decreasing tendency to report impacts was observed. The exception to this are GFP and the Knowledge for Tomorrow (Africa Initiative) of the VWS. → Possibly an indication of strong perception of relevance of research in developing countries, emerging economies and transition states.

## **Negative impacts**

- They were (among) the least often mentioned impacts reported by the fellows and hosts at all levels.

## **Societal impacts**

- The fellows in the CB mode were more likely to report on the societal impact than the fellows in the other modes (and this is more the case for the VWS than the AvH).



# Results at the different levels of analysis for the Alexander von Humboldt Foundation (AvH)



## Individual level

**In academic terms, the following personal impacts occurred in my case due to the research stay:**  
(N = 1,440 respondents, sorted in descending order by total per cent)

Impacts	HFS		FLP		GFP	
	Rank	%	Rank	%	Rank	%
The research stay meant a lot for my personal development.	<b>2</b>	75.2	<b>1</b>	83.5	<b>3</b>	77.7
I advanced my career in research.*	<b>1</b>	76.2	<b>3</b>	78.0	<b>4.5</b>	76.5
I increased my visibility in international research.**	<b>3</b>	74.9	<b>7.5</b>	76.3	<b>2</b>	78.2
I increased my independence as a researcher.	<b>4</b>	72.0	<b>9</b>	75.4	<b>10</b>	71.5
My reputation increased.	<b>5</b>	71.0	<b>4</b>	77.5	<b>8</b>	74.3

Notes: SKP was not included in the analysis due to a too small sample size.

The hosts were not included in the analysis because they were not asked this question in the questionnaire.

\* This topic will be presented in more detail on p. 32-35.

\*\* This topic will be presented in more detail on p. 36-39.



## Working group level

The working group benefited from my collaboration in the following way:

(N = 1,599 respondents, sorted in descending order by total per cent)

Impacts	HFS		GFP		Hosts	
	Rank	%	Rank	%	Rank	%
My / the fellow's cooperation with the working group (members of it) lasts until today.*	2	65.4	2	66.2	2	75.3
(PhD) students in the working group benefited from my / the fellow's advice.**	1	69.9	1	68.5	6	60.1
I / the fellow helped broaden the working group's research spectrum (e.g. topic, field).	4	57.8	3.5	58.5	3	74.2
The working group increased its publication performance.	6	45.4	6	52.3	4	73.4
I / the fellow introduced new techniques, methods, or theories to the working group.	3	58.4	3.5	58.5	8	55.9

Notes: SKP was not included in the analysis due to a too small sample size.

FLP was not included in the analysis because it is an outgoing programme and the working group was abroad (outside Germany).

The hosts were provided with the same items as the fellows but they were reformulated.

\* This topic will be presented in more detail on p. 29.

\*\* This topic will be presented in more detail on p. 28.



## Institutional level

The host institution in Germany benefited from my research stay in the following way:  
(N = 1,994 respondents, sorted in descending order by total per cent)

Impacts	HFS		GFP		Hosts	
	Rank	%	Rank	%	Rank	%
I / the fellow helped improve the institution's publication performance.	1	45.1	1	48.6	2	62.2
I / the fellow taught or advised (PhD) students at the institution.*	4	42.2	4	41.3	4	55.3
I / the fellow helped increase the institution's visibility.	5	36.3	5	40.2	1	67.1
The institution benefited from a continued collaboration with me / the fellow.**	3	42.6	2	46.9	3	57.2
I / the fellow encouraged other researchers at the institution to apply for international fellowships.*	2	44.3	3	41.9	9	33.7

Notes: SKP was not included in the analysis due to a too small sample size.

FLP is not included in this presentation because it is an outgoing programme and the host institution was abroad (outside Germany).

The hosts were provided with the same items as the fellows but they were reformulated.

\* This topic will be presented in more detail on p. 28.

\*\* This topic will be presented in more detail on p. 29.





## Societal level – research system in Germany

**My stay in Germany added value to the research system in Germany in the following way:**  
(N = 1,815 respondents, sorted in descending order by total per cent)

Impacts	HFS		Hosts	
	Rank	%	Rank	%
I / the fellow maintained my / his or her contact with Germany.*	1	79.8	1	84.1
I / the fellow raised awareness of research opportunities available in Germany.	3	52.3	3	52.0
I / the fellow informed German researchers about research systems of other countries.	2	52.4	7	39.4
The project increased the international visibility of research conducted in Germany.	5	39.0	2	59.9
The project strengthened international research networks of Germany.	4	42.3	6	45.8

Notes: SKP was not included in the analysis due to a too small sample size.

FLP is not included in this presentation because it is an outgoing programme.

GFP is not included in this presentation because the fellows were asked about added value for the research systems in the developing countries.

The hosts were provided with the same items as the fellows but they were reformulated.

\* This topic will be presented in more detail on p. 29.



## Societal level – other aspects of societal life in Germany

**My stay in Germany added value to other aspects of societal life in Germany, such as culture, politics, or economy in the following way:**

(N = 1,815 respondents, sorted in descending order by total per cent)

Impacts	HFS		Hosts	
	Rank	%	Rank	%
I / the fellow conveyed my / his or her favourable impressions of Germany to friends, colleagues or family.	1	74.2	1	64.8
I / the fellow recommended Germany as a tourist destination.	2	69.2	3	32.9
I / the fellow encouraged young researchers in my / his or her home country to learn German.	3	53.8	-	-
I / the fellow reached a position in academia where I / he or she can influence society.	5	22.0	2	34.9
The research project put me / the fellow in a position to support bilateral relations between my / his or her home country and Germany.	4	27.6	4	26.8

Notes: SKP was not included in the analysis due to a too small sample size.

FLP is not included in this presentation because it is an outgoing programme.

GFP is not included in this presentation because the fellows were asked about added value to society in the developing countries.

The hosts were provided with the same items as the fellows but they were reformulated.



# Overarching findings for AvH



## Internationalisation@home

- The incoming AvH fellows reported that (PhD) students in the working group (69-70%) or at the institution (41-42%) benefitted from their advice or teaching.
- Moreover, the group benefitted from the fellow's cultural perspective (53%) and the fellows encouraged other researchers at the institution to apply for international fellowships (42-44%).
- Furthermore, the fellow encouraged others in the working group to increase their international networking activities (40-43%).
- Finally, the fellows advised on proper use of the English language in the working group (23-32%).
- What was reported not often (12-13%) was the benefit of the fellow having contributed to the internationalisation of teaching (e.g. organised a journal club, study group).
- All in all, it holds true that the hosts viewed it as having occurred equally or less often than the fellows did.



## Sustainability of cooperation

- The most often observed at the societal level was the fact that the fellows maintained the contact with Germany (80-82%).
- The majority of the AvH fellows reported that their cooperation with the working group (members of it) lasts until today (65-66%).
- The continuation of the cooperation between the researchers and the institution was observed somewhat less often (37-47%).
- Still a considerable proportion reported to have hosted visits by researchers of the former host institution at the institution where they were engaged after the end of the funding (27-43%). Besides this, they perceived to have become a contact person for the institution searching for partners (17-25%).
- Indeed, the results indicate a strong tendency for funded cooperation to last. Moreover, the continuity has to be looked at not only from a short-term (directly after the fellowship) but also from a long-term perspective. Finally, whether the researchers remain in their former host countries or not, the countries can benefit either way – directly or through former fellows as “bridge-heads”.



## Return to the home country / region → “brain drain”

- The majority of the outgoing Feodor Lynen fellows (73%) returned back to a university or a research institute in Germany immediately after the fellowship or later.
- The majority of the capacity building Georg Forster fellows (83%) returned to a university or a research institute in a developing country.



**In-depth analyses:** - career development for AvH fellows  
- international visibility for a VWS fellow



# Career development for AvH fellows





## General observations

- Comparing the time points of the application, immediately after the fellowship and when the data was collected, the **careers of the fellows developed considerably**, both in terms of receiving an open-ended and full-time employment contract as well as in terms of advancing from the R2 (recognised researchers) over R3 (established researchers) to R4 (leading researchers) stage.
- This development was observed regardless of the baseline situation, though of course, where a considerable proportion of the fellows held an open-ended contract before the funding had begun (e. g. GFP fellows), the progression was less remarkable.



## Employment contract

**What type of employment contract did / do you have within research when you submitted your application for fellowship / immediately after your fellowship ended / at the moment?**  
(Percentage of those engaged in research for the answer “full-time and open ended”)

<b>Alexander von Humboldt Foundation:</b>	<b>When applied for fellowship</b>	<b>At the end of fellowship</b>	<b>At the moment</b>
Humboldt Research Fellowships – sampling fraction 1 <sup>st</sup> round + those who were not sampled in the 1 <sup>st</sup> round	38	53	66
Sofja Kovalevskaja Award	0	64	86
Feodor Lynen Research Fellowships	6	13	<b>28</b>
Georg Forster Research Fellowships	58	69	67



## Career stages

At which level were/are you active as a researcher when you submitted your grant application / after your funding ended / currently? (column percentages)

	Position	Application date	At the end of the fellowship	At the moment
<b>Humboldt Research Fellowships (incoming)</b>	R1	14	0	0
	R2	54	42	25
	R3	20	32	37
	R4	13	26	38
<b>Sofja Kovalevskaja Award (incoming)</b>	R2	93	7	0
	R3	7	33	13
	R4	0	60	87
<b>Feodor Lynen Fellowships (outgoing)</b>	R1	19	0	0
	R2	74	73	41
	R3	5	20	44
	R4	2	8	15
<b>Georg Forster Fellowships (incoming / capacity building)</b>	R1	5	0	0
	R2	45	29	21
	R3	28	32	27
	R4	23	39	52



# International visibility for a VWS fellow



## Mapping of citing authors' institutional affiliations

- Measuring the development of the international visibility of postdoctoral fellows over time by *citing authors' institutional affiliations*
- Selected researcher: Africa, VWS senior fellow, Natural Resources “Neglected Communicable Tropical Diseases and Related Public Health Research”, funded between 2008 and 2011
- Publication search: authorised publication list (when applied) and SCOPUS-ID (2007-8/2019) ->103 publications
- Data base: addresses of correspondence authors, who cited the publications of the selected researcher (letter, review, article)
- Data cleaning: overall 2,303 citations (SCOPUS) of all document types, 2,088 citations with affiliations, for ~95% of the citations the locations could be identified (geo coordinates)
- 2 Figures: 1. Citing authors network for all citing publications until 2008 (when applied)  
2. Citing authors network for all citing publications from 2012 until 8/2019.
- The bibliometric analyses showed that a strong or a very strong increase in the number of citing institutions, as well as global and local expansion of citing authors' institutional affiliations were found.



## Mapping of citing authors' institutional affiliations for a selected VWS fellow

Institutional affiliation of authors who cited publications of the VWS fellow that he or she had published up to the beginning of the funding.





## Mapping of citing authors' institutional affiliations for a selected VWS fellow

Institutional affiliation of authors who cited publications of the VWS fellow that he or she had published from the end of the fellowship until 2019





# Suggestions for further research





## Analysis of socio-economic impacts

The fellows reported **socio-economic impacts** rather rarely. To learn more about socio-economic impacts of the funding programmes for internationally mobile postdocs, one could analyse the database of the integrated employment biography of the **Integrated Employment Biographies Sample\*** (IEBS) of the Institute for Employment Research (IAB). With the help of IEBS, it is possible to trace employment biographies of employees subject to social security contributions – consisting of periods of employment, periods of unemployment, periods of job search, and participation in active labour market programmes.

Examples for research questions:

- How long would former fellowship holders from abroad have to work in Germany until all costs incurred by the fellowship are amortized?
- How do the employment histories of former fellows compare to internationally non-mobile postdocs in Germany?

\* [https://fdz.iab.de/en/FDZ\\_Individual\\_Data/Integrated\\_Employment\\_Biographies.aspx](https://fdz.iab.de/en/FDZ_Individual_Data/Integrated_Employment_Biographies.aspx)



## Internationalisation @home

Could research stays of international mobile postdocs coming to Germany for a research stay be used more strongly in future for the internationalisation of universities @home?

- For example, the majority of the incoming AvH fellows taught or advised (PhD) students in the working group (69-70%) and / or at the host institution in Germany (41-42%).



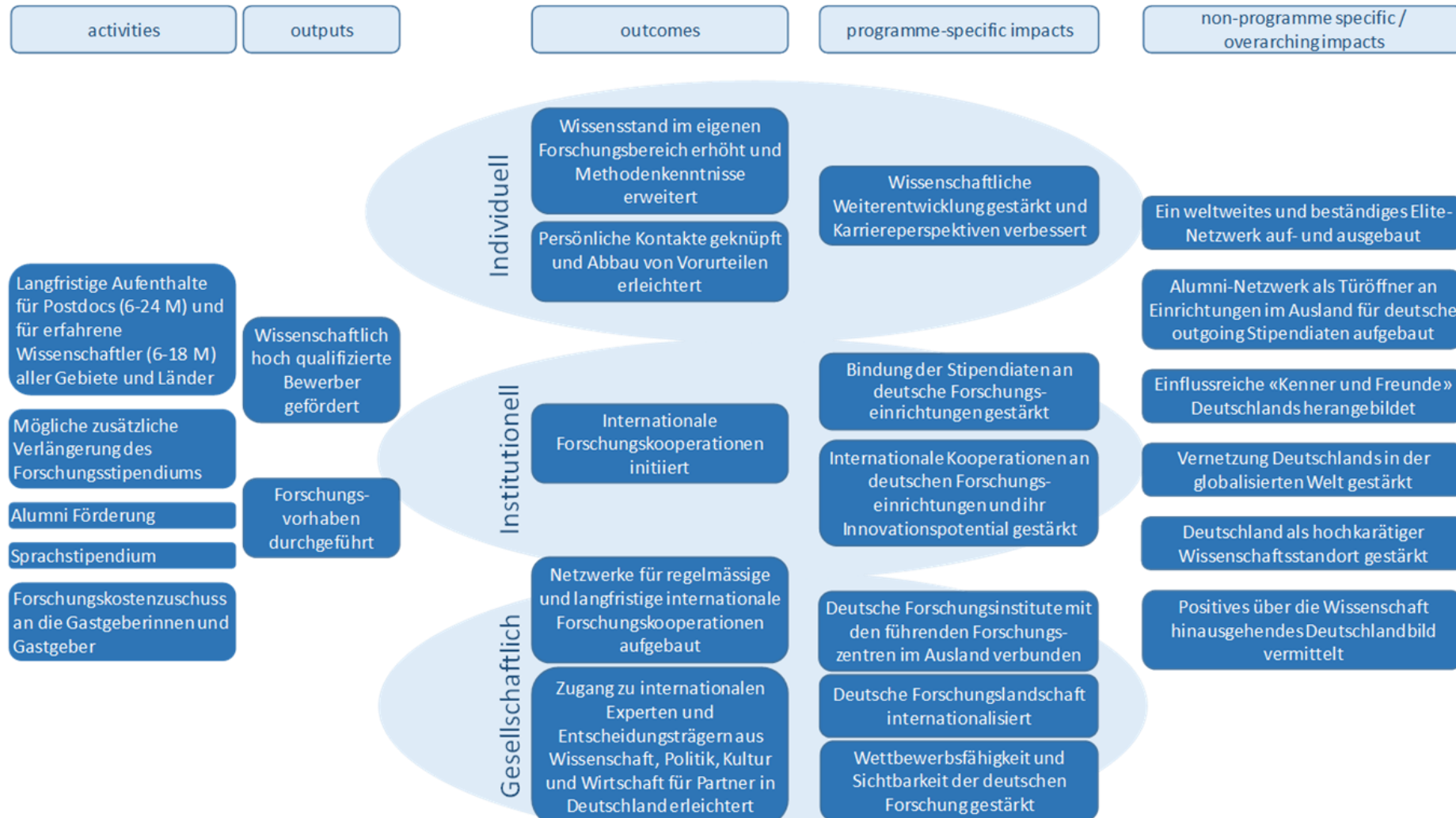
## Improving the design of funding programmes

- At what levels does the foundation want to pursue objectives within a funding programme?
- Should the focus be just on the individual level, arguing that the individual funding is what is provided?
- Or, should the focus remain on the individual level but spill-over effects (to the working group, institution and society) should be considered as well?
- Or, does the foundation want to pursue goals at the individual, working group, institutional and societal level (research system and other aspects of societal life)?

**Concrete proposals:** 1. Design of intervention logics (ILs) for each funding programme, and  
2. Operationalisation of the ILs (indicators, target values, monitoring)



## Example of a reconstructed intervention logic (from our research report)





**Thank you very much for your for your interest in  
the research project!**



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