

# **European Metrology Programme for Innovation and Research (EMPIR)**

**Call 2017**

**Research Potential  
Pre and Co-Normative  
Support for Impact  
Industry  
Fundamental**

**Report of the Independent Observer  
Joseph Prieur**

**December 2017**

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# 1. Introduction

## 1.1 Terms of Reference

This report provides the observations of the Independent Observer (Joseph Prieur), following completion of the EMPIR Review Conference and Consensus Group meetings held in Monaco from the 7th to 16th November 2017.

The role of the Independent Observer is described in Section 6.5 of the EMPIR Call Process Guide 6 “Evaluating EMPIR Projects” (Document <https://msu.euramet.org/downloads/documents/Guide6.pdf> , publicly available), as follows:

*The European Commission may send an ‘Independent Observer’ to the review conference and consensus group meeting(s). He/she does not participate directly in the evaluation procedure. He/she will have access to all areas of the evaluation process, and will report back his/her observations and opinions on the process to the European Commission*

The main function of the Independent Observer is therefore to ensure that the EMPIR evaluation process is being implemented in accordance and compliance with the rules that are set out in this Guide 6. It can be seen as a Quality Assurance measure in the proposal evaluation process.

The specific tasks of the Independent Observer were defined as follows:

- 1) To act as an independent observer during the EURAMET EMPIR 2017 selection process;
- 2) To review the Call and Selection documentation;
- 3) To attend the Monaco Review Conference and Consensus Groups from 7 to 16 November 2017;
- 4) To provide a draft report to the EMPIR Programme Manager for factual checking by 4 December 2017
- 5) To take due regard of comments made by the EMPIR Programme Manager on the draft. EURAMET comments will be limited to factual matters, the opinions remaining those of the observer.
- 7) To produce a final report by the end of December 2017 (subject to timely response to the draft by EURAMET);
- 8) The report may be produced in two parts, the first part (the present report) reporting on the process and in a form that could be made public, while recommendations to EURAMET on improvements to the process that could be made in future years could be reserved for a second part which would not be made generally available.

It was noted that:

- A) The final report will be provided - unabridged - to the European Commission by EURAMET and shall be of a suitable quality for this purpose;
- B) All relevant personnel, including the referees, will be instructed to provide full cooperation to enable completion of the task;
- C) Full and unfettered access will be provided to all relevant aspects of the call and selection process to enable completion of the task;
- D) The independent observer is bound by confidentiality. To that effect the observer has signed the same form 6a: Code of Conduct and Declaration as all referees participating in the call 2017 evaluation. The observer shall only discuss the outcome and provide the report to those who have a legitimate right of access (which includes, should they so choose to contact him/her directly, the relevant Unit of the European Commission). EURAMET reserves the right to publish the report.

This report therefore deals with the process that was carried out to implement the Review Conference and Consensus Group meetings and arrive at Single Ranked lists of proposals submitted for each of the EMPIR 2017 Calls (Research Potential, Pre and Co Normative, Support for Impact, Industry, and Fundamental). The recommendations to EURAMET are included in a separate report. Both reports follow the format of the previous years’ reports to ensure consistency of approach.

## 1.2 Approach

The observer’s observations are based on the following inputs:

- Exchange of e-mails and telephone conversations with the MSU team in charge of the call 2017 evaluation
- Various guides, templates and forms available from <http://msu.euramet.org/downloads/>
- Review of copies (received by mail from the EMPIR MSU on 20 September, 4 October, 18 October and 25 October 2017) of the procedural e-mails and attachments sent to referees
- Review of Independent Observer reports and recommendations for the 2015 and 2016 EMPIR Calls;
- Review of Call documentation and briefing materials delivered during the review Conference in Monaco;
- Attendance at the Review Conference and Consensus Group meetings in Monaco (07-16 November, 2017), involving:
  - Days 1 and 2: Research Potential (07 and 08 November)
  - Days 3 and 4: Pre and Co Normative (09 and 10 November)
  - Day 6: Support for Impact (12 November)
  - Days 7 and 8: Industry (13 and 14 November)
  - Days 9 and 10: Fundamental (15 and 16 November)
- Informal discussions during the Review Conference with referees, the EMPIR Chair and Deputy Chair, the EMPIR Programme Manager and Deputy Manager, the General Secretary, and members of the Management Support Unit (MSU)

As independent observer, I am fully satisfied that I had free and open access to all information, presentations and discussions that constituted the evaluation of the call 2017 Stage 2 (or single stage for Support for Impact) proposals.

### **1.3 Structure of the Report**

The report aims to cover the whole of the 2017 Stage 2 process (or single stage for the SIP proposals) from launch of the Calls to the decision on the projects that will be funded. It therefore covers the period from the opening of the Call (June 15, 2017 for all 4 JRP stage 2 proposals, and July 25, 2017 for the SIs) to the EMPIR Committee meeting of November 21, 2017 following the Review Conference and Consensus Group meetings of November 07 to November 16, 2017.

The report comprises of sections on the background/scope of the Call for proposals, selection of referees and the remote evaluation, the Review Conference. The report concludes with my findings regarding compliance with the rules and quality of the process.

A separate report has been prepared for EURAMET with comments and suggestions for improvement of the process.

## 2. Call for Proposal Process

In 2017 EURAMET issued calls for Joint Research Projects (JRP) for Research Potential (RPT), Pre and Co Normative (NRM), Industry (IND) and Fundamental (FUN) following a two stage process. Stage 1 was launched on January 10, 2017 and closed on February 20, 2017. Stage 2 was launched on June 15, 2017 and closed on October 02, 2017

A call for SIP (Support for Impact Projects) Coordination and Support Actions was also issued on July 25, 2017 following a single stage process, and closed on September 25, 2017.

### ***JRP Proposals***

For Research Potential, Pre and Co-Normative, Industry and Fundamental, Stage 1 offers the chance for all stakeholders from any country to influence the R&D projects undertaken by the European metrology community by identifying the challenges, problems or opportunities for potential research topics.

Stage 1 invites interested parties to submit Potential Research Topics (PRT). This consultation phase is an open bottom-up driven identification process for metrology research needs. From PRTs submitted at stage 1, the EMPIR Committee defines a number of SRT (Selected Research Topics) which are considered to be of the highest priority and will provide the basis for Stage 2 calls for JRPs in each of the Targeted Programmes (RPT,NRM,IND and FUN for the 2017 call). Each SRT may contain inputs from more than one single PRT as similar ideas may be combined as appropriate. Stage 2 calls were published on June 15, 2017 and closed on October 2, 2017.

From the 235 PRTs suitable for prioritisation submitted at stage 1 (30 RPT, 19 NRM, 122 IND and 64 FUN) the EMPIR Committee selected 68 SRTs ( 10 for RPT, 11 for NRM, 29 for IND, and 18 for FUN). These SRTs were the basis of the Joint Research Projects (JRPs) which consortia were invited to submit in stage 2 of the call 2017. From the 68 published SRTs, 8 did not generate any JRP proposal (4 NRM, 3 IND and 1 FUN). The number of eligible JRP proposals received in response to stage 2 of the call 2017 was thus 60, distributed as follows:

- Research Potential 10
- Pre and Co-Normative 7
- Industry 26
- Fundamental 17

All 60 eligible JRP proposals were put forward to be evaluated at the Review Conference in Monaco (07-16 November 2017) with the active participation of proposers' representatives (1 representative for each JRP proposal).

### ***Research Potential (RPT)***

This TP supports the development of a balanced and integrated metrology system on different technological levels in participating states enabling them to develop their scientific and technical research capabilities in metrology. Proposals are to identify

- the particular metrology needs of stakeholders in the region,
- the research capabilities that should be developed (as clear technical objectives),
- the impact this will have on the industrial competitiveness and societal needs of the region,
- how the research capability will be sustained and further developed after the project ends.

### ***Pre and Co-Normative***

This TP aims at developing metrological methods and techniques required for standardisation, along one of 2 strands

- Specific documented demands of European and international Standards Developing Organisations (SDOs) for metrological research in any area.
- Identified standardisation needs for metrological research with a potential for high impact.

For both strands, proposals that include representatives from industry, regulators and standardisation bodies are strongly encouraged

#### ***Industry***

This TP aims at developing measurement methods and techniques for industrial applications, at driving innovation in industrial production and facilitating new or significantly improved products through exploiting knowledge in the European measurement institutes. The innovations shall improve the competitiveness and sustainability, and enable the digitisation of, European industry and shall lead to increased economic turn-over. Proposals from industry with their active participation in projects are strongly encouraged

#### ***Fundamental***

This TP, fundamental scientific metrology, at the frontiers of measurement science, aims at excellent science exploring new techniques or methods for metrology and novel primary measurement standards, and at bringing together the best scientists in Europe and beyond, whilst exploiting the unique capabilities of the National Metrology Institutes and Designated Institutes. It does not predefine specific technical topics, but it is expected that the R&D will include high risk research proposals.

Proposals will be preferred which aim at the development of a joint, sustainable, and coordinated European landscape of metrology capabilities.

#### ***SIP proposals***

The SIP (Support for Impact Projects) call was published on July 25, 2017 and closed on September 25, 2017. In contrast to the JRP calls, the SIP call follows a single stage process. 10 eligible proposals were submitted and evaluated

The SIP projects are coordination and support actions (CSA) with a clear focus on dissemination and exploitation activities based on research outputs from a completed related JRP. Research and development activities are not eligible to be funded in SIPs. However SIPs can include activities such as test/validation to enhance the uptake, and/or transfer to end users, of research outputs from the related JRP.

In contrast to JRPs, SIPs can be single partner projects (with at least one primary supporter) and also single country projects. The research output uptake is expected to extend, in the future, beyond the primary supporter(s)

The Consensus Group Meeting for SIPs took place in Monaco on November 12, 2017. Applicants did not attend the evaluation process.

### 3. Selection of Referees

To evaluate the proposals submitted, EURAMET compiles a pool of appropriate referees and then selects referees from the pool. A proposal will be evaluated by at least three appropriate referees. When selecting referees EURAMET looks for a high level of skill, experience and knowledge in the relevant areas. Providing this condition can be satisfied, EURAMET then seeks a balance in terms of geographical diversity, gender, private and public sectors (where appropriate), and an appropriate turnover of referees from year to year

Referees are selected from the EURAMET Referee Database set up in January 2014 for the EMPIR Programme. All potential referees for EMPIR are required to register with EURAMET in accordance with Guide 8 (Registering as a Referee for EMPIR) [http://msu.euramet.org/downloads/documents/Guide\\_8\\_Register\\_as\\_a\\_Referee.pdf](http://msu.euramet.org/downloads/documents/Guide_8_Register_as_a_Referee.pdf)

EURAMET also maintains privileged access to the European Commission's Horizon 2020 Expert Database which may be used in certain circumstances to identify potential referees. In such a case, selected referees have also to register on the EURAMET Referee Database.

The selection process started immediately after issuing the call for stage 2 proposals, by checking willingness and availability to participate and relevant areas of expertise from potential referees. Potential referees were provided with detailed information about the calls, about their expected role and involvement, and practical information about the logistics of the evaluation process, and they were invited to declare promptly any possible conflict of interest which may arise, should they be selected. The final selection process for the calls 2017 involved the matching of referees to the 2017 SRTs based on the use of keywords in their profiles and confirmation of availability for the Review Conference and lack on conflict of interest.

Referees evaluate the JRPs and SIPs on a personal capacity, not as representatives of their employer, their country or any other entity or affiliation. They must act independently, impartially and objectively. They may not delegate another person to carry out the work or be replaced by any other person. They must maintain the confidentiality of the documents before, during and after the Review Conference and Consensus Group meetings. They must declare any links to a particular consortium. All referees must abide by a Code of Conduct and sign Form 6a: Code of Conduct and Declaration prior to beginning any evaluation  
The Independent Observer signed also the Form 6a (Code of Conduct and Declaration) on September 22, 2017, prior to commencement of his involvement in the process.

The referees are responsible for evaluating each proposal in a fair way. They assist EURAMET to the best of their abilities, professional skills, knowledge and applying the highest ethical and moral standards. They must follow any instructions and time-schedules given by EURAMET and deliver consistently high quality work. They evaluate the merits of each application against the given evaluation criteria.

The EMPIR statistical analysis of referees was provided for review:

Male	58	79.5%	Nationalities	25	
Female	15	20.5%			
Average age	52		Albania	0	0.0%
Age <30	0	0.0%	Austria	2	2.7%
Age 30-34	0	0.0%	Belgium	1	1.4%
Age 35-39	8	11.0%	Bulgaria	1	1.4%
Age 40-44	9	12.3%	Denmark	2	2.7%
Age 45-49	16	21.9%	Finland	3	4.1%
Age 50-54	11	15.1%	FYR of Macedonia	1	1.4%
Age 55-59	11	15.1%	France	5	6.8%
Age 60-64	8	11.0%	Germany	8	11.0%
Age 65-69	4	5.5%	Greece	4	5.5%
Age 70-75	6	8.2%	Hungary	0	0.0%
Org country	10		Ireland	1	1.4%
Consultancy firms	0	0.0%	Italy	12	16.4%
Higher Education Establishments	36	49.3%	Lithuania	1	1.4%
Non-research Commercial sector including SMEs	10	13.7%	Other	0	0.0%
Non-research International Organisations (Association of States)	1	1.4%	Malta	1	1.4%
Non-research Public Sector	0	0.0%	Montenegro	0	0.0%
Private / Commercial Research Centres	9	12.3%	Netherlands	1	1.4%
Private Non-profit Research Centres	2	2.7%	Poland	5	6.8%
Public Research Centres	9	12.3%	Portugal	2	2.7%
Others	0	0.0%	Romania	6	8.2%
No information given	0	0.0%	Serbia	1	1.4%
Previous EURAMET referee	40	54.8%	Slovenia	1	1.4%
Previous EC evaluator	51	69.9%	Spain	3	4.1%
			Switzerland	1	1.4%
			Turkey	4	5.5%
			Ukraine	0	0.0%
			United Kingdom	5	6.8%
			United States	0	0.0%

There were 73 referees in total, from 25 different nationalities.

The above table shows a wide variety of referees with due consideration of previous evaluation experience (about 45% of referees are newcomers to EMPiR, an excellent turn over compared to the typical European Commission practice for the Research Framework Programme Horizon 2020), background (type of organisation), nationality and age. The combined representation of Higher Education Establishments and Public Research Organisations is about 2/3. As far as gender is concerned, just over 20% of referees were female referees. Referees participated in the evaluation of 1, or 2, or in a few cases up to 3 TPs depending upon their areas of expertise. One referee participated in the evaluation of 4 TPs.

## 4. Remote Evaluation

The closing date for phase 2 proposal submission was October 02, 2017 for all TPs (Research Potential, Pre & Co-Normative, Industry, and Fundamental) and September 25, 2017 for SIPs.

Referees for JRPs had already been informed on August 31, 2017 of their selection and requested to confirm their availability and to fill in and return the signed declaration (form 6a)

Remote evaluation for JRPs commenced in October with an email (on October 18, 2017) to the referees from the EMRP-MSU, which thanked them for agreeing to act as an EMPIR Referee. The emails were customised by Targeted Programme and provided the referees with the following information:

- Evaluation group they would join;
- Full list of proposals that they would evaluate;
- Link to a password-protected web-page containing the Information for referees, including all the proposals for their Targeted Programme;
- Matrix showing which proposals each person would specifically focus on at the Review Conference;
- Preview of what they would be required to do at the Review Conference or Consensus Group Meetings (and what documentary material would be provided);
- Guidance on selective reading;
- Concluding remarks on what they should do if they discover a conflict of interest;
- E-mail address and telephone number for the EMRP-MSU.

It was noted that referees may be asked to focus on subjects other than their most specialist subjects to ensure the group includes at least 2 “specialists” and one “generalist” and that this meets EC requirements, aiming to balance the tendency to mark favourite subjects slightly higher. Referees were instructed to focus preparation on the JRP proposals in their own group, but also familiarise themselves with the JRPs in other groups to enable meaningful plenary discussions.

Remote evaluation for SIPs commenced also in October with an email (on October 2, 2017) providing the selected referees with relevant information (guides, evaluation forms) and asking them to confirm their availability and to return the signed declaration (form 6a). They were also requested to fill in and return the specific SIP evaluation marking sheet (form 6d) to MSU 2 weeks before the consensus meeting

Password-protected web-pages specific to each Targeted Programme or SIP were available to referees and contained more detailed information, including:

### For JRPs

- Guide 4: Writing Joint Research Projects (JRPs): a set of instructions given to the proposers on what to include in their proposal.
- Guide 6: Evaluating EMPIR Projects: explains how the evaluation process will work, explains role and gives marking guidance for JRPs.
  - Form 6a: Code of Conduct and Declaration;
  - Form 6b: Payment to referees;
  - Form 6c: JRP Evaluation (marking sheet).
- Call Budget and Features: EMPIR Call 2017.
- JRP Proposals in zip files: documents submitted by the proposers together with the SRT supporting document published by EURAMET listed by Group.
- Logistics information for the Review Conference or Consensus Group Meeting including agenda and hotel/travel information.
- Link to the Call web page so that they could see the briefing information for the proposers.

### For SIPs

- Guide 7: Writing Support for Impact Projects (SIPs): explains how to write a Support for Impact (SIP) proposal for an EMPIR Call.

- Guide 6: Evaluating EMPIR Projects: explains how the evaluation process will work, explains role and gives marking guidance for EMPIR Projects.
  - Form 6a: Code of Conduct and Declaration;
  - Form 6b: Payment to referees;
  - Form 6d: SIP Evaluation (marking sheet);
- Call Budget and Features: EMPIR Call 2017;
- SIP Proposals in zip files: documents (Protocol and Support Letters) submitted by the proposers;
- Logistics information for the Consensus Group Meeting including agenda and hotel/travel information;
- Link to the Call web page so that they could see the briefing information for the proposers.

For Support for Impact projects the collated referees' evaluation forms ( 6D forms) were made available to referees. Referees were reminded that they must NOT discuss proposals with proposers nor other referees during this remote evaluation phase. However at this point, referees may also choose to read other proposals within their group for later comparison with those assigned to them. The discussion at the consensus group meeting would be about referees agreeing a set of marks and supporting comments for each proposal in order to produce a ranked list.

## 5. Review Conference and Consensus Group Meetings: Preliminaries

The Review Conference and Consensus Group meetings were scheduled over 10 days from 7 to 16 November 2017 (with Day 5 on 11 November being a free day) to cover all aspects of the 2017 Call. A specific document providing all relevant information was given to all participants. The observer was given a comprehensive document detailing the complete agenda for the Review Conference, covering all JRPs and Sis, and providing all details about schedules of all sessions (briefings, poster sessions, development of questions, Q & A, marking /consensus sessions, ranked list discussions, etc.), participants, logistics, as well as the various relevant guides and forms

Days 1 & 2 focussed on Research Potential

Days 3 & 4 focussed on Pre & Co Normative

Day 6 focussed on SIPs (one day only as this does not require attendance of applicant's representatives)

Days 7 & 8 focussed on Industry

Days 9 & 10 focussed on Fundamental

Participants were the EMPIR Chair and deputy Chair, the EURAMET general Secretary, the EURAMET programme manager and deputy programme manager, an EU Commission representative, the MSU staff, the referees, JRP representatives and the Observer. Some of them attended part-time.

Two days were devoted to each TP. The first day started with a Welcome address and general introduction of EURAMET, the EMPIR Programme and its objectives, its funding, the call process, the expected outcome of the review conference, the requirements for confidentiality and other referee obligations, and the programme of the day (to both referees and JRP Representatives) by the EMPIR Programme Manager or deputy Programme Manager. This was followed by 2 parallel dedicated briefing sessions (one for the referees, another one for the JRP representatives). The day continued with the poster sessions where each JRP representative was invited to display and describe his (her) poster to the relevant referees in order to:

- Have interactive discussions with the referees;
- Present the key aspects of the proposal in a clear and concise manner;
- Help the referees evaluate the proposal against the three evaluation criteria; and
- Prepare the representative for the subsequent question and answer session.

The afternoon of the first day was devoted to discussions between referees and formulation of questions to be asked to the JRP representatives on each proposal, followed by the Q/A session with the JRP representatives. Two members of the MSU team acted as facilitator and note taker during each of these sessions, for each evaluation group.

The second day started with a brief reminder of the tasks ahead, followed by the marking session for each evaluation group (for TPs with a high number of JRPs, referees were split in several groups of 5 or 6 JRPs). This was then followed by the plenary session where all JRPs (from all evaluation groups) related to the same TP were ranked.

The sections below summarise the process for the briefings, discussion within each specific Group of referees (chaired by the facilitators) and discussions with the JRP Representatives. The process for the marking of individual JRPs and developing consensus on the Single Ranked List is discussed in the following section 6.

To ensure equal treatment between all proposers, there is a very strict and equal time allocation for all sessions where representatives are involved (poster sessions and Q&A), and referees are repeatedly reminded that they should not have any contact with the representatives other than during these specific sessions.

For SI proposals the marking session (consensus meeting) started immediately after the briefing for referees

### 5.1 Briefing for the Referees

The referees were briefed on EURAMET, the context of the 2017 EMPIR Call, the objectives of the EMPIR Programme, the national contributions, the call budget, and on the evaluation process (evaluation criteria and marking rules for JRP or SIPs) and the expected output (i.e. essentially ranked lists) of the whole exercise. The referees were reminded of their roles, their obligations and their tasks.

For Research Potential, Pre and Co-Normative, Industry and Fundamental the referees were split into their allocated Groups with the facilitator and note-taker. Research Potential had 2 groups. Pre and Co Normative had one single group. Industry had 5 groups and Fundamental had 3 groups. The referees introduced themselves within their groups and were instructed that, although each proposal has been pre- allocated to 3 referees, they were entitled, and even encouraged, to contribute to the discussions on all proposals within their group. They were also invited to familiarise themselves with proposals from other groups to be in a position, if necessary, to discuss the preliminary ranked list established by the MSU.

## **5.2 Briefing for the JRP Representatives**

A parallel briefing session was organised for the JRP Representatives. The Programme Manager or Deputy Programme manager outlined what they should expect at the Review Conference i.e. an explanation of the evaluation process. The representatives were informed about:

- the oversubscription ratio ( requested budget/available budget)
- the purpose, inputs and outputs of the review conference
- the involved participants (referees, programme owners, applicant representatives, observer) and their respective roles and obligations
- the decision making process and responsibilities
- the poster sessions, Q/A sessions and marking sessions
- the evaluation criteria and score interpretation
- the purpose and importance of referee comments : clear feedback to applicants (for all proposals) and assistance to EURAMET during grant preparation (for successful proposals)

They were then briefed on what to expect if successful. This included the grant preparation phase required to agree a contract with EURAMET, including the timescales, protocol updates (in terms of content, deliverables, impact, budget), the consortium agreement, and lessons from previous years.

The representative agenda was then detailed covering poster sessions and Q & A sessions

## **5.3 Poster Sessions with the JRP Representatives**

The Poster Sessions were scheduled to allow 25 minutes of presentation/discussion between the JRP Representative for each proposal and primary referees, i.e. those referees (minimum 3) who were specifically nominated as specialists or generalists for that proposal. This duration was then slightly reduced to 20 minutes for other referees pertaining to the same group. At the end of the formal pre-allocated poster sessions, for JRPs with more than 1 group, an open session of 30 or 35 minutes was allocated to allow any referee of any group to become familiar with any poster of a proposed project and talk to any JRP representative. For the pre-allocated poster sessions it was recommended to the referees to briefly give the representative their background and expertise areas, then to the representative to give a short (typically 5 minutes) overview of his (her) proposal, then to allow about 15-20 minutes for informal questions & answers

The sessions were facilitated in a time-efficient manner designed to prevent excess time being allocated to one poster over another. This was strictly adhered to by all participants. There was ample time for animated discussions between the referees and the JRP representative and a few sessions finished earlier than the allotted time. The meeting room layout fitted the sessions well, given the small informal meeting style of 1-2 referees simultaneously with the JRP Representative (for pre-allocated sessions). There was sufficient space between posters to allow undisturbed discussions around each poster.

## 5.4 Preparation for Formal Interviews

After the poster sessions, the JRP Representatives had a 3-hour period prior to the formal Q&A sessions, allowing them to consider the content of their informal discussions with the referees during the poster sessions and possibly to contact other consortium members as needed prior to the Q &A session, if they wished to do so.

Over that period, the referees returned to Breakout Sessions chaired by the MSU facilitators to discuss their first impressions of the proposals and develop questions for the subsequent Q&A Sessions with the JRP Representatives. The facilitators explained the purpose of the session, which was to agree a shortlist of typically 5 to 8 questions for the formal interviews with the JRP Representative.

As observer I attended several sessions, sometimes for all proposals within a group, sometimes for 1-2 proposals per group only. In all cases the MSU facilitator, assisted by a note taker, played a strong role, maintaining the focus of the referees on the questions and helping to formulate the questions, while allowing for detailed discussion of individual views on the proposals. In most cases, one of the primary referees for the proposal under discussion was invited to initiate the elaboration of the first question(s), but all referees were invited to contribute to the development of questions and agree on their importance and order in which they should be asked. On several occasions the discussions between referees within a group, and the questions formulated during these discussions, related to discrepancies between the SRT and JRP, or variations in the understanding and perception of a proposal between the remote reading and the poster presentation. Within each group it was also agreed from the start of the session which referee would be the formal lead referee to raise the questions to the JRP representative in the Q & A session

Only on rare occasions was a referee invited to leave the room and not take part to the question formulation due to a perceived conflict of interest.

## 5.5 Formal Interviews with JRP Representatives

The final Breakout Sessions were the Q&A sessions chaired by the MSU facilitator, assisted by a note taker to record the answers from the JRP representatives . The JRP Representatives had a maximum of 15 minutes to answer the prepared questions. The representative was told how many questions he (she) will receive and was free to decide how long, within the specified time slot, he (she) would spend answering any question. The facilitator acted also as a time keeper for the Q/A session for each representative, in order to ensure equal treatment for all of them. It was agreed that

- JRP Representatives attended for their proposals on an individual basis;
- The nominated lead Referee for each project asked the questions on behalf of the group;
- When time permitted, other referees could ask additional questions.
- If there was still some time left, the representative could make some comments/statements

It was noted that JRP Representatives were generally very competent, responding well in a challenging situation (with 5 to 10 referees and the MSU facilitator and note taker , and sometimes the observer present). Actually, when there was time left after the questions, several representatives took the opportunity to clarify, correct or complement the information delivered to the referees during the poster sessions

The referees were reminded that they should not interact with the JRP Representatives after the session.

## 6. Review Conference and Consensus Group Meetings: Evaluation

### 6.1 Marking the JRPs and SIPs

The referees were reminded of the tasks and scoring criteria, with particular emphasis on the limited grant preparation phase, by the Programme Manager prior to commencement of the Sessions. Therefore, proposals should be assessed as they are and not as they could be if some improvements/changes were to be made. The sessions were chaired by the MSU facilitators.

Referees' attention was also drawn to the novelty of the data management aspects due to the open access requirement under Horizon 2020. Referees were asked not to penalise nor reward a proposal irrespective of the proposer selected option (opt-in or opt-out) as long as their choice is justified in their proposal.

Referees were also reminded that their comments can be as blunt as they wish, they will be "polished" by the EURAMET MSU (without altering the content or the meaning) after the conference before being passed to the applicants. The importance of having clear comments was emphasised in order to assist the EURAMET staff during the grant preparation phase (for those JRPs recommended for funding) and to help applicants to understand why they were not selected (for those JRPs not recommended for funding).

For each JRP pertaining to the group, the marking exercise started by the facilitator reading to the referees the Q & A related to the proposal under consideration.

Although there is a schedule for the marking session for each JRP group, there are no strict instructions as to the time to be spent per proposal and per criterion. The MSU facilitators, however, were the time keeper, ensuring that reasonable and adequate time would be spent on each proposal and each criterion. Before commenting and scoring, referees were also invited to agree on whether the proposals conform fully, partially or not at all with the SRTs, and whether deviations, if any, are justified, and to agree also on whether each partner in the proposed project has the basic operational capacity to perform the work.

Consensus comments and a consensus mark were agreed for each proposal against each evaluation criterion and one marking sheet was completed per proposal. The primary referees who had read the proposals under discussion also led the process while all referees within the group could comment.

The facilitators maintained focus on the task at hand while complying with process requirements. They used a standard Marking Wall Chart (matrix sheet with all of the JRPs / SIPs (vertical) and the criteria (horizontal) to work up the scores. The EMPIR Marking Guidance (0 = Fail to 5 = Excellent; half marks may be given) and score interpretation table was clearly displayed in the room and frequently reminded to the referees by the facilitators. On a few occasions referees had to be reminded that their task is to assess the proposed JRP and not the SRT.

The facilitators initiated the discussion by inviting, on each criterion, one of the primary referees to express his (her) comments resulting from all inputs received (remote reading of the proposal, poster session, Q & A session). Other referees could then contribute to the discussion. An agreed set of comments was then obtained with positive and negative comments against which a mark was proposed for each criterion. At times, facilitators were reminding referees that scores should properly reflect and support the comments. There were situations when a provisional score was noted, subject to reconsideration at the end of the marking session when all proposals of the group had been dealt with. This allowed referees to make a comparative assessment of the proposals. After reviewing all proposals within the group, the scores were finalized.

In all marking sessions which I attended, after application of the weighting factors, there were no ties left and therefore it was a simple formality for the referees to establish a ranked list of proposals within their groups on the basis of the total weighted scores.

During the marking sessions the Programme Manager circulated between the Groups to draft emerging scores, to obtain a preliminary view of the Single Ranked List and to prepare for the subsequent presentation of the list to the referees.

Obviously there are some variations in the time needed to score individual proposals and to arrive at an agreed set of supporting comments for each criterion. The facilitators have the difficult task to act as time keepers while ensuring a fair process and an outcome that all referees can agree upon. The procedure was scheduled and efficiently facilitated, and the observed variations are believed to be of no consequence on the outcome of the process.

It was noted also that the discussion was not always sequenced in the same order. In some cases the impact criterion was discussed first (especially when this criterion had the highest weighting), before dealing with the excellence and then the implementation aspects.

## **6.2 Single Ranked List**

Once all marking sessions of all groups for a given TP were completed, the Single Ranked List for the JRP was developed by the EMRP-MSU using a pre-defined Excel template for ease of review and data sorting. For the SIP as there was one single group, the ranked list was simply the one directly produced during the marking session/consensus meeting

For each TP, the first draft of the Single Ranked List was presented to the plenary meetings of the referees by the Programme Manager.

In all cases, the explanations given by the Programme Manager on the ranking, the procedure to untie proposals with equal scores, and the line where the cumulated requested funding reached the available budget (the funding threshold) were all very clear. All referees were in agreement with the proposed ranking. There was one single situation (for IND) where there was a tie between 2 proposals very close (just below) to the funding threshold. The initial ranking between the 2 tied proposals was made on the basis of their respective external participation. The referees were given the opportunity to further discuss and vote on how these 2 proposals should be eventually ranked; after a brief discussion, some referees commented that this would bring into the discussions referees of other groups who had little, if any, knowledge of any or both proposals. It was therefore decided to leave the ranking as initially proposed. The Programme manager explained that the proposed ranked lists were to be submitted to the EURAMET EMPIR Committee for approval on the following Tuesday 21 November.

The referees were thanked by the Chair, asked to sign the ranked lists and again reminded to hand in all documentation and to delete all electronic files prior to departure. They were also invited to fill in a questionnaire to provide a feed back to the MSU team on their opinion about all aspects of the whole evaluation process.

## **7. Conclusions**

The main conclusions that I can draw from review of the 2017 EMPIR Call documentation, the process and my attendance at the Review Conference and consensus meetings include the following:

- The process and procedures were carried out in accordance with the rules established in Decision No. 555/2014/EU of the European Parliament and of the Council on participation of the Union in EMPIR (15 May 2014), Regulation (EU) No. 1290/2013 of the European Parliament and of the Council laying down the rules for participation and dissemination in Horizon 2020 (11 December 2013, with one derogation for the funding rate) and the draft Horizon 2020 Model Delegation Agreement for Article 185 Initiatives (September 2014).
- The overall evaluation process was conducted in a very efficient manner and the referees were carrying out their work in full compliance with the guiding principles of independence, impartiality, accuracy, objectivity and consistency.
- The Call documentation and all correspondence with the referees were comprehensive, of a very high standard, in keeping with the maturity of the EMPIR-MSU team and their procedures which

have been developed and refined over a substantial series of EMRP and iMERA Calls and the EMPIR 2014, 2015, and 2016 calls

- The Review Conference was organised in a highly professional manner, ranging from the logistics (selection of venue, scheduling of activities, quality of catering) to the facilitation of the individual sessions (time efficiency, technical competency and unbiased nature).
- The Call outcomes (Single Ranked Lists) were of high quality suited to submission to the EMPIR Committee for timely approval.

The Call process and procedures are fitting well with Horizon 2020 guidelines. From informal discussions with referees, JRP Representatives and members of the MSU team, it was clear that all involved persons have now become familiar with the specific features and novelties of Horizon 2020 applicable to the EMPIR programme, in particular the limited grant preparation phase necessitating that proposals should be evaluated as submitted and not on potential if certain changes are made, and the necessary attention to the new data management aspects

One of the major differences with the Horizon 2020 evaluation process is the interactive activity between the JRP Representatives and the referees for the Research Potential, Pre and Co-Normative, Industry and Fundamental calls through the poster sessions and the Q/A sessions. From witnessing these sessions, and listening to the participants, I am convinced of the benefit of these sessions. They are of adequate duration (25 or 20 minutes for pre-allocated poster sessions and 15 minutes for Q/A sessions) and they provide a well appreciated opportunity for referees to meet the JRP representatives and get clarifications about the proposals. For practical reasons it would not be possible for calls generating hundreds of proposals, but I believe this direct interaction between referees and JRP representatives is possible and beneficial because the European metrology community is rather well structured, not extremely wide and the interaction is not of a large scale. The Poster Sessions were dynamic, comprising rigorous challenging/defending of the proposals as well as providing a networking activity for the metrology community. The formal Q/A sessions added to the challenging/defending activity and could be viewed as a training ground for career development. The feedback from both JRP Representatives and referees was very positive. The career development and networking nature of the activity should make it worthwhile.

**As an independent observer, I am convinced that all proposals received adequate and equal treatment, that the whole evaluation process was conducted to high standards of diligence, fairness and professionalism, in accordance with established principles of independence, impartiality, objectivity, accuracy and consistency at all stages and in full compliance with established rules, and that the resulting ranked lists reflected, for those projects above the funding line, the best projects which should be funded.**

**The organisational and logistical aspects and working conditions were excellent.**

## **8. Acknowledgments**

In closing this report, I would like to thank the EMPIR Chair and Deputy Chair, the EUROMET General Secretary, the EMPIR Programme Manager and deputy Programme Manager, and the entire Management Support Unit team for their excellent support before, during and after the Review Conference. Every effort was made to assist me, to explain the relevant context and to provide me free and unrestricted access to all information and documents, thus demonstrating a high degree of transparency. Their support, their assistance and their kindness throughout the entire process were outstanding and contributed greatly to making the observation work not only a smooth but also a very enjoyable exercise.