



ERA-NET NEURON

Follow-up Analysis on 'National Funding Portfolios of European Funding Organisations in Neuroscience' in the scope of NEURON II

by

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Abbreviations

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| AKA | Academy of Finland |
| ANR | Agence Nationale de la Recherche, France |
| BMBF | Ministry of Education and Research, Germany |
| CIHR | Canadian Institutes of Health Research |
| CSO-MOH | The Chief Scientist Office, Ministry of Health, Israel |
| DLR | DLR Project Management Agency, Germany |
| ERA-NET | European Research Area Networks |
| FCT | Fundação para a Ciência e Tecnologia, Portugal |
| FNRS | The Fund for Scientific Research, Belgium |
| FRQS | Fonds de Recherche du Québec – Santé |
| FWF | Austrian Science Fund, Austria |
| FWO | Research Foundation Flanders, Belgium |
| Inserm | National Institute for Health and Medical Research, France |
| ISCIII | Institute of Health Carlos III, Spain |
| MOH | Ministry of Health, Italy |
| MINECO | Ministry of Economy and Competitiveness, Spain (formerly Ministry of Education and Science, MEC) |
| NCBiR | National Centre for Research and Development, Poland |
| NEURON | Network of European Funding for Neuroscience Research |

Abstract

The European Commission initiated the European Research Area Networks (ERA-NETs) in a number of research fields to avoid fragmentation and duplication of efforts, and to facilitate an efficient use of resources by promoting transnational interaction. One of these is the Network of European Funding for Neuroscience Research (NEURON; www.neuron-eranet.eu). NEURON offers a platform for funding organisations from Europe, Israel and Canada to engage in joint activities in the field of disease-related neuroscience aiming to align funding programmes to meet in a concerted effort the medical and societal challenges presented by brain-related diseases and disorders of the nervous system.

To enable efficient coordination of joint activities, it is of utmost importance to gain knowledge about the funding programmes of the participating funding organisations. An extensive report on 'European Funding Programmes for Neuroscience' was published in 2008. Here, a follow-up survey is reported that was carried out in summer 2014 among NEURON partner organisations to track possible developments and changes. Data was collated by using a questionnaire capturing key parameters on general information, funding approaches and instruments as well as financial data. A total of 15 funding organisations participating in the ERA-NET NEURON contributed for the survey. Most of these organisations had taken part in the previous survey.

The present survey reveals that the main principle of funding is governed by a 'bottom-up' approach predominantly applied by 14 out of 15 organisations. Although only five organisations have specific funding programmes in neuroscience, a significant amount of funding is dedicated by all organisations to neuroscience research (overall almost 20% of funds in biomedical research). This fact highlights the importance that is given to neuroscience research by most of the funders. There are certain aspects in the funding procedures that vary between the organisations, e.g., criteria for selection of funding priorities, proportion of basic research versus clinical research, as well as eligibility of funding costs. On the other hand, there are important issues that are handled similarly by the funding organisations. All agree that scientific excellence is a main criterion for funding. Funding periods mostly extend over three years (although there is a range between two to up-to six years). Almost all organisations cover costs for personnel, consumables, equipment, travel, and animals. Moreover, all 15 organisations evaluate/monitor the progress and outcome of the funded projects in some way. Compared to the previous survey, there were no major changes with regard to funding approaches and regulations applied by the organisations.

Financial data cannot be easily compared between the organisations due to different administrative policies: e.g., some organisations distinguish between project and institutional funding while others do not. Nevertheless, a general trend for increasing budgets for biomedical research was observed. In contrast, budgets allocated to neuroscience remained relatively stable between 2007 and 2013.

Taken together, although the present survey revealed differences among the funding organisations, many common aims and funding principles were identified. In consequence, the existing common grounds together with the ability of the funding organisations to be flexible with their regulations to overcome above mentioned differences enable fruitful, international collaborations. The successful collaboration within the ERA-NET NEURON is a good example of collaborative efforts.

Introduction

In order to pool resources effectively in a concerted effort to advance scientific research, the European Commission has initiated the European Research Area Networks (ERA-NETs). The aim of the ERA-NETs is the coordination of research programmes to reduce fragmentation and duplication of efforts thereby promoting European competitiveness. The Network of European Funding for Neuroscience Research (NEURON; www.neuron-eranet.eu) was initiated in 2003 as a pilot Specific Support Action. This action was continued and developed into a full-fledged ERA-NET with NEURON I (2008 – 2011) and its direct successor NEURON II (2012 – 2015). To-date, 24 ministries and funding agencies from 18 countries across Europe, Israel, and Canada have joined forces within the framework of NEURON II to meet the challenges imposed by the burden of brain-related diseases and disorders of the nervous system on society.

NEURON aims to align European funding programmes in the field of neuroscience to enable an effective use of the limited resources available for funding of research. A profound knowledge about the activities of the relevant funding organisations is a prerequisite to achieve this goal. Information about funding policies, regulations and review processes to date has been scarce. Likewise, it is difficult to acquire an overview of the budgets allocated to neuroscience research since data is scattered and often not available to the public at all.

To overcome this caveat, an extensive report on ‘European Funding Programmes for Neuroscience’ was published in 2008 within the scope of NEURON I. Now, under NEURON II, the portfolios of the funding organisations were revisited to capture the present situation and track developments that may have occurred. To update the database a follow-up survey was carried out during summer 2014. A summary of this is presented in the present report. The following funding organisations from Europe and beyond took part in the survey:

- Austria, FWF, Austrian Science Fund
- Belgium, FNRS, The Fund for Scientific Research
- Belgium, FWO, Research Foundation Flanders
- Canada, CIHR, Canadian Institutes of Health Research
- Canada, FRQS, Fonds de Recherche du Québec – Santé
- Finland, AKA, Academy of Finland
- France, ANR, Agence Nationale de la Recherche
- France, Inserm, National Institute for Health and Medical Research
- Germany, DLR, DLR Project Management Agency, on behalf of the German Federal Ministry of Education and Research (BMBF)
- Israel, CSO-MOH, The Chief Scientist Office, Ministry of Health
- Italy, MOH, Ministry of Health
- Poland, NCBiR, National Centre for Research and Development, on behalf of the Ministry of Science and higher Education (MNiSW)
- Portugal, FCT, Fundação para a Ciência e Tecnologia
- Spain, ISCIII, Institute of Health Carlos III
- Spain, MINECO, Ministry of Economy and Competitiveness

These organisations participate as partners in NEURON’s endeavour and are key players in their countries in funding of neuroscience research. They invest considerable funding to support this research area and recognize the importance of coordinating their programmes and implementing joint activities in order to promote research into understanding the brain and its diseases.

Analysis of Funding Programmes

A questionnaire¹ (see Annex I) was sent to European funding organisations in order to acquire key parameters that allow a general assessment of funding of neuroscience in Europe. These parameters cover the following topics:

1. General information
2. Funding approach (thematic/strategic considerations)
3. Funding instruments/measures
4. Evaluation/monitoring procedures
5. Financial issues

The funding organisations analysed in this survey are partners of NEURON. They include also non-European countries (Canada and Israel) that closely cooperate with Europe and therefore play an important role for European funding activities. The collected data will support the coordination of national funding programmes and provide valuable information for the design of future joint activities.

Chapter I. General information

Data obtained through this survey were contributed by 15 funding organisations. Most of them were already included in the previous report 'European Funding Programmes for Neuroscience Research' (2008). Thus, it is possible to compare the state of funding activities throughout different time points. The funding agencies that did not take part in the earlier report are CIHR and FRQS (Canada), and FCT (Portugal). The funding organisations comprise ministries (3), agencies acting on behalf of ministries (2), public funding agencies or research councils (9) as well as private foundations (1). Thus, the survey captures almost exclusively the public funding sector.

¹ The questionnaire was developed by DLR and served as the basis for the report published in 2008 'European Funding Programmes for Neuroscience Research'

Chapter II. Funding approach (thematic/strategic considerations)

In this chapter, some of the programmatic approaches in funding organisations are described. Information about these approaches is required if joint activities in terms of programme opening, such as e.g., joint calls for proposals are planned in the course of an ERA-Net.

Basic principles of funding (Question 2.1)

Funding organisations provide research grants according to different approaches. In principle, two basic approaches can be differentiated:

In a "bottom up" approach, researchers submit grant applications to any thematic area of research at any time. In some cases, calls for proposals with defined submission deadlines exist, but these calls are regularly launched without a thematic restriction. There are regular peer review procedures and funding decisions. This approach is more or less completely driven by the scientific community and its needs.

In contrast, in a "top down" approach researchers can only apply to thematically restricted calls for proposals that are launched by the funding organisations. Call topics are defined by the funding organisations - usually based on interactions with the scientific community - but also considering policy considerations and societal needs to identify priority research areas. Hence, the top-down approach serves as an instrument to shape the development of science in specific, high priority areas.

The majority of funding organisations (9/15) apply exclusively the bottom-up approach (Figure 1). Those organisations using both approaches (5/15), still apply predominantly a bottom-up approach (more than 70%). Only BMBF has to 100% a bottom-up approach.

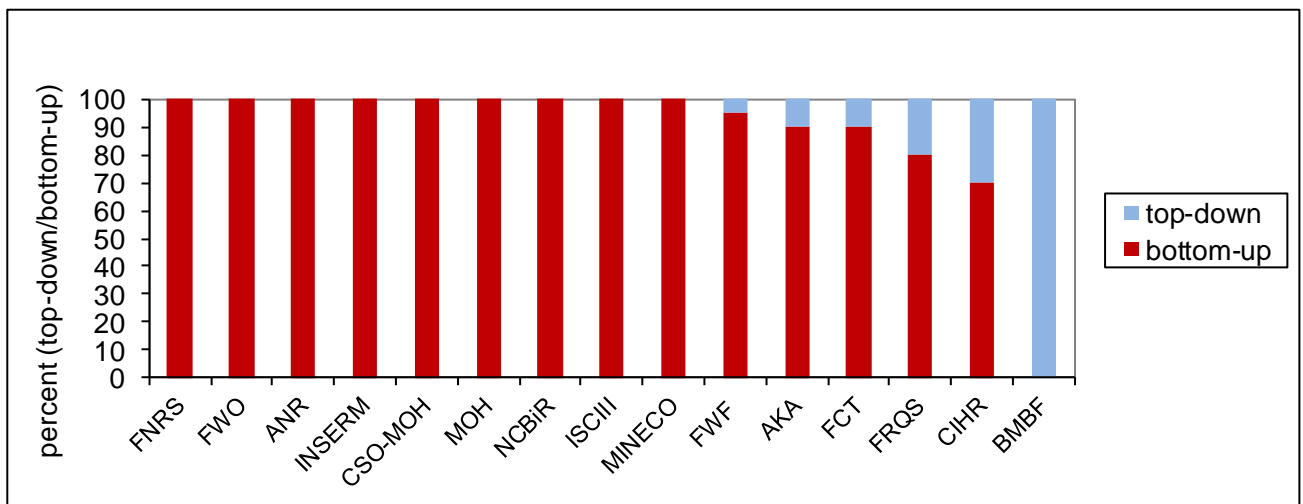


Figure 1: Proportion of bottom-up versus top-down funding approach

Moreover, two organisations (CSO-MOH and ISCIII) can provide funding both within the institution ("intramural") as well as to external applicants ("extramural"), although the proportion of intramural funding by these two organisations is very small (less than 5%). All other organisations apply exclusively the extramural funding mode.

Funding programmes and calls for proposals (Questions 2.2 and 2.3)

One of the core activities of NEURON is the implementation of joint transnational calls. It is therefore important to know which organisations launch calls for proposals in biomedical research in general and in the neuroscience area in particular. It should be noted that the definitions of funding programmes are not uniform. In some organisations (e.g. the German BMBF) a comprehensive governmental framework programme is updated every few years as a strategic umbrella for funding activities. In other organisations small and focussed priority funding areas are defined as 'programmes'. Still other organisations have strategic approaches in that a considerable funding volume is earmarked for specified research areas, e.g. neuroscience research, without using the term 'programme'.

From the organisations taking part in this survey, all but one (Inserm) issue calls for proposals. The majority (9/14) of organisations do not have a defined funding programme in neuroscience nor do they prioritise this field of research (Figure 2). The Italian MOH responded that a funding programme for neuroscience is not applicable because all expertise areas/topics compete with each other; only the ERA-NET NEURON is an exception.

Despite the fact that most organisations have no specific funding programmes dedicated to neuroscience, all organisations allocate considerable budgets to neuroscience research. In this respect, NEURON offers a platform to coordinate and strategically align funding measures on a European level and beyond.

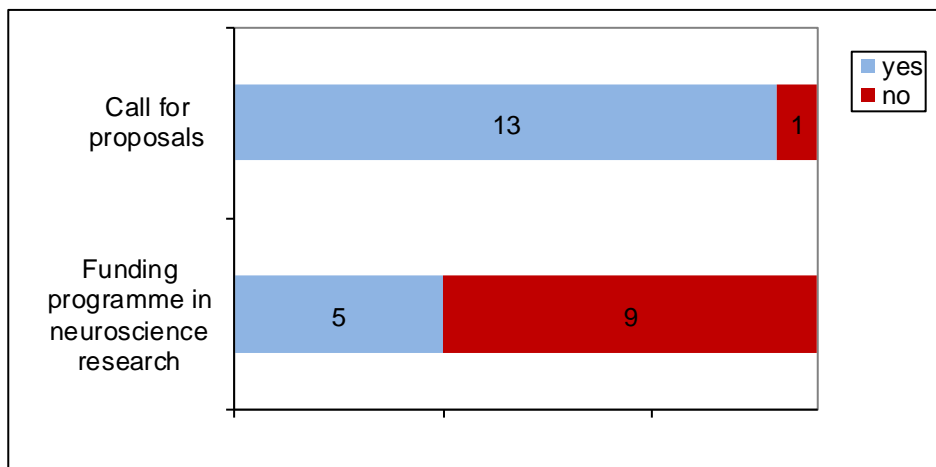


Figure 2: Number of funding organisations that launch calls for proposals and have funding programmes in neuroscience research.

Criteria for designating funding priorities (Question 2.4)

A variety of considerations play a role in designating funding priorities. In most cases, the needs of the scientific community and scientific excellence are the key driving factors of funding decisions, especially in a bottom-up approach. Still, policy considerations, economic interests and other societal needs significantly shape funding priorities. Figure 3 summarises which factors are mainly taken into consideration.

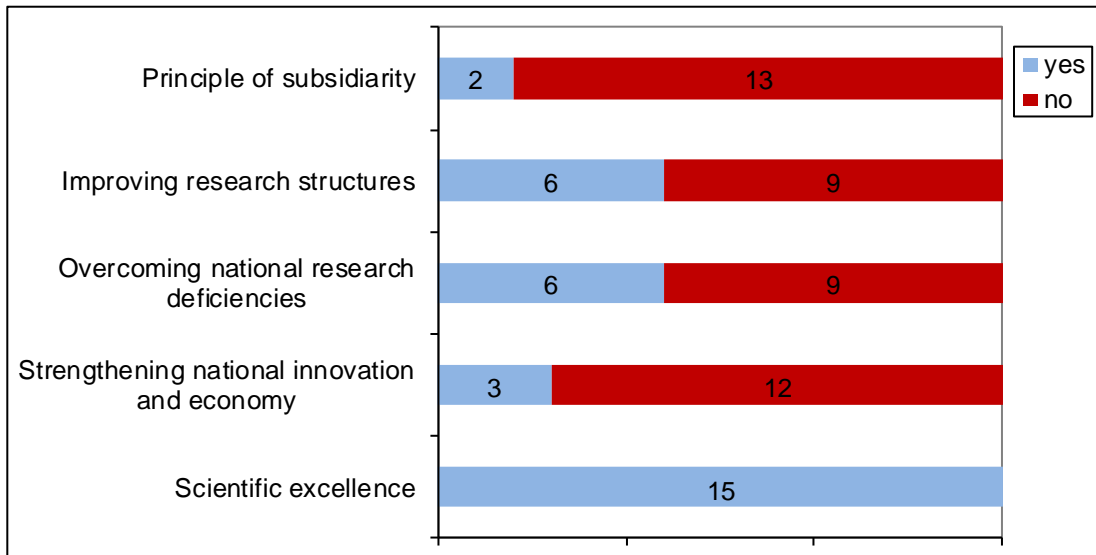


Figure 3: Factors taken into consideration to select funding priorities. Depicted are the numbers of funding organisations that use (“yes”) or do not use (“no”) the specified considerations.

Scientific excellence is indeed the main criterion for the selection of funding priority areas. All fifteen organisations apply this consideration. Structural and strategic criteria are less important: six out of 15 agencies aim for overcoming national research deficiencies and improving research structures. Strengthening national innovation and economy is a secondary criterion that only three of 15 organisations consider. The principle of subsidiarity – meaning in this context, that funding is only provided if other funding sources are not available – is relevant only in two cases.

Funded areas in disease-related neuroscience (Question 2.5 and 2.6)

To identify appropriate topics for joint transnational calls in the field of neuroscience it is important to know which areas are already covered by national funding activities. To obtain an overview of the main topics that are tackled by national funding, five broad fields of neuroscience were selected in the questionnaire (Figure 4). All five areas are covered by national funding activities with a slight emphasis on neurodegenerative and other neurological diseases that are funded by the highest number of organisations (13/15).

In addition, the funding organisations were asked to indicate the proportion of clinical versus basic research in their funding activities to identify their main focus. The majority of organisations (10/15) fund both clinical and basic research (Figure 5). ANR, FCT, and FRQS also support clinical and basic research but could not specify the proportion; these organisations are therefore not included in the figure. Three organisations focus on basic research while two organisations exclusively fund projects with clinical relevance.

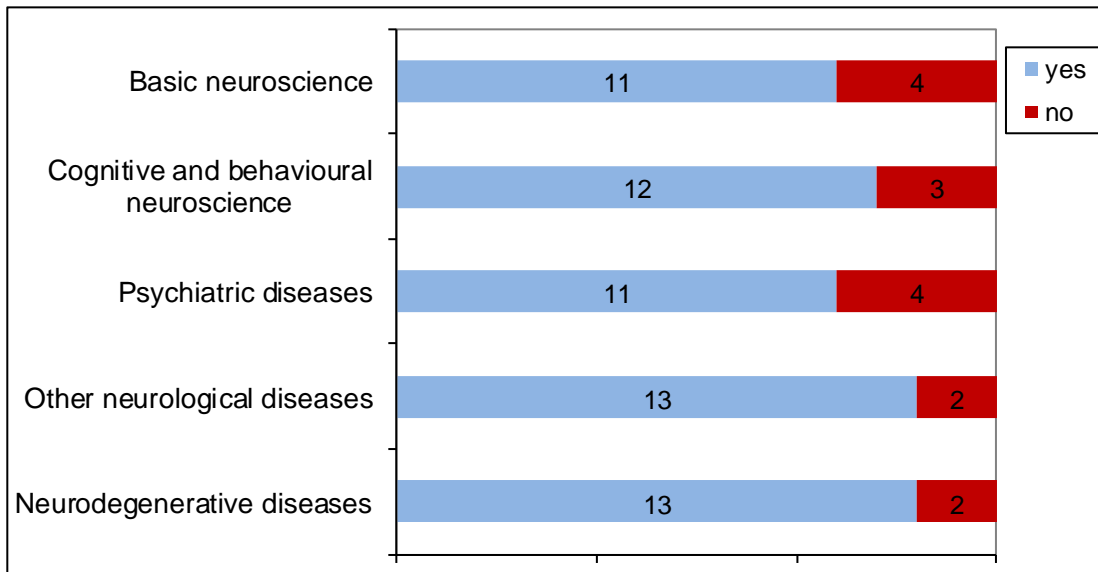


Figure 4: Main topics in neuroscience funded by national agencies. Depicted is the number of funding organisations that fund (“yes”) or do not fund (“no”) the specified topics.

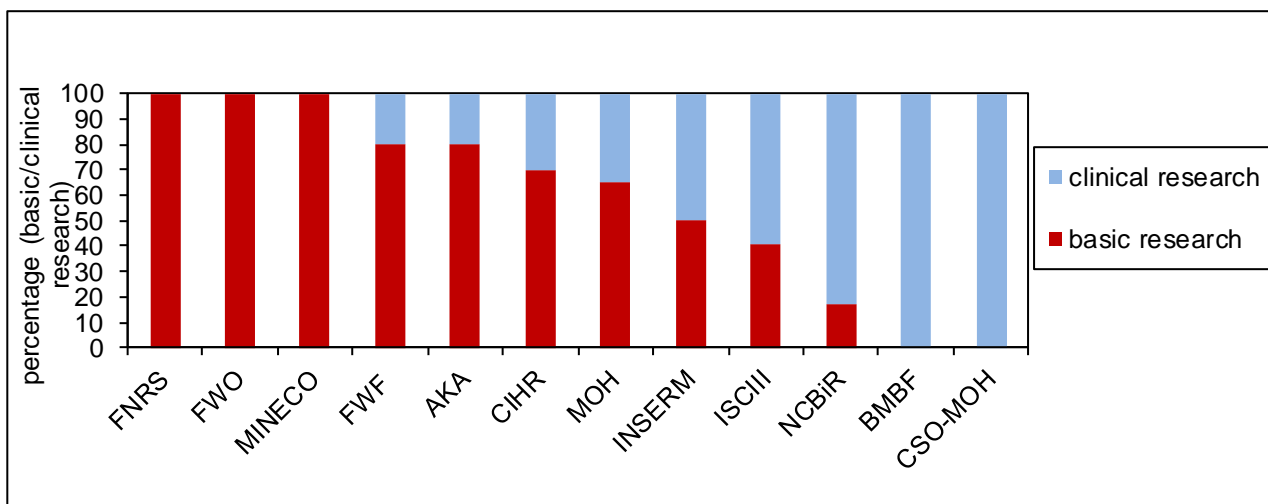


Figure 5: Proportion of clinical versus basic research funded by national funding organisations. (BMBF: section “Health Research” only, other sections may fund basic research. CSO-MOH: Health related research)

Chapter III. Funding instruments/measures

Type of funded projects (Question 3.1)

The funded research projects vary considerably in size and budget. Depending on the goals and purpose of a funding activity, funding may be granted to single projects or to larger consortia and networks.

The majority of agencies funds both networks/consortia and single projects (12/15; Figure 6), although in the case of FWO the proportion of single projects is negligible (< 2%). ANR, BMBF, FCT, CIHR and FRQS also fund both types of projects, but did not provide information about the proportions and are therefore not depicted in the figure. Only three organisations reported that they funded only single projects (FNRS) or networks (CIHR and MOH).

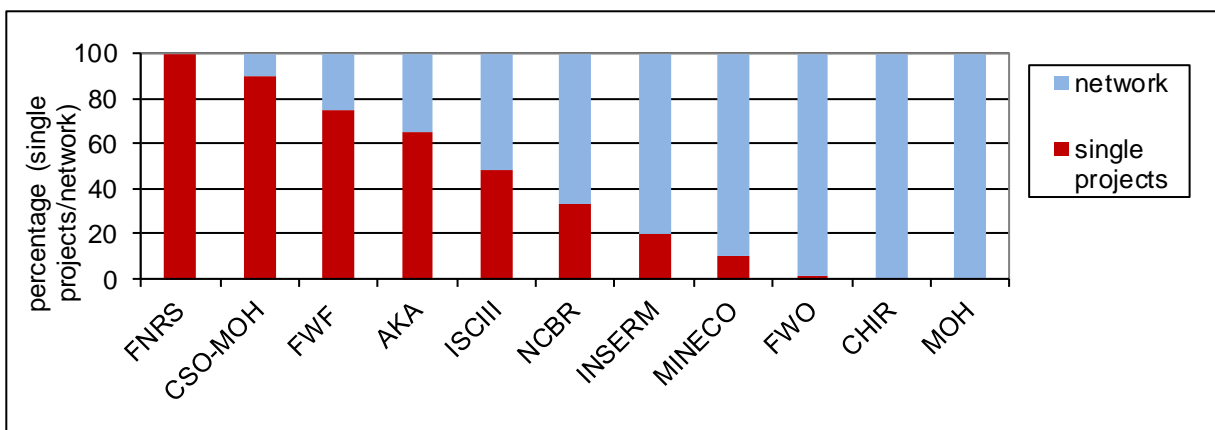


Figure 6: Proportion of funding of research networks/consortia versus single projects

Project runtime (Question 3.2)

The project runtime ranges between one to six years depending on individual regulations of the funding organisations as well as the nature of the particular funding activities. Most projects run for three years (Figure 7). Longer durations as well as prolongations up to six years are, however, possible. This may require a re-evaluation of the projects. Only one organisation (CSO-MOH) reported to usually fund projects for two years. This analysis indicates that a three year funding period with the option of extensions, as applied in NEURON's funding activities, is optimal for most research projects and accords with the regulations of the majority of organisations.

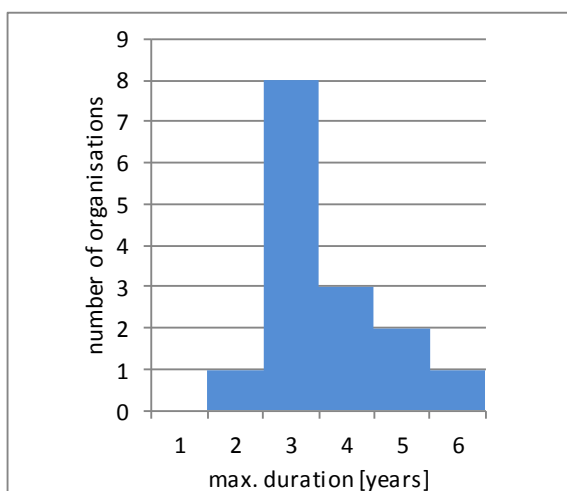


Figure 7: Distribution of the maximal project runtimes

Funded expenditures and costs (Question 3.3)

The grants commonly comprise funding for personnel (15/15), consumables (14/15), animals (15/15), equipment (14/15), and travel (15/15). FNRS and CSO-MOH do not fund consumables and equipment, respectively. Moreover, documentation, subcontracts, and overheads are covered by most funding organisations (Figure 8)

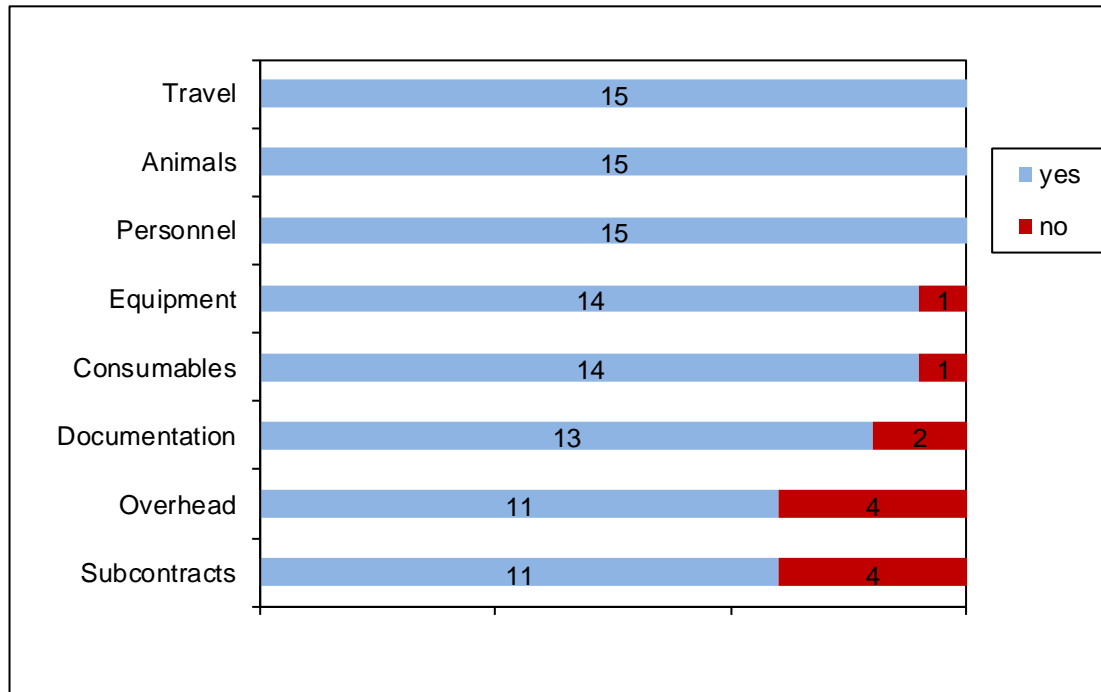


Figure 8: Expenditures and costs that are eligible for funding. Depicted is the number of funding organisations that fund ("yes") or do not fund ("no") the specified expenditures/costs.

Grant recipients (Question 3.4)

More than half of the funding organisations (8/15) award grants only to legal bodies like universities, university hospitals, research institutions, and companies. Individual researchers can receive funding from two organisations and for five organisations both legal bodies and individuals are eligible (Figure 9).

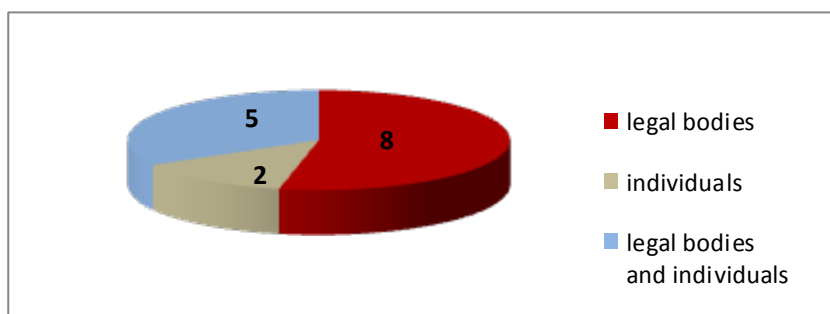


Figure 9: Grant recipients. Depicted is the number of funding organisations that allocate funding to legal bodies (e.g., universities, research institution, and companies) and/or individual researchers.

When legal bodies are grant recipients, they act as hosts for the research group. They take the legal responsibility for proper administration of the budget, and provide the necessary infrastructure to conduct the research activities. Practically, it is still the research group and the Principal Investigator who benefit from the granted resources. Some funding organisations provide an overhead to the hosting institution in order to cover part of the expenses for infrastructure and this overhead may account for a considerable fraction of the entire grant. Usually, grants can be transferred to another legal body, when the Principal Investigator changes his or her affiliation within the country, although the bureaucratic effort may be higher than in the case of grants provided to individuals. Transfer of grants across national borders, however, is only exceptionally possible. In this survey only three out of 15 organisations indicated that cross-border funding was possible under certain circumstances.

Chapter IV. Evaluation and monitoring procedures

Review procedure (Questions 4.1 to 4.4)

Selection of the best and most promising of all submitted research proposals is among the crucial tasks of each funding organisation as this affects the course for the future success of the funding programme and appropriate distribution of available resources. Accordingly, a lot of effort is dedicated into the review process and sets of best practice rules used in funding organisations.

All 15 surveyed organisations have stated that grant proposals were assessed by external scientific experts. Thus, 'peer-review' is the standard procedure for evaluating research proposals, though MINECO stated that it applies this approach only in some cases. The evaluation instruments used to conduct the peer-review may vary even within a funding organisation and are matched to the requirements of the respective funding measure. They comprise remote written statements about the proposals, *ad hoc* review panels composed for a specific funding measure, more or less permanent study sections for specific research areas, or a combination of these instruments (Table 1).

Table 1: Peer-review procedures employed by the surveyed funding organisations.

| country | organisation | external review | written evaluations | <i>ad hoc</i> panels for particular calls | <i>ad hoc</i> panels, written evaluations | permanent study sections | study sections and written evaluations |
|----------|--------------|---------------------|---------------------|---|---|--------------------------|--|
| Austria | FWF | yes | yes | yes | yes | yes | yes |
| Belgium | FNRS | yes | no | yes | no | no | no |
| Belgium | FWO | yes | yes | no | no | no | no |
| Canada | CIHR | yes | yes | yes | yes | yes | yes |
| Canada | FRQS | yes | no | no | yes | no | no |
| Finland | AKA | yes | no | no | yes | no | no |
| France | ANR | yes | yes | no | no | no | no |
| France | Inserm | yes | no | no | yes | no | no |
| Germany | BMBF | yes | yes | yes | yes | no | no |
| Israel | CSO-MOH | yes | no | yes | no | no | no |
| Italy | MOH | yes | no | no | no | no | yes |
| Poland | NCBiR | yes | yes | yes | yes | yes | yes |
| Portugal | FCT | yes | no | no | yes | no | no |
| Spain | ISCIII | yes | no | no | yes | no | no |
| Spain | MINECO | yes (in some cases) | no | no | yes | no | no |

Experts for peer review are usually selected by scientific program officers of the funding organisation (9/15) and in some cases also by the scientific community (3/15). While most organisations (10/15) recruit both national and international reviewers, four rely exclusively on international reviewers. One organisation (CSO-MOH) recruits only national reviewers.

Success rates of submitted grant applications (Question 4.5)

Since there is a strong competition for limited funds, success rates of applications are generally low. Most funding organisations reported on average success rates between 10-20% of submitted grant applications, though higher success rates also occur (Figure 10).

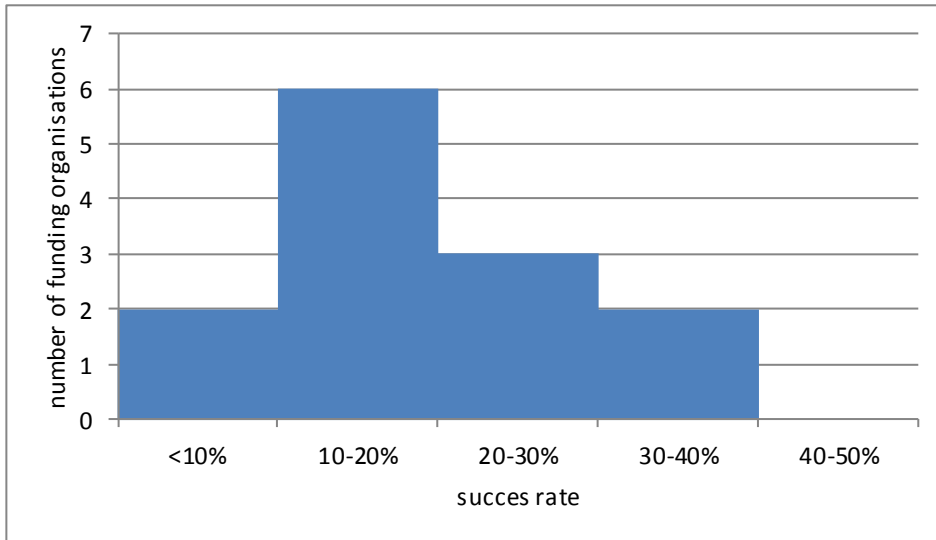


Figure 10: Distribution of success rates of submitted grant applications

Project monitoring (Question 4.6)

Project monitoring is a pertinent issue for all 15 funding organisations. Measures to follow up progress and success of the funded projects comprise regular reports, midterm and final assessments as well as symposia. Periodical reports are the easiest means to apply and allow continuous monitoring throughout the project runtime and all but three of the organisations use this instrument (Figure 11). The majority of organisations (10/15) also carry out a final assessment to monitor the actual outcome after the end of the projects. In contrast, regular symposia are used only by 5 organisations. The advantage of such symposia is that they offer an opportunity for a direct interaction between Principal Investigators and funding organisations. On the other hand, the organisational demands as well as costs are high.

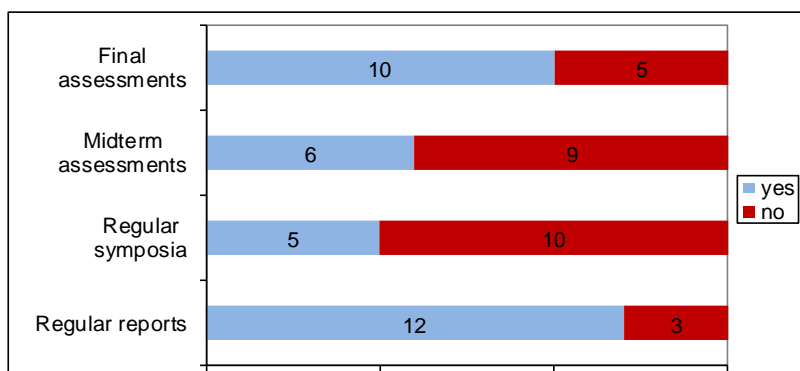


Figure 11: Instruments used by funding organisations to monitor funded projects. Depicted is the number of funding organisations that apply ("yes") or do not apply ("no") the respective instruments.

Chapter V. Financial issues

Financial sources and funding volumes (Questions 5.1 and 5.2)

Most organisations taking part in this survey are public bodies and, accordingly, all are financed by governments. In addition, 5 organisations receive additional funds from private donations and/or industry (Figure 12).

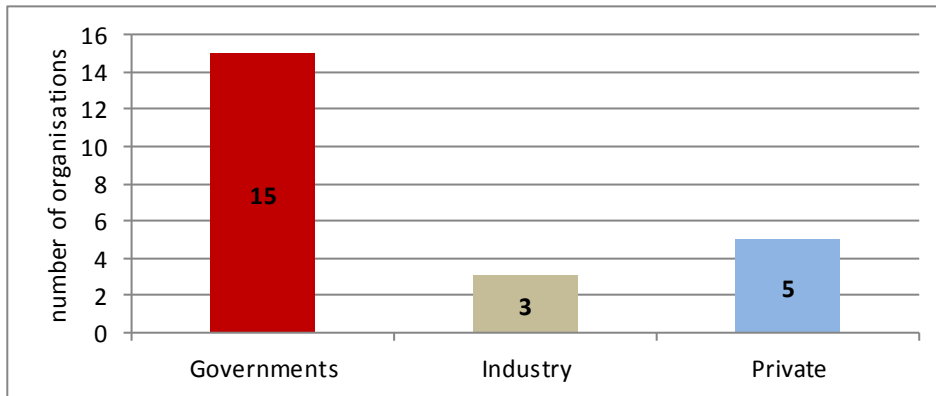


Figure 12: Financial sources of funding organisations. Bars depict the number of organisations receiving funds from government, industry and private donations, respectively.

In consequence, budgets are subject to annual negotiations within the governments and may change considerably following restructuring after national elections. Politics thus importantly

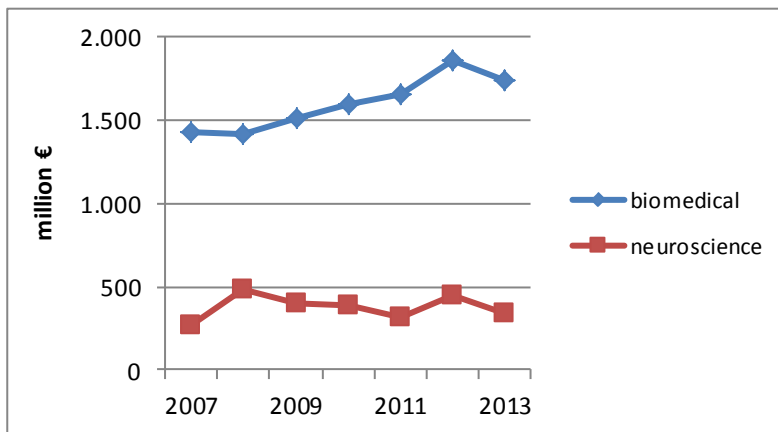


Figure 13: Funds spent for biomedical and neuroscience research by the participating funding organisations

influence the funding of research even if organisations apply a bottom-up approach as their basic funding principle (cf., page 7). During the years 2007 to 2013 funds spent for biomedical research by the surveyed funding organisations increased by approximately 20%. In the 2007, biomedical research was supported by about 1.4 billion €. In 2013 the budget increased to 1.7 billion €. At the same time, the funds spent for neuroscience research remained rather stable (Figure 13). Between 2008 and 2013, the funds remained at a level of 397 ± 63 million € (mean \pm standard deviation). The budget for neuroscience research appears to be much lower in 2007 than in the following years but this is attributed to that fact that for 2007, budget information is missing from five organisations, while the information is more complete for the following years. Detailed information about the individual budgets is summarised in Table 2 and Table 3.

In summary, although most participating organisations do not have a dedicated programme to neuroscience (cf., Figure 2), a quarter of their biomedical funds was assigned to neuroscience research (ranging between 5 to 28%, Figure 14).

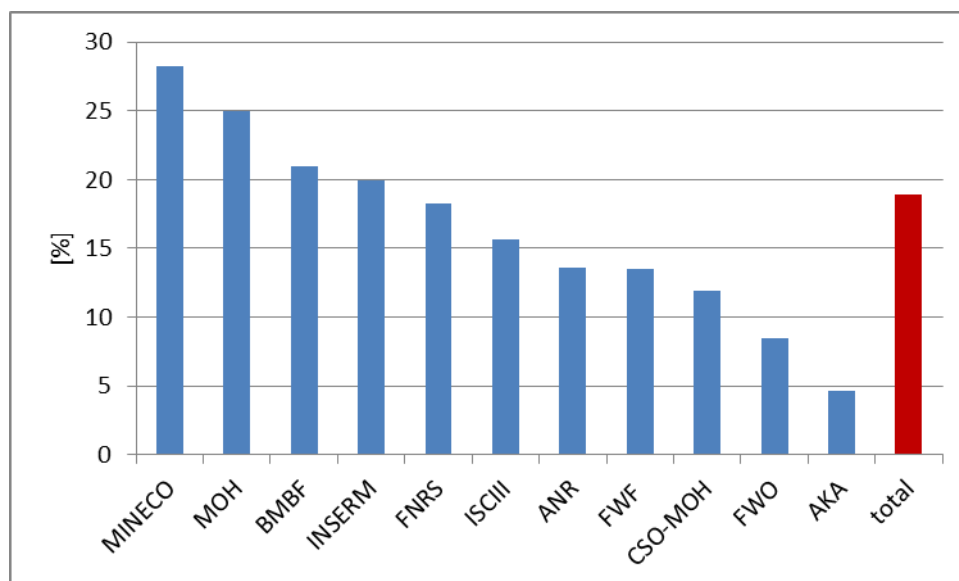


Figure 14: Proportion of funds assigned to neuroscience research relative to funds assigned to biomedical research (2007 – 2013)

Table 2: Funds assigned to biomedical research (in million €) during 2007 – 2013
(For missing data points, information was not available. CIHR, FRQS, and NCBiR are not included, because information was not available)

| country | organisation | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | total |
|--------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| Austria | FWF | 37.4 | 42.6 | 54.4 | 69.3 | 79.1 | 70.8 | 72.3 | 425.8 |
| Belgium | FNRS | 20.5 | 23.2 | 25.7 | 26.9 | 28.5 | 34.5 | 36.5 | 195.7 |
| Belgium | FWO | 38.0 | 39.0 | 42.0 | 43.5 | 45.5 | 48.0 | 54.0 | 310.0 |
| Finland | AKA | 8.1 | 10.2 | 12.7 | 10.5 | 17.4 | 23.0 | 15.6 | 97.5 |
| France | ANR | 355.0 | 165.0 | 169.0 | 178.0 | 179.0 | 215.0 | 166.0 | 1,427.0 |
| France | Inserm | 612.0 | 695.0 | 715.0 | 780.0 | 814.0 | 953.0 | 972.0 | 5,541.0 |
| Germany | BMBF ² | 185.4 | 208.4 | 221.0 | 256.0 | 263.5 | 326.5 | 286.7 | 1,747.4 |
| Israel | CSO-MOH | 3.9 | 4.0 | 5.1 | 1.3 | - | - | 1.5 | 15.7 |
| Italy | MOH | 117.0 | 53.0 | 102.0 | 86.0 | 84.0 | 51.0 | 78.0 | 571.0 |
| Portugal | FCT | - | 32.9 | 17.3 | 13.4 | - | 16.3 | 1.9 | 81.9 |
| Spain | ISCIII | 55.4 | 71.4 | 70.6 | 70.3 | 74.7 | 67.9 | 55.9 | 466.3 |
| Spain | MINECO | - | 74.0 | 73.0 | 66.0 | 69.0 | 56.0 | - | 338.0 |
| total | | 1,391.3 | 1,354.3 | 1,446.8 | 1,503.2 | 1,559.2 | 1,720.5 | 1,661.7 | 11,217.3 |

² Project funding only

Table 3: Funds assigned to research in the field of neuroscience (in million €) during 2007 – 2013
 (For missing data points information was not available. CIHR is not included, because information was not available)

| country | organisation | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | total |
|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
| Austria | FWF | 4.6 | 5.1 | 5.2 | 18.8 | 8.9 | 8.8 | 6.0 | 57.3 |
| Belgium | FNRS | 3.5 | 4.2 | 4.4 | 6.1 | 5.4 | 5.8 | 6.3 | 35.7 |
| Belgium | FWO | 3.6 | 4.3 | 4.4 | 3.6 | 3.6 | 3.4 | 3.5 | 26.4 |
| Canada | FRQS | 9.6 | 10.4 | 11.4 | 11.7 | 12.5 | 13.9 | 14.7 | 84.2 |
| Finland | AKA | - | - | - | - | 0.8 | 1.5 | 2.2 | 4.5 |
| France | ANR | 27.0 | 32.0 | 30.0 | 30.0 | 24.0 | 31.0 | 20.0 | 194.0 |
| France | Inserm | 122.0 | 139.0 | 143.0 | 156.0 | 162.0 | 190.0 | 193.0 | 1,105.0 |
| Germany | BMBF ³ | 58.4 | 58.2 | 50.8 | 41.8 | 50.0 | 59.0 | 48.1 | 366.4 |
| Israel | CSO-MOH | 0.4 | 0.4 | 0.4 | 0.3 | 0.0 | 0.0 | 0.3 | 1.9 |
| Italy | MOH | 29.3 | 13.3 | 25.5 | 21.5 | 21.0 | 12.8 | 19.5 | 142.8 |
| Poland | NCBiR | - | - | 0.8 | 1.6 | 2.0 | 4.0 | 6.4 | 14.8 |
| Portugal | FCT | - | 185.5 | 91.2 | 68.9 | - | 94.3 | 10.1 | 450.0 |
| Spain | ISCIII | 10.1 | 10.1 | 11.3 | 12.0 | 11.6 | 10.7 | 6.9 | 72.8 |
| Spain | MINECO | - | 21.0 | 21.0 | 17.5 | 19.0 | 17.0 | 0.0 | 95.5 |
| total | | 235.9 | 453.8 | 386.8 | 398.5 | 313.3 | 451.6 | 347.1 | 2,651.2 |

³ Project funding only.

Concluding Remarks

The results of this survey reveal that there is a high degree of concordance between the principles applied by the funding organisations taking part in this survey. The general approach of the funding organisations (mainly bottom-up) and selection of funding priorities are, to a large extent, similar. For the latter, scientific excellence is the predominant criterion. Notably, despite the fact that most funding organisations do not carry out specific programmes in the field of neuroscience, neuroscience features as one of the top priorities, as indicated by the relatively high proportion of funding dedicated to this area. Moreover, the funding organisations are active in similar fields of neuroscience covering the major topics from basic neuroscience to disease-related research. Most project-related costs and expenditures are funded over a project runtime of an average of three years. As well, monitoring procedures generally accord with each other. All organisations apply a peer-review procedure with external experts, though specific details, e.g., the use of *ad hoc* panels versus permanent study sections, differ to some extent. All organisations conduct some form of monitoring throughout the project runtime, usually through the use of regular reports and a final assessment.

Despite these general similarities, the funding organisations differ in a number of aspects. For instance, although the majority of funders are driven by a bottom-up approach, some also use a top-down approach, one organisation even exclusively (BMBF). Except for scientific excellence, criteria for selecting funding priorities are not uniformly applied. As well, the proportion of basic to clinical research funding varies among the organisations. Some organisations only fund either basic research or research with clinical relevance. Moreover, a number of other aspects, for instance, the topics in neuroscience that are funded and the proportion of funding of networks versus single projects, vary between the organisations.

Notwithstanding the differences, commonalities as well as flexibility in the regulations of the individual funding organisations enable joint activities on a transnational level as evident by the successful collaboration within the ERA-NET NEURON. During the lifetime of NEURON II (2012 – 2015) four Joint Transnational Calls have been launched and additional activities, like the support of early-career scientists, have been implemented. In this manner, NEURON serves as a platform to align funding measures across Europe and helps to establish common standards of research funding across Europe.

The survey further reveals that the budgets allocated by the funding organisations to biomedical research in general as well as research to neuroscience differ significantly between the countries. However, it should be noted that this survey does not include all funding sources of the respective countries for biomedical and neuroscience research and therefore does not reflect the complete funds provided by each country. Moreover, a direct comparison of the budgets provided by various funding organisations is not feasible either, because the figures may cover different financial classifications. Some organisations, for instance, do not differentiate between project- and institutional funding, while for others, information is only available for one or the other. Apart from this, differences in the allocated budgets may depend on political priorities, the financial strength of the country, as well as the needs of the local scientific communities. These issues should be taken into consideration when joint activities are planned, since successful implementation may be hampered if budgets are not adapted to meet particular requirements.

In comparison to the previous survey from 2008, no major changes have occurred regarding regulations and funding principles. Regarding budgetary aspects, the previous survey revealed an increase in the budget for biomedical and neuroscience research for the period between 2002 and

2006 for many funding organisations. The present survey similarly shows that there was a trend for an overall increase of funds available for biomedical research. In contrast, the funds for neuroscience research remained relatively stable between 2007 and 2013.

In conclusion, this follow-up analysis demonstrates the stability of funding principles and instruments over several years. Research into brain function and its disorders remains a key focus of funding organisations, and considerable investments are made in this field of research. In order to combine these funding efforts and further align funding measures in neuroscience, NEURON provides a platform to facilitate collaborations between funding organisations across Europe and beyond.

Acknowledgements

We like to thank all research organizations taking part in this survey. We also thank Dr. Alexander Klein (formerly of DLR Project Management Agency) for collecting the questionnaires and for support with the analyses. In addition, we thank Dr. Elizabeth Theriault, Dr. Benny Leshem, Dr. Rainer Girgenrath, and Dr Marlies Dorlöchter for valuable revisions.

Annex I

Questionnaire: Survey 2014 - National / Regional Funding Portfolios in the Field of Neuroscience

1. General Information

1.1 Country:

1.2 Name of funding organisation:

1.3 Mailing address:

1.4 Contact information

Contact name

Contact name 2

Phone

Phone 2

Fax

Fax 2

E-Mail

E-Mail 2

1.5 Web-Site:

1.6 Type of organisation:

Public body

Private body

2. Strategic Considerations and Fields of Supported Research

2.1 Basic principles of funding

- A)** bottom up
(any topic at any time)
in % of total funding measures, e.g. 100%
- top down
(call for proposals with a specific focus)
in % of total funding measures, e.g. 0%
- B)** intramural
in % of total funding activities, e.g. 100%
- extramural
in % of total funding activities, e.g. 0%

If you have an intramural funding programme, please explain briefly its structure

2.2 Do you launch calls for proposals? (yes / no)

2.3 Do you have a funding programme or funding priority areas in neuroscience? (yes / no)

If yes, please specify and name programme or priority areas

2.4 Which strategic or political considerations are used in your organisation for the selection of funding priorities?

- Scientific excellence and innovation
- Strengthening national technological innovations and economy
- Overcoming national research deficiencies
- Improving national research structures
- Principle of subsidiarity

Others, please specify

2.5 What are the main topics funded by your organisation in the area of neuroscience?

- Neurodegenerative diseases (Parkinson's disease, Alzheimer's disease, etc.)
- Other neurological diseases (Stroke, Epilepsy, etc.)
- Psychiatric diseases (Schizophrenia, Depression, etc.)
- Cognitive and behavioural neuroscience
- Basic neuroscience

Others, please specify

2.6 Main focus of funding lies on

- basic research
- clinical research
- basic and clinical research

If both, please estimate the ratio in %

3. Funding Instruments / Measures

- 3.1 Main type of funded projects:
- single projects
 - networks / consortia
 - single projects and networks/consortia
- If both, what is the ratio between the two in % of all funded projects

3.2 Duration of funding:

Funding concepts usually comprise 2 funding phases and 2-3 years per phase. A continuation is possible by two mechanisms: 1) continuation of the funded projects for another period after positive peer review of their progress, or 2)

3.3 Types of funded expenditure/cost

- Personnel
- Consumables
- Animals
- Subcontracts
- Equipment
- Travel
- Overhead
- Documentation

Others, please specify

3.4 Grant recipients

A) individual researcher

B) legal body

If individual,
the grant is transferable and mobile, i.e. a researcher can take the grant
with him or her to a new university within the country.

the grant is transferable across national borders.

If legal body, please specify:

University

University hospital

Non-university research institute

Industry

Others, please specify

3.5 Other funding bodies in your country involved in neuroscience (name, website):

3.6 Do you practice joint funding with other national and international organisations?

(yes/no)

If yes, please specify

4. Evaluation / Monitoring Procedures

4.1 Do you practice an external review procedure by scientific experts (peer review)? (yes/no)

4.2 If yes, what type of review procedure do you use?

remote (written)

ad hoc panel (selected for a specific funding measure)

ad hoc panel and remote

study section (permanent for certain funding area)

study section and remote

4.3 Who selects the reviewers?

Scientific officers in your funding organisation

Scientific decision / advisory board

Others, please specify

4.4 Where do you recruit the reviewers?

national

international

national and international

4.5 What is the approximate success rate (in % submitted grant applications)?

< 10 40 – 50

10 – 20 > 50

20 – 30
30 – 40

4.6 What are your instruments to monitor projects?

Regular reports

Regular symposia

Midterm assessments

Final assessments

Others, please specify

5. Finances

5.1 What is your source for funding?

Ministries / government

Industry

Private / donations

Others, please specify

5.2 Volume of funding for biomedical research

in 2007: €

in 2008: €

in 2009: €

in 2010: €

in 2011: €

in 2012: €

(if available) in 2013: €

5.3 Volume of funding for neuroscience research

in 2007: €

in 2008: €

in 2009: €

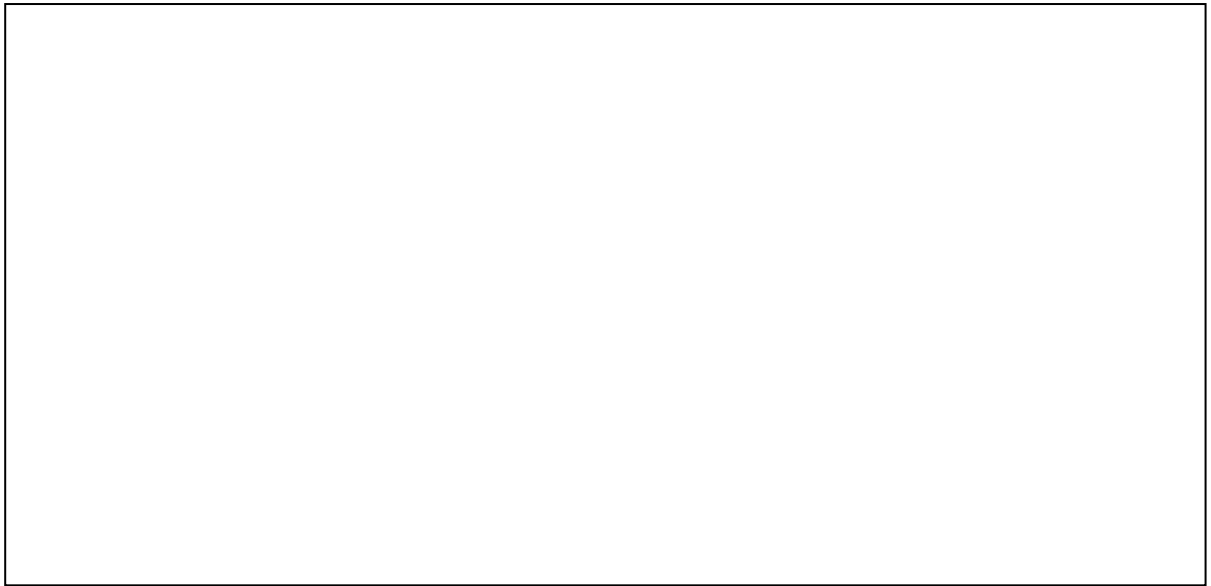
in 2010: €

in 2011: €

in 2012: €

(if available) in 2013: €

6. Additional information about your funding organisation (if available)



Once again, thank you very much for participating in this survey. Your support is very much appreciated!

The ERA-NET NEURON Team

Annex II

Websites of the surveyed funding organisations

AKA (FI): www.aka.fi

ANR (FR): www.agence-nationale-recherche.fr

BMBF (DE): www.gesundheitsforschung-bmbf.de

CIHR* (CA): www.cihr-irsc.gc.ca

CSO-MOH (IL): www.health.gov.il/research-fund

FCT* (PT): www.fct.pt

FNRS (BE): www.fnrs.be

FRQS* (CA): www.frqs.gouv.qc.ca

FWF (AT): www.fwf.ac.at

FWO (BE): www.fwo.be

Inserm (FR): www.Inserm.fr

ISCIII (ES): www.isciii.es

MINECO (ES): www.idi.mineco.gob.es

MOH (IT): www.ministerosalute.it

NCBiR (PL): www.ncbir.gov

* These funding organisations did not participate in the previous survey in 2008. All other organisations listed here participated.