NATIONAL NETWORK OF ELECTRON MICROSCOPY – RNME

NETWORK MANAGEMENT MODEL[a]
ARTICULATION AND GENERAL OPERATION

(English translation draft)

[a] The Network Management Model is an Annex to the RNME Protocol, agreed by all founder institutions and the Foundation for Science and Technology – FCT.

1. INTRODUCTION

The National Network of Electron Microscopy (**RNME**), constituted by the initiative of the Foundation for Science and Technology (FCT), it is a structure associating electron microscopy laboratories, including equipments for sample observation and preparation.

The initial Signatories of the RNME are integrated in the following institutions: University of Aveiro, University of Coimbra, University of Minho and University of Porto.

2. OBJECTIVES

a) to ensure the access of researchers from the Research Units of the FCT, from Universities, Polytechnic Institutes, Centers and Laboratories of the National Scientific and Technological System (SCTN), in frame of the development of projects / research programs, to the Electron Microscopy (EM) facilities integrated in the RNME;

b) to promote the efficient and continuous operation of equipments and widespread use of the EM resources available in the Network;

c) to promote the scientific and technical training in EM and associated techniques, and the dissemination and demonstration of analytical techniques available in laboratories participating in the network;

d) to provide a structured information system accessible by the Internet, including data on the laboratories of the network, on the available experimental facilities and on their access and use rules and conditions;

e) to promote cooperation with national and international organizations in the EM field.

3. CONSTITUTION

The National Network of Electron Microscopy (RNME) consists of *participating* institutions and *acceding* institutions. The *participating* institutions are the signatory entities to this Protocol of Cooperation. The *acceding* institutions are all institutions established under the ninth clause of the same Protocol.

4. ORGANIZATION AND STRUCTURE

4.1 - Definition of the RNME POLE - is an Institution / Center / Department which iis responsible for managing one or more equipments of electron microscopy, integrated in the Network.

The founder RNME Poles are:

- **UNIVERSITY OF AVEIRO**
  Reference Project: REDE/1509/RME/2005
  Coordinator Researcher: Joaquim Manuel Vieira
  Equipment:
  A. HR-TEM200-SE/EDS: (FE) HR-TEM of JEOL, model 2200FS and EDS of Oxford, model INCA Energy TEM 250.

  High-resolution 200kV filtered energy transmission electron microscope EF-TEM, with Schottky emission electron gun (SE), accelerating voltage of 200kV, Omega type in the column energy filter with electron energy loss spectrometry EELS, integrated modes of operation in scanning transmission, slow-scan CCD camera and STEM unity to obtain elemental composition maps, JEOL, model 2200FS, with coupled microanalysis system by X-ray energy dispersion spectrometry (EDS), Oxford, model INCA Energy TEM 250.

  B. HR-SEM-SE/EDS: SEM Hitachi, model SU-70 and EDS Bruker, model QUANTAX 400.

  Analytical and high resolution scanning electron microscope SEM with Schottky emission (SE) electron gun, with secondary and backscattered electron detectors, Hitachi brand, model SU-70, with a system of microanalysis by X-ray energy dispersion spectrometry EDS with XFlash 4010 detector for light elements, liquid nitrogen free, Bruker, model QUANTAX 400.

- **UNIVERSITY OF COIMBRA**
  Reference Project: REDE/1510/RME/2005
  Coordinator Researcher: Paulo de Carvalho Pereira
  Equipment:
  A. CTEM / B - Transmission electron microscope: FEI Tecnai, model G2 Spirit Biotwin.

  High resolution of 120 kV transmission electron microscope for the biological samples, with tungsten filament as electron source, shiller, air compressor, with a coupled side mounted CCD camera MegaView III - SIS.

  B. UMic-BIO / B - Ultramicrotomy with Cryo Unit for preparation of frozen biological samples for transmission electron microscopy, Leica, model EM UC6 + MS FC6.

- **UNIVERSITY OF MINHO**
  Reference Project: REDE/1511/RME/2005
  Coordinator Researcher: João Manuel Luís Lopes Maia
  Equipment:
  A. FE_SEM-EDS/EBSD: FEI, model Nova 200 NanoSEM and EDAX, model Pegasus X4M.

  Field emission, ultra-high resolution scanning electron microscope, FEI, model Nova 200 NanoSEM, with X-ray microanalysis (EDS) system and a system of detection and analysis of backscattered electron diffraction patterns (EBSD), EDAX, model Pegasus X4M.

B. Unit of TEM sample preparation: Leica, models UC6 and EM FCS, Quorum/Polaron, model E 6700.

Ultramicrotomy Leica brand, model UC6, with cryogenic chamber Leica, model EM FCS and high-vacuum evaporator Quorum/Polaron, model E 6700.

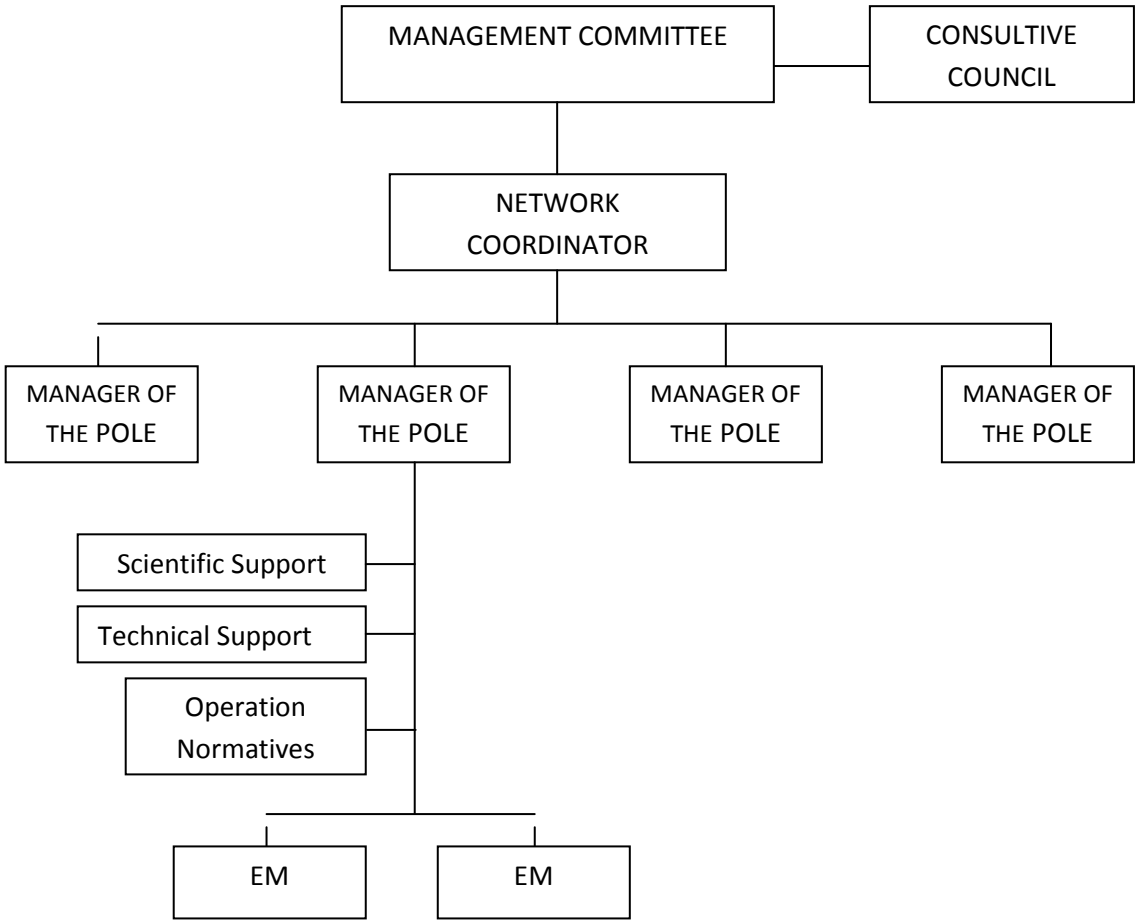
- **UNIVERSITY OF PORTO**
  Reference Project: REDE/1512/RME/2005
  Coordinator Researcher: Carlos Pinto Moreira de Sa
  Equipment:
  A. FEG_ESEM - EDS / EBSD: FEI, model Quanta 400 FEG and EDAX Pegasus, model X4M.

  Environmental scanning electron microscope with field emission gun (Schottky) FEG_ESEM system with X-ray microanalysis (EDS) and a system of detection and analysis of backscattered electron diffraction patterns (EBSD).

  B. Cryo-SEM unit: Gatan model ALTO 2500.

  Cryo-SEM Unit of preparation / transfer and observation of samples at low temperature (LN2) associated with the scanning electron microscope FESEM JEOL JSM6301F.

4.2 - Organization Structure



The organization of the National Network of Electron Microscopy includes:

a) Management Committee (MC)

b) Network Coordinator (NC)

c) Consultive (*Advisory*) Council (CC)

d) Manager of the Pole (MP)

a) Management Committee (MC)

Composition of the Management Committee

1. The Management Committee (MC) includes one representative from each participating institution or acceding institution, who is the manager of the Pole, nominated for renewable periods of two years.
2. The representatives of the participating institutions of the first MC are the Coordinator Researchers responsible for the infrastructure projects approved for funding and presented by the Universities of Aveiro, Coimbra, Porto and Minho. The MC with this composition becomes effective with the signing of this Protocol.
3. The MC will be advised for scientific issues by a Consulting (*Advisory*) Council (CC) composed by national and foreign specialists.
4. The MC will be coordinated by the Coordinator of the Network, who chairs and represents the Network, and he is chosen on a rotation process among the members from the participating institutions and acceding institutions, with order of rotation being established by the MC.
5. The order of rotation of the Presidency is institutional, but the place is filled on a personal basis.
6. The President may appoint a member of the MC as Vice-President to replace him in his temporary impediments and absence.
7. The President has a qualified vote.

The **powers of the Management Committee** are:

a) to elected the Coordinator of the RNME among its members;

b) to approve the criteria, to propose to the institutions, for the definition of classes of users and services and the cost of access under the principles of coordination and differentiation of users and required services (access policy, use and fees), and the regulations and principles of RNME after hearing the Consultive (*Advisory*) Council;

c) to approve the plan of joint activities of the Network and its budget;

d) to approve the periodic reports on various aspects: scientific, financial, use and productivity of the equipments;

e) to monitor the performance of the Poles of RNME through the reports submitted by the Coordinator of the Network;

f) to collect and disseminate information relevant to comply with the Protocol of RNME;

g) to promote the EM services of the Poles and the training activities relevant to users of EM;

h) to give an opinion on the proposed accession of institutions to the network;

i) to approve proposals for membership and participation of the network in national or international organizations;

j) to coordinate the creation of an web portal that enables the network Poles and potential users of their equipment to know their characteristics, conditions and availability of services, make appointments, i.e., keep up-to-date with information relevant to access the Network;

k) to coordinate and conduct activities of the RNME aimed at achieving own funding, to promote the timely acquisition / upgrade of equipment suited to scientific requirements as they arise and to propose training activities of the scientific community in the EM;

l) to approve the multiannual Contract Program with the participating institutions and acceding institutions, to submit to the FCT and the relevant ministry. Under this contract will be set the sharing of operation costs of the RNEM to maintain and update the equipments and maximize their efficiency and will be established the corresponding institutional obligations;

m) to invite the experts to become members of the CC, as appointed by the participating institutions and acceding institutions;

n) to approve any amendments to this Annex, for which it will required a meeting specifically convened for that purpose, that should also have the agreement of the FCT.

The Management Committee meets quarterly under ordinary conditions. It may be extraordinarily convened by the Coordinator of the Network, or whenever requested by 1/3 of Poles of the Network.

COMPOSITION OF THE MANAGEMENT COMMITTEE - MC - Starting MC

- Joaquim Manuel Vieira (University of Aveiro)
- Paulo Carvalho Pereira (University of Coimbra)
- João Manuel Maia (University of Minho)
- Carlos Moreira de Sa Pinto (University of Porto)

b) Network Coordinator (NC)

The Coordinator shall be selected on a rotation basis among the members from the participating institutions and acceding institutions, the order of rotation being established by the CN.

The **powers of the Network Coordinator** are:

a) to convene and chair the meetings of the Management Committee and Advisory Board, prepare their agendas and minutes;

b) to represent the participating and acceding institutions of RNME next to the FCT and the relevant Ministry, within the objectives set by the Network Management Model;

c) to ensure the proper operation of the management organs and common services of the Network;

d) to prepare the plan of joint activities of the Network and its budget;

e) to promote the assessing of performance of the Poles of the Network and make periodic reports (**the format of reports should be available online**) on the Poles operation mode and the quality of work produced, based on reports prepared by each of the Poles (**the reports will have a common format to all Poles**), to submit to the MC. The frequency of reports will be defined by the MC in terms of institutional obligations;

f) to propose measures in case of malfunction of a **Pole of the RNME, including the temporary or permanent exclusion of the faulting Pole**.

g) to promote the coordination of the proposals to upgrade or purchase of equipment submitted by the institutions under the RNME.

h) to prepare and propose to the MC of RNME the budget that underlies the program contracts with the participating and acceding institutions.

i) to promote initiatives to raise funds to support the operation of RNME.

Comments: The mandate of the Network Coordinator lasts for two years.

c) Consultive (*Advisory*) Council (CC)

1. The Consultive Council is composed of national and/or international experts of wide recognition of scientific merit, appointed by each of the participating and acceding institutions.
2. It is the responsibility of the Consultive Council the issue of appraisals on the RNME, particularly on the upgrade and purchase of equipment under the contract programs, on the overall operation (scientific and financial) of RNME and on any other matter for which might be consulted by the Management Committee.
3. The CC meets annually at the invitation of the MC.

d) Manager of Pole (MP)

1. The manager of the Network Pole is appointed by the institution to which it belongs.
2. In addition to the powers granted by the institution to which it belongs, the **powers of the Manager of Pole include**:
   a) the management of the equipment(s) of Electron Microscopy integrated in the Pole of the Network;
   b) the management of the operation of the Pole;
   c) to propose the rules for operation of the equipments of the EM Pole based on the general rules of operation of the Network, as defined by the MC;
   d) the definition of price list for Network users in conjunction with the MC;
   e) the elaboration of a permanent record of use of equipment (s) (registry of use /web portal), specifying the users and the period of use;
   f) to update the content on the Network online portal;
   g) the management of technical and scientific support provided to the equipment user(s);
   h) the organization of workshops and practical courses for better and efficient use of the equipment(s);
   i) the elaboration of the annual report of activities of the Pole, to submit to the Network Coordinator, **with a format that should be available online**;
   j) to promote the contract of technical personnel and the acquisition and upgrading of equipment in order to maintain an efficient service.
3. The accounting of RNME resources will employ, whenever technically feasible, a common basis that makes the use of the infrastructures of the several Poles transparent to the user and easily auditable.

4. The accounting of the used resources will be regularly made and the reports of use will be submitted by the MC to the FCT according to the terms to be agreed.

5. The funds resulting from the payments by the users will be a revenue of the institutions responsible for the Poles, being primarily designed to pay the costs of operation, maintenance and replacement of equipment of each Pole.

5. General rules of access and use of the infrastructures

5.1 Network Users (NU)

It is understood a **Network User** the researcher from the Research Units of FCT, from the Universities, the Polytechnic Institutes, the Centers and Laboratories of the National Scientific and Technological System (NSCS) using the facilities of electron microscopy of the Network in the development of their work.

The Network Users are classified as:

a) Researchers of the Principal Institution hosting the equipment of the RNME Pole and belonging to the Participant Institutions of the project;

b) Other researchers of the Principal Institution hosting the equipment of the RNME Pole;

c) Researchers from outside the Principal Institution hosting the equipment of the RNME Pole;

d) Foreign institutions and companies.

RESPONSIBILITIES OF THE NU

The **Network User** must:

a) be registered, in advance, in the management system of the Network Poles;

b) make a reservation for access to equipment (complete and submit the required form to request the various services provided by the Network);

c) use the equipment complying with the operation rules of the host Laboratory;

d) to pay for the use of equipment, according to the rates adopted for the equipment and services;

e) participate in the quality assessment of the activities of the Pole and the Network, **using a specific form which format should be available online;**

f) publicize and quote the Network, the Centers, Laboratories and host Universities whenever a communication/publication contains significant results provided by the work done in these infrastructures.

5.2 Normative for the procedures of access and reservation

- The general rules of reservation applied to each Pole of the Network must ensure:
  a) the general availability to researchers from the Research Units of FCT and from other R&D institutions in the development of projects / research programs;
  b) the integration, by option, in the general system of reserve marking in the RNME infrastructures;
  c) within the best practices of each institution, setting a minimum quota of 30% of the reservation time with an appropriately typified advance for the external users to the host Unit, national or foreign to expire within a given advance to be defined in regulations.

Separate accounting should be provided for use time and for the time spent for:

a) Maintenance;
b) Periodic inspection of operating conditions;
c) Development and improvement of equipment;
d) Training of users.

The Management Committee will approve the criteria to be proposed to the institutions defining the classes of users and services, the conditions of use and capacity to perform experimental work in the equipments, and costs of access under the principles of coordination and differentiation of users and the required services.

Procedure

To request the various services provided by the Network, the **NU** must fill out a specific form or print and to send it via e-mail, fax or letter to the **MP**.

The form should be available online and cover the following fields:

a) Identification of the requester;
b) Purpose of the experiment;
c) Brief description of the samples;
d) Information on possible security care to respect;
e) Special operation conditions of the equipment, when necessary;
f) The nature of the study to be undertaken.

- **Next to the equipment it must be available:**
  - Written rules stipulating the sets of mandatory instructions and recommendations for correct use of the equipment(s).
  - A digital record or a "registry book" where users must record the made experiences and any anomalies and/or difficulties encountered during the experimental procedure..

6. Access regulations in effective use in the units of the RNME

The models adopted by the signatory institutions of RNME, at the time of the adoption of the Protocol, shall be provisionally in effective use until the negotiation of definitive access regulations in accordance with the Protocol of constitution of RNME and the Management Model.

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