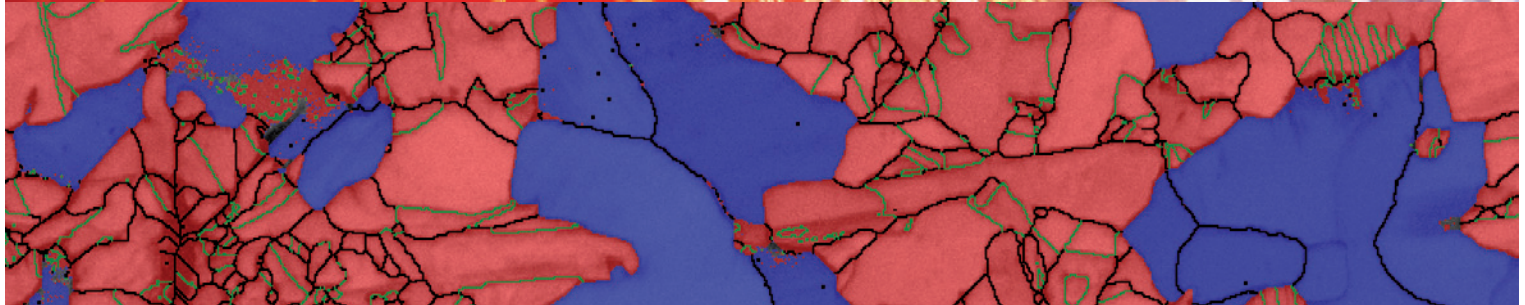


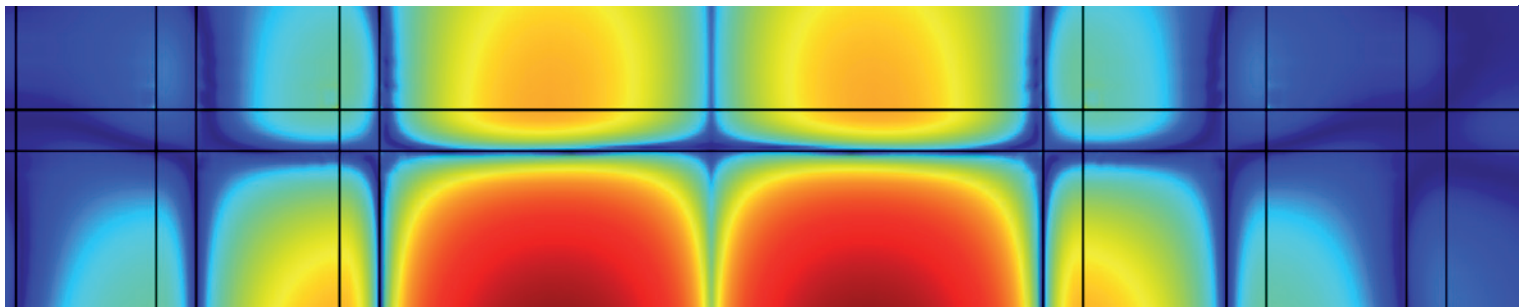


EUROPEAN
SCIENCE
FOUNDATION



Materials Science and Engineering Expert Committee (MatSEEC)

2013 Statutory Review



European Science Foundation (ESF)

The European Science Foundation (ESF) was established in 1974 to provide a common platform for its Member Organisations to advance European research collaboration and explore new directions for research. It is an independent organisation, owned by 66 Member Organisations, which are research funding organisations, research performing organisations and academies from 29 countries. ESF promotes collaboration in research itself, in funding of research and in science activities at the European level. Currently ESF is reducing its research programmes while developing new activities to serve the science community, including peer review and evaluation services.

www.esf.org

Materials Science and Engineering Expert Committee (MatSEEC)

MatSEEC is an independent science-based committee of over 20 experts active in materials science and its applications, materials engineering and technologies and related fields of science and research management. Committee members are nominated by their member institutions and they maintain strong links with their nominating organisations and their respective scientific communities.

The aim of MatSEEC is to enhance the visibility and value of materials science and engineering in Europe, to help define new strategic goals, and evaluate options and perspectives covering all aspects of the field.

www.esf.org/matseec

The European Science Foundation hosts six Expert Boards and Committees:

- The European Space Sciences Committee (ESSC)
- The Nuclear Physics European Collaboration Committee (NuPECC)
- The European Marine Board (EMB)
- The European Polar Board (EPB)
- The Committee on Radio Astronomy Frequencies (CRAF)
- The Materials Science and Engineering Expert Committee (MatSEEC)

In the statutory review of the Expert Boards and Committees conducted in 2011, the Review Panel concluded unanimously that all Boards and Committees provide multidisciplinary scientific services in the European and in some cases global framework that are indispensable for Europe's scientific landscape, and therefore confirmed the need for their continuation. The largely autonomous Expert Boards and Committees are vitally important to provide in-depth and focused scientific expertise, targeted scientific and policy advice, and to initiate strategic developments in areas of research, infrastructure, environment and society in Europe.

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Foreword

The following report presents the outcome of the statutory review of the Materials Science and Engineering Expert Committee (MatSEEC) of the European Science Foundation (ESF), covering the period from 2009 to 2013.

MatSEEC is an independent science-based committee of over 20 experts active in materials science and its applications, materials engineering and technologies and related fields of science and research management. The aim of MatSEEC is to enhance the visibility and value of materials science and engineering in Europe, to help define new strategic goals and evaluate options and perspectives covering all aspects of the field.

MatSEEC was formed as a temporary committee under the authority of the ESF Governing Council on 29 October 2009 and was subject to a formal review in 2011. This review was included in a statutory review of all Expert Boards and Committees, but at that time it was felt rather early in its development for definitive conclusions to be reached.

Similarly, consideration of MatSEEC was included in the joint ESF/Science Europe working group on Boards and Committees and the Science Europe conclusion is quoted: *“The Board recognised that the Expert Boards and Committees are of value within their domains, and that there is potential benefit to collaborating with these interdisciplinary groups. However, it was felt that Science Europe would not be the appropriate platform for the Expert Boards and Committees to operate from, as their mandate is clearly outside the scope of Science Europe, which is set up to operate with a Committee structure based on scientific rather than organisational representation, and with specific groups acting as sub-committees.”*

A five-member international Review Panel was constituted from nominations by the ESF Member Organisations as well as input from the executive, and covered different domains of expertise in the field of materials science.

I am deeply grateful to the ESF Member Organisations for providing nominations for the Review Panel.

The Review Panel has drawn attention to the opportunity to update the mandate, objectives and membership of MatSEEC as well as to include greater representation of industry.

The review has been forwarded to all existing MatSEEC Members and Member Institutions and it will now be a decision for them as to whether they wish to financially sustain a substantially refined strategy or to see their initiative terminated with effect from the end of 2014 (following the end of the initial five-year mandate from ESF Governing Council).

I would like to extend my sincere gratitude to the members of the Review Panel for having accepted the invitation and for their attention and contributions to the review and in preparing this report. The valuable efforts and guidance provided by the Chair of the Review Panel, Professor John Pethica, have been crucial for this evaluation exercise.

Martin Hynes
ESF Chief Executive



1. Executive Summary

In this report the Review Panel describes the 2013 Statutory Review of the Materials Science and Engineering Expert Committee (MatSEEC) of the European Science Foundation (ESF).

In this review MatSEEC was subject to a full statutory review, which covered the period from 2009 to 2013. The terms of reference for this review, as approved by the Governing Council, are provided in section 2.2.

The Review Panel presents the conclusions and recommendations applicable to MatSEEC in Chapter 4. Some of the key general conclusions and recommendations of the Review Panel are given below:

- MatSEEC is the only body in Europe that cut across the whole materials science and engineering (MSE) landscape and addresses policy issues. In its four years of mandate, it has managed to deliver very good products in a challenging environment.
- During these four years, MatSEEC has demonstrated adaptability and flexibility. The Committee managed to evolve from its original state to improve its impact while gaining more knowledge of the European landscape.
- The members of the Review Panel concluded unanimously that, during the last four years, MatSEEC has managed to build up significant visibility and credibility at EC level and increasingly at industry level.
- The 'new MatSEEC' should increase its links with industry, and representation of industry within the membership should be considered. The 'new MatSEEC' should become a focal interface for industry/companies and academics in a trans-domain/trans-disciplinary and trans-European way.
- The Review Panel supports MatSEEC continuation but only with a reconsidered mandate, objectives and purpose, and precise strategic planning with operations detailed with a two-year perspective. The members of the Review Panel agreed that a 'new MatSEEC' should be implemented for a period of five years.

2. Introduction

In this section, the purpose, organisation and governance of the ESF, the context and terms of reference for the review as well as the review process itself are summarised, followed by a list of the members of the Review Panel.

2.1 The Context of the Review

2.1.1 Brief description of ESF and its governance

The establishment of the ESF in Strasbourg in 1974 was one of the earliest milestones on the road to achieving real cooperation in European research. The ESF began life with a membership of 42 academies and research councils in 15 countries; in 2013 it has 67 Member Organisations (MOs), including research funding organisations, research performing organisations and academies, in 29 countries.

Two main bodies representing the MOs carry out the overall governance of ESF: the Assembly and the Governing Council. The main decision making body of the ESF is the Assembly which meets once a year bringing together all MO representatives. The Assembly appoints the President, Vice-Presidents and the Chief Executive of ESF. It also approves the annual reports of the Governing Council, the reports of the ESF Committees, and the annual report of the Chief Executive. It ratifies the budget and accounts of the ESF, admits new members, and approves and amends the Statutes. The Assembly also provides a venue for debate and interaction between the MOs.

The Governing Council is responsible for setting, approving, directing and monitoring the overall strategic direction of the ESF. It is chaired by the President and is composed of one representative from each 'national group' of MOs. The representatives are heads of organisations from within the ESF membership. The Governing Council normally meets twice a year.

2.1.2 Scientific structure of ESF

The scientific support required for the operations of ESF are provided by five Scientific Review Groups that cover all fields of science. In addition, six Expert Boards and Committees provide in-depth and focused scientific expertise in selected disciplines as described below.

Scientific Review Groups (SRGs)

The five Scientific Review Groups (former ESF Scientific Standing Committees) are composed of leading scientists nominated by the ESF's Member Organisations. The SRGs are responsible for identifying scientific priorities, formulating strategies, developing research agendas and conducting peer review. They are as follows:

- Biomedical Sciences
- Humanities
- Life, Earth & Environmental Sciences
- Physical and Engineering Sciences
- Social Sciences.

Expert Boards and Committees

Expert Boards and Committees are established as the need arises, giving the ESF the flexibility to adapt to the changing scientific landscape. They provide advice and initiate strategic developments.

The six Expert Boards and Committees are:

- CRAF: Committee on Radio Astronomy Frequencies
- EPB: European Polar Board
- EMB: European Marine Board
- ESSC: European Space Sciences Committee
- NuPECC: Nuclear Physics European Collaboration Committee
- MatSEEC: Materials Science and Engineering Expert Committee.

ESF Office

The ESF headquarters are located in Strasbourg, France, with two offices in Belgium: a meeting room in Brussels and the European Marine Board Office in Ostend. The ESF Office is directed by the Chief Executive, assisted by an international staff.

2.2 Modus Operandi and Terms of Reference of the Statutory Review

The mandate approved by the Governing Council, the modus operandi and terms of reference setting out the scope and objectives of the review are as follows:

The international Review Panel's tasks will be to review ESF's MatSEEC Committee in accordance with Article IX of the ESF Statute and using the terms of reference outlined below.

This review will be carried out on the basis of:

- The self-evaluation report of the MatSEEC Committee, its own terms of reference, and other relevant documents and additionally collected information;
- The remit of the MatSEEC Committee;
- The eventual evolution of ESF activities and corresponding new developments in the broader context of the European and global research system in which ESF operates;
- Input from ESF Member Organisations.

The international Review Panel will:

- Comment on the achievements of the MatSEEC Committee in the period 2009-2013;
- Consider the strategies, activities and operations of the MatSEEC Committee in the light of its individual missions;
- Consider whether the continuation of the MatSEEC Committee is necessary and, if so, the duration of such a continuation;

- If continuation is proposed, recommend to ESF and the MatSEEC Member Institutions (MIs) such changes to the strategies, activities and structure both for the MatSEEC Committee as well as within a host institution (currently ESF) that will be appropriate to allow the MatSEEC Committee to further fulfil its mission;
- Submit its report to the ESF Governing Council in April 2014.

2.3 Main Steps of the Process

The whole process was implemented under the supervision of the ESF Chief Executive who will forward the conclusions of the review to the ESF Governing Council as well as the MatSEEC Member Institutions.

In July 2013, the MatSEEC Committee was invited to prepare a self-evaluation report covering the period of the statutory review, from 2009 until 2013. The Review Panel was constituted during September-October 2013 based on nominations by the ESF Member Organisations as well as input from the executive. The self-evaluation report and other supporting documents were provided to the Review Panel members in November 2013. The Review Panel convened in a face-to-face meeting on 18 December 2013, where the members presented their assessments, discussed the format and content of the Panel's report and interviewed the Chair and the Secretariat of MatSEEC. The present report was written based on input by the Panel members, and approved by them.

2.4 Review Panel

The international Review Panel had five members including the Chair (Table 1).

| |
|---|
| <p>Chair of the Panel Professor John Pethica</p> <p>Chief Science Advisor, National Physical Laboratory, UK Professor of Physics, Trinity College Dublin, Former (Founding) Director of CRANN Visiting Professor at Oxford University, Department of Materials, UK Vice-President and Physical Secretary of the Royal Society</p> |
| <p>Dr Conchúr Ó Brádaigh</p> <p>Owner of Éire Composites Teo Professor of Energy Engineering, University College Cork, Cork, Ireland</p> |
| <p>Professor Gabriel Crean</p> <p>Scientific Director for Europe of CEA-TECH, Grenoble, France</p> |
| <p>Professor Sarah Hainsworth</p> <p>Professor of Materials Engineering, Department of Engineering, University of Leicester, UK Dean of Graduate School Director of Advanced Microscopy Centre Director of Advanced Structural Dynamics Evaluation Collaborative (ASDEC) Research Centre Head of Materials Technology Integration Centre (MaTIC)</p> |
| <p>Professor Manfred Stamm</p> <p>Professor of Physical Chemistry of Polymeric Materials at Technische Universität Dresden, Germany Head of IPF Institute of Physical Chemistry and Physics of Polymers Head of Department of Nanostructured Materials at the IPF</p> |

Table 1. Review Panel membership

3. Structure and Accomplishments of the ESF Materials Science and Engineering Expert Committee (MatSEEC)

3.1 Brief Description of MatSEEC's Mission and Operations

MatSEEC is a temporary Expert Committee hosted by the ESF. It was established in 2009 with a term of five years starting on the date of its inaugural meeting (October 2009).

The main missions of the Committee include:

- Delivering foresight reports and scientific advice to ESF on issues related to materials science and engineering and matters of concern to the related scientific communities;
- (upon request) delivering foresight reports and scientific advice to European national agencies and ministries, institutions of the European Commission, and the ESFRI.

In this context, the Committee has the ability to conduct surveys and prepare strategic policy documents.

During its operation, MatSEEC has been financially supported by contributions of 5 k€/year from its 23 Member Institutions (MIs) that are located in 16 European countries. The MIs are in general Member Organisations of the ESF involved in materials science and engineering but also materials science and engineering societies or research organisations performing research in materials and engineering.

3.2 Review Panel Overarching Statement

There is a need for a coordinated representation of MSE in Europe cutting across and addressing all disciplines relevant to the fields. MatSEEC has been providing this function over the past four years and an organisation that continues to fill this space is required. There is no other body addressing MSE issues in Europe across its full breadth and scope.

While it had to prioritise its original work plan, MatSEEC has achieved more than original expectations: production is of good quality, the impact is significant, particularly commendable when considering the challenges imposed by ESF's current situation and complicated secretarial support. And all this was realised in a short time.

The whole MSE landscape is evolving at a rapid pace and MatSEEC is clarifying its role and opportunities while gaining momentum. It is for this reason that MatSEEC is expected to evolve.

3.3 MatSEEC's Perceived Achievements

Over the last four years MatSEEC has provided different reports. The most important ones are discussed below:

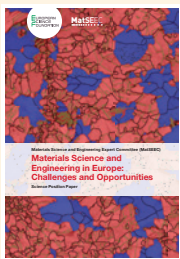


The **Metallurgy Europe** report represents a clear success story of MatSEEC and illustrates the increasing impact this Committee has on the European landscape. Demonstrating strong political and industrial support, this report triggered (at best) or participates (at least) in the development of an EC metallurgy research roadmap. MatSEEC

members are also involved in the definition of this roadmap that will condition metallurgy research across Horizon 2020.



The **KET** report provides a strategic vision, answers specific questions and addresses topics of interest in the development of the EC research and innovation strategy. The report, produced in collaboration with E-MRS, was brought to the attention of EC's High-Level Group on Key Enabling Technologies (KET HLG) in its previous and current rounds of discussion.



The **Materials Science and Engineering in Europe: Challenges and Opportunities** report addresses more academic issues and is a valuable contribution for research funding organisations. It is too soon to assess the impact of this report, but it has good content quality.

All MatSEEC reports are of very good quality while serving different purposes. The **KET** and **Metallurgy Europe** reports provide good links with industry.

The Review Panel welcomes and commends increasing interaction with industry as illustrated by the latest participation in meetings and discussions. This is also important for the future of materials science in Europe.

The Review Panel regrets that the **Technology and Knowledge Transfer** report has not yet been produced as it addresses critical issues for the economic exploitation of materials science and engineering capacity. Comparison with other parts of the world will be instructive. However, it welcomes and strongly supports early recommendations presented by the Committee Chair: technology validation concept – a very innovative and valuable concept.

The membership structure gives constraints, but nonetheless MatSEEC has demonstrated adaptability and flexibility by addressing emerging issues and producing consultations (**KET** report, **Metallurgy Europe**, H2020 contribution, SET consultation). It also commendably prioritised its work plan by putting some of its working groups on hold. The Committee managed to evolve from its original state, to improve its impact while gaining more knowledge of the European landscape. Its contribution to H2020 consultation was perceived as sensible and valuable.

3.4 MatSEEC's Perceived Strategies, Activities and Operations

It is critical that MatSEEC continues and increases its engagement with industry. It should consider how to increase these interactions up to the point where the Committee has several members representing industry. It would provide a useful counterpart to ERC funded activities in Europe which are increasing.

The Committee (or any successor) should refine its mission and mandate carefully and comprehensively. Foresight and a roadmap for Europe, "from lab to market", could be a good starting point. This will require advice and input from industry and possibly finance and regulatory advice.

Stakeholders/funding structure should evolve from ESF-type funding organisations appointing members to something more balanced, flexible and appropriate to the MSE situation. That may involve giving greater powers to the Chair.

More flexibility should be brought to the membership to adequately respond to the MSE situation and requirements. The Committee should move towards members not appointed by MIs, but rather identified by the scientists (committee members/search committee, etc.) themselves. Nomination *ad persona* would increase independence and balance. The Committee's activities should be structured in such a way that industry and other non-academic representatives are not put off by a complex process, and are able to make time efficient inputs.

The Committee should be supported by European wide platforms and networks (e.g., EARTO) in order to increase flexibility in membership. Transitioning from the current MIs' funding model to a new, more appropriate funding scheme is challenging and should be considered carefully.

The operating structure should complement committee meetings (committee members) with a General Assembly (stakeholders and funders) and clearly separate both groups.

In its mandate, the 'new MatSEEC' should consider societal issues as well as risk issues.

There are many opportunities presented by the current and future MSE landscape. While this represents significant potentialities, it also represents a challenge: the need to prioritise according to resources. It is critical to ensure an adequate match between objectives/ambitions and capacity/resources.

Secretariat support should be secured at least at the 2013 level. The Review Panel heard evidence that instability in secretariat support was damaging to the Committee's work.

It is important to clearly describe the target audience. This should be, firstly, policy makers and programme managers (representing the MSE community voice at policy level)

and, secondly, the community itself (to make scientists/technologists aware that they are represented, that may strengthen the Committee's position).

The 'new MatSEEC' should:

- Reconsider its mandate by taking into account the evolving landscape, increased visibility, the need to involve more engineering and industry;
- Keep a trans-disciplinary/interdisciplinary composition;
- Keep the brand.

3.5 Review Panel Recommendations

The Review Panel supports the continuation of MatSEEC with a reconsidered mandate, objectives and purpose, and precise strategic planning with operations detailed over a two-year perspective. The 'new MatSEEC' should be implemented for five years.

There are no other organisations covering the full MSE space as MatSEEC does. It embodies a domain and a community in a consistent manner, and this space should continue to be filled. MSE is critical for, and cuts across, many societal challenges and economic issues (e.g., the energy challenge). For these reasons such a committee is very relevant when looking across the European science and technology landscape.

Besides science and technology issues, the 'new MatSEEC' should identify and address issues of relevance for society with external support from experts (e.g., education aspects). The 'new MatSEEC' should be a focal interface for industry/companies and academics in a trans-domain/trans-disciplinary and trans-European way.

It is important that the Committee remains an independent body, and not dominated by a single or a limited number of stakeholders' agendas; the plurality of stakeholders and disciplines represented limits bias and conflicts. This 'independence' ensured by plurality should be maintained.

The Review Panel suggests:

- A new approach to committee membership: more balanced, adequate, flexible, more power for the Chair/ Committee members to fill in the gaps;
- An increase in emphasis on engineering aspects is a critical prerequisite;
- Need for a clear and concise mission statement. The current mandate is too broad and the 'new' Committee needs to find the right balance between addressing every relevant issue and focusing on those where it can maximise impact and value;
- The Committee needs to consider its objectives before considering the format and operations, not the contrary;
- In the current dynamic situation, it is important to identify the relevant and adequate host for a 'new MatSEEC'. A post ESF platform could indeed be the right answer and would provide continuity but, at this moment, there is a clear lack in visibility for the future;
- Need to interface between academics and industry/ engineering;
- The Committee should be careful with industry representation: membership from industry platform/ networks/association may be more relevant than individual companies;
- The Committee should investigate relations with Science Europe once this is more mature;
- The Committee should address the European and national regulatory framework, especially when it comes to:
 - Barriers to innovation/roadblocks;
 - Administrative/bureaucratic issues;
 - EC programme complexity;
 - How to improve intra-European collaboration (including between industry and academics);
 - The Committee should limit and focus the number of working groups, as well as consider if they are sustainable for 'task and finish'.

3.6 Review Panel Conclusions

- MatSEEC is the only body that cuts across the whole MSE landscape and addresses policy issues.
- MatSEEC has delivered very good products despite a challenging environment.
- A 'new MatSEEC' should be set up keeping the brand only if reconsidered and refreshed, as follows:
 - Structure of the funding organisations: should move away from research funding and consider research performing and European platforms;
 - Increase industry participation;
 - Increase engineering aspects;
 - Focus on a limited number of key issues.

4. General Conclusions and Recommendations

In this chapter the Review Panel presents its general conclusions and recommendations concerning the MatSEEC Committee.

- **MatSEEC is the only body in Europe that cuts across the whole MSE landscape and addresses policy issues. It has managed to deliver very good products in a challenging environment.**
- **During these four years, MatSEEC has demonstrated adaptability and flexibility. The Committee managed to evolve from its original state to improve its impact while gaining more knowledge of the European landscape.**
- **The members of the Review Panel concluded unanimously that MatSEEC managed to build up significant visibility and credibility at EC level and increasingly at industry level; it has done this in a very short time and in challenging ESF conditions. The MSE community now has a ‘spokesperson’ at political level and this is commendable. MatSEEC should now increase its visibility at the academic level.**
- **MSE is critical for cross-cutting societal challenges and economic issues, and a committee like MatSEEC is very relevant when considering the overall European landscape. Therefore the Review Panel supports MatSEEC continuation, but only with a reconsidered/refreshed mandate, objectives and purpose, and precise strategic planning with operations detailed with a two-year perspective. The Review Panel members agreed that a ‘new MatSEEC’ should be implemented for a period of five years.**

5. List of Abbreviations and Acronyms

EARTO: European Association of Research and Technology Organisation

EC: European Commission

E-MRS: European Materials Research Society

ESF: European Science Foundation

ESFRI: European Strategic Forum on Research Infrastructures

HLG: High-Level Group

KET: Key Enabling Technologies

MatSEEC: Materials Science and Engineering Expert Committee

MI: Member Institute

MO: Member Organisation

MSE: Materials Science and Engineering

SET: Strategic Energy Technology

Annex 1

Positive and negative aspects of the MatSEEC reports

| Report | Positive aspects | Negative aspects |
|--|---|--|
| <i>Metallurgy Europe</i> | <ul style="list-style-type: none"> • Represents a clear success story of MatSEEC. • Illustrates the increasing impact that MatSEEC has on the European landscape. • Demonstrates strong political and industrial support. • Participates to the development of the EC metallurgy research roadmap. • The report led to the involvement of the MatSEEC members in the definition of the EC roadmap. | <ul style="list-style-type: none"> • The connection with industry does not appear clearly in the report. |
| <i>KET</i> | <ul style="list-style-type: none"> • Provides a strategic vision. • Answers specific questions and addresses topics of interest in the development of the EC research and innovation strategy. • Was brought to the attention of EC KET HLG in its previous and current rounds of discussion. | <ul style="list-style-type: none"> • The report is not cited by EC KET members. |
| <i>Materials Science and Engineering in Europe: Challenges and Opportunities</i> | <ul style="list-style-type: none"> • Is a foresight report. • Is a valuable contribution for research funding organisations. • Addresses academic issues. | <ul style="list-style-type: none"> • The report is too academic. • The report is aimed mostly at the scientific community. |

Annex 2

MatSEEC SWOT analysis

| | |
|--|---|
| <p>Strengths</p> <ul style="list-style-type: none"> • Significant visibility and credibility at EC level and increasingly at industry level. • MatSEEC reports of very good quality while serving different purposes. • Adaptability and flexibility. | <p>Weaknesses</p> <ul style="list-style-type: none"> • The membership structure (expertise balance; members from industry are missing). • Instability in terms of Chair and secretariat support. • Mission and mandate too broad and not clear enough. • The number of working groups is too broad. |
| <p>Opportunities</p> <ul style="list-style-type: none"> • Explain and promote the importance of the MSE and so the necessity of the Committee when considering the European landscape. • Increase its visibility at academic level. • Increase participation/interaction with industry and engineering aspects. • Network between research institutions and industry. • Focus on Foresight and Roadmap for Europe. • Consider societal and risk issues. | <p>Threats</p> <ul style="list-style-type: none"> • Difficult and challenging ESF conditions. • Prioritise according to the existing resources: ensure adequate match between objectives/ambitions and capacity/resources. • Identification of the relevant and adequate host for a new MatSEEC. • Identification of the new stakeholders and funding structure. |

MatSEEC funding organisations 2009-2014

- **Fonds zur Förderung der wissenschaftlichen Forschung in Österreich (FWF)**
Austrian Science Fund, Austria
- **Fonds de la Recherche Scientifique (FNRS)**
Fund for Scientific Research, Belgium
- **Fonds voor Wetenschappelijk Onderzoek-Vlaanderen (FWO)**
Research Foundation Flanders, Belgium
- **Akademie věd České republiky (ASCR)**
Academy of Sciences of the Czech Republic
- **European Materials Forum (EMF)**
- **European Materials Research Society (E-MRS)**
- **European Space Agency (ESA)**
- **The Federation of European Materials Societies (FEMS)**
- **Suomen Akatemia/Finlands Akademi**
Academy of Finland, Finland
- **Suomen Tiedeakatemiain Valtuuskunta/ Delegationen för Vetenskapsakademierna i Finland**
Delegation of the Finnish Academies of Science and Letters, Finland
- **Centre National de la Recherche Scientifique (CNRS)**
National Centre for Scientific Research, France
- **Deutsche Forschungsgemeinschaft (DFG)**
German Research Foundation, Germany
- **Fraunhofer Gesellschaft**, Germany
- **Helmholtz-Gemeinschaft Deutscher Forschungszentren (HGF)/Helmholtz Zentrum Berlin (HZB)**
Helmholtz Association of German Research Centres, Germany
- **Max-Planck-Gesellschaft (MPG)**
Max Planck Society, Germany
- **Consiglio Nazionale delle Ricerche (CNR)**
National Research Council, Italy
- **Norges Forskningsråd**
Research Council of Norway, Norway
- **Polska Akademia Nauk (PAN)**
Polish Academy of Sciences, Poland
- **Fundação para a Ciência e a Tecnologia (FCT)**
Foundation for Science and Technology, Portugal
- **Consejo Superior de Investigaciones Científicas (CSIC)**
Council for Scientific Research, Spain
- **Vetenskapsrådet (VR)**
Swedish Research Council, Sweden
- **Schweizerischer Nationalfonds (SNF)**
Swiss National Science Foundation, Switzerland
- **Engineering and Physical Sciences Research Council (EPSRC)**, United Kingdom

European Science Foundation

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