



agence d'évaluation de la recherche
et de l'enseignement supérieur

Department for the evaluation of
research units

AERES Report on the Thematic Network for Advanced Research (RTRA):

International Centre for Frontier Research in Chemistry

CIRFC

Founding institutions of the network:

Centre National de la Recherche Scientifique

Université de Strasbourg

BASF

BrukerBiospin

Mai 2013



agence d'évaluation de la recherche
et de l'enseignement supérieur

Research Units Department

President of AERES

Didier Houssin

Research Units Department

Department Head

Pierre Glaudes



RTRA

RTRA name:	International Centre for Frontier Research in Chemistry
Name of managing director:	Mr Thomas EBBESEN
Name of President of the RTRA:	Mr Bernard MEUNIER

Expert committee members

Chairman:	Mr Luis Echegoyen, El Paso, USA
Experts:	Ms Johanna KOWOL-SANTEN, Bonn, Germany Mr Maurizio PERUZZINI, Firenze, Italy Mr Andréa VASELLA, Zürich, Switzerland

Representatives who attended the visit

Scientific delegate representing AERES:

Ms Gilberte CHAMBAUD

Representative(s) of the founding institutions:

Mr Alain BERETZ, University Strasbourg

Mr Dominique MASSIOT, CNRS



1 • Introduction

Evaluation procedure

The committee of experts visited the RTRA - FRC in Strasbourg, located in the ISIS building of the University of Strasbourg during two days, 6 and 7th of May 2013. During the first day of the visit, the committee had a general overview of the RTRA by the Director and by the President of the associated foundation. Then, discussions were organized with the president of the university as founder and with researchers of the network constituting the RTRA. Between each of these meetings the committee had time for debriefing and elaborating some conclusions. A visit of the ISIS laboratories was also part of the committee visit. On the second day, the committee met the Steering Committee members of the RTRA and then representatives of the founders, namely the director of the Institute of Chemistry of the CNRS together with the regional delegate of CNRS, and the president of Bruker-Biospin. After a last meeting with the Director, the President and the administrative Director of the RTRA, the committee worked in close session on the report.

Presentation of the network, geographic location and brief description of its field of activity

The RTRA - FRC was created in 2006 through the national competition which resulted in the creation of 13 RTRAs. This one is the only one mainly concerned with chemistry. The associated Scientific foundation FRC was established in 2007 with the University of Strasbourg, the CNRS, BASF-France, and Bruker-Biospin as funders and with the dotation of the Ministry. The administration of the RTRA and of the Foundation is located in the ISIS building on the Esplanade campus of the University of Strasbourg, where the laboratory of its Director is also localized.

The scientific network constituting the scientific body of the RTRA covers a wide range of topics in chemistry and related fields as physics and biology. It includes, at the present time, approximately 80 research teams involving more than 730 scientists, with more than 400 PhD students and post-docs. These teams belong to 10 different research units. The recognition of this academic network is very high, with two Nobel prize winners, 7 members of the Academy of Sciences, 10 ERC grant recipients and 9 IUF members.

Organisation and governance

The governance of the Foundation consists of three committees which play complementary roles: the Administrative Council, the Steering Committee, and the Scientific Advisory Committee. They are all aided by an administrative/secretarial service.

The Administrative Council oversees the running of the FRC and ensures coordination with the employers of the network members, namely the CNRS and the University. The FRC is run by the Steering Committee, with 7 representatives from the three campuses of Strasbourg, including the Director of the FRC. Finally, the Scientific Advisory Committee, which is constituted by distinguished scientists from outside the Strasbourg community, makes all funding decisions of research projects and offers advice on the strategic policies of the FRC.

Structure's own staff (assigned to the network); change in staff numbers since the network was set up

All together 6 people compose the administrative Staff of the foundation: the President, the Director, and the vice-Director with the support of an Administrative and Finance Director, a scientific coordinator, and a person in charge of the financial management.



2 • Assessment of the network

Overall opinion

- FRC represents a very successful and somewhat unique experiment of great importance for French Science, which could potentially become a role model that could be implemented in other selected locations ;
- the network is doing excellent science with very high impact and visibility ;
- the unit provides high independence, flexibility, and agility to the participants, both in terms of decision-making and action-taking ;
- there is good complementarity and balance between private and public funds ;
- the network is providing long term support for research; seems to be thriving in terms of sustainability ;
- the unit shows very promising short and long term impact on the economy ;
- the FRC is helping to enhance the international competitiveness of excellent people ;
- the network has attracted, retained, and supported highly talented young (and more established) researchers very effectively.

Strengths and opportunities linked to the context

- an internationally very visible and successful network ;
- excellent scientific and funding successes (10 ERC, 3 Labex, IUF) ;
- successful fund raising from private sources (recently AXA) ;
- large number of very good publications in high impact journals (excellent citation numbers) ;
- a significant number of participating PIs are international leaders and very prominent ;
- successfully attracting young people (impressive number of students and PhDs from abroad) ;
- very successful international collaborations ;
- very competitive appointments ;
- very successful in securing funds to purchase sophisticated and expensive equipment ;
- developed a streamlined and effective administrative system to minimize the burdens put on the researchers (fast and flexible processes) ;
- efficient governing structures at an adequate cost level.

Weaknesses and threats linked to the context

- possible threat from restructuring of the RTRA by the Ministry ;
- industrial contracts within the FRC are very few, should be increased substantially ;
- there is no systematic evaluation process of the network members, network should remain nimble ;
- no synergistic activities to tackle complex problems of industrial relevance ;
- network acts too independently; needs to recognize and interface more closely with partners (CNRS, University, etc).



Recommendations

- improve communications at all levels; specifically with the CNRS and the university ;
- optimize the strategic scientific goals in agreement with the partners ;
- improve and expand the role of industry in and through the foundation ;
- conduct periodical review of the membership, at least every three years (to consider for reappointment).

General recommendations

- additional research funds should be accompanied by administrative overhead costs, to effectively administer the funds and enhance productivity ;
- funding for PhD students and postdocs should be increased, partly to allow larger research groups, which are necessary to address certain scientific topics and become internationally more competitive ;
- high government decision makers should realize that the FRC is an excellent investment (not an expense), and should consider expanding the program using this one as a model.



3 • Detailed assessments

Review of the scientific activity (international standing, outputs, striking facts)

The risky business set out in 2007 by the French Government to put together a very sizeable fund and the necessary management to put it to good use aimed at supporting the excellence in chemistry existing in Strasbourg by establishing an RTRA network, has been completely successful. It is not by chance that the University of Strasbourg and the associated CNRS laboratories were selected given their extremely high rank within European and international research centers for chemical sciences. Funding this excellent environment has contributed to maintaining the high level of Chemistry in Strasbourg and, even more importantly, has allowed (and is still allowing) to program a well orchestrated turnover of PIs by replacing top scientific figures who have retired (or are approaching their retirement) with brilliant young scientists or with highly reputed senior researchers. The latter still have at least one or two decades of active research ahead and thus represent a very wise investment for the future of Chemistry in France and in Europe.

The bibliometric indicators of many (but not all) of the PIs participating in this RTRA are excellent. Most of them are well known to the international scientific community and highly reputed as outstanding and creative scientists. The excellence of their scientific production is witnessed by the large number of very good publications in high impact journals (excellent citation numbers). However, bibliometric parameters should not be used as the only metrics to evaluate scientific success. There are other important indicators which confirm the high scientific quality of Chemistry in Strasbourg: the ability to attract competitive funds, their role of coordinating international initiatives, their participation in important committees at the national and international levels; the many honors and awards; the multiple invited lectureships at top conferences, workshops, prestigious Universities, and research laboratories; and the high quality of their PhDs and Postdocs.

Reputation and appeal of the RTRA (cooperation strategy, reality and quality of scientific leadership, quality of recruitments, appeal, funding amount on projects, particularly under "investments of the future" programmes)

Many of the research units participating in the RTRA based in Strasbourg have significant reputations in their specific scientific areas and excellent visibility in the international community. The leadership of the network is also excellent. Both the scientific output and the economic successes are extremely positive, clearly evidencing the success of both the RTRA's leadership and governance.

When considering the CIRFC mission (page 6 of the report), it is clear that the first and the third objective (i.e. synergy between the research groups and international outlook) have been achieved. However, additional investment of resources and efforts are likely necessary to reach target 2, dealing with the enhancement of the interactions with "actors in the economy". This is the less obvious and more time demanding target of the three and demands a long-term strategy and considerable effort. Nevertheless, the initial steps have already been taken towards this goal; see, for example, the convincing event "Student/Chemical Industry Day", mixing industrial and (young) researchers, as well as the involvement of small and big companies in the "fund raising campaign", including the recent important AXA sponsored chair, which is a great achievement.

In keeping with this relative weakness, the funding received from industrial partners (70 contracts/7.5 M€) covers just about 8% of the overall budget. This is good, but could and should be higher. Likewise, the number of patents filed by the researchers at RTRA, i.e., 80 patents in five years, slightly more than one patent per PI in the reference period, is not an outstanding performance and should be improved. Again, the initial steps in the right direction have already been taken, and the emerging start-up companies around Strasbourg as well as the recent launch of the SATT initiative are extremely positive signals.

As pointed out above, the recruitment and appointment processes in place are very competitive and will contribute during the next decade to keep the Strasbourg chemical community network at the top of the rank of universities and laboratories active in chemistry in both Europe and the world. Among the recently recruited scientists many are great researchers and managers who are expected to further enhance the excellence of the chemistry tradition in Strasbourg and to attract considerable resources from national and international funding agencies and private partners. The method of recruitment is much more effective than what has been in practice until recently. It is recommended that the FRC further develops its recruitment strategies and priorities, in conjunction with the CNRS and the University.



The panel considers important that an evaluation system be established and implemented. The recommendation is to conduct individual evaluations every three years to assess the scientific performance of each PI and his/her team. A mechanism should be implemented to decide on renewing the membership at RTRA. This periodical review should stimulate better performance of those teams whose scientific results are less than average.

RTRA as a catalyst (new actions set up, partnership with economic, cultural or social sectors, interaction with the environment, the network's impact on training)

The initial endowment of CIRFC, with a good complementarity of private and public funds, has boosted the successful participation of many of the researchers in the highly competitive landscape of national and international research. There are clear successes regarding funding (third party money) during the last 5 years. In this context, it is worth mentioning that nearly 70% of the projects have received funds from highly competitive programs (ANR, EC) and that the funds obtained from the European Community are the first source of RTRA financing, representing about 34% of the overall budget. This impressive amount of external funds from the EC has been obtained through 64 grants and contracts (i.e. a remarkable performance of 0.84 projects for PI). Even more outstanding is the global performance in ERC grants (10 ERC grants, i.e., 0.15 grants for PI!). Few other scientific institutions in Europe can boast such a successful record from the extremely competitive ERC program. Furthermore, Strasbourgeois Chemistry has been very successful in the LabEx competition, setting up three LabExs associated and administered by the FRC. Of course, such a successful performance in the "public market of research" is fostering excellence and is aimed at attracting, retaining, and supporting highly talented young researchers from all over the world. In this respect, the score of more than 50% PhD students coming from abroad is significant and witnesses a true vocation of the Strasbourgeois Chemistry which goes far beyond the no less important across-the-border cooperation programs with German and Swiss Universities.

The activities concerning the partnership with economic, cultural, and social sectors are good, but do not deserve any special mention. It is too short a period after the establishment of the partnership between private and public areas (2011) to judge these activities. Nevertheless, the strong efforts of bringing together industry and researchers at specific events and to expose young researchers and students to direct contacts with industrial researchers are moving in the right direction.

Governance (running of project selection committees or scientific committees, evaluation of scientific findings, exploitation of research findings, signature of articles, internal and external communication)

An ideal Governance system should positively address two main issues, i.e., (i) assure the greatest efficiency and transparency in allocating the available resources through competitive calls by also using authoritative and independent external reviewers and (ii) assure long term support for the research, targetting a long term impact on the economy. This requires an accurate investment in financial and human resources with a good blend of consolidated research topics and new emerging scientific areas. Both issues have been nicely matched by the Governance directing the Center for Frontier Research in Chemistry in Strasbourg. The effective governing system of the CIRFC is indeed well organized through a series of appointed bodies which have properly defined specific roles and, apparently, do not conflict with each other. Thus, the Board of Directors, which is the "brain" of the system and makes the most important political decisions, is supported by two additional committees: the Steering Committee and the Scientific Council. The first one, taking proactive decisions on the specific allocation of funds, makes the scientific policy of the Board of Directors, for example by indicating which high level equipment and instruments should be purchased. The role of the Scientific Council is also well defined and does not overlap with the other two. It has the scientific authority to evaluate the proposed projects and, with the help of a panel of external referees, to indicate which of them are worth funding. Considering the complexity resulting from the interaction between the CNRS, the University, and the RTRA, one must ask if a simplification and streamlining would be a better option. The organization of the RTRA is well regarded by the scientists and well suited to guarantee transparency in the allocation of funds and to guarantee excellence in the research projects selected for funding, which are the most important outcomes for a well-operating Governance system as the one running the CIRFC.

As a general comment, the panel considers that improving communication at all levels between the FRC partners, especially between the FRC governance and the CNRS, is very important.



Financial management of the network (increase in capital, use of resources, analysis of scientific expenditure and, with regard to support roles, use of the initial budgetary allocation, the budget's coherency in relation to the scientific challenges)

The idea to manage the CIRFC thematic network in Strasbourg through a properly established private foundation was obviously an excellent one. A perusal of the "Administrative Report" makes it clear, after a period of five years, that this was the right choice. A foundation, such as that administering the RTRA, has the flexibility and the capability to go beyond the bureaucracy boundaries that frequently make any decision in the public administration long and complicated. In the CIRFC the administrative constraints are reduced considerably and the researchers are able to use the funds in a very fast, flexible, and de-bureaucratized way. That is just what each researcher wants. Do not change it!

The use of the allocated resources is perfectly in line with the original mission of the RTRA which boosts the excellence in science also by investing consistently in modern instruments (infrastructure, synergies between different laboratories and research groups) and by contributing to financing the high-level recruitment of PhD students and Postdocs. The economic situation of the RTRA network seems prosperous and no major financial difficulties are foreseeable in the next decade.

RTRA projects, particularly under the "investments of the future" scheme (development of the foundation, connection with the "investments of the future" projects for which the RTRA is a lead and/or associate partner, strategic thinking)

The high quality of the recruitment of Senior and Junior PIs is reflected also by the successful establishment of three LabExs in Strasbourg which will assure strong funds for the next decade and contribute to the integration of the public research system with industrial needs. The targeted areas covered by the "investments in the future" program mirror the mission of the funded LabExs. A special mention merits the one dealing with the "Chemistry of Complex Systems" which has the potential of becoming the basis necessary to push a step further beyond the chemistry developed by Nobel laureate JM Lehn, targeting the understanding of complexity in matter and life and their possible applications in everyday life activities.

Equally important are the other two projects of the "investments in the future" program. The first of them is related to our understanding of the chemical control of the interactions between nanoobjects and the environment. It is risky, but with the potential to obtain extremely important results for Society and for industries aimed at exploring pioneering areas and innovative manufacturing. A little bit more conventional and perhaps less innovative, but still of high importance, is the mission associated to the MEDALIS project which tackles a real problem of contemporary society, aiming at establishing a pipeline for the synthesis and pre-clinical evaluation of innovative drugs useful for the treatment of serious and ubiquitous pathologies, such as cancer and inflammation related diseases.



4 • Observations générales des tutelles



Monsieur Pierre GLAUDES
Directeur de la Section des Unités de recherche
Agence d'évaluation de la recherche et de
l'enseignement supérieur (AERES)
20 rue Vivienne
75002 PARIS

Alain BERETZ
Président

Strasbourg, le 3 octobre 2013

Objet : Rapport d'évaluation sur la Fondation CiRFC-RTRA
Réf. : AB/EW/N° 2013 - 0575

Affaire suivie par
Catherine FLORENTZ
Vice-président Recherche
et formation doctorale
Tél : +33 (0)3 68 85 15 80
c.florentz@unistra.fr

Direction de la recherche

Cher collègue,

Je vous remercie pour l'évaluation de la Fondation pour la Recherche en Chimie (RTRA – CiRFC) dirigée par le Professeur Thomas Ebbesen.

Vous trouverez ci-joint les réponses du Président de la Fondation concernant les erreurs factuelles et les remarques et appréciations du comité d'experts.

Je n'ai pas de remarque particulière à ajouter au nom de l'Université.

Je vous prie d'agréer, Cher Collègue, l'expression de mes sentiments distingués.



Par délégation du Président
de l'Université de Strasbourg

Michel DENEKEN
Michel DENEKEN
Premier Vice-Président

Alain BERETZ



Madame Gilberte CHAMBAUD
Représentante AERES
Agence d'Evaluation de la Recherche et de
l'Enseignement Supérieur
20 rue Vivienne
75002 PARIS

Strasbourg, le 23 septembre 2013

Chère Collègue,

C'est avec un très grand plaisir que nous prenons acte des nombreux avis positifs émis par le Comité international d'évaluation sur la Fondation CIRFC-RTRA et le soutien aux orientations prises et aux actions entreprises depuis la création de la fondation. Je souhaite, dès que j'en aurai reçu le feu vert de la part de l'AERES, en faire part aux membres du Conseil d'administration de la fondation.

La lecture du rapport de l'AERES nous amène à faire quelques remarques sur des points mentionnés en pages 4 et 5 du rapport.

p. 4 "Weaknesses"

- "Industrial contracts within the FRC are very few, should be increased substantially". *Answer:* Many of the research groups do have research contracts with industry although indeed it still is insufficient in volume. To improve this situation and at the same time increase donations, the FRC together with the Foundation of the University, has established direct contacts with hundreds of local, national or international firms. We expect that in the years to come this will in turn help to increase the volume of industrial contracts that our members will be able to establish.

- "There is no systematic evaluation process of the network members". *Answer:* This is because the network members are already evaluated by a national agency (AERES). Nevertheless, we will look at ways to determine periodically whether the belonging of a member to the network is pertinent or not.

.../...

Fondation FRC • www.icfrc.fr

8 allée G. Monge F- 67000 Strasbourg • Tél : +33 (0)3 90 245 215 • Fax : +33 (0)3 90 245 216 • Siret 499 246 601 00011

- p.5 "Recommendations"

"Improve communications at all levels; especially with the CNRS and the University. *Answer:* The communication with the University is excellent and easy due to the stability of the governance of the University, idem concerning the relationships with the "Conseil Régional" and the local representative of the Ministry of Research and Industry (D2RT). The communication with the CNRS has indeed fluctuated over time related to changes in the management at the CNRS. We will continue to work on improving this relationship.

Soyez assurée, Chère Collègue, de mes meilleures et très sincères salutations.



Bernard Meunier

Copie à

M. Alain Beretz, Président de l'Université de Strasbourg

M. Dominique Massiot, Directeur de l'Institut de Chimie du CNRS

Mme Catherine Florentz, Vice-présidente de l'Université de Strasbourg

M. Thomas Ebbesen, Directeur CIRFC