

Some suggestions for funding of multilateral research projects without supranational structures

By Dr.-Ing. Georg Bechtold, Deutsche Forschungsgemeinschaft, Kennedyallee 40, D-53175 Bonn, Germany

ERA-Chemistry (www.erachemistry.net)

Introduction

Alternatives like common pot funding, national earmarking and so called "open funding" are presented, including a short analysis of advantages and drawbacks. Then, some possible distribution keys, formerly foreseen for the ERA-Chemistry calls, are shown in detail. The next two chapters deal with some technical details of common pot solutions and in the final chapter, a new common pot derivative, avoiding some of the main drawbacks of a conventional common pot, is presented.

1. Pure common pot

The funding organisations deposit in a common pot a certain amount of money, dependent on a fixed and jointly agreed distribution key and the expected financial requirements (i.e. number and average costs of projects to be funded). After the joint reviewing process, the applicants are paid by the money in this common pot.

Details:

Distribution key: This key may follow the financial power of each

- chemistry division within each partner's research council (chemistry budget)
- research council (council's budget)
- country (GDP)

or is just based on open discussion (as in the first ERA-Chemistry call or in the EURYI scheme).

An additional factor may be taken into account, in order to approach the Bologna aim. I.e. research councils in countries with research funding of less than 3% of the GDP deposit more, others less.

CNRS is a special case in this context, because their budget is extremely high, however they have also a much larger funding duty. This will require additional negotiations.

Mixed forms of the above mentioned distribution keys may also be applied.

More details and some suggestions for a distribution key can be found in chapter 5 below.

Expected financial requirements: The applicants expect a reasonable funding rate; usually between 20 and 50%. Problem is, that it is not clear in advance how many proposal a call will generate. Solving this problem is not the aim of this task, therefore we assume that the number of proposals to be funded is known in advance. The average costs for a proposal in the different countries can be found easily, as it was one of the items of the questionnaire action. A difficult and very political question is, if we should use the common pot as a tool to harmonise the different funding principles in different countries. For example, at present, the average salaries in the different ERA-Chemistry countries are extremely different. A similar problem is the variation of VAT. A possibility is that we agree on using "standard salaries" in the common pot and that we agree not to pay any VAT by the money in the common pot. It would then be up to the national research councils to top-up the funding of their successful applicants. A perhaps more realistic suggestion is to add a component to the distribution key taking into account the different average costs of one project in the different research councils.

Payment: Yet, the amount of money claimed by each partner council after the funding decision was just transferred back to the national research councils in order to enable them to finance their successful grantees. This is a quite simple procedure. Another possibility would be that the funding money would be paid off to the grantees directly from the common pot account. The easiest solution for this alternative would be to see the grants as a kind of award, paid directly to the applicants, leaving all responsibility at their side. This causes severe legal

problems, as even the most “liberal” partner councils would need a minimum verification of legal use of the award. Our aim, not to create additional bureaucracy, might quickly (and impalpably...) be lost out of sight.

Advantages and disadvantages:

Advantages: Simple procedure. Each proposal which was approved to be funded can be funded. Attractive, if EC tops up the common pot.

Disadvantages: Some organisations may gain less than they have paid in the pot, leading to difficult political considerations.

2. Balanced common pot

Main hurdle of many partner research councils to participate a common pot is certainly the “no juste retour”-principle. Idea of the balanced common pot is to use a common pot scheme as explained above, however with a built-in correction factor in the distribution key for the NEXT call, taking into account the success rate of national applicants in the PRECEDING calls. After a few calls (3 – 5), the total payment and gain for each national partner research council should be balanced.

Although a dynamic equilibrium will be reached after a certain time, at least at the beginning it is difficult for the partners to estimate their future contribution. The planning reliability is low and at the same time, the model only makes sense if long-term contracts can be negotiated. However with a topping-up of such a common pot with research money by the European Commission, this model might become very attractive, even for small partner research councils.

The above mentioned details apply to this model without changes. Details about the balancing mechanism can be found in chapter 6 below.

Advantages and disadvantages:

Advantages: Simple procedure (although a bit difficult to explain...). Each proposal which was approved to be funded can be funded. On long term, a fair dynamic equilibrium is reached automatically. Very attractive, if EC tops up the common pot.

Disadvantages: Lack of planning reliability, at least in the initial phase. Long term contracts required.

3. National earmarking system

This is the most conventional and conservative model. Each participating organisation earmarks a defined amount of money. After the joint reviewing process, each organisation commits itself to finance each proposal under its responsibility which was approved to be funded and to be counter-financed by the partners' organisation(s), up to the earmarked amount.

Advantages and disadvantages:

Advantages: High planning reliability for all partners. The earmarked amount of money is a MAXIMUM; possibly some of it can be saved if not enough proposals approved to be funded have been passed in. Only national groups will be funded. Amount of earmarked money does not need to be negotiated. No political considerations required.

Disadvantages: Strict contractual regulations are required. Some proposals approved to be funded may be rejected, because the counter-financing might not be possible, due to the fact that the partner organisation's earmarked sum might be exceeded.

4. Open funding

Before the review procedure, the participating research councils commit themselves to fund a jointly fixed NUMBER of proposals. After the review procedure, each research council finances its successful national participants, regardless of the total costs.

Advantages and disadvantages:

Advantages: Only national groups will be funded. Negotiation procedure relatively simple.

Disadvantages: Low planning reliability. Very expensive for research councils with very successful applicants. Perhaps very low estimate of numbers of proposals to be funded. Might be problematic for research councils with small budget with low flexibility.

5. Common pot distribution key – some suggestions

See also attached Excel data sheet “Suggested common pot key”.

An evaluation of the questionnaire and information resulting from our ERA-Chemistry description of work lead to the following results for the budgets, GDPs, research and development spending and average costs per proposal:

Table 1: Some key data for partner councils

Country	Org	Chemistry budget [Mio. €]	Organisation budget [Mio. €]	GDP [Mio US\$]	R&D spending
Austria	FWF	8,9	100	253126,0	1,86%
Belgium				352312,0	2,00%
Belgium	FNRS	2,8	90	158540,4	2,00%
Belgium	FWO	9,9	110	193771,6	2,00%
Finland	AF	11,0	200	161876,0	3,43%
France	CNRS	235,0	2500	1757619,0	2,14%
Germany	DFG	124,0	1310	2403160,0	2,57%
Hungary	HAS	26,5	142	100314,0	0,80%
Ireland	IRCSET	1,7	17	184451,0	1,10%
Netherlands	NWO	30,0	380	512217,0	2,00%
Poland	ICHOPAN	3,0		241595,0	0,70%
Portugal	FCT	14,0	228	147684,0	0,86%
Spain	MEC	55,0	275	838652,0	1,00%
Switzerland	SNF	10,0	263	315700,0	2,57%
Sum		531,8	5615	7268706,0	

Sources: ERA-Chemistry DOW, http://www.destatis.de/cgi-bin/ausland_suche.pl,
<http://www1.oecd.org/publications/e-book/92-2003-04-1-7294/GA-01-1.htm>

Table 2: Average costs per proposal for partner councils

Country	Org	Average funding for 3 year's project [€]
Austria	FWF	210000
Belgium		
Belgium	FNRS	40000
Belgium	FWO	270000
Finland	AF	225000
France	CNRS	150000
Germany	DFG	120000
Hungary	HAS	150000
Ireland	IRCSET	150000
Netherlands	NWO	225000
Poland	ICHOPAN	150000
Portugal	FCT	68000
Spain	MEC	137700
Switzerland	SNF	180000
Average		159669

Source: Questionnaire; **numbers in red are dummies and need to be replaced!!!**

In the following, it is estimated that 25 PERSONS should be funded, leading (with the average funding in Table 2) to estimated total costs of 3991730,77 €.

Suggestion 1: Distribution key based on chemistry budget

Based on the chemistry research funding budget of each partner organisation, the distribution key would be as shown in Table 3 and Figure 1.

Table 3: Distribution key based on chemistry budget

Country	Org	Chemistry budget [Mio. €]	Share	Inpayment [€]
Austria	FWF	8,9	1,67%	66804,07
Belgium				
Belgium	FNRS	2,8	0,53%	21017,01
Belgium	FWO	9,9	1,86%	74310,14
Finland	AF	11,0	2,07%	82566,83
France	CNRS	235,0	44,19%	1763927,66
Germany	DFG	124,0	23,32%	930753,32
Hungary	HAS	26,5	4,98%	198910,99
Ireland	IRCSET	1,7	0,32%	12760,33
Netherlands	NWO	30,0	5,64%	225182,25
Poland	ICHOPAN	3,0	0,56%	22518,23
Portugal	FCT	14,0	2,63%	105085,05
Spain	MEC	55,0	10,34%	412834,13
Switzerland	SNF	10,0	1,88%	75060,75
Sum		531,8		3991730,77

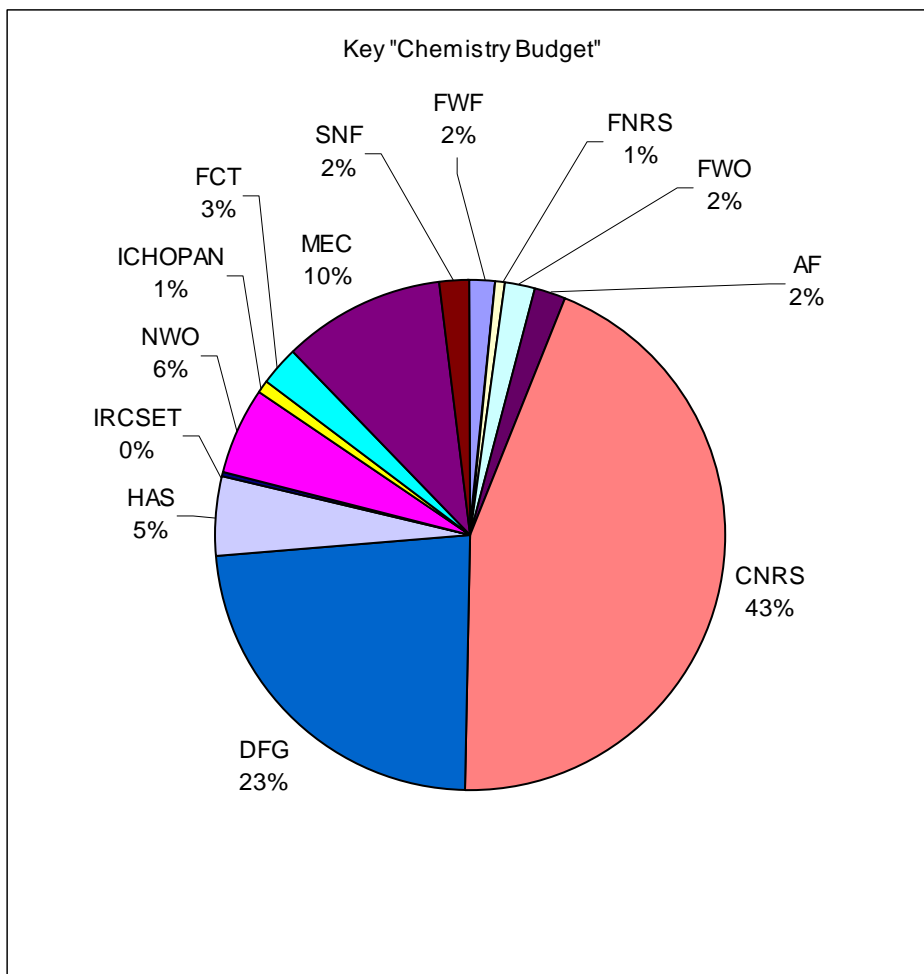


Figure 1: Distribution key based on chemistry budget

Most striking is the high share of CNRS. This is due to the fact that the indication in the DOW is not comparable to the ones from other research organisations, as the duties from CNRS differ considerably. Furthermore, counter-intuitive is the large share of MEC and HAS and the small share of NWO.

As can be seen in Table 2, the average costs for one project differ very much amongst the different partners. This fact is taken into account in the next table and figure.

Table 4: Corrected distribution key based on chemistry budget

Country	Org	Chemistry budget [Mio. €]	Share	Weighted share	Corrected share	Inpayment [€]
Austria	FWF	8,9	1,67%	2,20%	2,37%	94419,95
Belgium						
Belgium	FNRS	2,8	0,53%	0,13%	0,14%	5658,12
Belgium	FWO	9,9	1,86%	3,15%	3,38%	135037,19
Finland	AF	11,0	2,07%	2,91%	3,13%	125034,44
France	CNRS	235,0	44,19%	41,51%	44,61%	1780793,52
Germany	DFG	124,0	23,32%	17,52%	18,83%	751722,20
Hungary	HAS	26,5	4,98%	4,68%	5,03%	200812,89
Ireland	IRCSET	1,7	0,32%	0,30%	0,32%	12882,34
Netherlands	NWO	30,0	5,64%	7,95%	8,54%	341003,01
Poland	ICHOPAN	3,0	0,56%	0,53%	0,57%	22733,53
Portugal	FCT	14,0	2,63%	1,12%	1,20%	48094,05
Spain	MEC	55,0	10,34%	8,92%	9,58%	382605,38
Switzerland	SNF	10,0	1,88%	2,12%	2,28%	90934,14
Sum		531,8	100,00%	93,05%	100,00%	3991730,77

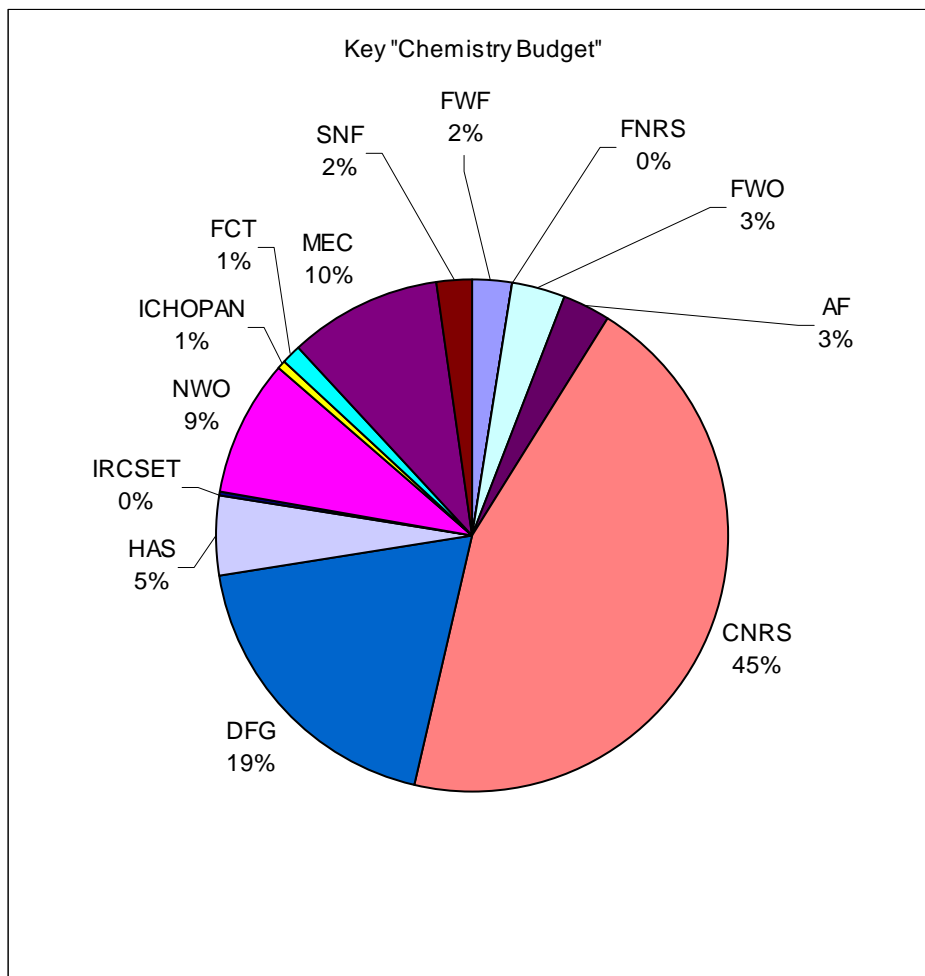


Figure 2: Corrected distribution key based on chemistry budget

This correction assumes, that the implementation of a common pot system should not influence the national funding usages. This can and should not be the task of the common pot system, and therefore, these figures tend to be more realistic.

The big share of CNRS has increased, the share of DFG has even decreased. Both is counter-intuitive. But the share of NWO and the "expensive" countries like Belgium (FWO) and Finland (AF) has increased.

Suggestion 2: Distribution key based on research council budget

Figures 3 and 4 and Tables 5 and 6 show the respective distribution key based on the budget of the respective research councils. Thus, partners with relative small chemistry budgets are discriminated and vice versa.

Table 5: Distribution key based on research council budget

Country	Org	Organisation budget [Mio. €]	Share	Inpayment [€]
Austria	FWF	100,0	1,78%	71090,49
Belgium				
Belgium	FNRS	90,0	1,60%	63981,44
Belgium	FWO	110,0	1,96%	78199,53
Finland	AF	200,0	3,56%	142180,97
France	CNRS	2500,0	44,52%	1777262,14
Germany	DFG	1310,0	23,33%	931285,36
Hungary	HAS	142,0	2,53%	100948,49
Ireland	IRCSET	17,0	0,30%	12085,38
Netherlands	NWO	380,0	6,77%	270143,85
Poland	ICHOPAN	0,0	0,00%	0,00
Portugal	FCT	228,0	4,06%	162086,31
Spain	MEC	275,0	4,90%	195498,84
Switzerland	SNF	263,0	4,68%	186967,98
Sum		5615,0		3991730,77

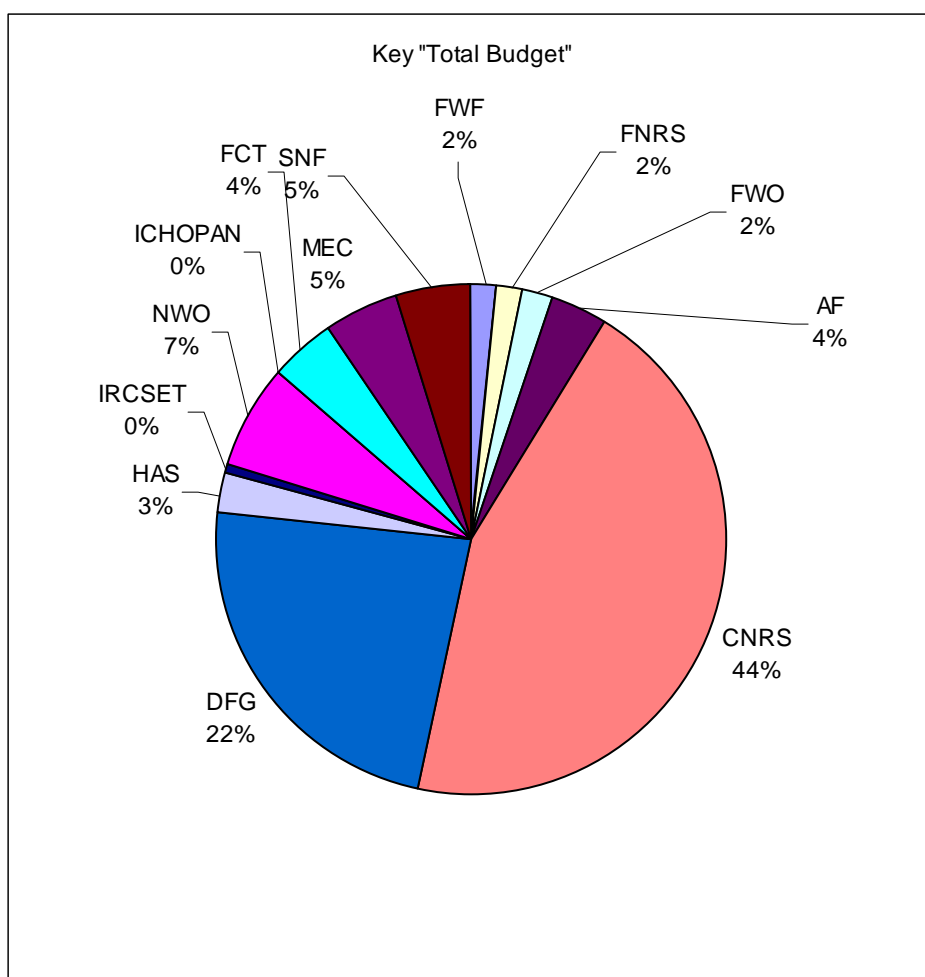


Figure 3: Distribution key based on research council budget

Table 6: Corrected distribution key based on research council budget

Country	Org	Organisation budget [Mio. €]	Share	Weighted share	Corrected share	Inpayment [€]
Austria	FWF	100,0	1,78%	2,34%	2,50%	99608,10
Belgium						
Belgium	FNRS	90,0	1,60%	0,40%	0,43%	17075,68
Belgium	FWO	110,0	1,96%	3,31%	3,53%	140874,32
Finland	AF	200,0	3,56%	5,02%	5,35%	213445,94
France	CNRS	2500,0	44,52%	41,83%	44,56%	1778716,16
Germany	DFG	1310,0	23,33%	17,53%	18,68%	745637,81
Hungary	HAS	142,0	2,53%	2,38%	2,53%	101031,08
Ireland	IRCSET	17,0	0,30%	0,28%	0,30%	12095,27
Netherlands	NWO	380,0	6,77%	9,54%	10,16%	405547,28
Poland	ICHOPAN	0,0	0,00%	0,00%	0,00%	0,00
Portugal	FCT	228,0	4,06%	1,73%	1,84%	73539,24
Spain	MEC	275,0	4,90%	4,22%	4,50%	179614,76
Switzerland	SNF	263,0	4,68%	5,28%	5,63%	224545,13
Sum		5615,0	100,00%	93,87%	100,00%	3991730,77

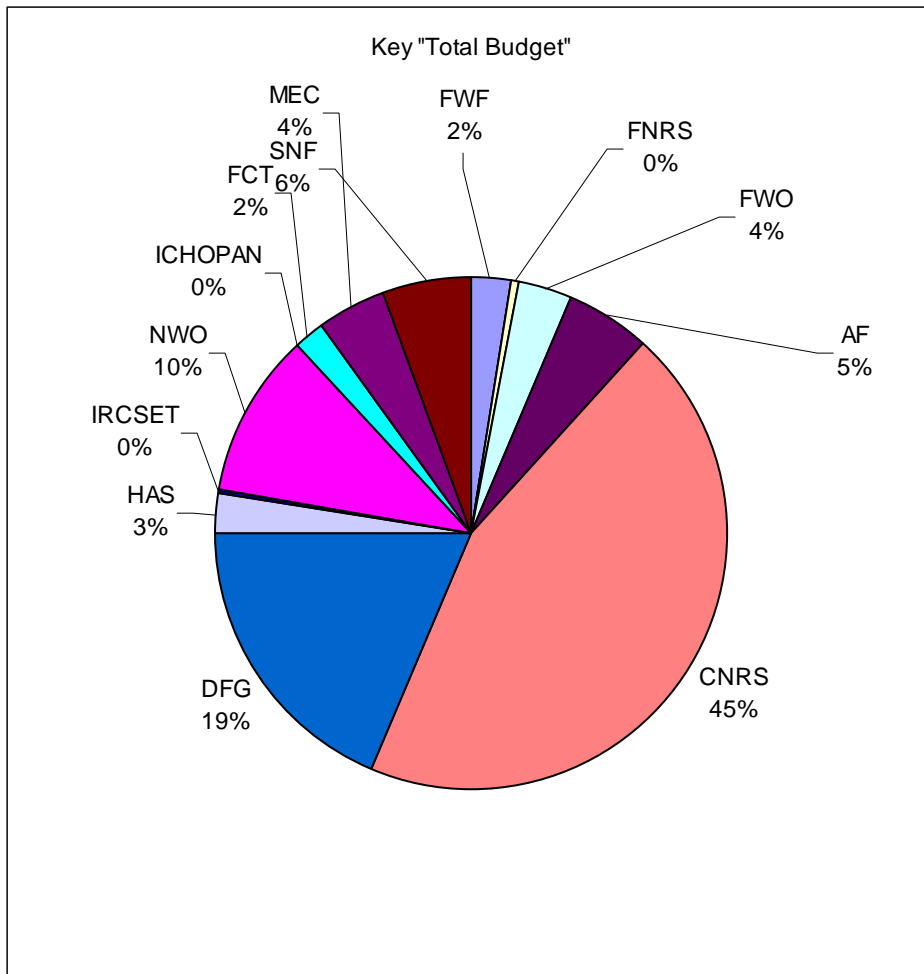


Figure 4: Corrected distribution key based on research council budget

The same effects as with suggestion 1 appears.

Suggestion 3: Distribution key based on total national research spending

In the next figures and tables, the key is related to the total national research spending, i.e. the product of GDP and percentage of research spending of GDP.

Table 7: Distribution key based on total national research spending

Country	Org	Research spending [Mio \$]	Share	Inpayment [€]
Austria	FWF	4708,1	3,16%	125947,50
Belgium				
Belgium	FNRS	3170,8	2,12%	84822,25
Belgium	FWO	3875,4	2,60%	103671,64
Finland	AF	5552,3	3,72%	148530,77
France	CNRS	37613,0	25,21%	1006186,22
Germany	DFG	61761,2	41,39%	1652173,55
Hungary	HAS	802,5	0,54%	21467,99
Ireland	IRCSET	2029,0	1,36%	54276,71
Netherlands	NWO	10244,3	6,87%	274046,23
Poland	ICHOPAN	1691,2	1,13%	45240,34
Portugal	FCT	1270,1	0,85%	33975,96
Spain	MEC	8386,5	5,62%	224347,71
Switzerland	SNF	8113,5	5,44%	217043,89
Sum		149218,1		3991730,77

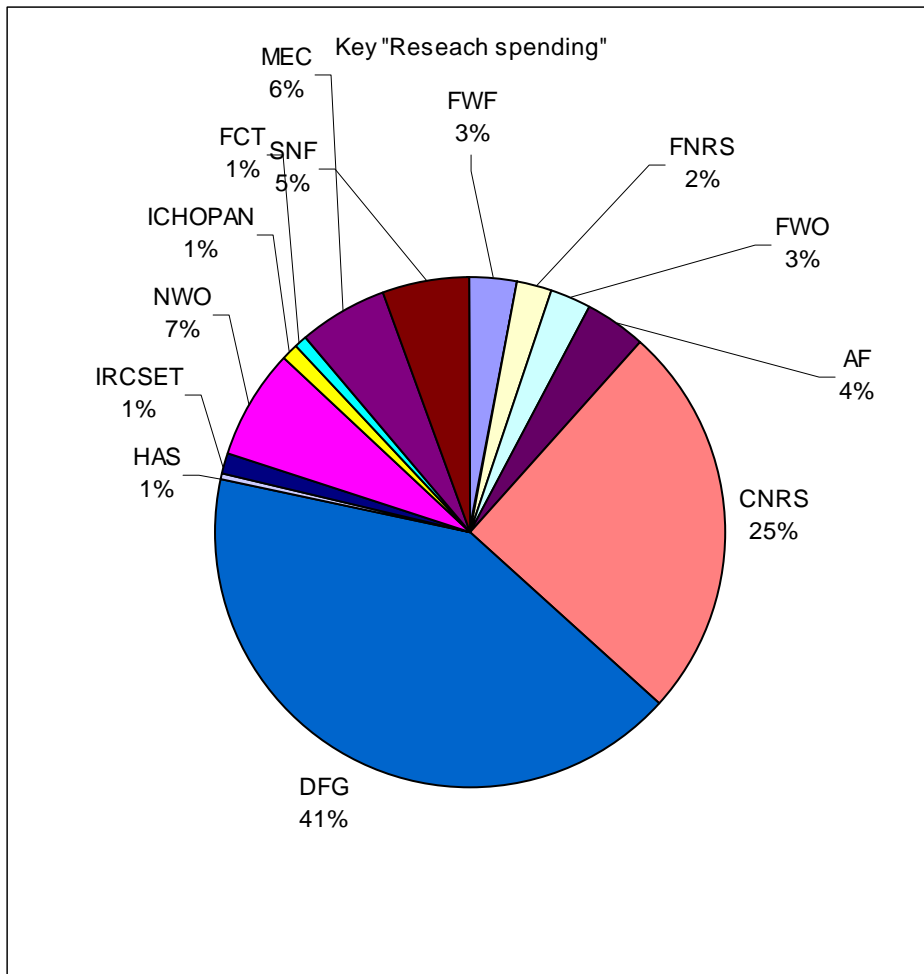


Figure 5: Distribution key based on total national research spending

Table 8: Corrected distribution key based on total national research spending

Country	Org	Research spending [Mio \$]	Share	Weighted share	Corrected share	Inpayment [€]
Austria	FWF	4708,1	3,16%	4,15%	4,46%	178183,18
Belgium						
Belgium	FNRS	3170,8	2,12%	0,53%	0,57%	22857,44
Belgium	FWO	3875,4	2,60%	4,39%	4,72%	188573,91
Finland	AF	5552,3	3,72%	5,24%	5,64%	225142,16
France	CNRS	37613,0	25,21%	23,68%	25,47%	1016781,16
Germany	DFG	61761,2	41,39%	31,11%	33,46%	1335656,48
Hungary	HAS	802,5	0,54%	0,51%	0,54%	21694,04
Ireland	IRCSET	2029,0	1,36%	1,28%	1,37%	54848,24
Netherlands	NWO	10244,3	6,87%	9,67%	10,41%	415397,83
Poland	ICHOPAN	1691,2	1,13%	1,06%	1,15%	45716,71
Portugal	FCT	1270,1	0,85%	0,36%	0,39%	15564,62
Spain	MEC	8386,5	5,62%	4,85%	5,21%	208119,82
Switzerland	SNF	8113,5	5,44%	6,13%	6,59%	263195,18
Sum		149218,1	100,00%	92,97%	100,00%	3991730,77

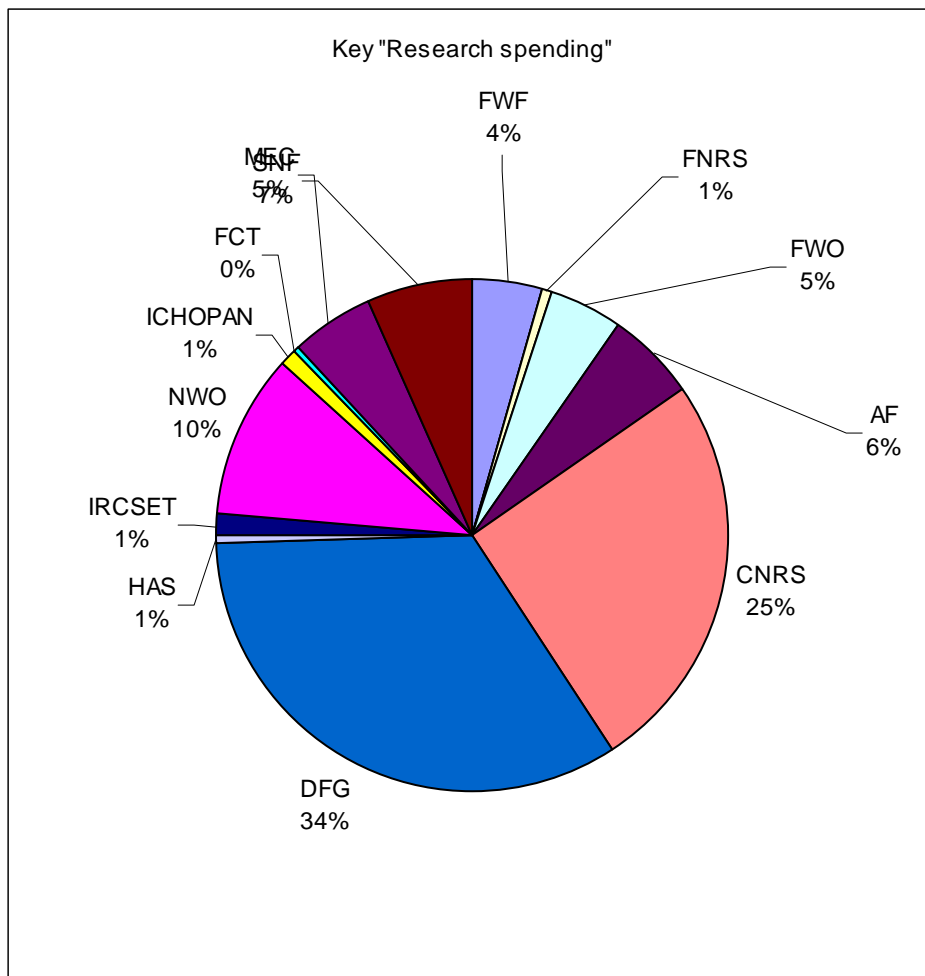


Figure 6: Corrected distribution key based on total national research spending

These figures correlate well to the national financial powers. But it does not contain any stimulation for the partners with low national research spending to increase their efforts.

Suggestion 4: Distribution key based on 3% of GDP research spending

In the following figures and tables, the distribution key is simply related to the GDP of the corresponding country. This implies, that each partner is determined to approach the aim of 3% of GDP research spending.

Table 9: Distribution key based on GDP

Country	Org	GDP [Mio US\$]	Required absolute research spending [MioUS\$]	Share	Inpayment [€]
Austria	FWF	253126,0	7593,8	3,48%	139008,35
Belgium					
Belgium	FNRS	158540,4	4756,2	2,18%	87065,10
Belgium	FWO	193771,6	5813,1	2,67%	106412,90
Finland	AF	161876,0	4856,3	2,23%	88896,90
France	CNRS	1757619,0	52728,6	24,18%	965225,70
Germany	DFG	2403160,0	72094,8	33,06%	1319735,28
Hungary	HAS	100314,0	3009,4	1,38%	55089,10
Ireland	IRCSSET	184451,0	5533,5	2,54%	101294,33
Netherlands	NWO	512217,0	15366,5	7,05%	281292,48
Poland	ICHOPAN	241595,0	7247,9	3,32%	132675,91
Portugal	FCT	147684,0	4430,5	2,03%	81103,12
Spain	MEC	838652,0	25159,6	11,54%	460559,69
Switzerland	SNF	315700,0	9471,0	4,34%	173371,90
Sum		7268706,0	218061,2	100,00%	3991730,77

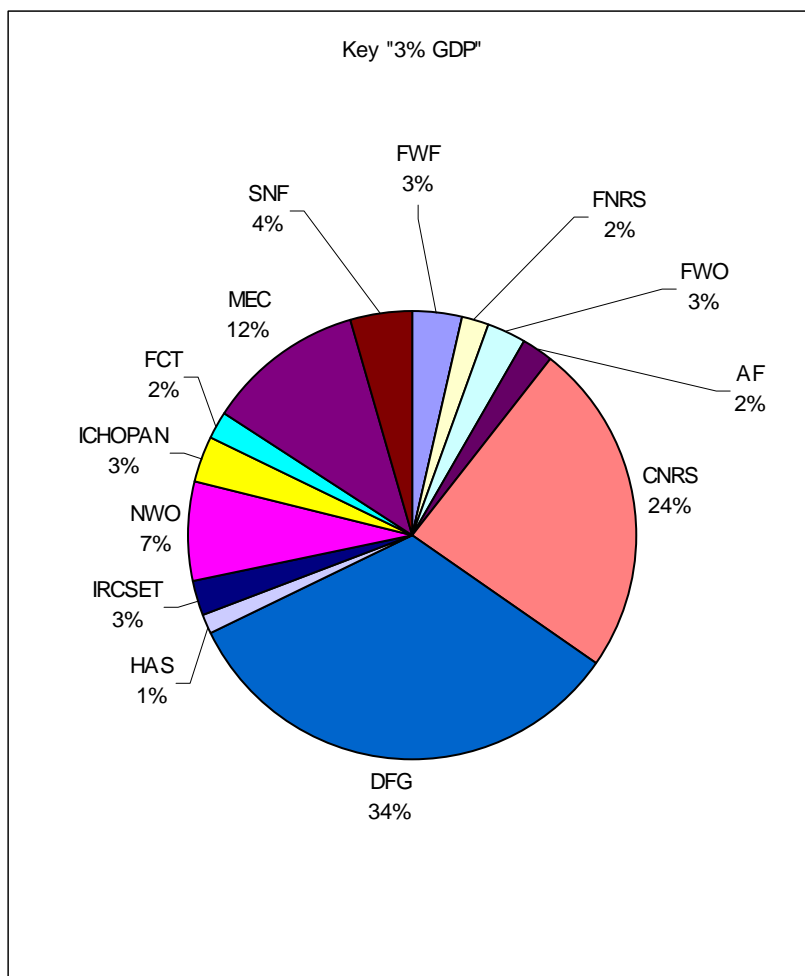


Figure 7: Distribution key based on GDP

Table 10: Corrected distribution key based on GDP

Country	Org	Required absolute research spending [MioUS\$]	Share	Weighted share	Corrected share	Inpayment [€]
Austria	FWF	7593,8	3,48%	4,58%	4,94%	197050,02
Belgium						
Belgium	FNRS	4756,2	2,18%	0,55%	0,59%	23508,25
Belgium	FWO	5813,1	2,67%	4,51%	4,86%	193943,10
Finland	AF	4856,3	2,23%	3,14%	3,38%	135016,06
France	CNRS	52728,6	24,18%	22,72%	24,48%	977319,21
Germany	DFG	72094,8	33,06%	24,85%	26,78%	1069016,41
Hungary	HAS	3009,4	1,38%	1,30%	1,40%	55779,32
Ireland	IRCSET	5533,5	2,54%	2,38%	2,57%	102563,47
Netherlands	NWO	15366,5	7,05%	9,93%	10,70%	427225,28
Poland	ICHOPAN	7247,9	3,32%	3,12%	3,37%	134338,24
Portugal	FCT	4430,5	2,03%	0,87%	0,93%	37227,41
Spain	MEC	25159,6	11,54%	9,95%	10,72%	428091,07
Switzerland	SNF	9471,0	4,34%	4,90%	5,28%	210652,94
Sum		218061,2	100,00%	92,78%	100,00%	3991730,77

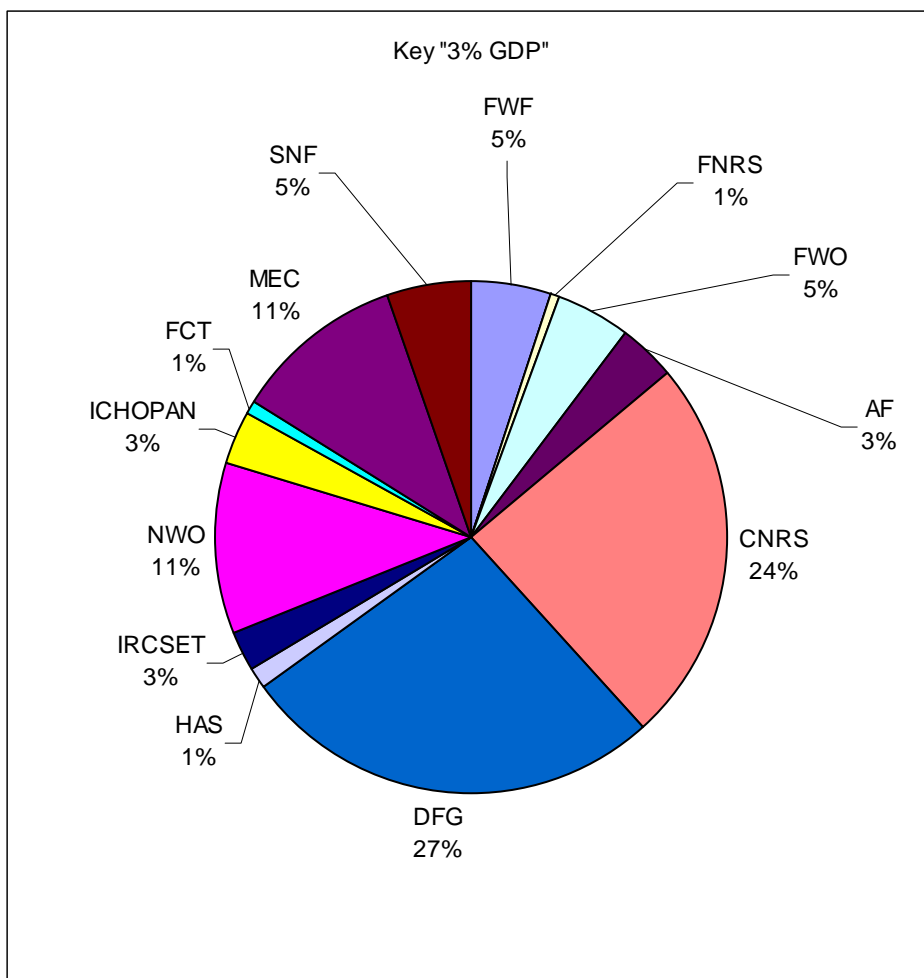


Figure 8: Corrected distribution key based on GDP

The weak point of this model is, that the individual importance of the research councils relative to the research funding landscape in the respective country is not taken into account. I.e., small research councils are discriminated.

Suggestion 5: Mixture of suggestions 1 – 4

Any distribution key has its advantages and disadvantages. A possible compromise would be to calculate an average of the above mentioned keys, weighted by different factors. Below is an example with equal weight factors 1/8.

Table 11: Weighting table of different suggestions

Model	Weight
Chemistry budget	0,125
Council budget	0,125
GDP	0,125
3% GDP	0,125
Corrected...	
Chemistry budget	0,125
Council budget	0,125
GDP	0,125
3% GDP	0,125
	1

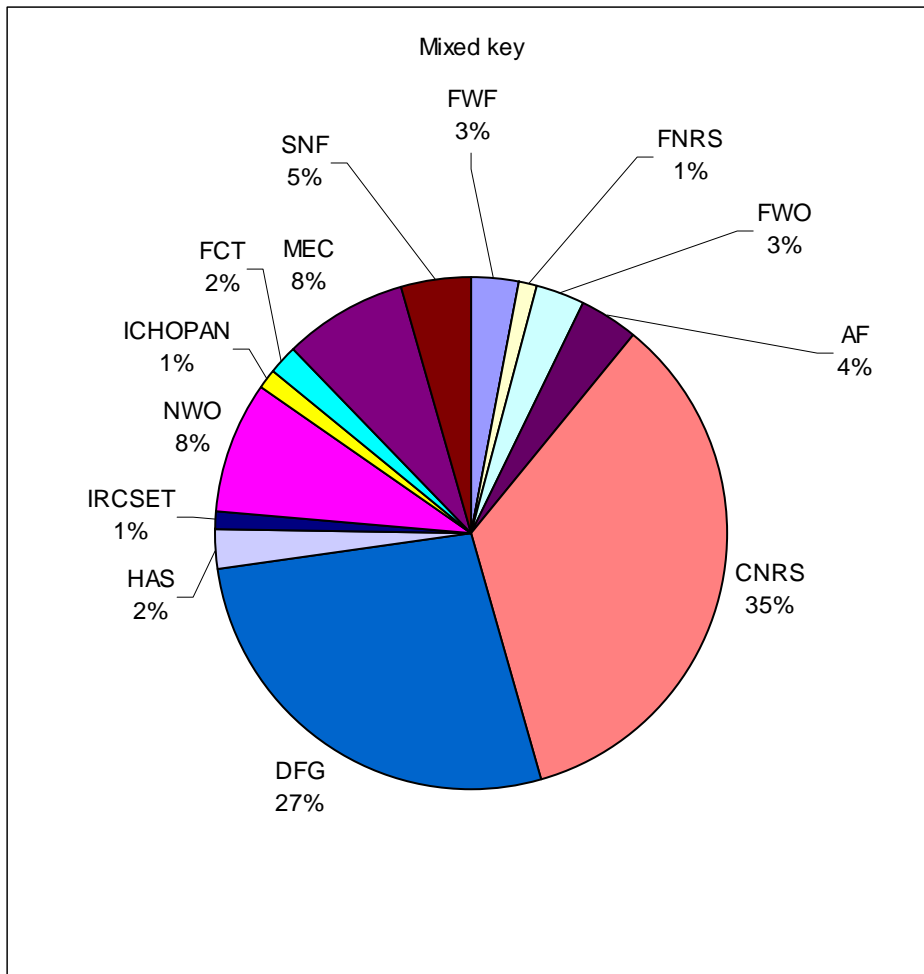


Figure 9: Average of all suggestions

Practical applicable weighting factors may be found after negotiation procedures.

6. Special features concerning payouts from a common pot

A difficult and very political question is, if a common pot should be used as a tool to harmonise the different funding principles in different countries. For example, at present, the average salaries in the different European countries are extremely different (see Table 2). A similar problem is the variation of VAT. A possibility is that "standard salaries" are agreed and that VAT is not paid in general. It would then be up to the national partner research councils to top-up the funding of their successful applicants by national sources. A perhaps more realistic suggestion is to add a component to the distribution key taking into account the different average costs of one project in the different partner research councils, as done in chapter 3.

Several alternatives for payouts from a common pot need to be discussed. These are:

- Should a lump sum be paid, i.e. a prize?
- Shall VAT be paid?
- Shall large investments be paid?
- Shall salaries be paid?
- Shall the payment follow the national rules of each partner research council?

7. Management issues for a common pot

The partners deposit in a common pot a certain amount of money, dependent on a fixed and jointly agreed distribution key and the expected financial requirements (i.e. number and

average costs of projects to be funded). After the joint reviewing process, the applicants are paid by the money in this common pot. Several possibilities exist how to manage this.

One possibility is that all partners contributing to the common pot pay their share at a fixed date before the publication of a call to a trust account. The amount of money claimed by each partner council after the funding decision will then be transferred back to the national research councils in order to enable them to finance their successful grantees. This is a quite simple procedure.

Another possibility would be that the funding money would be paid off to the grantees directly from the common pot account. The easiest solution for this alternative would be to see the grants as a kind of prize, paid directly to the applicants, leaving all responsibility at their side. This causes severe legal problems, as even the most "liberal" partner councils would need a minimum verification of legal use of the award. The aim, not to create additional bureaucracy, might quickly (and palpably...) be lost out of sight.

The common pot could also be completely virtual. There could be a certified contribution by each partner to the common pot, but without any payments before the end of the review and decision process. Then, compensatory payments will be conducted between the partners.

8. Balanced common pot – detailed mechanism

Main hurdle of many partner research councils to participate a common pot is certainly the "no juste retour"-principle. Idea of the balanced common pot is to use a common pot scheme as explained above, however with a built-in correction factor in the distribution key for the NEXT call, taking into account the success rate of national applicants in the PRECEDING calls. After a few calls (3 – 5), the total payment and gain for each national partner research council should be balanced. Instead a lack of "juste retour", a "retour retardataire" is ensured.

Although a dynamic equilibrium will be reached after a certain time, at least at the beginning it is difficult for the partners to estimate their future contribution. The planning reliability is low and at the same time, the model only makes sense if long-term contracts can be negotiated. But under these conditions, the planning reliability on a long term is high.

For the equations below, the following abbreviations are used:

\hat{B}_i : Total balance of partner i [€]

B_{ij} : Balance of partner i in call number j [€]

\bar{C} : Average costs per proposal (determined from all funded past proposals) [€]

f_i : Funding rate of partner i

\bar{f}_i : Average funding rate of partner i (determined from all funded past proposals)

F_i : Funding sum of partner i [€]

F_{ij} : Funding sum of partner i in call number j [€]

I_i : Share of partner i [€]

I_{ij} : Share of partner i in call number j [€]

n : Target number of proposals to be funded (to be settled in advance)

T : Top-up of the Commission to the common pot [€]

The funding rate of a call for a specific partner i is calculated as follows:

$$f_i = \frac{F_i}{\sum_i F_i}$$

The **first suggestion** to calculate the share of partner i for the next call is

$$I_i = \bar{f}_i \cdot (n\bar{C} - T)$$

Partners with very successful applicants in the past have to pay a high share into the common pot and vice-versa. In any case, the top-up from the commission reduces the amount to be paid in.

In extreme cases, partners with very successful applicants in the past will get a higher and higher share from call to call. Especially for small partners, this can soon become a problem. Some solutions are suggested:

- A financial contribution limit is determined in advance and after negotiation with all partners. The partners below the limit may have to pay the rest.

- n is adjusted in order to stay below a critical budget for the “weakest” partner.

- Strictly the proposals that CAN NOT be funded by T are taken into account for the calculation of the distribution key. This implies that the ranking list of the calls are very important.

- A fixed part of the content of the common pot is paid by one of the above mentioned distribution keys, only the remaining part is filled up following the “balanced common pot” principle.

Any of those suggestions have advantages and disadvantages. A combination of two or more of the suggestions is possible.

In the suggestion, the amount paid in the common pot for the last calls is not taken into account. This is improved in the **second suggestion**. The payment in the common pot for each partner is reduced by the balance of the preceding calls. Such a balance for call j is calculated as follows:

$$B_{ij} = I_{ij} - F_{ij}$$

This yield a total balance over j calls of

$$\hat{B}_i = \sum_j B_{ij}$$

The contribution to the next call is then

$$I_i = \bar{f}_i (n\bar{C} - T) - \hat{B}_i$$

The same problems as with the first suggestion exist.

In the following, the second suggestion is applied to the EURYI procedure (See also attached Excel data sheet “Georgs Evaluation EURYI calls 1_3.xls”). Meanwhile, the results for three calls are available. Please note that “output” means the funding of awardees working in the particular country. E.g. for the first call, Austria has paid € 1.4 Mio. into the common pot and about € 890,000 were paid to awardees working in Austria. The actual results are presented in Table 12.

Table 12: Results of EURYI calls

	1st call		2nd call		3rd call		Sum		Balance
	Input	Output	Input	Output	Input	Output	Input	Output	
AT	1.400.000	889.775	800.000	615.188	800.000	0	3.000.000	1.504.963	-1.495.037
BE	1.200.000	0	1.200.000	978.544	600.000	0	3.000.000	978.544	-2.021.456
CH	2.200.000	967.194	2.200.000	2.901.509	2.400.000	848.109	6.800.000	4.716.812	-2.083.188
CZ					220.000	0	220.000	0	-220.000
DE	6.600.000	3.922.363	6.800.000	3.032.096	7.400.000	4.217.516	20.800.000	11.171.974	-9.628.026
DK	1.800.000	1.109.322			1.600.000	2.227.473	3.400.000	3.336.794	-63.206
ES	2.600.000	6.245.687	2.600.000	2.321.932	2.800.000	1.125.736	8.000.000	9.693.354	1.693.354
FI	1.000.000	0	1.000.000	2.352.218	1.000.000	1.099.123	3.000.000	3.451.342	451.342
FR	2.200.000	4.370.175	2.200.000	4.468.328	2.400.000	5.556.966	6.800.000	14.395.469	7.595.469
GR	200.000	1.149.794	200.000	0	200.000	1.076.203	600.000	2.225.998	1.625.998
HU	200.000	0	200.000	982.525	400.000	989.549	800.000	1.972.074	1.172.074
IR	200.000	0	200.000	0			400.000	0	-400.000
IT			1.200.000	0	1.450.000	1.924.558	2.650.000	1.924.558	-725.442
NL	2.600.000	4.171.914	2.600.000	3.597.588	2.800.000	5.605.098	8.000.000	13.374.600	5.374.600
NO			1.200.000	1.199.196	1.400.000	0	2.600.000	1.199.196	-1.400.804
PT	200.000	986.524	200.000	0	250.000	0	650.000	986.524	336.524
SE			1.000.000	0	1.200.000	2.249.670	2.200.000	2.249.670	49.670
UK	3.600.000	2.187.252	3.600.000	4.750.876			7.200.000	6.938.128	-261.872
	26.000.000	26.000.000	27.200.000	27.200.000	26.920.000	26.920.000	80.120.000	80.120.000	0

The precise calculation can be followed directly in an Excel data sheet on request. The result is presented in Table 13 and Figure 10.

Table 13: Comparison actual method – balanced common pot method after three calls

Balance	Conventional system	Retour retardataire	Closer to zero?	Remarks	
AT	-1.495.037	-828.674	Yes		
BE	-2.021.456	-529.979	Yes		
CH	-2.083.188	-1.570.864	Yes		
CZ	-220.000	-220.000	No	3rd call only	
DE	-9.628.026	351.744	Yes		
DK	-63.206	1.536.794	No	Not in 2nd call	
ES	1.693.354	-3.477.341	No	Weaker with every call	
FI	451.342	-414.595	Yes		
FR	7.595.469	361.801	Yes		
GR	1.625.998	292.283	Yes		
HU	1.172.074	329.570	Yes		
IR	-400.000	-200.000	Yes		
IT	-725.442	724.558	Yes		
NL	5.374.600	1.124.021	Yes		
NO	-1.400.804	-683.909	Yes		
PT	336.524	-678.130	No		Only successful in 1st call
SE	49.670	1.249.670	No		2nd + 3rd call
UK	-261.872	2.633.052	No	1st + 2nd call	
Average	0	0			
St Dev	3.429.212	1.324.174			

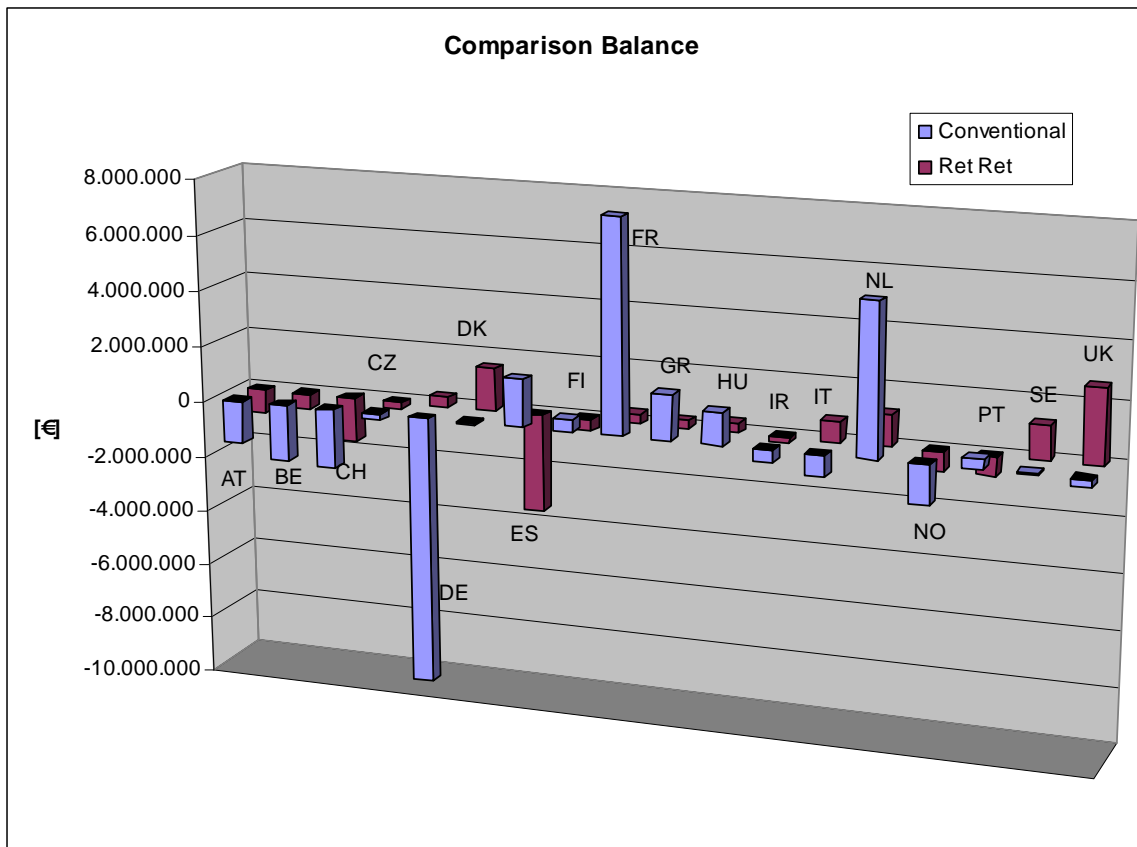


Figure 10: Graphical presentation conventional method – balanced common pot (“Retour retardatiare”) after three calls

As can be seen in Table 13, by applying the balanced common pot scheme, the balance is closer to the optimum balance 0, because the standard deviation is lower. In one case, the balance is similar with both schemes, in 7 cases, the balance is worse by applying the balanced common pot scheme. However from these 7 cases, 5 have participated in maximum 2 calls. Therefore, these results are not relevant from the statistical point of view. Problems remain with Spain and Portugal. Both nations were very successful in the first call, but much less successful in the following calls. The contrary holds for France, but not that extreme, therefore, the balance is improved in that case.

Table 14 presents an overview of the impact of the balanced common pot on the actual payment required by the different nations.

Table 14: Comparison payment conventional scheme – balanced common pot scheme

Input	Conventional system	Retour retardataire
AT	3.000.000	2.333.637
BE	3.000.000	1.508.523
CH	6.800.000	6.287.675
CZ	220.000	220.000
DE	20.800.000	10.820.230
DK	3.400.000	1.800.000
ES	8.000.000	13.170.696
FI	3.000.000	3.865.937
FR	6.800.000	14.033.667
GR	600.000	1.933.714
HU	800.000	1.642.505
IR	400.000	200.000
IT	2.650.000	1.200.000
NL	8.000.000	12.250.580
NO	2.600.000	1.883.105
PT	650.000	1.664.654
SE	2.200.000	1.000.000
UK	7.200.000	4.305.077
Sum	80.120.000	80.120.000

Table 14 shows that in particular Spain, France and the Netherlands would have had to pay much more into the balanced common pot as it was the case actually. But only for Spain, the balance would have become negative, due to the above mentioned statistically unusual reasons.

The EURYI scheme as well as the scheme for the ERA-Chemistry first call were based on single payments per call. An annual payment would damp strong variations and would increase the financial planning reliability for each partner. Furthermore, a possible memorandum on a balanced common pot should not be rigid, but open for a certain negotiation component, in order to avoid unnecessary financial hardships for some partners.

9. Summary, questions to be answered and next steps

There is no question that every partner is interested in getting a top-up from the commission for future calls. Precondition of the commission however is, that the partners agree to fund a "common pot". Recently, it appears that the commission is quite generous in defining the term "common pot". The definition comprises the above mentioned pure common pot, balanced common pot and even the national earmarking system. Possibly even the open funding might be accepted, if a contract will be elaborated. The biggest problem to be expected is therefore the minimum level of content of the common pot; actual rumors mention 5 Mio. €. Although this sounds much, for a three year's project this corresponds to an average of 128,000 € per partner and year, which is much less than the average project costs per year for one proposal (see table 2). ERA-Chemistry should be ambitious enough to fulfill these criteria.

Although above the most details are given for distribution keys, in context with the balance control loop explained in chapter 6, their only importance is in serving as initial values. Keys for future common pot funding should rely basically on results of preceding calls.

Many questions need to be answered. Some examples are:

- Do we want to develop a common pot funding scheme with a content of at least 5 Mio. € in order to get a topping-up by the commission in the future?
- Will we be able to negotiate a financial distribution key for the payments in the common pot?
- Will the partners be able to commit themselves to long or at least mid term obligations for future calls?

- If not all the partners can come to an accord, can and shall we start the call anyway with not all the partners participating?
- Shall the payment of the successful applicants be executed purely national or central by the common pot? If the payment would be central, should then the funding be an award?

We should aim at agreeing a common pot with at least 5 Mio. € per call to fund three year projects. This agreement should comprise at least three calls; one call per year. After the third call, the payment and funding from the common pot should be balanced for each partner.

In a first step, each partner should read this document and give his/her opinion on it. Second step will be a questionnaire in order to identify optimum compromises. Third step is the preparation of a mid term MOU, followed by a call.