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May 2017

Use-inspired basic research at SNSF

Appendices to the final report

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This is a supplementary document to accompany the report on Use-inspired basic research at SNSF, based on the study conducted by Technopolis for the SNSF in 2016/17. All appendices (including additional data tables and methodological notes) referred to in the main report are included in this document. Page, table and figure numbers correspond to those found in the table of contents of the main report.

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Appendix B Additional data

B.1 Uptake and success rates of the UIBR option – additional breakdowns

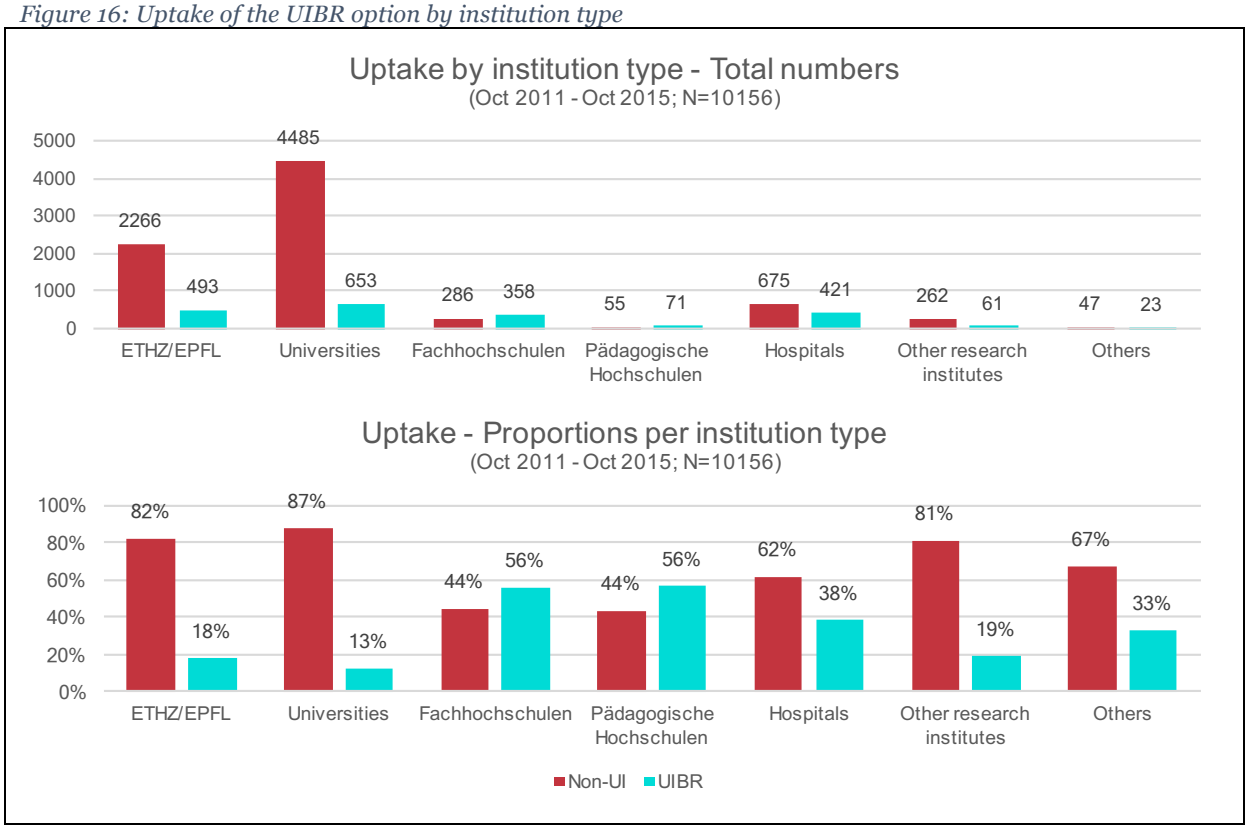
In this section we present figures on uptake subdivided first by institution type and then by SNSF subject division. Our findings strongly reflect those highlighted in the SNSF's 2013 short internal report on UIBR, which covered the time period from 2011-2012.[34]

Sub-dividing these data by institution type yields some important observations. Most importantly, it is evident that although the UIBR options was in large part introduced due to the expanded research remit of UAS/UTE, there is in fact significant uptake of the UIBR option from hospitals[35] as well as most notably the cantonal universities and ETHZ/EPFL. Researchers from established research-performing institutions also use this option, and regardless of the initial intention, it can therefore not fully be understood as only relevant to the newer Swiss research performers.

However, within the respective institution types, it is also clear that the UIBR option is significantly more prevalent in UAS, UTE and hospitals than in universities or ETHZ/EPFL. Even here it needs to be recognised that large portions of applications from UAS, UTE and hospitals were not marked as UIBR, so from the side of the new research performers, the focus on UIBR is far from absolute.

The trends over time are broadly stable, though there is a slight convergence for ETHZ/EPFL between 2011/12 and 2012/13, and a more pronounced convergence for UAS after 2012/13, where UIBR and Non-UI applications have since been submitted in about equal proportions.

Figure 16: Uptake of the UIBR option by institution type

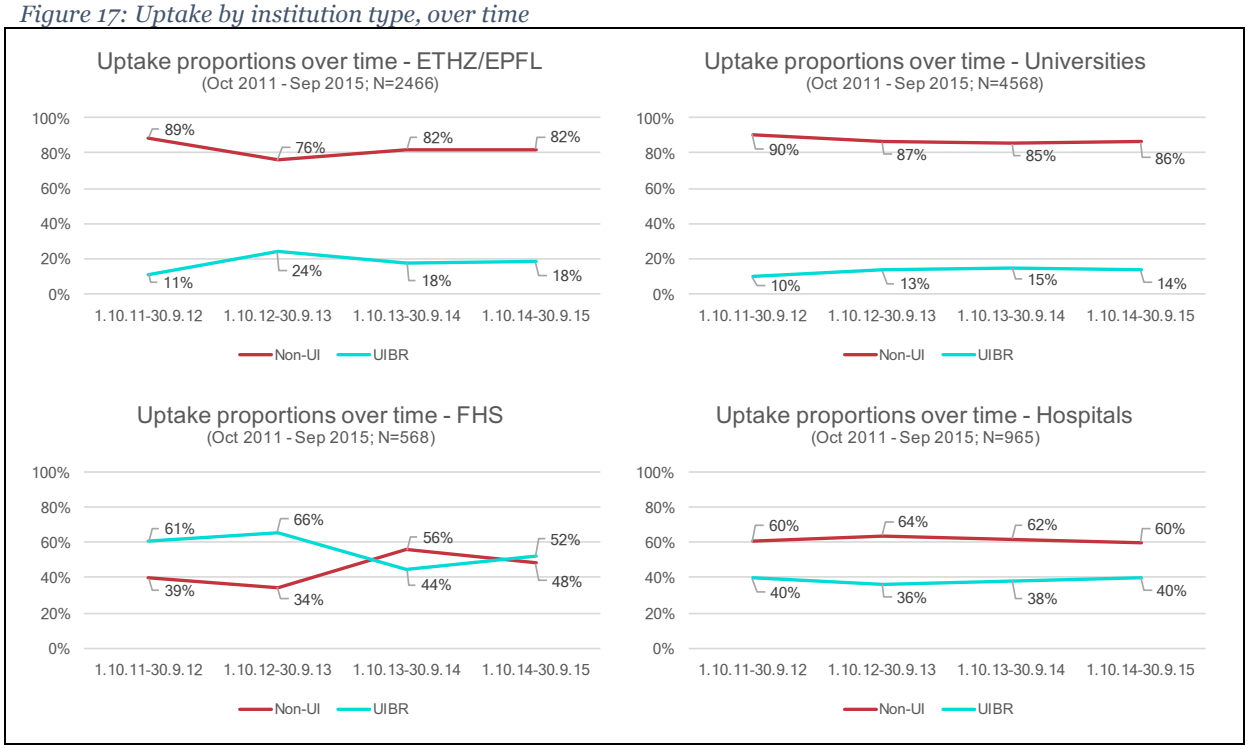


[34] SNSF (2013) Bericht zur Einführung der Kategorie anwendungsorientierte Grundlagenforschung: Stand nach drei Gesuchseingängen (WS 2011, SS 2012, WS 2012), Juli 2013. Bern: Schweizerischer Nationalfonds; available: http://www.snf.ch/SiteCollectionDocuments/Web-News/news-131216-anwendungsorientierte-projekte-bericht_d.pdf

[35] Hospitals ('Spitäler') in the SNSF classification includes both university and non-university hospitals.

Source: SNSF internal data

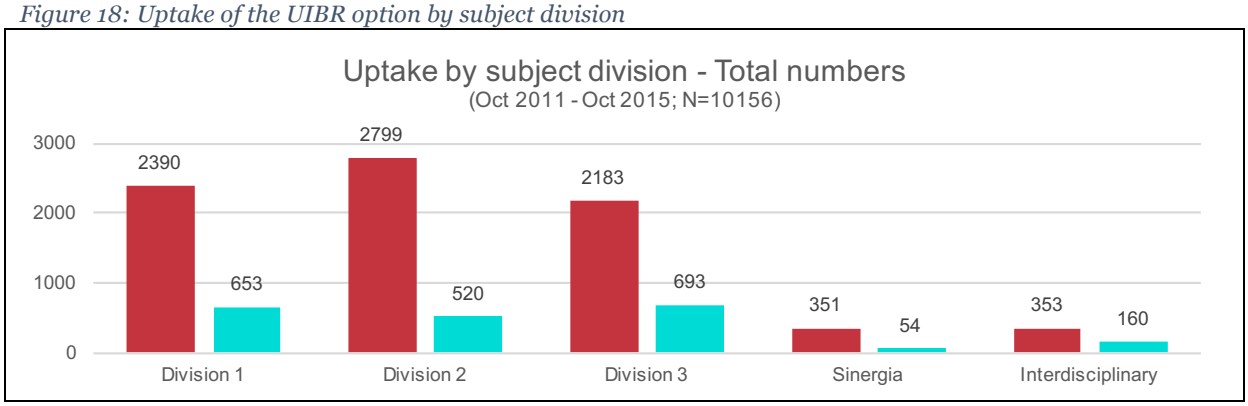
Figure 17: Uptake by institution type, over time



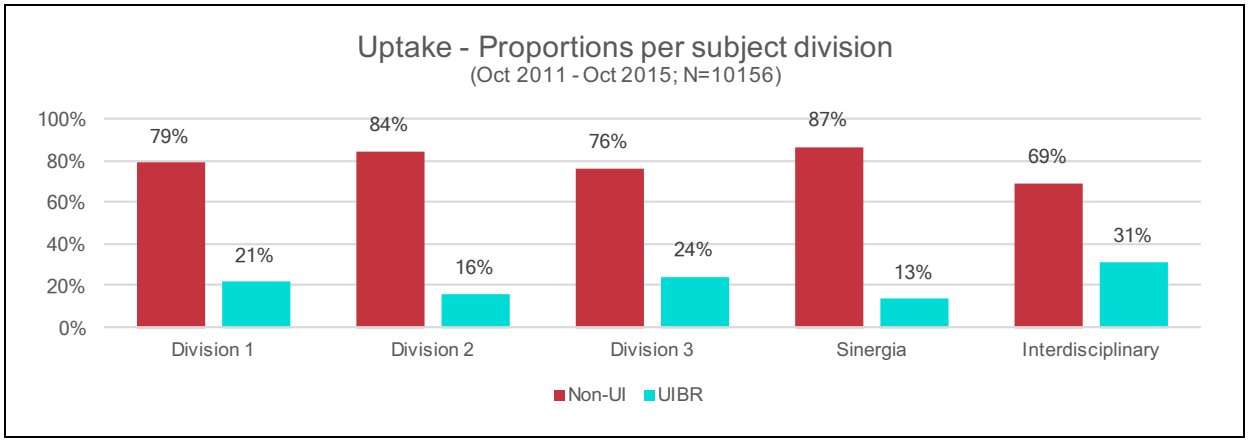
Source: SNSF internal data (excludes UTE due to small overall number)

There are likewise differences in terms of uptake between the three main SNSF subject divisions, as well as interdisciplinary and Sinergia applications, which are also included in this study where relevant.[36] The UIBR option is especially commonly selected in interdisciplinary applications, as well as in Division 3, whilst in Division 2 and Sinergia, fewer applicants select this option. But unlike in the figures on institution types, the uptake in the different divisions is, despite some differences, broadly comparable.

Figure 18: Uptake of the UIBR option by subject division



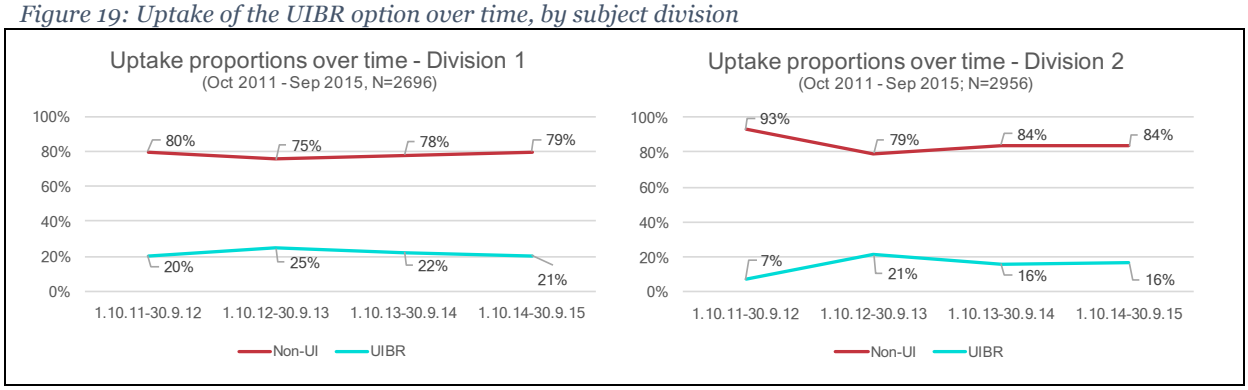
[36] Our interviews indicate that Sinergia and interdisciplinary projects have recently been re-organised. Notably this has included integration of the two, as well as a re-orientation of Sinergia's mission from collaborative research to also including a dimension of 'breakthrough research'. We therefore note data for ID and Sinergia where relevant, but note a separate set of conclusions in light of this re-organisation.



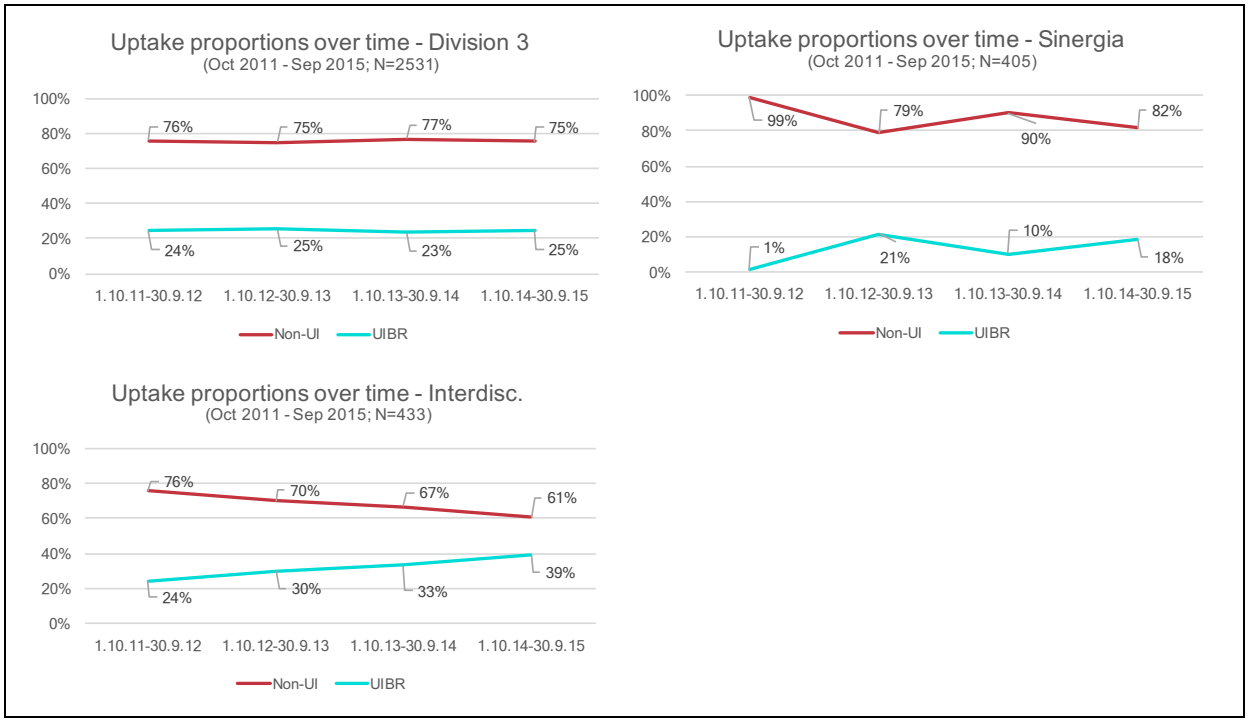
Source: SNSF internal data

The uptake trends over time are very stable for Divisions 1 and 3. In Division 2 and Sinergia there was a slight convergence after 2011/12 and the trends have been fairly stable since. The only clear trend appears for interdisciplinary work, where the proportion of UIBR applications has strongly and consistently increased, from 24% to 39% over the four years covered here. This trend is unsurprising: a link between interdisciplinary research and more practical or use-oriented endeavours has been highlighted elsewhere,[37] owing to the fact that when a practical problem rather than academic advancement is the starting point, then the inclusion of more than one discipline is likely.

Figure 19: Uptake of the UIBR option over time, by subject division



[37] See e.g. Greenhalgh T & Fahy N (2015) Research impact in the community-based health sciences: an analysis of 162 case studies from the 2014 UK Research Excellence Framework. BMC Medicine , 13 (232); King's College London & Digital Science (2015) The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014 impact case studies. London: King's College London.

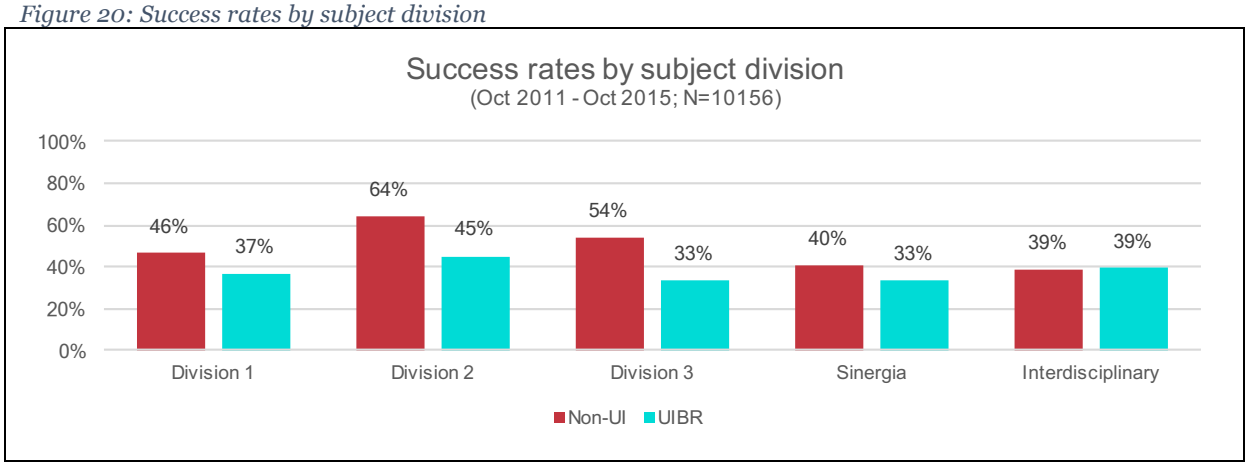


Source: SNSF internal data

B.1.1 Success rates

Beyond the overall success rate discrepancy (54% for Non-UI and 38% for UIBR applications), we find that the discrepancy between success rates varies strongly by subject division: whilst the lower rate for UIBR holds in all except the interdisciplinary projects, it stands at 21 percentage points for Division 3[38] and 19 for Division 2,[39] but only at 9 for Division 1 and 7 for Sinergia.

Figure 20: Success rates by subject division

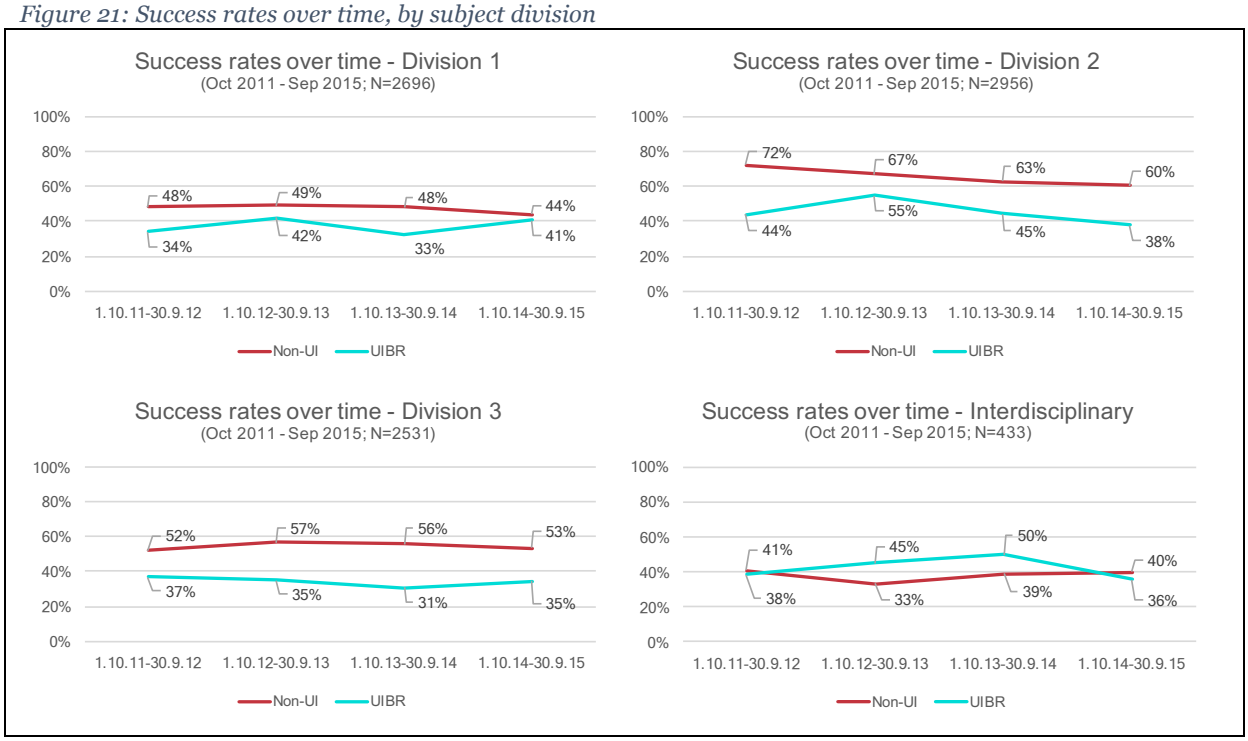


Source: SNSF internal data

[38] We note that the especially large success rate discrepancy in Division 3 is driven mainly by the Biology rather than the Medicine section of the division (other divisions have sub-panels, though this headline distinction in Division 3 is unique). The figures for this are in Figure 25 in Appendix B.2 These findings will be referred to later on, when we discuss issues such as panel and RC composition.

[39] As noted, this figure has most recently decreased a little, given the consistent downward trend in Non-UI success rates for Division 2 over the four-year period assessed here

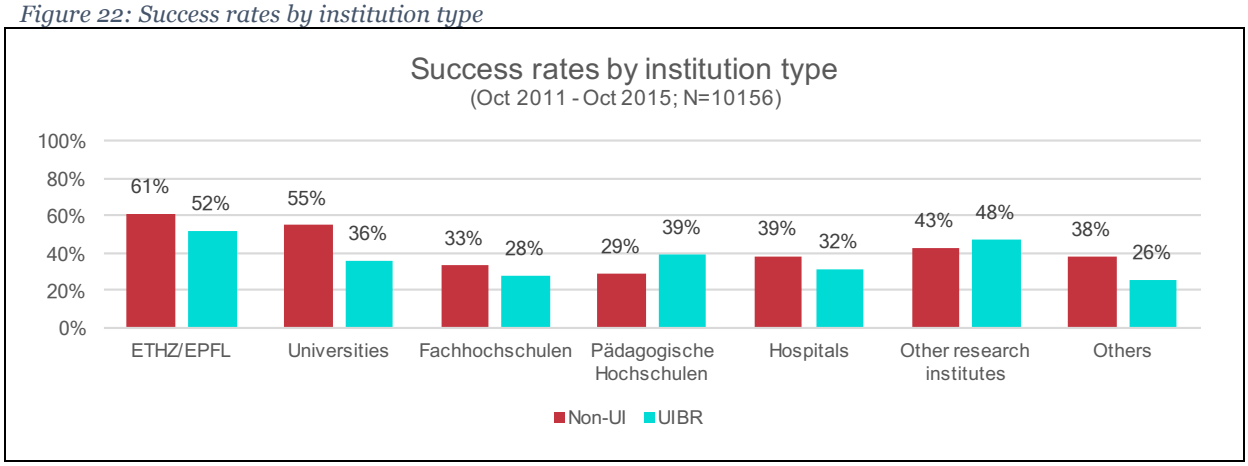
Figure 21: Success rates over time, by subject division



Source: SNSF internal data. NB: year-on-year figures for Sinergia result in very low numbers, so we omit those here.

Additionally, there are some discrepancies along lines of institution type. However, with the exception of Pädagogische Hochschulen and the small number of 'Other research institutes', the overall trend of UIBR applications' lower success rates holds, with the difference ranging from 5 to 19 percentage points. There are no significant trends over time for institution types.

Figure 22: Success rates by institution type

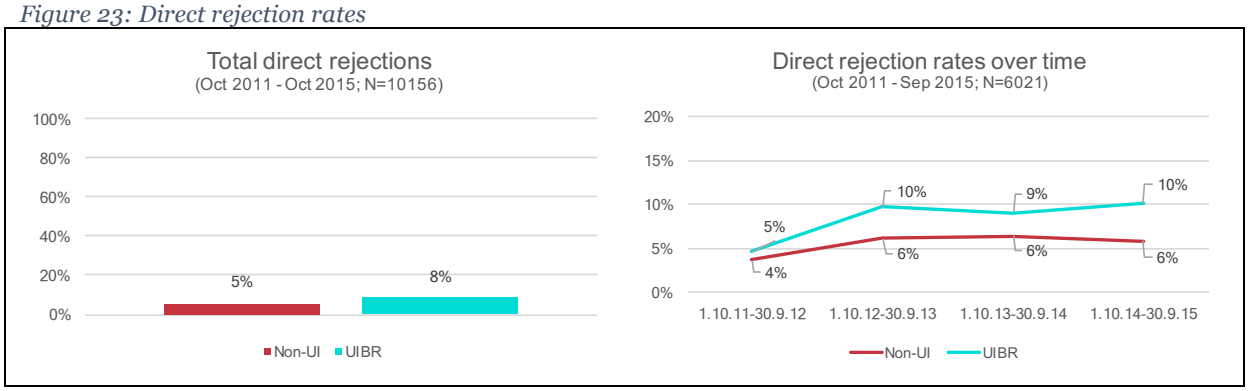


Source: SNSF internal data

B.1.2 Direct rejection rates

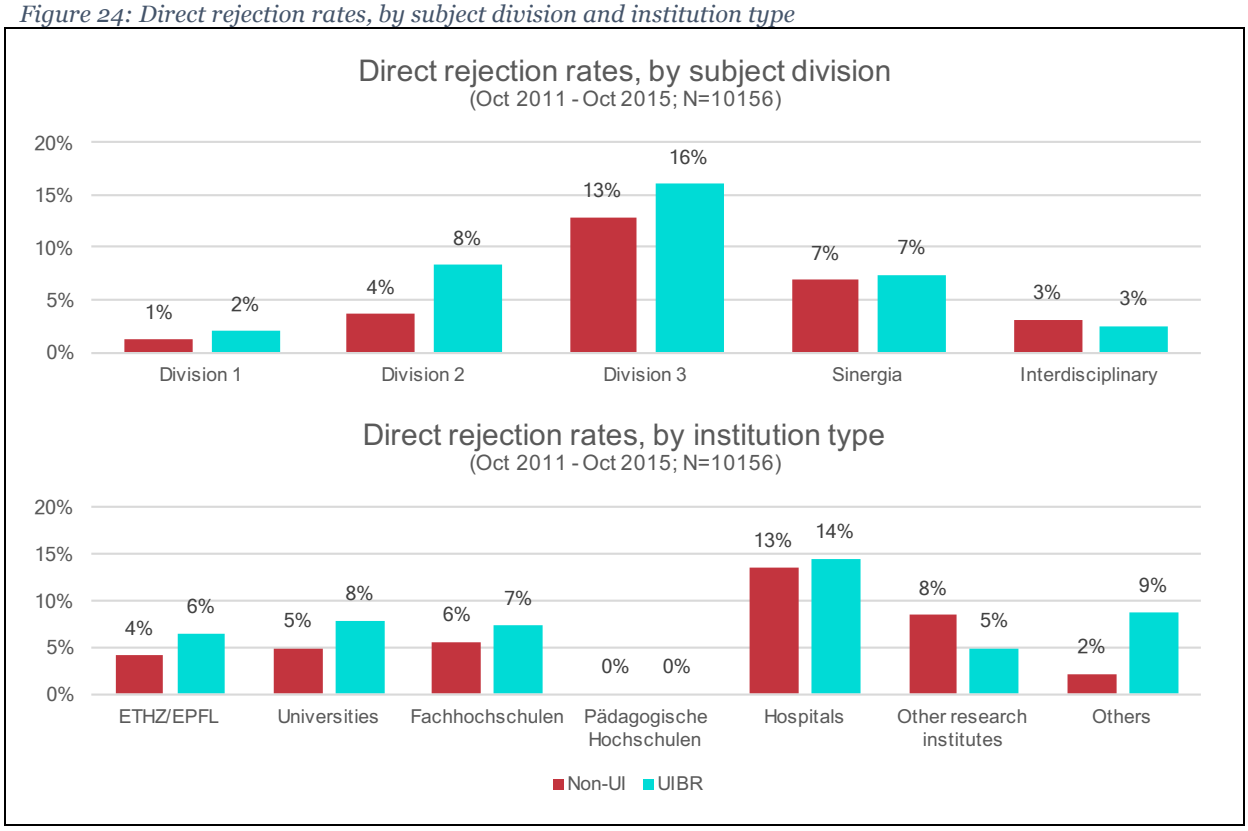
Direct rejection rates are a small constituent part of the overall success rates for applications. We note the headline figures on this issue below.

Figure 23: Direct rejection rates



Source: SNSF internal data

Figure 24: Direct rejection rates, by subject division and institution type



Source: SNSF internal data

B.2 Success rates – additional calculations

Table 10: Success rates by subject division and institution type

		UIBR					Non-UI				
		Div 1	**Div 2**	**Div 3**	**IDS**	**Sin**	**Div 1**	**Div 2**	**Div 3**	**IDS**	**Sin**
ETHZ/EPFL	Successful	18	178	30	24	6	86	1012	202	50	35
	Rate	34%	56%	48%	51%	50%	53%	64%	60%	48%	38%
Universities	Successful	99	42	72	15	7	904	721	685	68	86
	Rate	38%	36%	36%	28%	29%	48%	67%	61%	37%	41%
Fachhochschulen	Successful	78	5	9	7	1	61	17	8	7	2
	Rate	33%	8%	26%	28%	n/a	37%	25%	42%	24%	40%
Pädagogische Hochschulen	Successful	28	0	0	0	0	15	0	0	1	0
	Rate	39%	n/a	n/a	n/a	n/a	28%	n/a	n/a	n/a	n/a
Hospitals	Successful	5	6	111	10	2	5	5	235	6	10
	Rate	45%	60%	30%	42%	22%	33%	56%	39%	33%	37%
Other Research institutes	Successful	9	4	9	6	1	33	26	42	3	9
	Rate	50%	40%	39%	86%	n/a	33%	46%	54%	25%	60%
Others	Successful	3	0	1	1	1	5	8	4	1	0
	Rate	38%	n/a	n/a	n/a	n/a	28%	62%	33%	n/a	n/a

Source: SNSF internal data; coverage: 01.10.2011-01.10.2015

Table 11: Analysis of success rates by discipline/ field

Discipline	Total App's (N)	Total success rate	Uptake: % Non-UI	Uptake: % UIBR	Success rate Non-UI	Success rate UIBR	*Difference*	Uptake: % Non-ETH or Uni.
20100 Mathematik	281	72%	90%	10%	72%	68%	*4%*	8%
20404 Physik der kondensierten Materie	291	70%	91%	9%	71%	63%	*8%*	3%
20200 Astronomie, Astrophysik und Weltraumforschung	137	69%	96%	4%	69%	67%	*3%*	12%
20301 Physikalische Chemie	194	66%	89%	11%	70%	33%	*37%*	8%
20303 Anorganische Chemie	135	63%	84%	16%	67%	41%	*26%*	3%
20709 Andere Gebiete der Umweltwissenschaften	128	63%	89%	11%	65%	43%	*22%*	6%
30101 Biochemie	138	61%	90%	10%	65%	29%	*36%*	11%
30207 Oekologie	146	58%	89%	11%	57%	69%	*-12%*	7%
30102 Molekularbiologie	245	58%	91%	9%	59%	50%	*9%*	16%
30103 Zellbiologie, Zytologie	158	57%	85%	15%	62%	29%	*33%*	22%
30403 Immunologie, Immunpathologie	204	56%	80%	20%	58%	50%	*8%*	48%
10301 Allgemeine Geschichte ohne Ur- und Frühgeschichte	165	52%	96%	4%	52%	57%	*-5%*	9%
10501 Schwerpunkt Germanistik und Anglistik	135	52%	90%	10%	56%	15%	*40%*	6%
20505 Materialwissenschaften	222	51%	73%	27%	52%	51%	*1%*	9%

Discipline	Total App's (N)	Total success rate	Uptake: % Non-UI	Uptake: % UIBR	Success rate Non-UI	Success rate UIBR	*Difference*	Uptake: % Non-ETH or Uni.
10203 Volkswirtschaftslehre	207	49%	82%	18%	53%	34%	*18%*	17%
30302 Neurophysiologie und Hirnforschung	300	49%	86%	14%	52%	31%	*21%*	38%
20501 Bauingenieurwesen	126	48%	61%	39%	49%	45%	*4%*	7%
10105 Psychologie	386	47%	79%	21%	48%	41%	*7%*	13%
30402 Pathophysiologie	115	46%	74%	26%	47%	43%	*4%*	58%
20506 Informatik	483	46%	81%	19%	50%	30%	*20%*	65%
10407 Architektur, Urbanistik	100	45%	66%	34%	48%	38%	*10%*	8%
30303 Herz- und Kreislaufforschung	116	45%	78%	22%	48%	35%	*13%*	40%
30401 Experimentelle Krebsforschung	197	44%	70%	30%	44%	45%	*-1%*	56%
20511 Andere Gebiete der Ingenieurwissenschaften	150	43%	64%	36%	50%	30%	*20%*	13%
10202 Politikwissenschaften	160	43%	89%	11%	44%	29%	*15%*	19%
10205 Rechtswissenschaften	177	42%	60%	40%	42%	44%	*-2%*	18%
10102 Religionswissenschaften, Theologie	131	42%	89%	11%	44%	29%	*15%*	3%
10101 Philosophie	131	41%	95%	5%	43%	0%	*43%*	4%
10201 Soziologie	216	39%	87%	13%	38%	46%	*-8%*	28%
10104 Erziehungs- und Bildungswissenschaften	220	39%	59%	41%	39%	38%	*0%*	53%
30708 Nervenheilkunde, Psychiatrie	180	32%	60%	40%	37%	25%	*12%*	72%
10204 Betriebswirtschaftslehre	224	32%	76%	24%	36%	19%	*18%*	9%

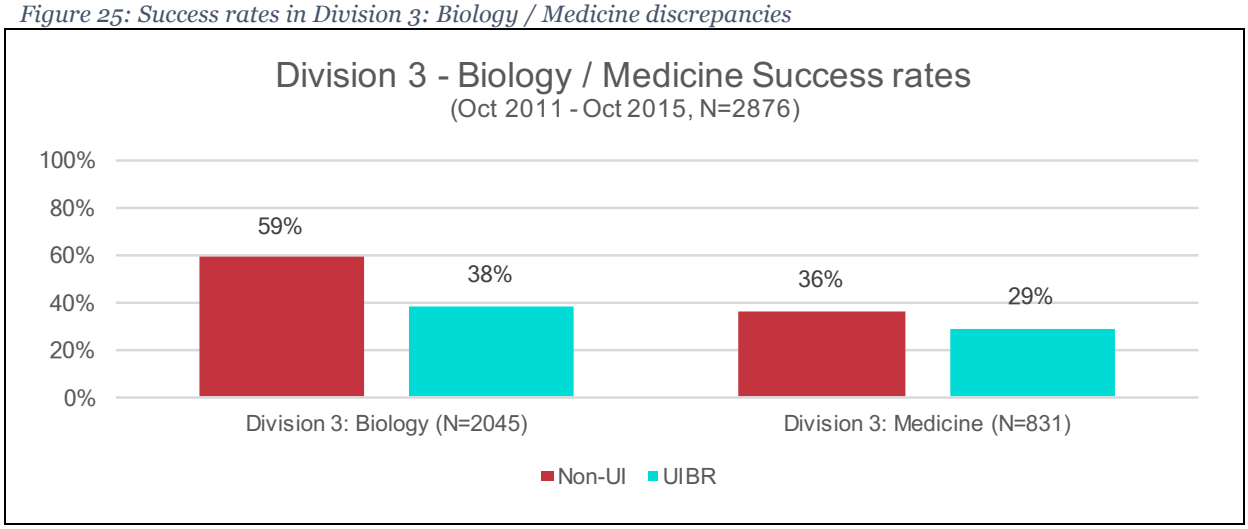
Source: SNSF internal data; coverage: 01.10.2011-01.10.2015. We used only those that had at least 100 applications listed in the database.

Relationship	**r-value**	**Strength**	**Implications**
Total success rate : UIBR uptake	-0.574	Weak/moderate, negative	To some extent, UIBR applications are associated with disciplines that have lower overall success rates; however, this tendency is far from absolute.
UIBR Success rate : total success rate	0.577	Weak/moderate, positive	UIBR success rates correspond less to overall success rates in each respective discipline than is the case with Non-UI success rates.
Non-UI success rate : total success rate	0.980	Strong, positive	
UIBR success rate : Non-UI success rate	-0.457	Weak/moderate, negative	Disciplines with high success rates of Non-UI applications can have especially low UIBR success rates, but this is only a slight tendency.
UIBR success rate : UIBR uptake	-0.112	Very weak	A high uptake or presence of UIBR applications does not mean higher success rates for UIBR. High uptake or presence of Non-UI applications does have some connection with higher Non-UI success rates, but this is not a strong tendency.
Non-UI success rate : Non-UI uptake	0.549	Weak/moderate, positive	
Total success rate : Non-ETH/ Univ. Uptake	-0.427	Weak/moderate, positive	Disciplines with a high UIBR uptake from non-traditional research performing organisations have a slight tendency to also have lower success rates.

Relationship	r-value	Strength	Implications
UIBR Success rate : Non-ETH/ Uni. Uptake	-0.102	Very weak	There appears to be no relationship between UIBR uptake from non-traditional research performing organisations and success rates.
UIBR uptake : Non-ETH/ Uni. Uptake	0.448	Weak/moderate, positive	To a small extent, disciplines with high UIBR uptake also tend to have a high uptake from institutions other than ETH/EPFL or universities. But this is not a strong tendency.

Note: we selected 10 disciplines from each division, so 30 in total, to conduct this analysis. Our criteria were, firstly, to include only disciplines with enough applications to produce meaningful results (100 or more), and secondly, to include disciplines that interviewees had specifically noted as having a high incidence of UIBR applications (e.g. education sciences, IT, engineering) or especially low incidence (e.g. maths, history, philosophy).

Figure 25: Success rates in Division 3: Biology / Medicine discrepancies



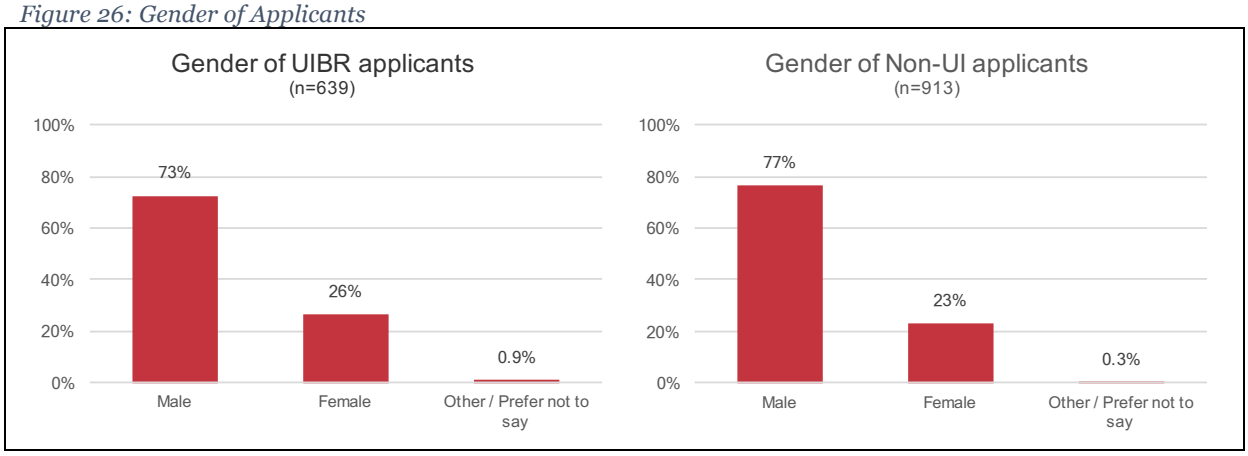
Source: SNSF internal data; coverage: 01.10.2011-01.10.2015

B.3 Further profiling: Age and gender of UIBR applicants

For data protection reasons, we have no direct personal information of these types from SNSF internal data. However, our survey results indicate that only around one quarter of SNSF applicants are female, with little difference between UIBR and Non-UI;[40]

[40] We are confident in these figures, as there are no notable issues with representativity in any dimensions we could control for in our survey response, and there are no grounds to suppose male and female applicants might have responded in different frequency.

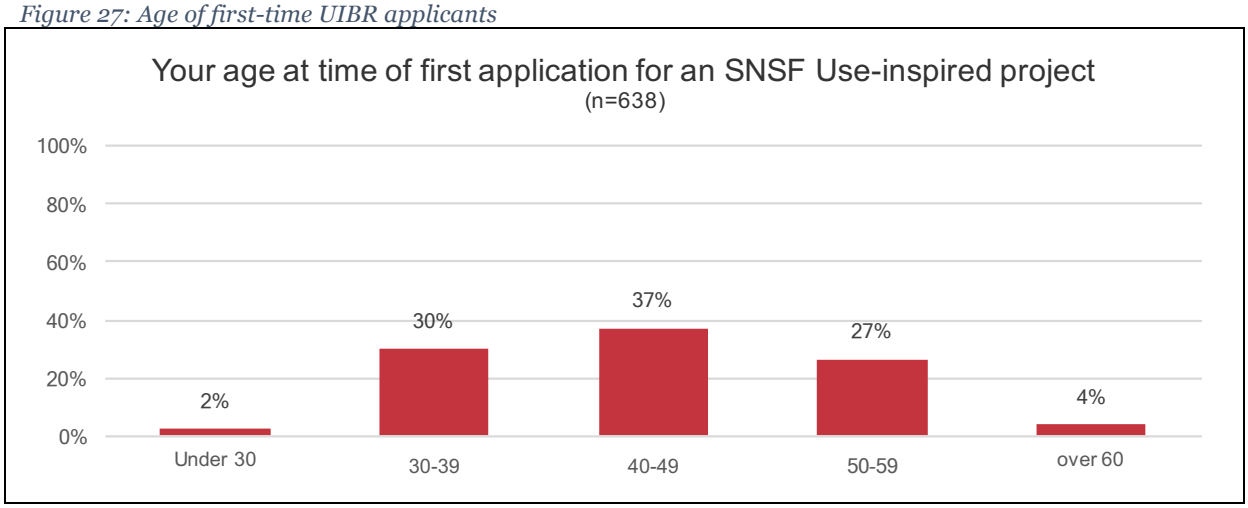
Figure 26: Gender of Applicants



Source: Surveys conducted by Technopolis. NB: UIBR applicants refers to individuals who have submitted at least one UIBR application as main applicants. Non-UI applicants who have submitted at least once as main applicants, but have never used the UIBR option.

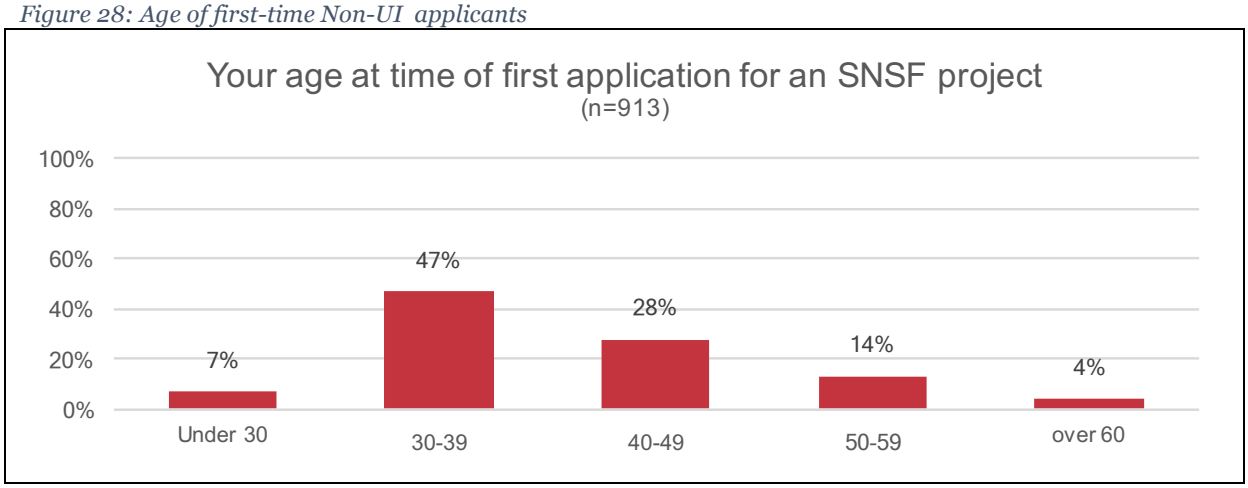
We cannot directly compare between UIBR and Non-UI applications along lines of age, because the UIBR stream has only existed since 2011, meaning many older researchers could not have applied at their earlier career stages, as the UIBR stream simply did not exist. Comparison in this sense would therefore be meaningless. However, our survey data of UIBR applicants indicate an age profile for first-time UIBR applicants that does not suggest particular attractiveness among early career researchers. We add below our survey data for Non-UI applicants, but stress again that the qualification above means direct comparison is not possible.

Figure 27: Age of first-time UIBR applicants



Source: Survey conducted by Technopolis

Figure 28: Age of first-time Non-UI applicants



Source: Survey conducted by Technopolis

B.4 Applications, Research Councillors and Panellists: representation from different institution types

Table 12: Applications by division and institution type

	TOTALS	ETHZ/ EPFL	Univer-sities	UAS	UTE	Hospi-tals	Other RIs	Others	Total non-uni/ETH
Division 1	3043	216	2133	398	125	26	119	26	694
	100%	7%	70%	13%	4%	1%	4%	1%	23%
Division 2	3319	1889	1198	129	0	19	66	18	232
	100%	57%	36%	4%	0%	1%	2%	1%	7%
Division 3	2876	399	1332	53	0	973	101	18	1145
	100%	14%	46%	2%	0%	34%	4%	1%	40%
Division 3 (Biology)	*2045*	*358*	*1087*	*18*	*0*	*476*	*93*	*13*	*600*
	100%	*18%*	*53%*	*1%*	*0%*	*23%*	*5%*	*1%*	*29%*
Division 3 (Medicine)	*831*	*41*	*245*	*35*	*0*	*497*	*8*	*5*	*545*
	100%	*5%*	*29%*	*4%*	*0%*	*60%*	*1%*	*1%*	*66%*
ID	513	152	239	54	1	42	19	6	122
	100%	30%	47%	11%	0%	8%	4%	1%	24%
Sinergia	405	103	236	10	0	36	18	2	66
	100%	25%	58%	2%	0%	9%	4%	0%	16%
Totals	10156	2759	5138	644	126	1096	323	70	2259

	TOTALS	ETHZ/ EPFL	Universities	UAS	UTE	Hospitals	Other RIs	Others	Total non-uni/ETH
	100%	27%	51%	6%	1%	11%	3%	1%	22%

Source: SNSF internal data.

Table 13: RCs/ panellists by division and institution type

	Totals*	ETHZ/ EPFL	Universities	UAS	UTE	Hospitals	Other RIs	Others	Total non-uni/ETH
Division 1	53	2	43	5	2	0	1	0	8
	100%	4%	81%	9%	4%	0%	2%	0%	15%
Division 2	36	18	15	0	0	0	0	3	3
	100%	50%	42%	0%	0%	0%	0%	8%	8%
Division 3	49	7	30	0	0	12	0	0	12
	100%	14%	61%	0%	0%	24%	0%	0%	24%
Division 3 (Biology)	28	7	21	0	0	0	0	0	0
	100%	25%	75%	0%	0%	0%	0%	0%	0%
Division 3 (Medicine)	18	0	6	0	0	12	0	0	12
	100%	0%	33%	0%	0%	67%	0%	0%	67%
ID	31	7	21	2	0	1	0	0	3
	100%	23%	68%	6%	0%	3%	0%	0%	10%
Sinergia	75	19	46	3	0	5	0	2	10
	100%	25%	61%	4%	0%	7%	0%	3%	13%
Totals	167	38	104	7	2	12	1	3	25
	100%	23%	62%	4%	1%	7%	1%	2%	15%

Source: SNSF internal data.

*(active within 01.10.11-01.10.15). Excludes panellists/ RCs based outside of Switzerland: these cannot be categorised in a meaningfully comparable way, as institutional contexts differ. Universities of applied sciences in a different country may have a different status, mission or level of internal resources than in Switzerland, so attempting to categorize 'like-for-like' across nations would lead to problematic results, particularly as these data are presented to assess whether RCs/panels have a suitable understanding of institutional contexts represented in the totality of submitted applications.

Totals including RC's panellists based outside Switzerland are: Division 1: 62; Division 3: 62; ID: 32; Sinergia: 82; Total: 192. All others are as stated (i.e. no non-Swiss based members present). Proportions of institutional representation would not change significantly even if the small additional numbers were included in the analysis. Overall representation in Division 1 would rise marginally, from 15% to 19%, owing specifically to international non-university based individuals in the Arts and Design panel.

Table 14: Comparison: Applications vs. Panel/RC representation by division and institution type

		ETHZ/ EPFL	Univer-sities	UAS	UTE	Hospi-tals	Other RIs	Others	Total non-Univ./ETH
Division 1	Applications	7%	70%	13%	4%	1%	4%	1%	23%
	RCs/ Panellists	4%	81%	9%	4%	0%	2%	0%	15%
Division 2	Applications	57%	36%	4%	0%	1%	2%	1%	7%
	RCs/ Panellists	50%	42%	0%	0%	0%	0%	8%	8%
Division 3	Applications	14%	46%	2%	0%	34%	4%	1%	40%
	RCs/ Panellists	14%	60%	0%	0%	24%	0%	0%	24%
Division 3 (Biology)	Applications	*18%*	*53%*	*1%*	*0%*	*23%*	*5%*	*1%*	*29%*
	RCs/ Panellists	25%	75%	0%	0%	0%	0%	0%	0%
Division 3 (Medicine)	Applications	*5%*	*29%*	*4%*	*0%*	*60%*	*1%*	*1%*	*66%*
	RCs/ Panellists	0%	33%	0%	0%	67%	0%	0%	67%
ID	Applications	30%	47%	11%	0%	8%	4%	1%	24%
	RCs/ Panellists	23%	68%	6%	0%	3%	0%	0%	10%
Sinergia	Applications	25%	58%	2%	0%	9%	4%	0%	16%
	RCs/ Panellists	25%	61%	4%	0%	7%	0%	3%	13%
TOTALS	Applications	27%	51%	6%	1%	11%	3%	1%	22%
	RCs/ Panellists	23%	62%	4%	1%	7%	1%	2%	15%

Source: SNSF internal data. Division 1 includes panels 'PsyPed', 'Künste, Kunstwissensch., Design, Architektur' and 'Economic sciences'. Division 3 includes Panels 'Life sciences Health SS13-15', 'Panel Life Sciences WS12-13'.

B.5 Output types

We note that the absolute numbers reported here may be more generous that the 'true' figures: though our survey responses are strongly representative on all parameters we are able to control, it is likely that PIs of less successful projects were less likely to respond to our surveys. Given that even unsuccessful SNSF applicants responded in high numbers, it is unlikely that this effect is especially large, but some caution should be exercised here. However, what is significant is the relationship between the UIBR and Non-UI figures: both groups have comparable response rates and both are equally representative and were asked the exact same questions. Therefore, though overall numbers may be generous, the relation between UIBR and Non-UI are fully reliable.

The overall figures on academic outputs of course say nothing about the quality of the what was produced. This study does not include a bibliometric dimension to gauge research quality, as there are many known issues with doing so. Especially in arts and social science subjects, journal impact factors are a poor measure. Moreover, citation behaviours vary wildly between different fields and disciplines,

whilst interdisciplinary and breakthrough, 'transformative' research also often struggle to get published in the highest impact factor journals.[41]

However, to get a slightly clearer picture, we separated journal articles in our list of academic outputs into 'Articles in international peer reviewed journals' and 'Articles in other academic journals' in order to separate outputs that broadly conform to the standards of the international scientific establishment from work that may be more locally than internationally relevant, or published in journals with a more professional than strictly academic readership.

Whilst both Non-UI and UIBR respondents widely reported publishing at least once in international peer reviewed journals, the overall numbers of such publications are significantly higher for the Non-UI portion of our survey respondents. Nevertheless, it is evident that a substantial amount of articles in such journals, as well as other academic outputs such as conference papers and books are likewise the norm for UIBR grants, but in all cases in slightly lower quantities than in the case of their Non-UI counterparts.

Figure 29: Productivity – Different types of academic output

Source: Surveys conducted by Technopolis

[41] See e.g. Adams J (2014) Bibliometrics: The citation game. *Nature*, *510*(7506), 470-471; Rafols I, Leydesdorff L, O'Hare A, Nightingale P and Stirling A (2012) How journal rankings can suppress interdisciplinary research: A comparison between Innovation Studies and Business & Management. Research Policy , 41, 1262-1282.

The opposite is the case for non-academic outputs. UIBR respondents are far more likely to report outputs of all types of non-academic impacts than Non-UI respondents, and in greater numbers. This is especially the case for patents, policy recommendations, practice guidelines and potential products (e.g. designs, prototypes).

Figure 30: Productivity – different types of non-academic output

Source: Surveys conducted by Technopolis. NB: Median value for all non-academic output types except for 'Non-academic publications' is zero.

There is therefore generally a marginal difference between UIBR and Non-UI projects in terms of the extent of productivity. This is driven in large part by lower average numbers of articles in international, peer reviewed academic journals. This however, is not to say that UIBR grants are in any way unproductive. The rate of UIBR projects with no academic outputs at all, or a very small number (i.e. less than 5) is negligible, and comparable to Non-UI counterparts.

A notable difference between the two project types lies in the respective proportions of non-academic outputs. Here, UIBR projects have higher rates across the board. We therefore conclude that UIBR grants are highly productive, but although their focus tends to still be in the academic domain, the productivity is slanted more towards non-academic outputs than is the case with Non-UI projects.

B.5.1 Academic outputs

Table 15: Data table – academic outputs of UIBR grants

UIBR (n=416)	Articles in international peer-reviewed academic journals - Number	Articles in other academic journals - Number	Monographs, books, edited volumes and book chapters - Number	Conference presentations - Number	Other academic outputs - Number	Total academic outputs
Mean	4.7	1.4	1.0	7.0	1.0	15.1
% at least 1	92%	44%	46%	94%	28%	98%
% at least 5	29%	8%	4%	55%	7%	88%
Minimum	0	0	0	0	0	-
Quartile 1	2	0	0	3	0	7
Median	3	0	0	5	0	11
Quartile 3	5	2	1	9	1	17
Maximum	100	40	25	100	30	-

Table 16: Data table – academic outputs of Non-UI grants

Non-UI (n=703)	Articles in international peer-reviewed academic journals - Number	Articles in other academic journals - Number	Monographs, books, edited volumes and book chapters - Number	Conference presentations - Number	Other academic outputs - Number	Total academic outputs
Mean	12.2	2.0	1.5	12.9	1.4	30.0
% at least 1	94%	37%	50%	94%	22%	98%
% at least 5	55%	11%	7%	72%	7%	93%
Minimum	0	0	0	0	0	-
Quartile 1	3	0	0	4	0	9
Median	5	0	1	8	0	16
Quartile 3	10	2	2	15	0	29
Maximum	100	100	52	100	100	-

B.5.2 Non-academic outputs

Table 17: Data table – non-academic outputs of UIBR grants

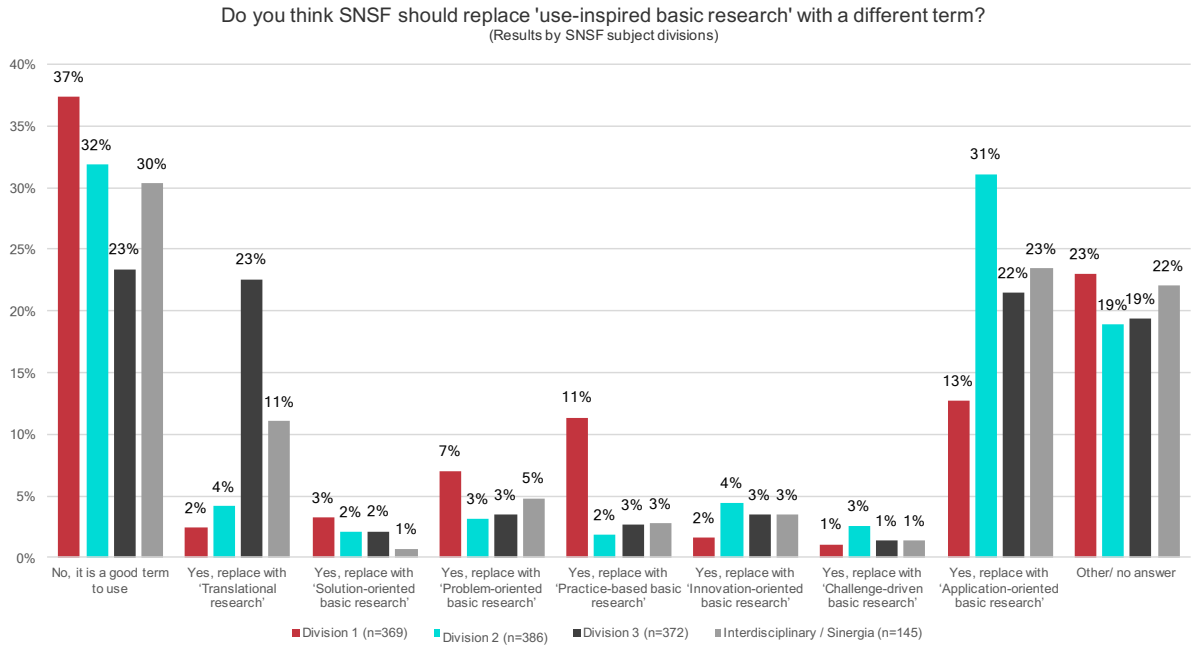
UIBR (n=416)	Patents	Industry collaborations	Consultancies	Policy reports	Policy recommendations	Practice guidelines (e.g. for a professional field or process)	Exhibitions/ performances (e.g. art exhibitions, theatre plays, concerts, etc)	Potential products (e.g. designs/ prototypes)	Non-academic publications (e.g. articles in newspapers, professional journals)	Media appearance (e.g. TV, radio, newspaper interviews, etc)	Other non-academic output	Total Non-academic outputs
Mean	0.5	0.7	1.0	0.3	0.5	0.9	0.5	0.5	2.5	1.8	0.3	9.4
% at least 1	15%	37%	33%	14%	24%	41%	15%	34%	59%	44%	9%	91.1%
% at least 5	1%	2%	4%	1%	2%	2%	3%	1%	13%	10%	0%	54.8%
Minimum	0	0	0	0	0	0	0	0	0	0	0	-
Quartile 1	0	0	0	0	0	0	0	0	0	0	0	2
Median	0	0	0	0	0	0	0	0	1	0	0	5
Quartile 3	0	1	1	0	0	1	0	1	3	2	0	10
Maximum	100	10	100	10	11	60	28	6	100	70	35	-

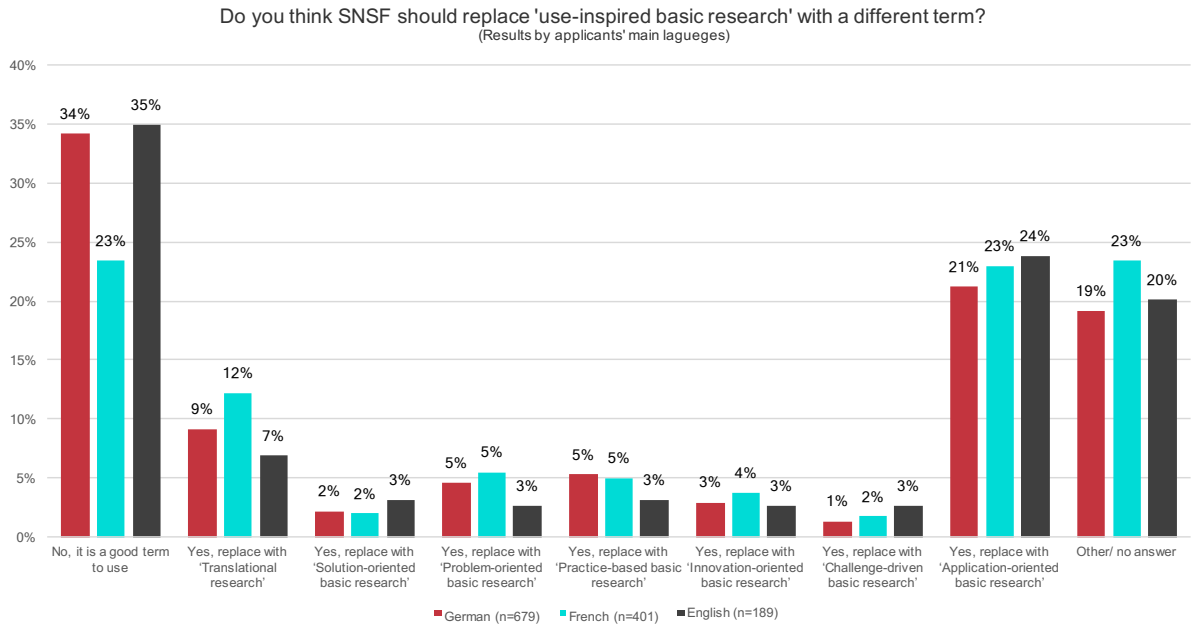
Table 18: Data table – non-academic outputs of Non-UI grants

Non-UI (n=703)	Patents	Industry collaborations	Consultancies	Policy reports	Policy recommendations	Practice guidelines (e.g. for a professional field or process)	Exhibitions/ performances (e.g. art exhibitions, theatre plays, concerts, etc)	Potential products (e.g. designs/ prototypes)	Non-academic publications (e.g. articles in newspapers, professional journals)	Media appearance (e.g. TV, radio, newspaper interviews, etc)	Other non-academic output	Total Non-academic outputs
Mean	0.2	0.5	0.7	0.1	0.2	0.4	0.4	0.2	2.4	2.1	0.3	7.3
% at least 1	10%	23%	19%	5%	10%	13%	12%	12%	47%	42%	5%	71.9%
% at least 5	0%	2%	3%	1%	1%	2%	2%	1%	14%	12%	1%	36.5%
Minimum	0	0	0	0	0	0	0	0	0	0	0	-

Quartile 1	0	0	0	0	0	0	0	0	0	0	0	0
Median	0	0	0	0	0	0	0	0	0	0	0	3
Quartile 3	0	0	0	0	0	0	0	0	2	2	0	7
Maximum	10	20	100	10	10	40	30	20	100	100	100	-

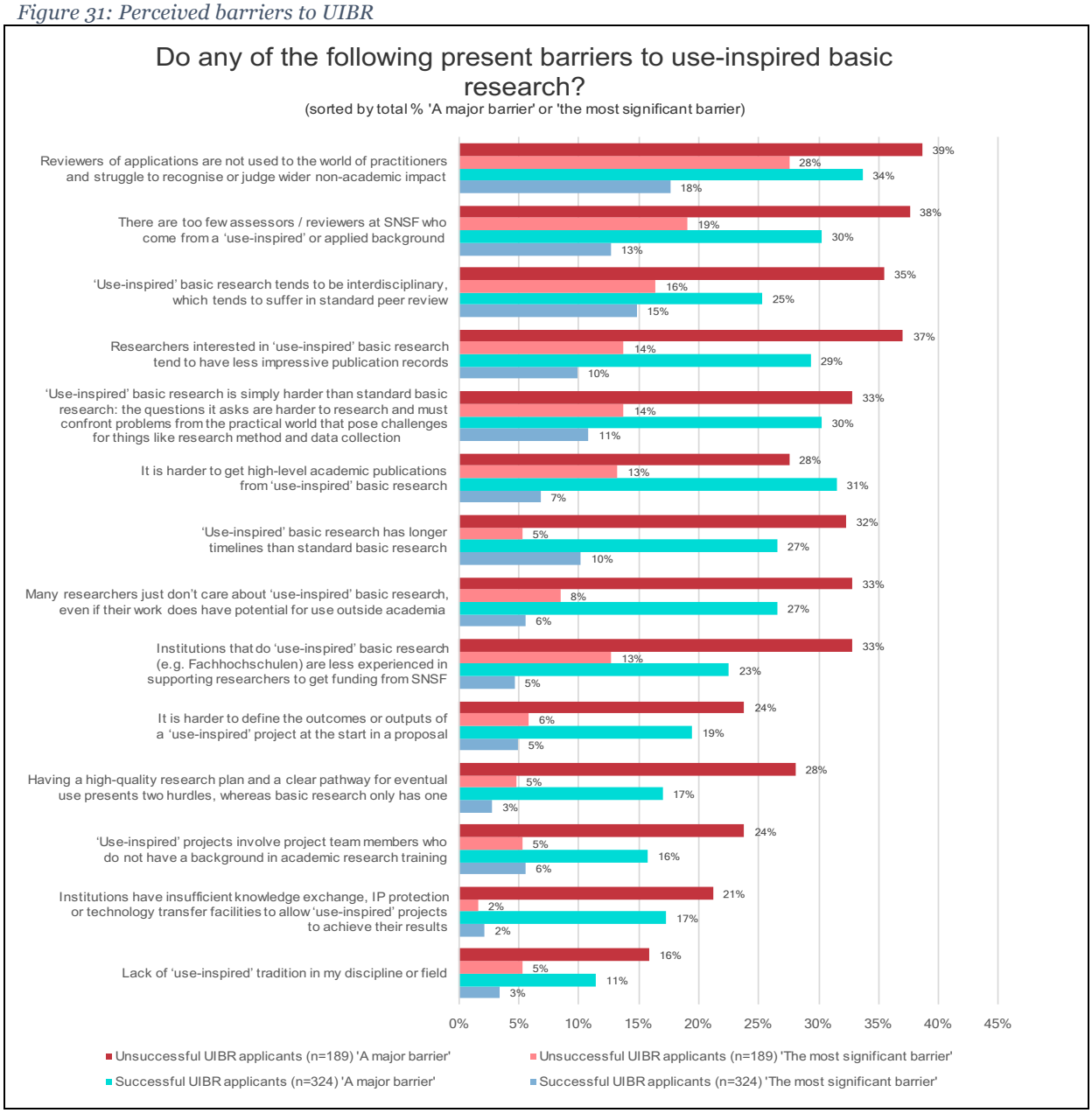
B.6 UIBR – alternative terms (By subject division and main language)





B.7 Survey data: Barriers to UIBR:

Figure 31: Perceived barriers to UIBR



Source: survey conducted by Technopolis

Answer options given:

- 1: Having a high-quality research plan and a clear pathway for eventual use presents two hurdles, whereas basic research only has one
- 2: Institutions have insufficient knowledge exchange, IP protection or technology transfer facilities to allow 'use-inspired' projects to achieve their results
- 3: Institutions that do 'use-inspired' basic research (e.g. Fachhochschulen) are less experienced in supporting researchers to get funding from SNSF
- 4: It is harder to define the outcomes or outputs of a 'use-inspired' project at the start in a proposal
- 5: It is harder to get high-level academic publications from 'use-inspired' basic research
- 6: Lack of 'use-inspired' tradition in my discipline or field

- 7: Many researchers just don't care about 'use-inspired' basic research, even if their work does have potential for use outside academia
- 8: Researchers interested in 'use-inspired' basic research tend to have less impressive publication records
- 9: Reviewers of applications are not used to the world of practitioners and struggle to recognise or judge wider non-academic impact
- 10: There are too few assessors / reviewers at SNSF who come from a 'use-inspired' or applied background
- 11: 'Use-inspired' basic research has longer timelines than standard basic research
- 12: 'Use-inspired' basic research is simply harder than standard basic research: the questions it asks are harder to research and must confront problems from the practical world that pose challenges for things like research method and data collection
- 13: 'Use-inspired' projects involve project team members who do not have a background in academic research training
- 14: Use-inspired' basic research tends to be interdisciplinary, which tends to suffer in standard peer review

Table 19: Barriers to UIBR – breakdown by division, institution type and application outcome

Barrier No.:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
All														
'The most significant barrier' (n=515)	3.5 %	1.9 %	7.6 %	5.2 %	9.1 %	4.1 %	6.6 %	11.3 %	21. 2%	15. 0%	8.3 %	11.8 %	5.4 %	15.3 %
'A major barrier' (n=515)	21. 0%	18. 6%	26. 2%	21. 0%	29. 9%	13. 0%	28. 7%	32. 0%	35. 3%	32. 8%	28. 5%	31.1 %	18. 6%	28. 9%
By subject division														
% 'The most significant barrier'														
Division 1 (n=179)	5.0 %	1.7 %	11.7 %	5.6 %	8.4 %	9.5 %	8.9 %	10. 6%	21. 2%	17.9 %	7.3 %	15.1 %	8.4 %	15.1 %
Division 2 (n=126)	1.6 %	1.6 %	6.3 %	4.8 %	9.5 %	2.4 %	4.0 %	14. 3%	19. 0%	12.7 %	7.1 %	7.9 %	3.2 %	19. 8%
Division 3 (n=145)	4.1 %	2.1 %	4.1 %	4.8 %	10. 3%	0.0 %	6.9 %	10. 3%	21. 4%	13.1 %	8.3 %	11.0 %	3.4 %	9.0 %
ID/ Sinergia (n=63)	1.6 %	3.2 %	6.3 %	6.3 %	7.9 %	1.6 %	4.8 %	9.5 %	25. 4%	15.9 %	14. 3%	12.7 %	6.3 %	22. 2%
% 'A major barrier'														
Division 1 (n=179)	21. 8%	13. 4%	29. 1%	18. 4%	32. 4%	17.9 %	29. 1%	35. 8%	39. 7%	31. 3%	22. 3%	29. 6%	25.1 %	34. 6%
Division 2 (n=126)	22. 2%	18. 3%	22. 2%	19. 8%	23. 8%	7.1 %	27. 8%	28. 6%	29. 4%	30. 2%	27. 0%	34. 1%	14. 3%	19. 0%
Division 3 (n=145)	19. 3%	25. 5%	27. 6%	24. 8%	31. 0%	12. 4%	27. 6%	29. 0%	34. 5%	34. 5%	37. 9%	27. 6%	13. 8%	24. 1%
ID/ Sinergia (n=63)	20. 6%	19. 0%	23. 8%	22. 2%	33. 3%	12.7 %	33. 3%	36. 5%	38. 1%	39. 7%	28. 6%	38. 1%	20. 6%	44. 4%
ETHZ/EPFL & Universities vs. all others														
% 'The most significant barrier'														
ETHZ/EPFL & Universities (n=280)	2.9 %	1.8 %	3.9 %	3.9 %	8.6 %	3.2 %	7.5 %	8.6 %	16. 8%	11.8 %	7.9 %	9.6 %	2.5 %	15.7 %
all others (n=233)	4.3 %	2.1 %	12. 0%	6.9 %	9.9 %	5.2 %	5.6 %	14. 6%	26. 6%	18. 9%	9.0 %	14. 6%	9.0 %	15. 0%
% 'A major barrier'														

Barrier No.:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ETHZ/EPFL & Universities (n=280)	16.8%	20.0%	20.0%	21.4%	25.0%	12.5%	27.1%	26.1%	35.7%	28.6%	31.4%	33.2%	14.6%	23.2%
all others (n=233)	26.2%	17.2%	33.9%	20.6%	36.1%	13.7%	30.9%	39.5%	35.2%	38.2%	25.3%	28.8%	23.6%	36.1%
Successful vs. unsuccessful applicants														
% 'The most significant barrier'														
Successful UIBR applicants (n=324)	3.4%	2.2%	5.6%	2.8%	4.9%	4.6%	5.6%	10.2%	6.8%	10.8%	9.9%	14.8%	12.7%	17.6%
Unsuccessful UIBR applicants (n=189)	5.3%	1.6%	5.3%	4.8%	5.8%	12.7%	8.5%	5.3%	13.2%	13.8%	13.8%	16.4%	19.0%	27.5%
% 'A major barrier'														
Successful UIBR applicants (n=324)	11.4%	17.3%	15.7%	17.0%	19.4%	22.5%	26.5%	26.5%	31.5%	30.2%	29.3%	25.3%	30.2%	33.6%
Unsuccessful UIBR applicants (n=189)	15.9%	21.2%	23.8%	28.0%	23.8%	32.8%	32.8%	32.3%	27.5%	32.8%	37.0%	35.4%	37.6%	38.6%

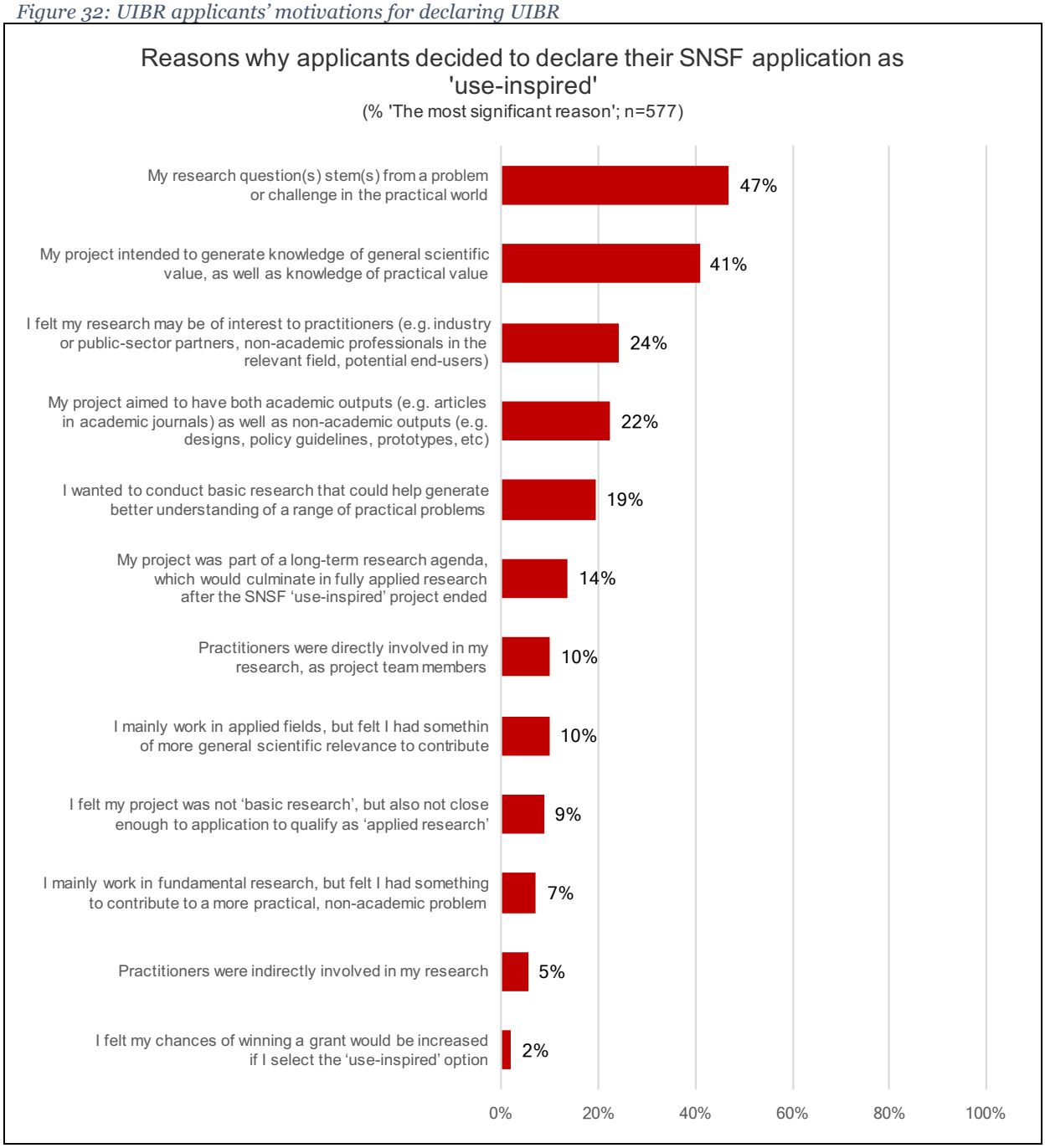
B.8 Survey data: Reasons for applying

We asked UIBR applicants to rate a range of possible reasons for choosing to apply. The answers here reflect strongly our analysis of definitions of UIBR in section 2 of this report. However, unlike respondents' definitions themselves, or our analysis of UIBR applications, the source of the research questions is most often noted as they key motivator.

Although it appears that clear description of where research questions stem from is not typically done in applications themselves, this finding does link back to the difficulty around designing UIBR: if a research question arises not from available resources and feasibility to conduct the research, but from an observed non-scientific problem, then research and methodology design is likely to become more challenging.

Additionally, conceptual reasons around the kind of research being proposed are strongly dominant in the response to this question: answer options about desires to cross over from research to practice (or vice versa), or the possibility of higher success chances do not appear to play major roles.

Figure 32: UIBR applicants' motivations for declaring UIBR



Source: Survey conducted by Technopolis

- 1: I felt my research may be of interest to practitioners
- 2: Practitioners were directly involved in my research, as project team members
- 3: Practitioners were indirectly involved in my research
- 4: My research question(s) stem(s) from a problem or challenge in the practical world
- 5: My project intended to generate knowledge of general scientific value, as well as knowledge of practical value
- 6: My project was part of a long-term research agenda, which would culminate in fully applied research after the SNSF 'use-inspired' project ended
- 7: I mainly work in applied fields, but felt I had something of more general scientific relevance to contribute
- 8: My project aimed to have both academic outputs as well as non-academic outputs

- 9: I felt my project was not 'basic research', but also not close enough to application to qualify as 'applied research'
- 10: I wanted to conduct basic research that could help generate better understanding of a range of practical problems
- 11: I mainly work in fundamental research, but felt I had something to contribute to a more practical, non-academic problem
- 12: I felt my chances of winning a grant would be increased if I select the 'use-inspired' option

Table 20: Reasons for applying – breakdown by division and institution type

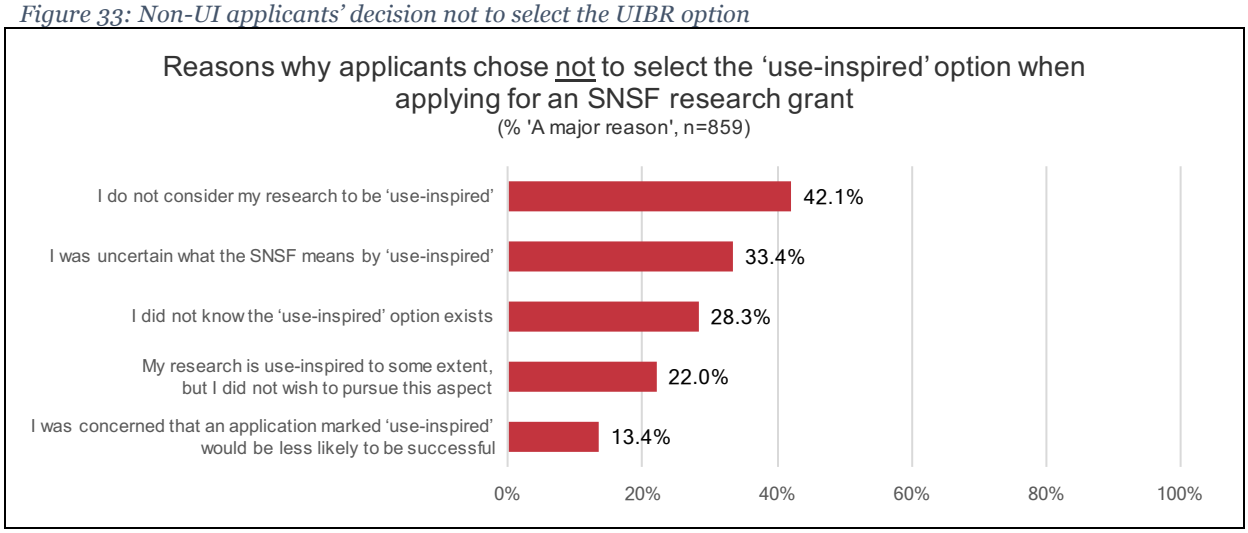
	1	2	3	4	5	6	7	8	9	10	11	12
All												
% Not a reason	5.5%	39.7%	28.9%	3.3%	2.4%	30.8 %	35.4%	11.4%	35.4%	15.8%	49.6 %	69.5%
% A minor reason	13.3%	22.0%	38.1%	7.3%	6.9%	23.9%	26.7%	20.1%	25.0%	22.5%	24.1%	17.7%
% A major reason	56.2%	25.6%	21.1%	41.6%	48.7%	29.3%	25.6%	44.4%	28.4 %	40.4 %	16.3%	7.5%
% The most significant reason	24.1%	9.7%	5.0%	46.3%	40.0 %	13.3%	9.5%	22.0 %	8.5%	18.9%	6.9%	1.9%
div 1 - n=198												
% Not a reason	4.5%	34.3%	23.2%	2.5%	1.5%	43.4%	37.4%	6.6%	45.5%	14.1%	51.5%	71.7%
% A minor reason	12.6%	21.7%	37.9%	9.6%	6.6%	23.2%	26.3%	14.1%	24.7%	20.7%	25.8%	17.7%
% A major reason	57.1%	29.8%	25.3%	42.9%	47.0%	20.2%	23.7%	46.0 %	19.7%	41.4%	14.1%	7.6%
% The most significant reason	25.8%	12.1%	6.6%	42.9%	43.4%	12.1%	11.1%	32.3%	7.1%	22.2%	6.1%	1.0%
div 2- n=146												
% Not a reason	6.2%	50.7%	28.8 %	4.8%	4.1%	24.0%	37.7%	15.8%	27.4%	15.1%	42.5%	71.2%
% A minor reason	14.4%	19.2%	41.8%	6.8%	4.8%	24.7%	19.2%	23.3%	26.0 %	22.6%	22.6%	13.7%
% A major reason	50.0 %	19.9%	17.8%	46.6%	52.7%	32.2%	26.0 %	39.7%	32.9%	37.0%	21.2%	7.5%
% The most significant reason	28.1%	5.5%	6.2%	40.4 %	36.3%	15.8%	13.0%	18.5%	11.0%	22.6%	9.6%	2.7%
div 3 - n=165												
% Not a reason	7.3%	41.8%	35.2%	3.0%	1.8%	22.4%	27.3%	15.2%	31.5%	17.0%	49.1%	64.8 %
% A minor reason	15.2%	23.0%	37.6%	4.2%	8.5%	24.8%	34.5%	27.9%	26.1%	23.0 %	26.1%	20.6 %
% A major reason	56.4%	24.2%	18.2%	37.0%	46.7%	35.8%	29.1%	38.8 %	33.3%	42.4%	15.2%	8.5%
% The most significant reason	19.4%	7.3%	1.2%	53.9%	41.8%	13.3%	6.1%	14.5%	6.7%	14.5%	7.3%	2.4%

ID/ Sinergia - n=67												
% Not a reason	3.0%	26.9%	31.3%	3.0%	3.0%	29.9%	44.8 %	7.5%	32.8%	19.4%	61.2%	71.6%
% A minor reason	9.0%	26.9%	32.8%	9.0%	9.0%	22.4%	25.4%	11.9%	20.9 %	26.9%	17.9%	19.4%
% A major reason	67.2%	29.9%	23.9%	38.8 %	50.7%	34.3%	22.4%	64.2%	32.8%	40.3 %	14.9%	4.5%
% The most significant reason	22.4%	17.9%	7.5%	50.7%	34.3%	11.9%	6.0%	17.9%	11.9%	11.9%	3.0%	1.5%
ETHZ/EPFL & Universities – n=327												
% Not a reason	6.1%	45.3%	34.3%	3.4%	3.1%	30.0 %	42.8 %	14.1%	33.9%	15.0%	45.6%	67.0%
% A minor reason	16.5%	22.0%	36.4%	10.7%	6.7%	22.6%	24.5%	22.0 %	28.1%	22.6%	21.1%	18.3%
% A major reason	55.7%	20.8 %	17.7%	43.1%	52.0%	31.8%	21.1%	45.6%	28.1%	42.8 %	19.9%	8.0%
% The most significant reason	20.5%	8.3%	4.6%	41.3%	36.4%	12.8%	8.0%	15.9%	7.0%	16.5%	9.5%	2.1%
All other institution types – n=248												
% Not a reason	4.8%	32.3%	22.2%	3.2%	1.6%	32.3%	25.4%	8.1%	37.5%	16.9%	54.8 %	73.0%
% A minor reason	9.3%	22.2%	40.3%	2.8%	7.3%	25.4%	29.8 %	17.7%	21.0%	22.2%	28.2 %	16.5%
% A major reason	56.5%	31.9%	25.8%	39.9%	44.8%	25.8%	31.5%	43.1%	28.6 %	37.5%	11.3%	6.9%
% The most significant reason	29.0 %	11.7%	5.6%	52.4%	44.4%	14.1%	11.7%	29.4%	10.1%	21.8%	3.6%	1.6%

B.8.1 Reasons for not applying

As well as considering applicants' reasons to select the UIBR option, we also considered, for those who had never selected the UIBR option, why they chose not to. Unsurprisingly, we find that a large portion of respondents simply stated that they do not consider their research to be 'use-inspired'. 22% indicated that they made the choice despite their research having potential dimensions of non-academic use as they did not wish to pursue these. Importantly, large numbers of respondents also stated as a major reason either that they were uncertain what 'use-inspired' means (33%), or that they did not realise that this option exists (28%). Only a relatively small portion of respondents had major concerns over decreasing success rate. This suggests that there may be a pool of potential applicants who are currently being discouraged from the UIBR option, either through lack of clarity of the term, or by visibility of the option itself.

Figure 33: Non-UI applicants' decision not to select the UIBR option



Source: Survey conducted by Technopolis

B.9 Analysis of UIBR applications and feedback

The table below shows the results of our coding of feedback on the 'broader impact' of UIBR applications.

Table 21: Character and length of 'Broader impact' feedback

Feedback character	Feedback length	Totals	Funded applications	Rejected applications	Totals
Positive	5 lines or less	104	53	51	132
Negative	5 lines or less	11	4	7	
Mixed	5 lines or less	17	4	13	
Positive	6-10 lines	49	35	14	75
Negative	6-10 lines	8	2	6	
Mixed	6-10 lines	18	6	12	
Positive	11 lines or more	20	7	13	19
Negative	11 lines or more	3	1	2	
Mixed	11 lines or more	12	3	9	
-	None	4	1	3	4
-	Other	14	4	10	14
Totals		260	120	140	

Total positive:	173	Total negative:	22	Total mixed:	47

Source: analysis of 100 SNSF UIBR applications and feedback by Technopolis

B.9.1 Relationship between UIBR types in applications and reviewers' comments

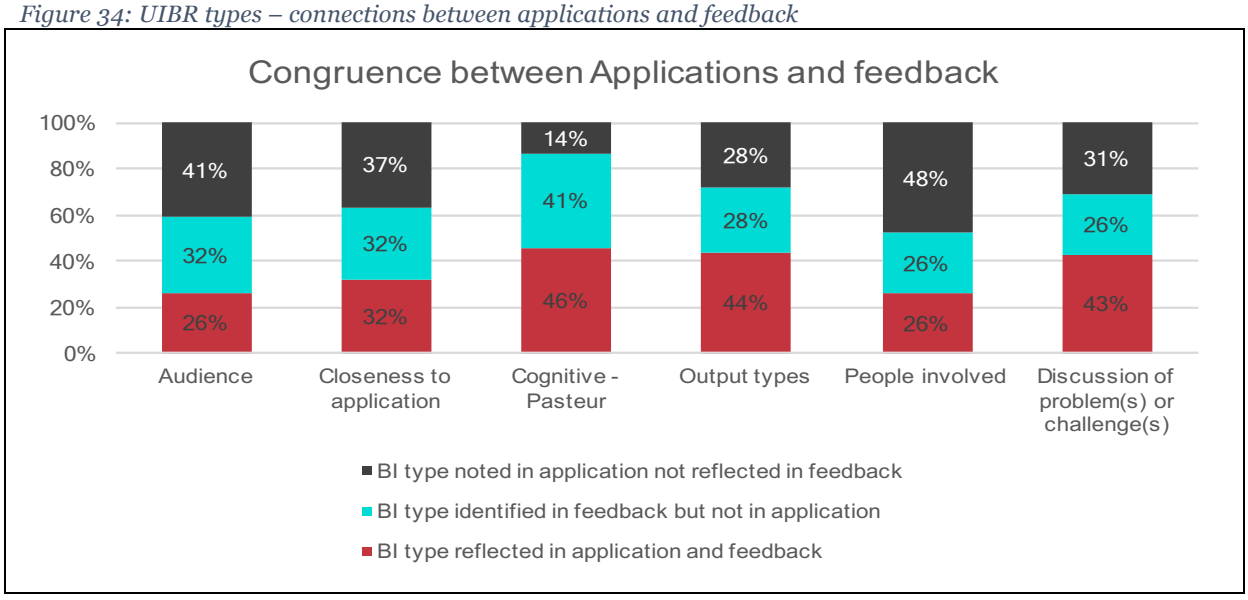
For a sample of 75 applications (100, excluding those where none of the coding categories considered below had been applied either to the 'Broader impact' statement or the feedback), we produced binary data showing the presence or absence of the types of UIBR in our typology (Audience, Closeness to application, Cognitive, Output types, People involved, Intention to solve a problem, Source of question). This gives us information on whether UIBR types identified in applications' 'Broader impact' sections is reflected in at least one review of the feedback to that application.

This allows us to check whether the themes covered in 'Broader impact' sections are at all responded to or mirrored in reviewers' comments. In brief, the main findings here are:

- In 46% of cases where an application's 'Broader impact' statement conforms to the notion of basic research illuminating a range of practical problems (the approach noted in '*Pasteur's Quadrant*'), at least one review also evaluates broader impact in these terms;
- In 44% of cases where applications discuss particular output types as a basis for broader impact, at least one reviewer's comment discusses impact types as well;
- In 43% of cases where an applications discuss a particular non-academic problem that their research aims to address, at least one review reflects on discussion or reflection of such a problem;
- Reviews often also discuss dimensions of broader impact that are not directly contained in the broader impact statements;
- However, for the Cognitive, Pasteur-based type, the discussion of specific problems and output types, it is relatively rare that these matters are discussed in the application but not in the feedback of at least one review.

Whilst for the other types from our UIBR typology there is little evidence of congruence, it certainly appears that in three areas – and indeed, for those often identified as critically important – there are evident links between the subject matter of 'Broader impact' statements and corresponding feedback. We cannot fully discount concerns around causality, but these additional data, in simple terms, do at least indicate that reviewers tend to read and respond to the 'Broader impact' dimension of UIBR applications with some degree of attentiveness.

Figure 34: UIBR types – connections between applications and feedback



Source: based on analysis of 'Broader impact' statements and corresponding feedback on 75 UIBR applications, using the same coding frames as in the previous analyses. The category 'course of question' is omitted as there are too few cases, and applications where either feedback or the 'Broader impact' statement are coded only as 'other' or 'none' are also omitted. See Appendix B.9 for full figures.

Table 22: thematic congruence between 'Broader impact' statements and reviewers' comments

	I : Audience	**J : Closeness to application**	**K : Cognitive - Pasteur**	**M : Output types**	**N : People involved**	**H : Statement of problem(s) or challenge(s)**
BI type reflected in application and feedback	9	13	27	14	7	18
BI type identified in feedback but not in application	11	13	24	9	7	11
BI type noted in application not reflected in feedback	14	15	8	9	13	13
BI type neither in application nor in feedback	40	33	15	42	47	32
Totals	74	74	74	74	74	74
Totals excl. 'BI type neither in application nor feedback'	34	41	59	32	27	42

% total	I : Audience	J : Closeness to application	K : Cognitive - Pasteur	M : Output types	N : People involved	H : Statement of problem(s) or challenge(s)
BI type reflected in application and feedback	12%	18%	36%	19%	9%	24%
BI type identified in feedback but not in application	15%	18%	32%	12%	9%	15%
BI type noted in application not reflected in feedback	19%	20%	11%	12%	18%	18%
BI type neither in application nor in feedback	54%	45%	20%	57%	64%	43%

% totals excl. 'BI type neither in application nor feedback'	Audience	Closeness to application	Cognitive - Pasteur	Output types	People involved	Discussion of problem(s) or challenge(s)
BI type reflected in application and feedback	26%	32%	46%	44%	26%	43%
BI type identified in feedback but not in application	32%	32%	41%	28%	26%	26%
BI type noted in application not reflected in feedback	41%	37%	14%	28%	48%	31%

We also add here the Tetrachoric correlations for binary variables, though these do not highlight any especially illuminating further findings:

	A : Audience fdbk	B : closeness to app fdbk	C : cognitive pasteur fdbk	D : output types fdbk	E : people involved fdbk	F : problem fdbk	iaudie~e	jclose~n	kcogni~r	moutpu~s	npeopl~d	hstate~s
aaudiencef~k	1											
bcloseness~k	-0.3446	1										
ccognitive~k	-0.4048*	-0.0939	1									
doutputtyp~k	0.3048	-0.0084	0.0161	1								
epeopleinv~k	0.1751	0.0109	-0.4614*	0.4614*	1							
fproblemfdbk	0.1221	0.1695	-0.2886	-0.1015	0.3131	1						
App theme: Audience	0.3048	-0.0084	-0.2951	0.0911	0.0899	-0.1015	1					
App theme: Closeness to application	-0.0613	0.2942	-0.3196	-0.1731	-0.1744	0.0945	0.129	1				
App theme: Cognitive - Pasteur	-0.1499	-0.1187	0.2753	-0.1804	-0.4585*	-0.2384	-0.6340*	-0.1995	1			
App theme: Output types	0.3048	-0.1126	-0.2951	**0.6446***	**0.5687***	-0.1015	0.2951	-0.1731	-0.4600*	1		
App theme: People involved	-0.0505	-0.1145	-0.0894	0.1995	**0.4291***	0.1221	-0.0251	-0.1707	-0.0472	0.3048	1	
App theme: Statement of problem(s) /challenge(s)	-0.2512	0.1941	-0.2275	-0.2595	0.0172	**0.4980***	-0.161	0.1149	-0.0575	-0.3573	0.2675	1

B.10 Summary of explanatory factors for the success rate divergence

Table 23: Factors behind the lower UIBR success rate

Factor	Div. 1	Div. 2	Div. 3	ID	Sin.	Notes
Inherently more challenging nature of UIBR	**X**	**X**	**X**	**X**	**X**	Dual purpose (science & problem-solving/illuminating); lower likelihood of 'convenient' research questions. NB:
Over-use of metrics (e.g. h-index)		x	**X**			Metrics use at secretariat and review level in Division 3, some use in Division 2, limiting the ways in which track record might be demonstrated
Lack of a system to mandate discussion at the RC/panel level	x	x	x	x	x	Impact unclear, but high risk that use-dimensions are not considered at refereeing stage
Perceived duplication of other programmes/ concepts (potentially		**X**	x	x	x	Division 2: BRIDGE/ CTI; Division 3: BRIDGE/CTI to some extent; some overlap with the concept of translational or clinical research

Factor	Div. 1	Div. 2	Div. 3	ID	Sin.	Notes
leading to erroneous application)						
High direct rejection rate		x	**X**		x	Use of metrics and perceived duplication of CTI/BRIDGE (leading to erroneous application) are factors at play
Applications 'lose' ~1 page of space to outline scientific dimension of their research plan	x	x	x	x	x	Research plan capped at 20 pages
Lack of practitioners as reviewers	x	**X**	**X**	x	x	Reduced ability to fully recognise and reward use-dimension
Lack of referees from non-traditional research performing institutions	x		x	x		Lack of direct experience of applications' context. Note: Division 3 encapsulates no under-representation in the Medicine section, but very strong under-representation in the Biology section. Though there is some cross-over in terms of referees moving between the two sections, the aggregate result is still under-representation.
No prior experimentation or familiarity with formal UIBR/Non-UI distinction		**X**	x	x	x	Early experimentation in Division 3 only applied to UAS applications, regardless of UIBR/ Non-UI
Presence of applications from non-traditional research performing institutions (e.g. UAS/UTE)	x	x	x	x	x	Applicants with different track record (e.g. fewer standard journal articles); less institutional experience and support expertise. Rarely evident as a major factor.
Presence of disciplines/ fields with high UIBR uptake and low overall success rate	x	x	x		x	This is a pattern, but the UIBR success rate often diverges from the overall discipline's success rate

X=a major factor; x=a minor factor

Whilst we cannot exclude the fact that in some cases, UIBR applications may indeed simply be 'less good' even if use-dimensions were suitably considered,[42] the challenges we identify here account for large parts – if not all – of the observed success rate differences. Some of these challenges can be solved directly, others less so.

A list of factors of this type of course raises the possibility of conducting multivariate analysis. However, given the nature of many of the factors identified, this is possible only to a limited extent and unlikely to add value to the conclusions reached. In detail, we note on this issue:

- Inherently more challenging nature of UIBR: This cannot be quantified and could therefore not be included in the model. It is an observation about the conceptual nature of UIBR, and many study participants noted the difficulty in several different contexts.
- Over-use of metrics (e.g. h-index): this could be quantified, but only with much difficulty: it would require for each application in the evaluated period, what the PI's h-index was at the time of application, and confirmation of whether the h-index was discussed in the RC/Panel meeting
- Lack of a system to mandate discussion at the panel/RC meeting: this cannot be quantified. It is a systemic factor that applies equally to all applications.
- Perceived duplication of other programmes/ concepts (potentially leading to erroneous duplication): This cannot be meaningfully quantified. At which point the substance of an application

[42] Suggestions of this type have arisen very rarely in our research.

is close enough to CTI-programmes or other schemes/concepts that we can speak of 'perceived duplication' is a qualitative judgement, which will have many grey areas.

- High direct rejection rate: this is quantifiable, and we have done so: we note that 3% of the overall discrepancy can be attributed to this part of the assessment process.
- Applications 'lose' ~1 page of space to outline the scientific dimension of their plan: this, once again, cannot be quantified, as it is a systemic factor that applies to all.
- Lack of practitioners as reviewers: This could be quantified, though it would need, for every application, the details and backgrounds of each reviewer, in order to then quantify the difference that their presence makes.
- Lack of referees from non-traditional research performing institutions: As above, plus information on whether there were any other RC/Panel members from non-traditional institutions present at the meeting, who may have been able to add further perspectives.
- No prior experimentation or familiarity with a formal UIBR/Non-UI distinction: This cannot be quantified. We know there were preparatory efforts in Division 1, and to an extent in Division 3, but not in Division 2. These pre-date the introduction of the UIBR-label, or happened right at the start, so these are once again systemic factors whose presence, absence or severity could not be coded application-by-application.
- Presence of applications from non-traditional research performing institutions: this is quantifiable, based on available data. Our figures on uptake and success rates already implicitly deal with this. Notably, most UIBR applications do not come from these alternative institutions and, furthermore, the success rate difference between UIBR and Non-UI is larger in cantonal universities than, for example, in UAS. So we know already that the higher presence of alternative institution types among UIBR applications has some effect, but it is likewise clear that this effect is quite small.
- Presence of disciplines/ fields with high UIBR uptake and low overall success rate: Again, this can be quantified. However, once again we know that this is of low significance. Our analysis on this matter shows that in fact UIBR applications often diverge from their overall disciplinary trend (sometimes positive, sometimes negative). So once again, we know that this is a minor factor; less important, in fact, than some stakeholders supposed.

To summarise: a multivariate analysis model could only include six out of the 11 factors we have identified, as the others are not quantifiable. Out of those six, some would involve very laborious data collection – and it is furthermore uncertain whether all the necessary data are in fact available. For one factor, we have noted the extent of effect on the overall success rate discrepancy, and for a further two we have presented numerical evidence that they are minor rather than major factors.

A multivariate analysis would therefore inevitably be incomplete, as key factors cannot be included, and would furthermore add little value, as we know of most factors that could be included that they play only a minor role. For these reasons, we opt against a multivariate analysis.

B.11 Survey data tables

B.11.1 Survey of UIBR respondents

Your age at time of (first) application for an SNSF Use-inspired project		
Answer Options	**Response Percent**	**Response Count**
Under 30	2%	15
30-39	30%	190
40-49	37%	238
50-59	27%	170
over 60	4%	25
	answered question	**638**
	skipped question	**10**

Year you submitted your most recent 'use-inspired' application to SNSF		
Answer Options	**Response Percent**	**Response Count**
2010	1.4%	9
2011	3.0%	19
2012	7.8%	49
2013	12.3%	77
2014	19.2%	120

2015	30.7%	192
2016	25.4%	159
	answered question	**625**
	skipped question	**23**

Gender

Answer Options	Response Percent	Response Count
Male	73%	464
Female	26%	169
Other / Prefer not to say	0.9%	6
	answered question	**639**
	skipped question	**9**

Primary discipline to which you are aligned

Answer Options	Response Percent	Response Count
Theology & religious studies, history, classical studies, archaeology, prehistory and early history	1.7%	11
Linguistics, literature and philosophy	2.5%	16
Art studies, musicology, theatre and film studies, architecture	6.0%	39
Ethnology, social and human geography	0.9%	6
Psychology, educational studies	9.6%	62
Sociology, social work, political sciences, media and communication studies, health	5.4%	35
Economics, law	3.7%	24
Mathematics	1.4%	9
Astronomy, astrophysics and space science	0.5%	3
Chemistry	4.0%	26
Physics	4.0%	26
Engineering sciences	11.3%	73
Computer science	3.9%	25
Environmental sciences	2.9%	19
Earth sciences	1.4%	9
Basic biological research (e.g. biochemistry, molecular biology)	3.9%	25
General biology (e.g. botany, zoology)	0.8%	5
Basic medical sciences	5.3%	34
Experimental medicine	4.2%	27
Clinical medicine	9.5%	61
Veterinary medicine	1.2%	8
Preventive medicine (epidemiology/ early diagnosis/ prevention)	3.6%	23
Social medicine	0.9%	6
Other (please specify)	11.3%	73
	answered question	**645**
	skipped question	**3**

Please rate the following reasons why you decided to submit a 'use-inspired' application to SNSF.(Please rate all possibilities, but only select 'the most significant reason' a maximum of once)

Answer Options	Not a reason	A minor reason	A major reason	The most significant reason	Rating Average	Response Count
I felt my chances of winning a grant would be increased if I select the 'use-inspired' option	401	102	43	11	1.40	557
Practitioners were indirectly involved in my research	167	220	122	29	2.02	538
I mainly work in fundamental research, but felt I had something to contribute to a more practical, non-academic problem	286	139	94	40	1.80	559
I felt my project was not 'basic research', but also not close enough to application to qualify as 'applied research'	204	144	164	49	2.10	561
I mainly work in applied fields, but felt I had something of more general scientific relevance to contribute	204	154	148	55	2.10	561
Practitioners were directly involved in my research, as project team members	229	127	148	56	2.06	560
My project was part of a long-term research agenda, which would culminate in fully applied research after the SNSF 'use-inspired' project ended	178	138	169	77	2.26	562
I wanted to conduct basic research that could help generate better understanding of a range of practical problems	91	130	233	109	2.64	563
My project aimed to have both academic outputs (e.g. articles in academic journals) as well as non-academic outputs (e.g. designs, policy guidelines, prototypes, etc)	66	116	256	127	2.79	565
I felt my research may be of interest to practitioners (e.g. industry or public-sector partners, non-academic professionals in the relevant field, potential end-users)	32	77	324	139	3.00	572
My project intended to generate knowledge of general scientific value, as well as knowledge of practical value	14	40	281	231	3.29	566
My research question(s) stem(s) from a problem or challenge in the practical world	19	42	240	267	3.33	568
OPTIONAL: if you had any other major reasons not listed above, please specify:						45
					answered question	**577**
					skipped question	**71**

Did you know of any other funding opportunities comparable to this one that you could have applied for with the same proposed project?

Answer Options	Response Percent	Response Count
No	78.7%	452
Yes (please specify)	21.3%	122
answered question		574
skipped question		74

Please indicate your level of satisfaction with the following administrative aspects connected to your 'use-inspired' grant application

Answer Options	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Rating Average	Response Count
Communication with SNSF during the application process (e.g. for problems or queries)	12	25	152	209	170	3.88	568
Ease of the application process	6	24	123	303	116	3.87	572
Clarity of guidance notes and documentation	6	34	123	306	100	3.81	569
Additional workload involved in providing the 'broader impact' statement in the research plan	11	26	204	269	60	3.60	570
Quality and detail of feedback received	51	92	148	187	88	3.30	566
Clarity of how the application was assessed	44	98	151	199	77	3.29	569
Speed of the assessment process from application to decision (and project start if successful)	34	112	209	162	51	3.15	568
OPTIONAL: feel free to comment on any of the aspects above, or any other administrative aspects around the application process for 'use-inspired' basic research at SNSF, particularly if you had any noteworthy positive or negative experiences:							96
answered question							572
skipped question							76

Please note which of the following criteria you consider important in characterising a research project as 'use-inspired'

Answer Options	Not at all important	Somewhat important	Essential	Rating Average	Response Count
The project must intend to expand basic scientific knowledge as well as contribute to solving practical problems	26	170	362	2.60	558
The project must aim to produce not only academic outputs (e.g. journal articles, conference papers), but also outputs with practical use (e.g. prototypes, policy recommendations, designs, etc)	38	184	338	2.54	560
The project involves basic research that could help generate better understanding of a range of practical problems	50	222	289	2.43	561
Outcomes of the project need to be of immediate interest to practitioners in the relevant area	74	275	209	2.24	558
The research question(s) or problem(s) need to have been developed at least in part by practitioners rather than pure researchers	161	239	160	2.00	560
The project should include practical validation	111	305	140	2.05	556
The project team needs to be at least partially composed of practitioners, not just researchers	189	235	135	1.90	559
After completion, the project team should likely be in a position to apply for follow-up funding for an applied research project (e.g. from the Commission for technology and innovation [CTI/KTI])	154	278	128	1.95	560
If you have any other essential criteria, please specify:					39
answered question					561
skipped question					87

Do you feel you are clear about what SNSF understands by 'use-inspired basic research'?

Answer Options	Response Percent	Response Count
I do not understand at all what SNSF means by the term	3.8%	21
Not sure I fully understand what SNSF means by this term	25.5%	143
Yes, I understand to some extent	51.6%	289
Yes, I understand exactly	19.1%	107
answered question		560
skipped question		88

How confident are you that your own understanding of 'use-inspired basic research' is similar to the understanding of the term at SNSF?

Answer Options	Response Percent	Response Count
Not at all confident	5.7%	32
Less confident	19.5%	109
Somewhat confident	62.5%	349
Very confident	12.2%	68
answered question		558
skipped question		90

Do you think SNSF should replace 'use-inspired basic research' with a different term?

Answer Options	Response Percent	Response Count
Yes, it should be replaced with 'Innovation-oriented basic research'	1.3%	7
Yes, it should be replaced with 'Solution-oriented basic research'	2.4%	13
Yes, it should be replaced with 'Challenge-driven basic research'	2.4%	13
Yes, it should be replaced with 'Problem-oriented basic research'	4.0%	22
Yes, it should be replaced with another tem [specify your suggestion]	6.6%	36
Yes, it should be replaced with 'Practice-based basic research'	7.5%	41
Yes, it should be replaced with 'Translational research'	9.5%	52
Yes, it should be replaced with 'Application-oriented basic research'	23.2%	127
No, I think 'use-inspired basic research' is a good term to use	43.1%	236
answered question		547
skipped question		101

Did the activities from your SNSF-funded project enable you to secure further funding after the grant ended? (please tick all that apply)

Answer Options	Response Percent	Response Count
Yes, from the SNSF	57%	390
Yes, from other Swiss academies or charities	20%	140
Yes, from the EU (framework programmes or ERC grants)	14%	97

Yes, internal funding from my university	27%	185
Yes, public funding from other international sources	11%	77
Yes, from CTI/KTI (with commercial partners)	6%	39
Yes, from industry (no CTI/KTI involvement)	6%	43
No	29%	196
	answered question	**688**
	skipped question	**228**

Please indicate your level of satisfaction with the following administrative aspects connected to your grant

Answer Options	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Rating Average	Response Count
Communication with SNSF during the grant period	8	8	94	173	123	3.97	406
Periodic and final reporting procedures	7	11	115	176	79	3.80	388
Communication with SNSF after the project ended	8	7	160	118	54	3.59	347
OPTIONAL: feel free to comment on any of the aspects above, or any other administrative aspects around the grant administration for use-inspired basic research at SNSF, particularly if you had any noteworthy positive or negative experiences:							87
						answered question	**406**
						skipped question	**242**

What do you think would have happened to your use-inspired project idea if it had not been funded by SNSF?

Answer Options	Response Percent	Response Count
I would have applied with the same project again to SNSF, but without marking it as 'use-inspired'	7%	32
Other (please specify)	10%	44
I would have applied with the same project to a different funder	14%	59
I would have gone ahead with the project anyway, but with fewer resources and/or reduced scope	15%	65
The project would have been impossible to conduct - I most likely would have abandoned the idea completely	18%	80
I would have applied with the same project again to SNSF	36%	156
	answered question	**436**
	skipped question	**212**

Do any of the following present barriers to use-inspired basic research?(please rate all possibilities, but only select 'the most significant barrier' a maximum of once)

Answer Options	Not a barrier	A minor barrier	A major barrier	The most significant barrier	Rating Average	Response Count
Institutions have insufficient knowledge exchange, IP protection or technology transfer facilities to allow 'use-inspired' projects to achieve their results	175	208	96	10	1.88	489
Having a high-quality research plan and a clear pathway for eventual use presents two hurdles, whereas basic research only has one	156	224	108	18	1.98	506
Lack of 'use-inspired' tradition in my discipline or field	260	149	67	21	1.70	497
It is harder to define the outcomes or outputs of a 'use-inspired' project at the start in a proposal	152	216	108	27	2.02	503
'Use-inspired' projects involve project team members who do not have a background in academic research training	177	198	96	28	1.95	499
Many researchers just don't care about 'use-inspired' basic research, even if their work does have potential for use outside academia	139	174	148	34	2.16	495
Institutions that do 'use-inspired' basic research (e.g. Fachhochschulen) are less experienced in supporting researchers to get funding from SNSF	125	181	135	39	2.18	480
'Use-inspired' basic research has longer timelines than standard basic research	130	169	147	43	2.21	489
It is harder to get high-level academic publications from 'use-inspired' basic research	128	174	154	47	2.24	503
Researchers interested in 'use-inspired' basic research tend to have less impressive publication records	117	164	165	58	2.33	504
'Use-inspired' basic research is simply harder than standard basic research: the questions it asks are harder to research and must confront problems from the practical world that pose challenges for things like research method and data collection	123	155	160	61	2.32	499
'Use-inspired' basic research tends to be interdisciplinary, which tends to suffer in standard peer review	108	164	149	79	2.40	500
There are too few assessors / reviewers at SNSF who come from a 'use-inspired' or applied background	87	144	169	77	2.49	477
Reviewers of applications are not used to the world of practitioners and struggle to recognise or judge wider non-academic impact	65	143	182	109	2.67	499
					answered question	**513**
					skipped question	**135**

Would you consider applying for a 'use-inspired' project again in the future?

Answer Options	Response Percent	Response Count
Yes	89%	462
No	11%	58
	answered question	**520**
	skipped question	**128**

Would you recommend to colleagues that they apply for a 'use-inspired' project:

Answer Options	Response Percent	Response Count
No	10%	50
Yes, if I feel their current or past work has a potential wider use	83%	429
Yes, even if their current or past work does not have potential wider use	7%	37
	answered question	**516**
	skipped question	**132**

Independent of the applicant's background or topic of the project, do you think selecting the 'use-inspired' option on an SNSF application has an effect on an application's success-chances?		
Answer Options	**Response Percent**	**Response Count**
I have no opinion on this question	52%	425
No, I don't think it changes success-chances	24%	194
Yes, I think it decreases success-chances	12%	96
Yes, I think it improves success-chances	13%	108
	answered question	**823**
	skipped question	**93**

Overall, which of the following comes closest to your view on how SNSF funds 'use-inspired' basic research:		
Answer Options	**Response Percent**	**Response Count**
The current system with the option to specify a project as 'use-inspired' is good and should be kept as it is	31.7%	164
'Use-inspired' basic research should be funded through a completely separate funding tool, competing only with other 'use-inspired' applications	25.1%	130
The current system should stay as it is, but the assessment criteria should be modified to place more emphasis on the use-dimension	19.0%	98
SNSF should demand a 'broader impact' statement and consider this in the assessment process for all applications it receives	11.4%	59
Other opinion (please specify)	7.2%	37
SNSF should abandon the term 'use-inspired' completely and use only its established assessment / evaluation processes without special attention to use-aspects	5.6%	29
	answered question	**517**
	skipped question	**131**

After your application was rejected, what happened to your project?		
Answer Options	**Response Percent**	**Response Count**
I applied with the same project to a different funder, and it was rejected	1%	2
I will be applying / have already applied again to SNSF, but without marking it as 'use-inspired'	4%	8
I applied with the same project to a different funder, and it was accepted	10%	22
I will be applying with the same project to a different funder	11%	24
I abandoned the project idea completely	13%	28
Other (please specify)	15%	33
I will be applying / have already applied again with the same project to SNSF	22%	50
I started working with the project anyway, with minimal or no funding, and therefore reduced project scope	25%	56
	answered question	**223**
	skipped question	**425**

B.11.2 Survey of Non-UI applicants

Your age at time of (first) application for an SNSF project		
Answer Options	**Response Percent**	**Response Count**
Under 30	7.2%	66
30-39	46.8%	427
40-49	28.1%	257
50-59	13.5%	123
over 60	4.4%	40
	answered question	**913**
	skipped question	**3**

Year you submitted your most recent project application to SNSF		
Answer Options	**Response Percent**	**Response Count**
2010	0.9%	8
2011	1.1%	10
2012	4.4%	40
2013	7.8%	71
2014	20.2%	184
2015	26.9%	246
2016	38.8%	354
	answered question	**913**
	skipped question	**3**

Gender		
Answer Options	**Response Percent**	**Response Count**
Male	76.6%	699
Female	23.1%	211
Other / Prefer not to say	0.3%	3
	answered question	**913**
	skipped question	**3**

Primary discipline to which you are aligned		
Answer Options	**Response Percent**	**Response Count**
Theology & religious studies, history, classical studies, archaeology, prehistory and early history	4.4%	40
Linguistics, literature and philosophy	5.5%	50
Art studies, musicology, theatre and film studies, architecture	2.4%	22
Ethnology, social and human geography	1.2%	11
Psychology, educational studies	4.2%	38
Sociology, social work, political sciences, media and communication studies, health	5.5%	50
Economics, law	4.5%	41
Mathematics	3.3%	30
Astronomy, astrophysics and space science	1.8%	16
Chemistry	5.5%	50
Physics	7.6%	69
Engineering sciences	4.7%	43
Computer science	3.1%	28

Environmental sciences	6.9%	63
Earth sciences	5.5%	50
Basic biological research (e.g. biochemistry, molecular biology)	14.2%	130
General biology (e.g. botany, zoology)	3.2%	29
Basic medical sciences	5.5%	50
Experimental medicine	3.8%	35
Clinical medicine	1.8%	16
Veterinary medicine	0.9%	8
Preventive medicine (epidemiology/ early diagnosis/ prevention)	0.8%	7
Social medicine	0.0%	0
Other (please specify)	4.1%	37
	answered question	**913**
	skipped question	**3**

Please tell us the reasons why you chose not to select the 'use-inspired' option when you applied for an SNSF research grant:

Answer Options	Not a reason	A minor reason	A major reason	Rating Average	Response Count
I was concerned that an application marked 'use-inspired' would be less likely to be successful	484	131	95	1.45	710
My research is use-inspired to some extent, but I did not wish to pursue this aspect	333	235	160	1.76	728
I did not know the 'use-inspired' option exists	458	88	215	1.68	761
I was uncertain what the SNSF means by 'use-inspired'	277	222	250	1.96	749
I do not consider my research to be 'use-inspired'	269	174	322	2.07	765
Other major reason (please specify):					80
				answered question	**859**
				skipped question	**57**

Would you ever consider applying for research funding at SNSF under the 'use-inspired' category in future?

Answer Options	Response Percent	Response Count
Yes	69.4%	599
No	30.6%	264
answered question		**863**
skipped question		**53**

If yes: Please rate how important the following reasons would be in a potential decision to submit a 'use-inspired' application to SNSF(please rate all possibilities, but only select 'the most significant reason' a maximum of once)

Answer Options	Not a reason	A minor reason	A major reason	The most significant reason	Rating Average	Response Count
I mainly work in applied fields, so I would apply for a 'use-inspired' project if I felt I had something of more general scientific relevance to contribute	352	104	83	20	1.59	559
If I felt my chances of winning a grant would be increased if I select the 'use-inspired' option	275	136	113	46	1.88	570
If practitioners were indirectly involved in my research	132	255	167	15	2.11	569
If I aimed to have both academic outputs (e.g. articles in academic journals) as well as non-academic outputs (e.g. designs, policy guidelines, prototypes, etc)	160	187	190	33	2.17	570
If I felt my project was not 'basic research', but also not close enough to application to qualify as 'applied research'	161	170	189	45	2.21	565
If I wanted to conduct basic research that could help generate better understanding of a range of practical problems	130	183	214	47	2.31	574
If my project was part of a long-term research agenda, intended to culminate in fully applied research after the 'use-inspired' project ends	137	172	195	63	2.32	567
I mainly work in fundamental research, so I would apply for a 'use-inspired' project if I felt I had something to contribute to a more practical, non-academic problem	170	127	197	87	2.35	581
If practitioners were directly involved in my research, as project team members	117	169	230	66	2.42	582
If my project intended to generate knowledge of general scientific value, as well as knowledge of practical value	67	137	285	87	2.68	576
If my research question(s) stems from a problem or challenge in the practical world	59	95	305	116	2.83	575
If I felt my research may be of interest to practitioners (e.g. industry or public-sector partners, non-academic professionals in the relevant field, potential end-users)	38	93	310	149	2.97	590
OPTIONAL: if you would have any other major reasons not listed above, please specify:						37
					answered question	**609**
					skipped question	**307**

Please note which of the following criteria you consider important in characterising a research project as 'use-inspired'

Answer Options	Not at all important	Somewhat important	Essential	Rating Average	Response Count
The research question(s) or problem(s) need to have been developed at least in part by practitioners rather than pure researchers	354	325	100	1.67	779
The project must aim to produce not only academic outputs (e.g. journal articles, conference papers), but also outputs with practical use (e.g. prototypes, policy recommendations, designs, etc.)	76	336	374	2.38	786
After completion, the project team should likely be in a position to apply for follow-up funding for an applied research project (e.g. from the Commission for technology and innovation [CTI/KTI])	198	389	186	1.98	773
The project team needs to be at least partially composed of practitioners, not just researchers	341	352	85	1.67	778
Outcomes of the project need to be of immediate interest to practitioners in the relevant area	156	406	218	2.08	780
The project must intend to expand basic scientific knowledge as well as contribute to solving practical problems	60	336	386	2.42	782
The project involves basic research that could help generate better understanding of a range of practical problems	91	344	346	2.33	781

The project should include practical validation	237	385	150	1.89	772
If you have any other essential criteria, please specify:					19
				answered question	802
				skipped question	114

Do you feel you are clear about what SNSF understands by 'use-inspired basic research'?

Answer Options	Response Percent	Response Count
Yes, I understand exactly	9.2%	77
Yes, I understand to some extent	38.9%	327
Not sure I fully understand what SNSF means by this term	46.0%	386
I do not understand at all what SNSF means by the term	6.0%	50
answered question		840
skipped question		76

How confident are you that your own understanding of 'use-inspired basic research' is similar to the understanding of the term at SNSF?

Answer Options	Response Percent	Response Count
Very confident	5.6%	47
Somewhat confident	48.6%	406
Less confident	32.0%	267
Not at all confident	13.8%	115
answered question		835
skipped question		81

Do you think SNSF should replace 'use-inspired basic research' with a different term?

Answer Options	Response Percent	Response Count
Yes, it should be replaced with 'Challenge-driven basic research'	1.6%	13
Yes, it should be replaced with 'Solution-oriented basic research'	2.8%	22
Yes, it should be replaced with 'Innovation-oriented basic research'	4.7%	37
Yes, it should be replaced with 'Practice-based basic research'	5.3%	42
Yes, it should be replaced with 'Problem-oriented basic research'	5.8%	46
Yes, it should be replaced with another term (please specify)	7.9%	63
Yes, it should be replaced with 'Translational research'	12.0%	95
Yes, it should be replaced with 'Application-oriented basic research'	27.8%	221
No, I think 'use-inspired basic research' is a good term to use	32.1%	255
answered question		794
skipped question		122

Overall, which of the following comes closest to your view on how SNSF funds 'use-inspired' basic research:

Answer Options	Response Percent	Response Count
The current system with the option to specify a project as 'use-inspired' is good and should be kept as it is	18.1%	146
The current system should stay as it is, but the assessment criteria for 'use-inspired' applications should be modified to place more emphasis on the use-dimension	16.0%	129
'Use-inspired' basic research should be funded through a completely separate funding tool, competing only with other 'use-inspired' applications	30.5%	246
SNSF should abandon the term 'use-inspired' completely and use only its established assessment / evaluation processes without special attention to use-aspects	14.3%	115
SNSF should demand a 'broader impact' statement and consider this in the assessment process for all applications it receives	10.9%	88
Other opinion (please specify)	10.2%	82
answered question		806
skipped question		110

Do you know of any other funding opportunities comparable to the SNSF's 'use-inspired' basic research programme?

Answer Options	Response Percent	Response Count
No	78.7%	643
Yes (please specify)	21.3%	174
answered question		817
skipped question		99

Independent of the applicant's background or topic of the project, do you think selecting the 'use-inspired' option on an SNSF application has an effect on an application's success-chances?

Answer Options	Response Percent	Response Count
Yes, I think it improves success-chances	13.1%	108
Yes, I think it decreases success-chances	11.7%	96
No, I don't think it changes success-chances	23.6%	194
I have no opinion on this question	51.6%	425
answered question		823
skipped question		93

Did the activities from your SNSF-funded project enable you to secure further funding after the grant ended? (please tick all that apply)

Answer Options	Response Percent	Response Count
Yes, I obtained further funding from the SNSF	56.7%	390
Yes, I obtained further funding from other Swiss academies or charities	20.3%	140
Yes, I obtained further funding from the EU (framework programmes or ERC grants)	14.1%	97
Yes, I obtained further internal funding from my university	26.9%	185
Yes, I obtained further public funding from other international sources	11.2%	77
Yes, I obtained further funding from CTI/KTI (with commercial partners)	5.7%	39
Yes, I obtained further funding from industry (no CTI/KTI involvement)	6.3%	43
No	28.5%	196
answered question		688
skipped question		228

Appendix C Methodological details

C.1 Survey response rate details

We carried out two online surveys as part of this study, one of SNSF applicants who had declared at least one application as UIBR in the time period studies, one of applicants who had never done so. Where both surveys contained identical questions, we then combined responses (ensuring the UIBR and Non-UI populations were correctly represented) into a single survey, reflecting the views of the SNSF applicant population as a whole.

Table 24: Survey response details

	Non-UI responses	Non-UI population	UIBR responses	UIBR population	SNSF responses	SNSF population
Definition	SNSF applicants who have applied for grants, but NOT with the UI-label, 1.10.2011-1.10.2015		SNSF applicants who have applied for grants, INCLUDING with the UI-label, 1.10.2011-1.10.2015		All SNSF applicants, 1.10.2011-1.10.2015	
Population (N)	1961 (Random sample)	3577	1382 (Total pop.)	1382	1272	4959
Responses (n)	916		648		1272 (all Non-UI responses plus a random sample of 357 UIBR-responses, equalling the 26% UIBR applicants of the total population of SNSF applicants)	
Response rate	47%	26%	47%	47%	26%	26%
Needed responses	Needed for 95% Conf. level, 3% Conf. interval	822	Needed for 95% Conf. level, 3% Conf. interval	602	Needed for 95% Conf. level, 3% Conf. interval	878
Representation – Main language						
DE	50.2%	53.3%	60.00%	60.2%	53.4%	55.2%
FR	33.1%	30.3%	27.80%	25.9%	31.5%	29.1%
EN	16.6%	16.2%	11.60%	13.5%	14.9%	15.4%
IT	0.1%	0.3%	0.60%	0.4%	0.2%	0.3%
Total	100.0%	100.0%	100.00%	100.0%	100.0%	100.0%
Representation – Institution type						
University	59.4%	57.8%	36.90%	38.6%	53.3%	52.5%
ETHZ/EPFL	26.1%	25.5%	21.50%	22.1%	25.2%	24.6%
Fachhochschule	4.7%	3.3%	20.20%	16.5%	9.0%	7.0%
Pädagogische Hochschule	0.7%	0.8%	4.50%	3.1%	2.0%	1.5%
Hospitals	4.4%	8.4%	11.10%	14.8%	5.9%	10.2%
Other Research Institutes	3.3%	3.1%	5.10%	3.5%	3.2%	3.2%

	Non-UI responses	Non-UI population	UIBR responses	UIBR population	SNSF responses	SNSF population
Others	1.5%	1.0%	0.80%	1.3%	1.4%	1.1%
Total	100.0%	100.0%	100.00%	100.0%	100.0%	100.0%
Representation – Subject division						
Division 1	27.3%	29.6%	33.00%	30.8%	29.0%	30.0%
Division 2	32.1%	31.7%	25.20%	23.7%	30.3%	29.5%
Division 3	28.9%	31.8%	30.60%	34.4%	29.2%	32.5%
Interdisc./ Sinergia	11.7%	6.8%	11.30%	11.0%	11.4%	8.0%
Total	100.0%	100.0%	100.00%	100.0%	100.0%	100.0%
Representation – Application outcomes						
At least once successful	80.5%	73.3%	59.60%	51.9%	Because we measure success differently in the two populations, we cannot adjust or combine meaningfully here	
Never successful	19.5%	26.7%	40.40%	48.1%		
Total	100.0%	100.0%	100.00%	100.0%		

C.2 Survey questions

C.2.1 Survey of UIBR applicants

Use-inspired basic research and SNSF

Welcome to the survey on use-inspired basic research (Anwendungsorientierte Grundlagenforschung/ Recherche fondamentale orientée vers l'application) at SNSF.

It should take no more than 10-15 minutes to complete the survey. We are very grateful that you are giving up some of your time to help us draw robust conclusions about the future of use-inspired basic research funding at SNSF.

Your response will be treated in confidence: your individual answers will not be shared with SNSF or any other entity and will only be reported in aggregate form.

Where freeform responses can be given, please feel free to answer in English, German or French.

Please click below to begin the survey

[start button]

About you

1. Age at time of (first) application for an SNSF Use-inspired project
   - Under 30
   - 30-39
   - 40-49
   - 50-59
   - over 60

2. Type of institution
- University
- University of applied sciences (Fachhochschule, Haute école spécialisée)
- University of teacher education (Paedagogische Hochschule, Haute école pédagogiques)
- ETHZ/ EPFL
- University hospital
- Other hospital
- Other [specify]

3. Gender
- Male
- Female
- Other/ prefer not to say

4. Primary discipline to which you are aligned
- Theology & religious studies, history, classical studies, archaeology, prehistory and early history
- Linguistics, literature and philosophy
- Art studies, musicology, theatre and film studies, architecture
- Ethnology, social and human geography
- Psychology, educational studies
- Sociology, social work, political sciences, media and communication studies, health
- Economics, law
- Mathematics
- Astronomy, astrophysics and space science
- Chemistry
- Physics
- Engineering sciences
- Computer science
- Environmental sciences
- Earth sciences
- Basic biological research (e.g. biochemistry, molecular biology)
- General biology (e.g. botany, zoology)
- Basic medical sciences
- Experimental medicine
- Clinical medicine
- Veterinary medicine
- Preventive medicine (epidemiology/ early diagnosis/ prevention)
- Social medicine
- Other [specify]

Your use-inspired basic research application

5. Please rate the following reasons why you decided to submit a 'use-inspired' application to SNF [not a reason / minor reason / major reason/ the most significant reason]

[please rate all possibilities, but only select 'the most significant reason' a maximum of once]

- I felt my research may be of interest to practitioners (e.g. industry or public-sector partners, non-academic professionals in the relevant field, potential end-users)
- Practitioners were directly involved in my research, as project team members

- Practitioners were indirectly involved in my research
- My research question(s) stems from a problem or challenge in the practical world
- My project intended to generate knowledge of general scientific value, as well as knowledge of practical value
- My project is part of a long-term research agenda, which will culminate in fully applied research after the SNSF 'use-inspired' project ends
- I mainly work in applied fields, but felt I had something of more general scientific relevance to contribute
- My project aimed to have both academic outputs (e.g. articles in academic journals) as well as non-academic outputs (e.g. designs, policy guidelines, prototypes, etc)
- I felt my project was not 'basic research', but also not close enough to application to qualify as 'applied research'
- I wanted to conduct basic research that could help generate better understanding of a range of practical problems
- I mainly work in fundamental research, but felt I had something to contribute to a more practical, non-academic problem
- I felt my chances of winning a grant would be increased if I select the 'use-inspired' option

OPTIONAL: if you had any other major reasons not listed above, please specify: [box]

6. Did you know of any other funding schemes comparable to this one that you could have applied for with the same proposed project?

   [yes/no if yes, specify]

7. Please indicate your level of satisfaction with the following administrative aspects connected to your 'use-inspired' grant application [5-point likert box from very dissatisfied to very satisfied]

- Ease of the application process
- Clarity of guidance notes and documentation
- Additional workload involved in providing the 'broader impact' statement in the research plan
- Speed of the award process from application to start of the grant period
- Communication with SNSF during the application process (e.g. for problems or queries)
- Clarity of how the application was assessed
- Quality and detail of feedback received

8. OPTIONAL: feel free to comment on any of the aspects above, or any other administrative aspects around the application process for 'use-inspired' basic research at SNSF, particularly if you had any noteworthy positive or negative experiences:

   [freetext box]

The term 'Use-inspired basic research'

[Anwendungsorientierte Grundlagenforschung' / ‚Recherche fondamentale orientée vers l'application']

9. Please note which of the following criteria you consider important in characterising a research project as 'use-inspired' [not at all important; somewhat important; essential]

- The research question(s) or problem(s) need to have been developed at least in part by practitioners rather than pure researchers
- The project must aim to produce not only academic outputs (e.g. journal articles, conference papers), but also outputs with practical use (e.g. prototypes, policy recommendations, designs, etc)
- After completion, the project team should likely be in a position to apply for follow-up funding for an applied research project (e.g. from the Commission for technology and innovation [CTI/KTI])
- The project team needs to be at least partially composed of practitioners, not just researchers
- Outcomes of the project need to be of immediate interest to practitioners in the relevant area
- The project must intend to expand basic scientific knowledge as well as contribute to solving practical problems
- The project involves basic research that could help generate better understanding of a range of practical problems
- The project should include practical validation
- Other essential criteria [please specify]

10. Do you feel you are clear about what SNSF understands by 'use-inspired basic research'?
- Yes, I understand exactly
- Yes, I understand to some extent
- Not sure I fully understand what SNSF means by this term
- I do not understand at all what SNSF means by the term

11. How confident are you that your own understanding of 'use-inspired basic research' is similar to the understanding of the term at SNSF?
- Very confident
- Somewhat confident
- Less confident
- Not at all confident

12. Do you think SNSF should replace 'use-inspired basic research' with a different term?
- No, I think 'use-inspired basic research' is a good term to use
- Yes, it should be replaced with 'Translational research'
- Yes, it should be replaced with 'Solution-oriented basic research'
- Yes, it should be replaced with 'Problem-oriented basic research'
- Yes, it should be replaced with 'Practice-based basic research'
- Yes, it should be replaced with 'Innovation-oriented basic research'
- Yes, it should be replaced with 'Challenge-driven basic research'
- Yes, it should be replaced with 'Application-oriented basic research'
- Yes, it should be replaced with another tem [specify your suggestion]
    - Explain your answer (briefly)

Outputs and outcomes from your use-inspired project

Please give us an indication of the outputs resulting directly from your 'use-inspired' SNSF research project

If you have had more than one 'use-inspired' projects funded, please answer based on the most recent one.

If you have not had a successful 'use-inspired' application, please skip to the next section

13. Please indicate any tangible academic outcomes that resulted directly from your 'use-inspired' project [drop-downs, 0-100+]
- Articles in international peer-reviewed academic journals
- Articles in other academic journals
- Monographs, books, edited volumes and book chapters
- Conference presentations
- Other academic outputs [specify]

14. Please indicate any tangible non-academic outcomes that resulted directly from your 'use-inspired' project [drop-downs, 0-100+]
- Patents
- Industry collaborations
- Consultancies
- Policy reports
- Policy recommendations

- Practice guidelines (e.g. for a professional field or process)
- Exhibitions/ performances (e.g. art exhibitions, theatre plays, concerts, etc)
- Potential products (e.g. designs/ prototypes)
- Non-academic publications (e.g. articles in newspapers, professional journals, blogs, etc)
- Media appearance (e.g. TV, radio, newspaper interviews, etc)
- Other [specify]

15. Did the activities from your 'use-inspired' project enable you to secure further funding after the grant ended? (please tick all that apply)

- Yes, I obtained further funding from the SNSF
- Yes, I obtained further funding from other Swiss academies or charities
- Yes, I obtained further funding from the EU (framework programmes or ERC grants)
- Yes, I obtained further internal funding from my university
- Yes, I obtained further public funding from other international sources
- Yes, I obtained further funding from CTI/KTI (with commercial partners)
- Yes, I obtained further funding from industry (no CTI/KTI involvement)
- No.

16. Please indicate your level of satisfaction with the following administrative aspects connected to your grant [5-point likert box from very dissatisfied to very satisfied]

- Communication with SNSF during the grant period
- Periodic and final reporting procedures
- Communication with SNSF after the project ended

17. OPTIONAL: feel free to comment on any of the aspects above, or any other administrative aspects around the grant administration for use-inspired basic research at SNSF, particularly if you had any noteworthy positive or negative experiences:

[freetext box]

18. What do you think would have happened to your use-inspired project idea if it had not been funded by SNSF?

- I would have applied with the same project again to SNSF
- I would have applied with the same project again to SNSF, but without marking it as 'use-inspired'
- I would have applied with the same project to a different funder
- I would have gone ahead with the project anyway, but with fewer resources and/or reduced scope
- The project would have been impossible to conduct – I most likely would have abandoned the idea completely
- Other [specify]

Future perspectives for use-inspired basic research at SNSF

19. Do any of the following present barriers to use-inspired basic research? [not a barrier / a minor barrier / a major barrier / the most significant barrier]

[please rate all possibilities, but only select 'the most significant barrier' a maximum of once]

- Having a high-quality research plan and a clear pathway for eventual use presents two hurdles, whereas basic research only has one
- Institutions have insufficient knowledge exchange, IP protection or technology transfer facilities to allow 'use-inspired' projects to achieve their results
- Institutions that do 'use-inspired' basic research (e.g. Fachhochschulen) are less experienced in supporting researchers to get funding from SNSF
- It is harder to define the outcomes or outputs of a 'use-inspired' project at the start in a proposal

- It is harder to get high-level academic publications from 'use-inspired' basic research
- Lack of 'use-inspired' tradition in my discipline or field
- Many researchers just don't care about 'use-inspired' basic research, even if their work does have potential for use outside academia
- Researchers interested in 'use-inspired' basic research tend to have less impressive publication records
- Reviewers of applications are not used to the world of practitioners and struggle to recognise or judge wider non-academic impact
- There are too few assessors/ reviewers at SNSF who come from a 'use-inspired' or applied background
- 'Use-inspired' basic research has longer timelines than standard basic research
- 'Use-inspired' basic research is simply harder than standard basic research: the questions it asks are harder to research and must confront problems from the practical world that pose challenges for things like research method and data collection
- 'Use-inspired' projects involve project team members who do not have a background in academic research training
- 'Use-inspired' basic research tends to be interdisciplinary, which tends to suffer in standard peer review

20. Would you consider applying for a 'use-inspired' project again in the future?

[yes/no]

21. Would you recommend to colleagues that they apply for a 'use-inspired' project:

- No
- Yes, if I feel their current or past work has a potential wider use
- Yes, even if their current or past work does not have potential wider use

22. Independently of the applicant's background or topic of the project, do you think selecting the 'use-inspired' option on an SNSF application has an effect on an application's success-chances?

- Yes, I think it improves success-chances
- Yes, I think it decreases success-chances
- No, I don't think it changes success-chances
- I have no opinion on this question

23. Please (briefly) explain your answers to the last two questions:

[freetext box]

24. Overall, which of the following comes closest to your view on how SNSF funds 'use-inspired' basic research:

- The current system with the option to specify a project as 'use-inspired' is good and should be kept as it is
- The current system should stay as it is, but the assessment criteria should be modified to place more emphasis on the use-dimension
- 'Use-inspired' basic research should be funded through a completely separate funding tool, competing only with other 'use-inspired' applications
- SNSF should abandon the term 'use-inspired' completely and use only its established assessment/ evaluation processes without special attention to use-aspects
- SNSF should demand a 'broader impact' statement and consider this in the assessment process for all applications it receives
- Other opinion [please specify]

Please only answer this question if your UIBR-application was not successful. If your application was funded, please skip to the next and final page.

25. After your application was rejected, what happened to your project?

- I will be applying/ have already applied again with the same project to SNSF
- I will be applying/ have already applied again to SNSF, but without marking it as 'use-inspired'
- I applied with the same project to a different funder, and it was accepted
- I applied with the same project to a different funder, and it was rejected
- I will be applying with the same project to a different funder
- I started working with the project anyway, with minimal or no funding, and therefore reduced project scope
- I abandoned the project idea completely
- Other [specify]

End

26. Please feel free to enter any further comments you might have about 'use-inspired' basic research, either in general or at the SNF in particular:

[freetext box]

Thank you for taking the survey!

C.2.2 Survey of Non-UI applicants

Use-inspired basic research and SNSF

Welcome to the survey on use-inspired basic research (Anwendungsorientierte Grundlagenforschung/ Recherche fondamentale orientée vers l'application) at SNSF.

It should take no more than 8-10 minutes to complete the survey. We are very grateful that you are giving up some of your time to help us draw robust conclusions about the future of use-inspired basic research funding at SNSF.

Your response will be treated in confidence: your individual answers will not be shared with SNSF or any other entity and will only be reported in aggregate form.

Where freeform responses can be given, please feel free to answer in English, German or French.

Please click below to begin the survey

[start button]

About you

1. Age at time of (first) application for an SNSF project
- Under 30
- 30-39
- 40-49
- 50-59
- over 60

2. Type of institution
- University
- University of applied sciences (Fachhochschule, Haute école spécialisée)
- University of teacher education (Paedagogische Hochschule, Haute école pédagogiques)
- ETHZ/ EPFL
- University hospital

- Other hospital
- Other [specify]

3. Gender
- Male
- Female
- Other/ prefer not to say

4. Primary discipline to which you are aligned
- Theology & religious studies, history, classical studies, archaeology, prehistory and early history
- Linguistics, literature and philosophy
- Art studies, musicology, theatre and film studies, architecture
- Ethnology, social and human geography
- Psychology, educational studies
- Sociology, social work, political sciences, media and communication studies, health
- Economics, law
- Mathematics
- Astronomy, astrophysics and space science
- Chemistry
- Physics
- Engineering sciences
- Computer science
- Environmental sciences
- Earth sciences
- Basic biological research (e.g. biochemistry, molecular biology)
- General biology (e.g. botany, zoology)
- Basic medical sciences
- Experimental medicine
- Clinical medicine
- Veterinary medicine
- Preventive medicine (epidemiology/ early diagnosis/ prevention)
- Social medicine
- Other [specify]

Your potential involvement in a 'use-inspired' project

In its application system for research funding, SNSF gives the option to tick a box indicating that a proposed project is 'use-inspired'. The following questions relate to this option.

5. Please tell us the reasons why you chose not to select the 'use-inspired' option when you applied for an SNSF research grant: [Not a reason, minor reason, major reason]
- I do not consider my research to be 'use-inspired'
- My research is use-inspired to some extent, but I did not wish to pursue this aspect
- I was uncertain what the SNSF means by 'use-inspired'
- I did not know the 'use-inspired' option exists
- I was concerned that an application marked 'use-inspired' would be less likely to be successful

6. Would you ever consider applying for research funding at SNSF under the 'use-inspired' category in future? [yes/ no]

Please only answer the next two questions if you selected 'yes'. If you selected 'no', please skip to question 8

7. If yes: Please rate how important the following reasons would be in a potential decision to submit a 'use-inspired' application to SNSF [not a reason / minor reason / major reason/ the most significant reason]

[please rate all possibilities, but only select 'the most significant reason' a maximum of once]

- If I felt my research may be of interest to practitioners (e.g. industry or public-sector partners, non-academic professionals in the relevant field, potential end-users)
- If practitioners were directly involved in my research, as project team members
- If practitioners were indirectly involved in my research
- If my research question(s) stems from a problem or challenge in the practical world
- If my project intended to generate knowledge of general scientific value, as well as knowledge of practical value
- If my project was part of a long-term research agenda, intended to culminate in fully applied research after the 'use-inspired' project ends
- I mainly work in applied fields, so I would apply for a 'use-inspired' project if I felt I had something of more general scientific relevance to contribute
- If I aimed to have both academic outputs (e.g. articles in academic journals) as well as non-academic outputs (e.g. designs, policy guidelines, prototypes, etc)
- If I felt my project was not 'basic research', but also not close enough to application to qualify as 'applied research'
- If I wanted to conduct basic research that could help generate better understanding of a range of practical problems
- I mainly work in fundamental research, so I would apply for a 'use-inspired' project if I felt I had something to contribute to a more practical, non-academic problem
- If I felt my chances of winning a grant would be increased if I select the 'use-inspired' option

OPTIONAL: if you would have any other major reasons not listed above, please specify: [box]

The term 'use-inspired basic research'

[‚Anwendungsorientierte Grundlagenforschung' / ‚Recherche fondamentale orientée vers l'application']

8. Please note which of the following criteria you consider important in characterising a research project as 'use-inspired' [not at all important; somewhat important; essential]
- The research question(s) or problem(s) need to have been developed at least in part by practitioners rather than pure researchers
- The project must aim to produce not only academic outputs (e.g. journal articles, conference papers), but also outputs with practical use (e.g. prototypes, policy recommendations, designs, etc)
- After completion, the project team should likely be in a position to apply for follow-up funding for an applied research project (e.g. from the Commission for technology and innovation [CTI/KTI])
- The project team needs to be at least partially composed of practitioners, not just researchers
- Outcomes of the project need to be of immediate interest to practitioners in the relevant area
- The project must intend to expand basic scientific knowledge as well as contribute to solving practical problems
- The project involves basic research that could help generate better understanding of a range of practical problems
- The project should include practical validation
- Other essential criteria? [please specify]

9. Do you feel you are clear about what SNSF understands by 'use-inspired basic research'?
- Yes, I understand exactly
- Yes, I understand to some extent
- Not sure I fully understand what SNSF means by this term
- I do not understand at all what SNSF means by the term

10. How confident are you that your own understanding of 'use-inspired basic research' is similar to the understanding of the term at SNSF?

- Very confident
- Somewhat confident
- Less confident
- Not at all confident

11. Do you think SNSF should replace "use-inspired basic research' with a different term?

- No, I think 'use-inspired basic research' is a good term to use
- Yes, it should be replaced with 'Translational research'
- Yes, it should be replaced with 'Solution-oriented basic research'
- Yes, it should be replaced with 'Problem-oriented basic research'
- Yes, it should be replaced with 'Practice-based basic research'
- Yes, it should be replaced with 'Innovation-oriented basic research'
- Yes, it should be replaced with 'Challenge-driven basic research'
- Yes, it should be replaced with 'Application-oriented basic research'
- Yes, it should be replaced with another tem [specify your suggestion]
    - Explain your answer (briefly)

Funding use-inspired basic research at SNSF

12. Overall, which of the following comes closest to your view on how SNSF funds 'use-inspired' basic research:

- The current system with the option to specify a project as 'use-inspired' is good and should be kept as it is
- The current system should stay as it is, but the assessment criteria for 'use-inspired' applications should be modified to place more emphasis on the use-dimension
- 'Use-inspired' basic research should be funded through a completely separate funding tool, competing only with other 'use-inspired' applications
- SNSF should abandon the term 'use-inspired' completely and use only its established assessment/ evaluation processes without special attention to use-aspects
- SNSF should demand a 'broader impact' statement and consider this in the assessment process for all applications it receives
- Other opinion [please specify]

13. Do you know of any other funding schemes comparable to the SNSF's 'use-inspired' basic research programme?

[yes/no if yes, specify]

14. Independently of the applicant's background or topic of the project, do you think selecting the 'use-inspired' option on an SNSF application has an effect on an application's success-chances?

- Yes, I think it improves success-chances
- Yes, I think it decreases success-chances
- No, I don't think it changes success-chances
- I have no opinion on this question

Outputs from your project

If none of your application for an SNSF research project were successful, please skip to the next section

We are interested in comparing outputs from Use-inspired SNSF projects to those not marked as use-inspired. Please therefore give us an indication of the outputs resulting directly from your Non-UI SNSF research project (if you have had several SNSF projects funded, please answer for the most recent completed one)

15. Please indicate any tangible academic outcomes that resulted directly from your SNSF-funded project [drop-downs, 0-100+]

- Articles in international peer-reviewed academic journals
- Articles in other academic journals
- Monographs, books, edited volumes and book chapters
- Conference presentations
- Other academic outputs [specify]

16. Please indicate any tangible non-academic outcomes that resulted directly from your SNSF-funded project [drop-downs, 0-100+]

- Patents
- Industry collaborations
- Consultancies
- Policy reports
- Policy recommendations
- Practice guidelines (e.g. for a professional field or process)
- Exhibitions/ performances (e.g. art exhibitions, theatre plays, concerts, etc)
- Potential products (e.g. designs/ prototypes)
- Non-academic publications (e.g. articles in newspapers, professional journals, blogs, etc)
- Media appearance (e.g. TV, radio, newspaper interviews, etc)
- Other [specify]

17. Did the activities from your SNSF-funded project enable you to secure further funding after the grant ended? (please tick all that apply)

- Yes, I obtained further funding from the SNSF
- Yes, I obtained further funding from other Swiss academies or charities
- Yes, I obtained further funding from the EU (framework programmes or ERC grants)
- Yes, I obtained further internal funding from my university
- Yes, I obtained further public funding from other international sources
- Yes, I obtained further funding from CTI/KTI (with commercial partners)
- Yes, I obtained further funding from industry (no CTI/KTI involvement)
- No.

End

18. Please feel free to enter any further comments you might have about 'use-inspired' basic research, either in general or at the SNSF in particular:

    [freetext box]

Thank you for taking the survey!

C.3 Interviewees

C.3.1 Exploratory interviews

Table 25: Interviewees for the programme of exploratory interviews

Function	Name	Division	Institution	Interviewer	Date / time
Research Council	Claudio Bolzmann	1 Social work	Haute Ecole de travail social (HETS), Genève	Peter Kolarz	13-09-2016, 0900-0950 (UK)
Research Council	Corina Caduff	1 Arts	Zurich University of the Arts	Peter Kolarz	31-08-2016, 1100-1145 (UK)
Research Council	Franz Caspar	1 Psychology	Uni of Berne	Peter Kolarz	24-08-2016, 1100-1140 (UK)
Research Council	Jana Koehler	2 Computer Science	Lucerne School of Engineering and Architecture	Peter Kolarz	19-08-2016, 1000-1145 (UK)
Research Council	Katharina Fromm	2 Chemistery	Uni of Fribourg	Peter Kolarz	24-08-2016, 1400-1435 (UK)
Research Council	Urs Frey	3 Medecine	University Hospital of Basel	Peter Kolarz	31-08-2016, 1500-1540 (UK)
Representative of Uni	Benedetto Lepori	1 Communication	USI and SUPSI	Peter Kolarz & Erik Arnold	30-08-2016, 1630-1720 (UK)
Representative of Uni	Christian Leumann	3 Biochemistry	University of Bern	Peter Kolarz	16-09-2016, 1300-1340 (UK)
Representative of Uni	Luciana Vaccaro	All	HES-SO	Peter Kolarz	25-08-2016, 1030-1105 (UK)
UAS Representative	Jean-Pierre Tabin	1 Social policy	Ecole d'études sociales et pédagogiques	Peter Kolarz	20-09-2016, 0900-0945 (UK)

C.3.2 Process evaluation interviews

Table 26: Interviewees for the process evaluation interviews

Function	Name	Division	Institution	Interviewer	Date / time
Science Officer SNSF	Brigitte Arpagaus	1	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Christian Brunner	2	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Gilles Wasser	1	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Patricia Jungo	InterCo	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Stéphanie Wyss	3	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Syvia Jeney	InterCo	SNSF	Peter Kolarz	In person at SNSF, Bern 08/09-12-2016
Science Officer SNSF	Tristan Maillard	2	SNSF	Peter Kolarz	25-11-16; 1000-1055 (UK)

Function	Name	Division	Institution	Interviewer	Date / time
Science Officer SNSF	Véronique Planchamp	3	SNSF	Peter Kolarz	07-12-16; 1100-1200 (UK)
Research Council	Bradley Nelson	2 Robotics and Intelligent Systems	ETHZ	Peter Kolarz	07-12-16; 0900-0955 (UK)
Research Council	Chris Boesch	3 Molecular imaging and pharmacology	BE	Peter Kolarz	29-11-16; 1030-1130 (UK)
Research Council	Eric Widmer	1 Sociology	GE	Peter Kolarz	07-12-16; 1400-1500 (UK)
Research Council	Kai Johnsson	2 Chemical Sciences	EPFL	Peter Kolarz	29-11-16; 0915-0950 (UK)
Research Council	Katharina Maag Merki	1 Education	ZU	Peter Kolarz	02-12-16; 0900-1000 (UK)
Research Council	Lothar Thiele	2 Computer Engineering	ETHZ	Peter Kolarz	30-11-16; 1300-1400 (UK)
Research Council	Matthias Egger	3 Epidemiology and Public Health	BE	Peter Kolarz	06-12-16; 1030-1125 (UK)
Research Council	Ola Söderström	1 Géographie sociale et culturelle	NE	Peter Kolarz	02-12-16; 1030-1120 (UK)
Research Council	Petra Hüppi	3 Child development disorders	GE	Peter Kolarz	27-01-17, 1500-1545 (UK)
Panel Member	Alexander Grob	InterCo 1 Psycho	BS	Peter Kolarz	07-02-17; 1100-1130 (UK)
Panel Member	Dirk Van der Marel	InterCo, 2 Condensed Matter Physics	GE	Peter Kolarz	25-11-16; 1400-1445 (UK)
Panel Member	Francesco Stellacci	InterCo 2 Supramolecular Nonomaterial	EPFL	Peter Kolarz	18-11-16; 0900-0950 (UK)

C.4 Interview scripts

C.4.1 Exploratory interview questions

- How would you define use-inspired basic research?
- How do understandings differ between disciplines and fields of study?
- Is use-inspired research the appropriate term to use or are there better alternatives in terms of understanding among the research community?
- What is the overall demand for funding for use-inspired basic research?
- How do the universities manage use-inspired research, as compared to traditional basic research?
- Are there any barriers preventing a greater prevalence of use-inspired basic research?

Table 27: Key issues in brief (for summary and survey question-building)

Category	Notes
Alternative terms	
Barriers	
Definition(s)	
Other critical issues	

C.4.2 Process evaluation interview questions

- What exactly is your job and how does it relate to UIBR?
- How would you define the term?
- What happens during the commissioning and assessment process?
  - Are there any differences between how UI and Non-UI applications are assessed?
    - In terms of process structure?
    - In terms of how reviewers approach the applications?
  - How is the 'use' element balanced against scholarly/ quality considerations in the final decision?
- How are assessment panel members selected?
  - Is the selection at all different from Non-UI applications?
  - Are there any difficulties in finding the right reviewers for UI-applications?
- What exactly are the differences between regular and use-inspired research applications?
  - In terms of quality
  - In terms of scope/ field/ topic choice
- Are there any problems or challenges in the application process for use-inspired research applications?
  - Around the ability to judge 'use' or broader impacts?
  - Around the pool of applications?
  - Around the criteria?
  - At the administrative/ operational level?
- Are there any obvious necessary modifications to the use-inspired research stream?
  - What would be the advantages and/or disadvantages of a completely separate UI-scheme?
  - Are there any components to the assessment process that could usefully be added or changed?
    - E.g. create a 2-step assessment process, one to assess 'use', one to assess scholarly aspects?

- E.g. changing the assessment criteria to focus more on 'use' and perhaps de-emphasise scholarly aspects?

- Overall, what do you see as the greatest points of concern around how the SNSF funds UIBR?
  - Uptake?
    - Specifically from Fachhochschulen/ Paedagogical colleges and Hospitals?
  - Success rates?
  - Outputs/ outcomes/ impacts of funded UI-projects?
  - Ability to ensure the best projects get funded?
  - Ability to ensure the most useful projects get funded?

- If the UIBR instrument would disappear, what exactly would actually be lost in the Swiss research landscape?

- Any other comments on UIBR-funding at SNSF?

C.5 Application and feedback analysis

To obtain a deeper understanding of how the broader impact component of UIBR applications is treated by applicants and within the review process, we conducted a content analysis for 100 UIBR applications. We selected a random sample from the period 01.10.2011-01.10.2015, and stratified equally between Divisions 1, 2, 3 and ID/Sinergia (we combine the latter two, reflecting the overall smaller part that these two groups play overall, and taking into account that these two instruments were connected to the same evaluation body). The selection is additionally stratified by institution type. However, here we need to consider that some institution types are strongly concentrated in certain divisions, e.g. UTE are almost exclusively limited to Division 1 whilst ETHZ/EPFL are strongly clustered around Division 2 and ID/Sinergia. Additionally, we take some account of the prevalence of the different institution types overall (e.g. universities have more overall applications than for instance UTE or hospitals). Within these limitations, the sample described below represents the 'best fit'.

Table 28: Sample of UIBR applications used for content analysis

	Subject Division = Division 1	**Subject Division = Division 2**	**Subject Division = Division 3**	**Subject Division = Sinergia/ID**	**Totals**
Institution type = ETHZ/EPFL	0	15	1	8	24
Institution type = Universities	3	3	13	10	29
Institution type = Fachhochschulen	5	7	4	7	23
Institution type = Päd. Hochschulen	17	0	0	0	17
Institution type = Hospitals	0	0	7	0	7
Totals	25	25	25	25	100

For each application, we analysed both the 'Broader impact' statement, as well as the reviewers' feedback on the broader impact component of each application. This totalled 100 broader impact statements and 260 broader impact feedback sections (reflecting an average of 2.6 reviews per application).

C.5.1 Coding for 'Broader impact' statements

For 'Broader impact' statements, we used the coding frames shown in the tables below. Each 'Broader impact' statement was codes once in full to the first coding frame (Table 29). As appropriate, each statement was then coded to the various categories of the second coding frame (Table 30). Each 'Broader impact' statement could be coded simultaneously to several categories, but to none more than once. I.e. a statement discussing certain output types as well as a particular intended audience could be coded to 'Output types' and 'Audience'; if, for instance, a statement mentioned two separate intended audiences, it would still only be coded to 'Audience' once. The right hand column of Table 30 explains what criteria needed to be fulfilled for each category to apply.

Analysis mainly took the shape of matrix queries, i.e. where the frequencies of codes were divided by factors such as institution type, subject division or funding outcome (successful vs. unsuccessful), the results of which are presented at various points in this report as relevant.

Table 29: 'Broader impact' statements – coding frame 1 (length and presentation)

Category	Description 1	Description 2
Sub-0.5 page BI	'Broader impact' section is present and clearly labelled as a separate main section of the research plan	Length of up to half a page
0.5-1 page BI		Length of between half and a full page
1 page+ BI		Length of more than one full page
2 page+ BI		Length of more than two full pages
Sub-0.5 page Gen	'Broader impact' section is present, but either noted as a sub-heading under 'relevance and impact', potentially using a title other than 'broader impact', or un-titled but identifiable through paragraphing of the 'relevance and impact' section	Length of up to half a page
0.5-1 page Gen		Length of between half and a full page
1 page+ Gen		Length of more than one full page
2 page+ Gen		Length of more than two full pages
None/other	'Broader impact' section is missing on paragraphing is not clear enough to designate a 'broader impact' section	n/a

Table 30: 'Broader impact' statements – coding frame 2 (theme)

Category	Description
Audience	The 'Broader impact' section mentions or discusses a particular non-academic audience, to whom findings will be disseminated, and who may be in contact with the research team already.
Closeness to application	The 'Broader impact' section mentions or discusses a trajectory towards application, including next steps after the project ends, follow-on activities or further research in more applied domains. Concrete further steps beyond the end of the project (other than dissemination) must be noted coding to this category.
Cognitive/ conceptual (Pasteur)	The 'Broader impact' section mentions or discusses one or more practical fields or problems, which the proposed research could illuminate, without stating the intention to solve them directly.
Description of problems/ intention to solve them	The 'Broader impact' section describes or discusses one or more concrete practical problems and proposes that the research can solve these or directly contribute to a solution.
Output types	The 'Broader impact' section mentions or discusses particular non-academic output types that are intended to result from the project.
People involved	The 'Broader impact' section mentions or discusses one or more individuals involved in the project team, who do not come from a purely academic background.

Category	Description
Source of question	The 'Broader impact' section mentions or discusses the origin of the project's research question(s), in the sense that a motivation deriving from experience or interaction with the world of practitioners is asserted.
Validation	The 'Broader impact' section mentions or discusses validation as part of the proposed research.
Other/ none	None of the above / no clear substantive description of broader impact.

C.5.2 Coding for reviewers' feedback on broader impact

For reviewers' feedback on broader impact of applications, we used the coding frames in the tables below. Each reviewer feedback section on an application's broader impact was coded in full to one of the categories in Table 31, using the descriptions in the table's remaining two columns to confirm the category.

Table 31: Reviews of broader impact – coding frame 1 (length and character)

Category	Description 1	Description 2
Positive 5 lines or less	The content of feedback is fully positive: it endorses the non-academic importance, the feasibility and salience of planned activities, or the stated significance of the problem and ability for the research to illuminate or solve.	Length: up to and including 5 lines
Positive 6-10 lines		Length: 6 to 10 lines
Positive 11+ lines		Length: more than 10 lines
Negative 5 lines or less	The content of feedback is entirely negative or critical. This can include assertions of limited practical relevance, poor understanding of problems to be addressed or solved, or lack of feasibility or salience of planned activities.	Length: up to and including 5 lines
Negative 6-10 lines		Length: 6 to 10 lines
Negative 11+ lines		Length: more than 10 lines
Mixed 5 lines or less	To qualify for these categories, feedback must contain at least one positive and one negative statement, as described in the two groups above	Length: up to and including 5 lines
Mixed 6-10 lines		Length: 6 to 10 lines
Mixed 11+ lines		Length: more than 10 lines
None	No broader impact feedback given	None
Other	Feedback is too unsubstantial or unclear to be coded elsewhere	Various

Each feedback statement was then coded to the various categories of the second coding frame (Table 32), and, as with the 'Broader impact' statements themselves, each feedback section could be coded simultaneously to several categories, but to none more than once. The right hand column of Table 32 explains what criteria needed to be fulfilled for each category to apply.

Analysis again mainly took the shape of matrix queries, i.e. where the frequencies of codes were divided by factors such as institution type, subject division or funding outcome (successful vs. unsuccessful), the results of which are presented at various points in this report as relevant. As noted elsewhere in this report, we also examined to what extent there was consensus between different reviews for the same application, and additionally examined whether the categories identified in feedback reflect those identified in the respective 'Broader impact' statements themselves.

Table 32: Reviews of broader impact – coding frame 2 (theme)

Category	Description
Audience (Feedback)	The feedback discusses particular non-academic audiences of the research, possibly including current involvement or contact with the applicant(s)
Closeness to application/ validation (Feedback)	The feedback discusses a trajectory towards application, including the feasibility, likelihood, salience or importance of next steps after the project ends. [we include validation here as a sub-category, though this was almost never discussed]
Cognitive/ conceptual (Pasteur) (Feedback)	The feedback summarises or comments on the extent to which the proposed research may be relevant to a range or practical problems or fields.
Problem (Feedback)	The feedback discusses/describes a particular problem or set of problems to which the proposed research claims to respond, and elaborates on how it might do so.
Output types (Feedback)	The feedback discusses particular non-academic outputs proposed, assessing for instance their importance or feasibility.
People involved (Feedback)	The feedback discusses the involvement of people in the project who are not from a purely academic background, and the implications of this (including for project success, wider salience, etc)
Source of question (Feedback)	The feedback reflects on the source of the question [we find that this is rarely discussed within applications, so feedback almost never picks up on this issue]
Limited practical relevance	This category was added, as it is the most frequent source of negative comments. Where limited or non-existent practical relevance is noted, we additionally coded to this category.
Other	None of the above: feedback does not readily fit into any of the above categories or is unclear to the point that any other coding is impossible.
None	Broader impact feedback missing.

C.6 RC / Panel Observation

SNSF funding panel observation notes

We observed funding discussions and decision at SNSF in Bern on 23 August 2016. We were present respectively for approximately one hour in the Economics panel, Division 1, Division 2 and Division 3. We witnessed discussions of six applications in each division, as well as 16 applications in the Economics panel, totalling 34 applications in total. Six of these had been classed as 'use-inspired', which roughly equates to the overall share of UIBR-declared applications on SNSF grant funding.

To support our qualitative observation, we also coded the discussion points we witnessed into various categories, most notably distinguishing between comments and discussion points pertaining either to use or to scholarly/ scientific aspects. For each comment made by referees or other RC / Panel members, we also noted whether the comment was supportive or critical of the application. This is of course not an 'exact science', but we use it as supporting evidence to give an indication of what happens and general discussion themes at these meeting regarding UIBR.

Table 33: Observations: themes of discussion points per proposal

Division	App. No	Type	Scholarly +*	Scholarly -*	Use +	Use -	Other +	Other -	Comments	Grade
Division 1	[redacted]	**BR**	all-round excellent	-	-	-	-	F	-	AB
Division 1	[redacted]	**BR**	R, S	-	-	-	-	B	-	AB
Division 1	[redacted]	**BR**	O	R	-	-	B, TEAM QUALITY	-	-	B+
Division 1	[redacted]	**BR**	-	R	-	-	-	P	-	BC
Division 1	[redacted]	**BR**	S	R, lack of focus/clarity	-	-	-	P, B	-	BC
Division 1	[redacted]	**UI**	-	O, R	-	-	-	-	-	BC
Division 2	[redacted]	**BR**	-	O, R	-	No application in reality	B, P	F	proposal: reduce money	B+
Division 2	[redacted]	**BR**	S, R	-	-	-	B, P	-	-	B+
Division 2	[redacted]	**BR**	R, S, O	-	Noted. Briefly	-	B, P	Citation record	slight reduction of budget	B+
Division 2	[redacted]	**BR**	S, O	R	Noted. Sort of	-	P, B	F, Cost	reduce scope suggested. Discussion about PI's age/ gender	B+
Division 2	[redacted]	**BR**	O	R	-	-	P, B	-	-	not funded
Division 2	[redacted]	**UI**	S	R, clarity of approach	-	too unspecific	-	P, citations	-	not funded
Division 3	[redacted]	**BR**	O, S	R, Scope	-	-	B, P, F	-	-	AB
Division 3	[redacted]	**BR**	All-round excellent	R	-	-	B	F	-	AB
Division 3	[redacted]	**UI**	O	R	NOTED	-	B, P, H-INDEX	-	SMALL CUT TO PROPOSAL	AB
Division 3	[redacted]	**UI**	Outstanding, excellent	-	Noted. Briefly.	-	B (based on an fp7 project)	High-risk	This got pushed. A lot!	AB
Division 3	[redacted]	**BR**	O, S	R	-	-	B, P, H-INDEX	-	-	B
Division 3	[redacted]	**BR**	R, O	R	noted	-	P	F	-	B

Division	App. No	Type	Scholarly +*	Scholarly -*	Use +	Use -	Other +	Other -	Comments	Grade
Economics panel	[redacted]	**BR**	O	-	-	-	well written, P, B	publication prospects; cost	respected background of reviewers noted	A
Economics panel	[redacted]	**BR**	Q, S, Publication potential	-	-	-	F	-	Re-submission; short discussion; all agree	AB
Economics panel	[redacted]	**BR**	Quality overall, O	R	-	-	-	-	Number of PhDs contested; short discussion	AB
Economics panel	[redacted]	**BR**	S, O, R	R (literature)	-	-	Publication scope, low cost	-	fairly quick consensus	AB
Economics panel	[redacted]	**BR**	Quality general	R	-	-	P	Odd CV; vague aims	Background of reviewer noted; instant agreement	B+
Economics panel	[redacted]	**BR**	S	-	-	-	P, B	B, F	Long discussion (combined w 533, same PI), conditions agreed	B+
Economics panel	[redacted]	**BR**	O, S	R	-	-	Publication prospects	-	quick, w/ conditions	B+
Economics panel	[redacted]	**BR**	-	R	-	-		B	-	B-
Economics panel	[redacted]	**BR**	S	O, R	-	-	B (young applicant)	-	Instant agreement	B-
Economics panel	[redacted]	**BR**	R	O, S	-	-	Well written, P, B	-	mismatch between skill and significance (between this and 532, same PI)	BC
Economics panel	[redacted]	**BR**	-	S, R	-	-	-	-	quick	BC
Economics panel	[redacted]	**BR**	S	R	-	-	-	-	some discussion, noted as a 'headache'	BC
Economics panel	[redacted]	**UI**	R	R	noted, briefly	-	B	F	quick agreement; methodology / theory	BC

Division	App. No	Type	Scholarly +*	Scholarly -*	Use +	Use -	Other +	Other -	Comments	Grade
	[redacted]								noted as a weakness	
Economics panel	[redacted]	**UI**	-	R	High policy impacts noted	-	B, F	-	Promising, but lack of methodological engagement	BC
Economics panel	[redacted]	**BR**	-	-	-	-	-	Objectives/ focus unclear	instant agreement	C
Economics panel	[redacted]	**BR**	S	R	-	noted	-	B	-	C

* +/- denotes supportive vs critical comments

NB: Application numbers have been omitted for data protection reasons

Key:

Symbol	Description
O	Originality
S	Significance (scholarly, not wider significance)
R	Rigour
P	PI's Publication history
B	PI's/ team's background more broadly (e.g. expertise, thematic)
F	Feasibility of the proposed project
-	Not discussed

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