



## *WP5, Final Report*

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# **WP 5 – Final report**

Elaboration of a methodology to set up and run EMAN

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## **Summary of the work performed possible structure of EMAN**

The analysis of other networks, stakeholders and organisations presented in this report will support the EMAN project in creating its network. However the role that EMAN will play in the health care environment and in the radiological protection community will have to be further elaborated and refined.

Collaboration with persons, networks and organisations has started and has to be intensified and of course continued throughout the networks lifetime. At the beginning, the size of the network should not be too large. For continuity some of the members of the project engaged in the EMAN project have to take a leading role in the beginning of the life of EMAN.

Communication tools are important and any kind of obstacles when using modern communications tools must be avoided. The tools should be usable in a professional setting and this requires special effort. The prerequisite for working in a professional environment are somewhat different than for social networks, this has to be acknowledged. One tool is the website and the EMAN project will have to carefully think about the structure of the network website.

It should be anticipated that at the beginning of the life of EMAN a strong management is needed. The network have to work heavily on communication both internally and externally in order to create the identity of the network, this takes time.

Finding financing and at the same time keep integrity is not easy. Therefor the present strategy is that EMAN should be financed by member fees.

Tasks and products are very important for the network. There is a need for working continuously on this topic during the whole duration of the project so that when the project is finished clear and specific tasks and products are identified. One strategy is to have mechanisms ensuring that the EMAN products are easily identified. In this way the use of the products can be referenced to as a product from EMAN, the identity of EMAN is strengthened and the efficiency will be evaluated more easily.

The main task of EMAN is to identify and advocate important issues to be solved concerning optimisation in the medical sector. Another important task is to advocate good practises. In this project we have found that vary important topics have been addressed in different projects in different countries. Frequently the findings from these projects are not known to many of the stakeholders. Disseminating the results according to the stakeholders needs is an important task for EMAN.

It has to be recognized that it is not easy to build a network and it takes time.

## The tasks of WP5 according to the tender

One of the major aims of the EMAN project is the creation of a sustainable network well known by important stakeholders with interest in optimisation in the medical sector. Work Package 5 (WP5) is dealing with the methodology for creating this network. The following specific tasks related to these objectives were assigned to WP5:

1. To systematically identify and review the roles of the different stakeholders at national and EU level
2. To establish cooperation with different stakeholders in international organizations and associations
3. To establish cooperation with other networks and make use of their experience
4. To examine different communication strategies in connection to networking
5. To identify success factors for networking and implement these in the continuous development of EMAN

The achievements of WP5 are addressed below.

### European networks – task 1

The WP5 have explored existing network and organisation in Europe in order to establish possible members of the network. A survey was performed and the method and result of the survey is presented in appendix. Three different possible concepts for the EMAN network were extracted and discussed. They are described below together with a short evaluation of the pros and cons associated with the respective choice.

#### *Expert network*

The network acts as an expert forum with expertise for preferably all stakeholders that are involved in or affected by the optimization process. Engaging all stakeholders however was found to be not realistic. The task of the network is to support persons and organisations who can seek advice for problems encountered either in daily practice, or for issues on a more general level, possibly including those of political, ethical or philosophical nature. The network products are not obvious. It might include issuing official advice, recommendations and guidelines in the field. The working attitude of the network is perhaps more passive than active, i.e. is responding to issues coming from outside. The network is a resource for different stakeholders who can receive advice from a high expert level. The network has to be well-known and respected for *inter alia* its high integrity. The issues addressed to the network have to be of multi-professional nature. More specific issues concerning only one profession should not be dealt with as there are other networks for this purpose. Information of the network has to be open and the possibilities of approaching the network have to be “advertised”. The typical stakeholder that can approach this network could be organizations such as the European Commission (EC) and HERCA.

Pros: Relatively simple to establish and maintain provided engaged and devoted experts can be found for this task. One forum can cover most aspects with respect to optimization.

Cons: The work is most likely rather static, i.e. there is less possibility of being proactive in upcoming issues and the risk of not seeking advice from other stakeholders not represented in the group is high. Essentially all members in the group must have the ability and capacity to

develop the network actually perform this task. Experiences from similar groups show that mostly only one or two persons are actually engaged and are acting as the engine in the network.

### ***Communicator network***

A committee is the core of the network. It comprises representatives from major stakeholders. It is very important to have mechanisms that guarantee that all these stakeholder are represented in the group. Commitment to the task is needed from all representatives. The number of stakeholders in the committee could shift from time to time. A detailed plan, agreement on how the network should be run is very important. It is expected that the committee is selecting hot topics. Issues identified could be handled in ad hoc working groups. The committee should be able to engage other experts for the work in the working groups. The committee should also give advice about what products should be produced. Products could be advice, guidance and recommendations in the area of optimisation. The committee should also work out which target group the products are meant for. Communications with different stakeholders have to function in both ways. The network has to be open and reachable and the products should also be communicated in an adequate way.

Pros: Relatively simple structure with the steering committee as the engine of the work.

Cons: Difficult to engage experts with both the necessary knowledge and experience and the time available to work in the network.

### ***"The social" network***

The network is acting as a platform where information, ideas, problems and possible solutions in the area of optimization are presented and discussed. From interested stakeholders ideas can be collected, new thoughts can be generated and analysed. This assumes that the forum is very well known and that the tools for communication are modern and appropriate. The persons seeking involvement in the network as part of the forum should be given fast response. It is not advised that real recommendations or statements are made, because the thoughts and views are not moderated, i.e. different opinions that might exist are not put against each other and discussed in a suitable group. The product of the network is more bringing people together. The network needs some kind of coordination and evaluation by a group of people. This network could handle intermediate difficult issues rather than very complex one, as the response has to be rather fast.

Pros: If well known the competence in the forum of the people engaged could increase. The network could attract people on all knowledge levels. The network created engage persons rather than organizations which is the original idea of a network.

Cons: There is a high risk that the network has a rather weak identity. The continuity and life time could be jeopardized because there is no strong engine.

### ***Conclusions***

EMAN should be a mix of all these. The project wants to engage both organization and individuals.

## Stakeholders with respect optimisation – task 2

Several stakeholders influence optimisation in the hospitals. The stakeholders below have influence. A short description is presented:

### *Governmental institution, GI*

GI has the role of issuing and/or enforcing regulations and guidance in the field of optimisation. GI could also act as trainer of the trainer and support other activities such as clinical audits.

### *Research institutions, RI*

Research is performed developing new types of solutions for the medical area, such as new radiological devices and procedures are developed and are further on tested in the clinical environment. Also research on measuring devices is performed and investigations undertaken on how to optimise.

### *Standardisation institutions, SI*

SI:s are establishing basic requirements for the safety and also for the performance of medical equipment. These requirements shall ensure that the equipment and its handling is safe, by among other things minimising potential risks for unintended exposures, designing radiation protection devices, and that the equipment can be well adapted to its intended clinical use.

### *Companies developing and selling medical equipment*

Manufacturers have close collaboration with researchers. The design of technical devices such as image detectors will influence the ability to optimise.

### *Professionals managing the entities in which medical exposures are performed*

These are responsible for the resources given for purchase, use and maintenance of medical equipment. The safe use has implications on e.g. costs for the clinic. In several countries the managers that are also licensees and they are therefore responsible for the implementation of regulations.

### *Professionals working in the hospitals*

This comprises radiologists, other physicians, radiographers, nurses, medical engineers and medical physicists. All of them may be involved in the practical performance of the medical exposures. This group is one of the most important for optimization. In clinical practise findings from research activities, guidelines and recommendations concerning optimization must be implemented.

## International organisations – task 3

In order to reach organisation engaging the above stakeholders the following organisation have been identified:

*BFS Federal Office for Radiation Protection*

BfS is the national authority which works for the safety and protection of man and the environment against damages due to ionizing and non-ionizing radiation. Of special importance are, in addition to the defense against immediate hazards, the precautions for the protection of the general public, persons employed in the working world as well as patients in the medical field.

*CEPN The centre for evaluation of the protection in the nuclear domain*

CEPN, founded 1976, is a non-profit association for the evaluation of the protection of man against the dangers of ionizing radiation with respect to technical, health, economic and social issues.

*DICOM standards committee*

DICOM (Digital Imaging and Communications in Medicine) is a standard for handling, storing, printing, and transmitting information in medical imaging. DICOM files can be exchanged between two entities that are capable of receiving image and patient data in DICOM format. The National Electrical Manufacturers Association (NEMA) holds the copyright to this standard. It was developed by the DICOM Standards Committee, whose members are also partly members of NEMA.

*CIRSE Cardiovascular and Interventional Radiological Society of Europe*

CIRSE is a non-profit making, educational and scientific association aiming to improve patient care through the support of teaching, science, research and clinical practice in the field of cardiovascular and interventional radiology. CIRSE provides continuing education and training for its members and other physicians and scientists with an active personal involvement and interest in interventional radiology and/or cardiovascular imaging techniques. CIRSE aims to improve ethical, technical and material conditions in cardiovascular and interventional radiology.

*COCIR European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry*

COCIR is a non-profit trade association, founded in 1959, representing the medical technology industry in Europe. Members are vendors of medical equipment. The organization is working on the European level with economic, regulatory and technical issues.

*EC: European commission*

The department radiation protection in the directorate general energy is in charge for the legal framework for the protection of man against the dangers with ionizing radiation. The Commission acts in multiple other ways to support the safe use of ionizing radiation in medicine, including elaboration of European guidelines, support of research on medical applications of ionizing radiation and involvement in activities fostering information exchange and involvement of stakeholders.

*EFNA European Federation of Neurological Associations*



EFNA brings together European umbrella organisations of neurological patient advocacy groups, to work with other associations in the field of neurology, including the European Federation of Neurological Societies (EFNS), in what has been termed a "Partnership for Progress".

#### *EFOMP European Federation of Organisations in Medical Physics*

EFOMP's membership consists of 35 national organisations and 3 affiliated national organisations which together represent more than 5000 physicists and engineers in the field of Medical Physics. Aims and Purposes of EFOMP are *inter alia* to foster and coordinate the activities of National Member Organisations and to collaborate with national and international organisations, particularly IOMP. Its mission is to harmonize and advance medical physics at an utmost level both in its professional clinical and scientific expression throughout Europe and to strengthen and make more effective the activities of the NMOs by bringing about and maintaining systematic exchange of professional and scientific information, by the formulation of common policies, and by promoting education and training programmes.

#### *EFRS European Federation of Radiographer Societies*

The role of the European Federation of Radiographer Societies (EFRS) is to represent, promote and develop the profession of radiography in Europe, within the whole range of medical imaging, nuclear medicine and radiotherapy and moreover everything in the broadest meaning. The European Federation of Radiographer Societies (EFRS) is a young organisation.

#### *ESC European Society of Cardiology*

ESC represents over 62,000 cardiology professionals across Europe and the Mediterranean. The society provides different scientific and educational activities, such as the production and continuous updating of clinical practice guidelines and organizes educational courses. It also organizes the ESC Congress.

#### *ESNR European Society of Neuroradiology - Diagnostic and Interventional*

ESNR is a professional society representing diagnostic and interventional neuroradiologists in Europe. The Society organises Annual Scientific meetings and European Training courses and is a forum for professional development of European Neuroradiology.

#### *ESR European Society of Radiology*

ESR was founded in December 2005 by merging the European Congress of Radiology (ECR) and the European Association of Radiology (EAR), thus establishing an organisation of radiology in Europe. It is an apolitical, non-profit organisation, exclusively and directly dedicated to promoting and coordinating the scientific, philanthropic, intellectual and professional activities of Radiology in all European countries.

#### *EURADOS European Radiation Dosimetry Group*

EURADOS is an association inaugurated 2008. The objective of EURADOS is to advance the scientific understanding and the technical development of the dosimetry of ionising radiation in the fields of radiation protection, radiobiology, radiation therapy and medical diagnosis by the

stimulation of collaboration between European laboratories, especially those of the European Communities.

*HERCA Heads of European Radiological protection Competent Authorities*

HERCA is a voluntary association in which the Heads of Radiation Protection Authorities work together in order to identify common issues and propose practical solutions for these issues. HERCA is working on topics generally covered by provisions of the EURATOM Treaty. The programme of work of HERCA is based on common interest in significant regulatory issues. The goal of HERCA is to contribute to a high level of radiological protection throughout Europe.

*IAEA: International Atomic Energy Agency*

The IAEA is the world's centre of cooperation in the nuclear field. It was set up in 1957 as the world's "Atoms for Peace" organization within the United Nations family. The Agency works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies, among which are also medical equipment using ionising radiation.

*IEC International Electrotechnical Commission*

IEC is a not-for-profit, non-governmental organization, founded in 1906. The IEC's members are National Committees, and they appoint experts and delegates coming from industry, government bodies, associations and academia to participate in the technical and conformity assessment work of the IEC. IEC is a global organization that publishes consensus-based International Standards and manages conformity assessment systems for electric and electronic products, systems and services, collectively known as electrotechnology. IEC publications serve as a basis for national standardization and as references when drafting international tenders and contracts.

*IHE Integrating the Healthcare Enterprise International*

It is an association of Health IT users and vendor. Active globally and has a branch in Europe. The association has special activities in radiology.

*SSM Swedish Radiation Safety Authority*

SSM is the national authority with the task of protecting people and the environment from the harmful effects of radiation. SSM ensures that those who conduct activities using radiation assume responsibility for reducing the risks. SSM supervise the area of medical exposures.

*WHO, World Health Organisation*

WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. WHO has recently started a global initiative with the aim of improving radiation protection for medical exposures.

## **Success factors that have to be considered when creating networks– task 4**

In the following section key elements are discussed. These issues must be addressed when deciding on how a network ought to be created. We have also studied a number of European networks. The solutions found in the various networks are not necessarily those most appropriate for EMAN.

It is important to identify key elements for the success of a network. Through different sources, e.g. personal communication and conference presentations, some key elements for the success of a network have been identified. These key elements are summarised and presented in this section. The possible consequences for the EMAN project are also included.

### **Management and size of the network**

All studied networks have essentially the same structure for management, similar to that of the present EMAN project. It is a 'project' structure, with a steering group managing the network and working groups performing specific activities. The steering group consists of designated representatives from all or part of the organisations/countries engaged. The number of organisations varies between 10 and 60. Which of the organisations is acting as the coordinator is changing with time for some of the networks. The total number of persons directly or indirectly involved in the network was difficult to assess.

The constraints and limits of a network will be defined during the development stage. For instance the number of members in the network, both from organisations and individuals, will be considered. It could be difficult to provide good service to all members if this number is too high. On the other hand, if it is too low the attraction of the network for all the stakeholders will be reduced and hence their engagement will decline. It must also be clear for all members what services and products can be expected from the network and which should not.

Good management is important. The network coordinator(s) have to be competent, available, welcoming, approachable and enthusiastic. Good communication skills are crucial and a communication plan will support and facilitate the work of the network.

Successful networks seem to be more flexible than other types of organizations and institutions. When no permission has to be requested or formal rules have to be followed, it is easier to initiate new topics, start up new working groups and to involve people from new stakeholders. The success is depending on finding the right type of committed stakeholders that are involved in a topic and bring them together. The members should come from different backgrounds, different countries and with different experiences. This will favour solutions that will take care of all the dimensions of a problem and will therefore be easier to implement into daily practice.

The EMAN network, in order to accomplish the above mentioned success factor, must develop a strategy to implement the ideas and expectations of the stakeholders in the network concept, taking into account the different cultural aspects. For the persons responsible for the management of the Network, a profile will be established addressing both hard (education, experience) and soft (enthusiasm, engagement, social competence) qualifications, in other words persons that could act as an "engine" for the network.

## Members

The members of the studied networks consist mostly of representatives from the organisations represented in the steering group. The members in working groups performing specific actions or tasks are also mostly delegates from these organisations. An important task for all networks is to involve persons outside the core organisations to take part in activities conducted by the network.

Enthusiastic and committed members with communication skills are crucial for a network to be successful. These individuals can discuss real problems encountered in their daily life with others and try to find appropriate solutions. Enthusiastic and committed people are found more frequent in networks providing bottom up actions, such as workshops, group work, web forums and panels, rather than in networks providing top-down actions such as databases and formal tools. Therefore the network should encourage personal links that can build bridges between organisations. It should provide opportunities for individuals to meet face to face rather and not only via formal institution channels. When there are no formal “rules” to follow, many bypasses will be introduced that give opportunity to individuals to express their needs and listen to each other.

EMAN should have different types of members: individuals, but also organisations represented by designated persons. Their involvement and contribution to EMAN might thus differ, notably according to the available time they might be able to ‘give’ to the network activities. To foster their involvement in the network and their active participation in the future network activities, specific attention will have to be given to the identification of their expectations regarding the network products.

## Tasks and product

Recommendations are the main products of some of the networks. One of the most important target groups for these networks is decision makers. Some networks have the role of policymakers, others networks perform research. The products of the later are shared in the research arena. Many of the networks use workshops as a tool to disseminate results. The impact of those types of activities will be investigated further, for example which guidelines, policies or regulations (at the European or national levels) were issued and how this was achieved.

Before starting EMAN the network, its objectives will be defined, preferably distinct and measurable. A statement of vision and mission will be formulated for guidance of the development of the network. Possible products and tasks that are in accordance with these guidelines will be elaborated. The network needs to meet the expectations of its members and stakeholders. People are busy and will only continue to participate if they will have a benefit.

The project’s point of view is that there exist a lot of knowledge, information and examples of good practises. EMAN has to identify the potential support from “market and customers” for its products, both inside and outside the network. The elaboration by the Steering Committee (SC) of a ‘strategic plan’ covering the medium term (e.g. 3 years) might then help to formalise the objectives of the network according to the member’s expectations, and the work programme adopted to reach these objectives. Finally, the SC should, on a regularly basis, check the quality of the products and assess the impact of the network’s products on the daily work in the medical environment.

## **Communication and tools**

All networks but one have their own website. The main role of most of these websites is to inform about the network activities. In many cases layout is influenced by the project structure and working packages rather than by different topics. These websites can be considered as being rather conventional with respect to their structures and content.

A network needs to communicate in an efficient way. It must reach relevant stakeholders using the right information and dissemination channels. The message must be delivered in an understandable format. The network needs to be visible and should give status and recognition to its members. People need to have the feeling to be part of something worthwhile. Well-established communication channels will be one factor that contributes to get this feeling.

In this field, EMAN will identify the communication channels available (web sites, reports, symposiums, dissemination of information through other networks, publication of guidelines, etc). Information channels will then be selected according to the various specific objectives and products, with the aim to reach the audience target in an effective way. The network will consider using channels suitable for each different kind of stakeholder and not to produce one product for all.

It is important to recognize that web-networks and high quality websites are factors for success. Communication between members is also a critical factor. For the time interval between face-to-face meetings, a communication channel strategy must be developed. Web based technology could be one solution for communication between members, most likely contributing to the success of the network.

## **Financing and integrity**

All networks, not directly supported by the EC or IAEA, have a member's fee. It is interesting that all networks but one were originally supported by the EC. The member fee is paid by the member organisations. In some cases the fee is so high that there is certainly an incentive for each member organisation to monitor the effectiveness of the network, and evaluate whether there is a net benefit for that member organisation. This issue of 'independence' will be further investigated, specifically by addressing the matter on how members working in a network can be independent from their own organisation.

As stated previously, all networks need a minimum amount of financial resources to be able to stay in business in the long term. Preferably financial revenues are created through its own core business by developing its own capacity in this respect. Income from workshops could one source of financing. Whatever type of financial scheme will be used (fee from all members, fee from specific organisations, working time allocated to members of specific organisation, mix between various schemes etc) care has to be given to its durability and its adequacy to the network objectives and work programme.

In order to accomplish this success factor the EMAN network will work out a policy statement on how different organisations can contribute to finance the network, how individuals from these organisations can participate in the development of the network products as well as other potential financial participation of individual members. The potential administrative structure managing the network will be examined.

### **Demonstration of efficiency**

It is important for a network to show efficiency. A good network give a feeling that there is always something going on. New experiences are communicated to the members, stakeholders and others on a regular basis. The way these new experiences are communicated is important, and this will be decided beforehand and stated in a communication and dissemination plan. The communication must be accurate, focussed on real and practical problems, of high quality and released with a timing that will give maximum impact.

The EMAN network will create a communication plan, presenting its strategy to communicate with the rest of the world as well as the mechanisms which will be implemented to monitor its level of success, efficiency and impact.

### **Uniqueness**

When creating a network duplication with other networks must be avoided. The network must be unique and represent an added value. When there are other networks dealing with similar topics, the new network has to create links with these networks, creating synergies with them and concentrate its work on those items that were identified as not being addressed in the other networks.

For accomplishing this success factor the EMAN network will have notable members that are working in hospitals or with good connection to hospital staff. This will be unique for EMAN since this is not the case with existing and related networks. However, this is not the only uniqueness factor: the potential inclusion of manufacturers, hospital managers and patient's organisations as well as the objectives, tasks and products are unique for EMAN as well.

### **Communication strategies – task 5**

Communication is maybe the most important activity for EMAN. The development of a communication strategy is therefore of vital interest. Four elements have been identified that have to be developed further.

#### *Visibility*

EMAN must find ways to be known and recognized by the relevant stakeholders. This can be achieved by offering interesting products that are not easily available elsewhere. This could be information on practical issues in connection with optimisation, recommendations and guidelines and other information that might be of benefit for the practical work.

#### A living website

The website is the major communication tool for EMAN. It must contain attractive and correct information. It must be updated continuously with new messages. The structure must be user friendly. The visitor has to easily get familiar with it and “is feeling at home” when visiting the page. It is also very important to stimulate communication between EMAN members, communication on the website or stand-alone IT activities such as Facebook have to be facilitated.

#### Newsletter and newsflash

Through a newsletter EMAN has the opportunity to advocate important issues. It should be edited in regular time intervals. In between the newsletters, newsflashes could be issued. These are typically about one issue at the time. The newsletter and newsflashes do of course contribute to the visibility of EMAN.

Arranging workshops and participating in conferences

Next to the website organising workshops and participating in meetings or congresses is the most important tool for disseminating information and attracting new members to EMAN. Workshops organised by EMAN should be held in regular time intervals and should include forums for discussion between different stakeholders.

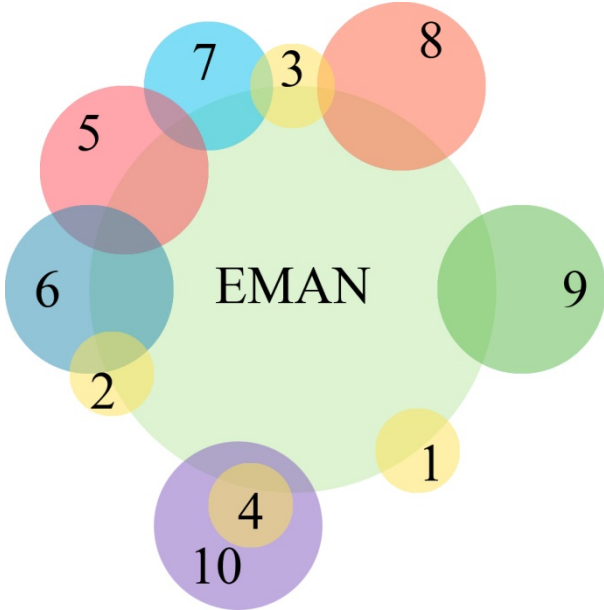
### A network proposal

A short summary giving an outline of proposed network is given below.

The following has to be considered in order to build a functioning network: management structure, stakeholder membership structure, funding methodology, product identification and product development methodology, communication strategy, website development, maintenance and last not least financing. It will also be necessary to register the Network as a legal entity in one of the European Union Member States. This will allow the Network to participate in European Union funded research projects and tenders. An outline addressing these issues follows.

### EMAN Membership Structure

There is a need to register a “private not for profit making organisation” with membership consisting of different stakeholder organisations and individuals with visions and missions. Some of these stakeholder organisations may already be involved in other similar Networks or have established bilateral collaboration. Individuals can be members or employees of these stakeholder organisations and at the same time wanting to contribute or be members of EMAN on an individual personal basis. Figure 1 depicts in a diagrammatic way the interrelationship between the different medical ALARA stakeholders.



- 1. Individual Member
- 2. Individual Member affiliated to another organisation
- 3. Individual Member affiliated to more than one other organisation

4. Individual Member from within an EMAN Member Organisation
5. The European Commission
6. An EU Member State Competent Authority
7. An EU Member State Health Authority
8. European Non-Governmental Stakeholder Organisation
9. International Governmental Stakeholder Organisation
10. International Non-Governmental Organisation

**Figure 1:** interrelationship of the different medical ALARA stakeholders.

To make Figure 1 more comprehensive, some examples are given. 1 can be a university professor working for a European University that it is not a member of EMAN, or can be a Medical Doctor at a European Hospital that it is not a member of EMAN. This individual can be a member of EMAN representing himself only.

2 can be an individual who works for a European Union Member State Competent Authority that is a member of EMAN. This individual can be represented by its Organisation's membership, but he/she would also like to have individual membership representing him/herself as well.

3 can be a staff member of a European Union Member State Health Authority that is a member of EMAN and this individual is also a member and an officer of a Non-Governmental Organisation that is also a member of EMAN. This individual can be represented in EMAN by both these organisations and being him/herself appointed as the representative of one or both of these organisations to EMAN. Nevertheless he/she also like to have individual membership representing him/herself as well.

4 can be an individual EMAN member that is also appointed to represent its employing organisation to EMAN.

5 is the European Commission. Different European Union Member States Stakeholder Governmental Organisations are involved with different departments of the European Commission. Example 6 can be an EU Member State Competent Authority and 7 can be an EU Member State Health Authority.

8 can be a European wide Non-Governmental organisation such as EFOMP, ESR, ESTRO, etc, 9 can be an International Governmental organisation such as the IAEA or WHO and 10 can be an International Non-Governmental organisation such as IRPA or IOMP.

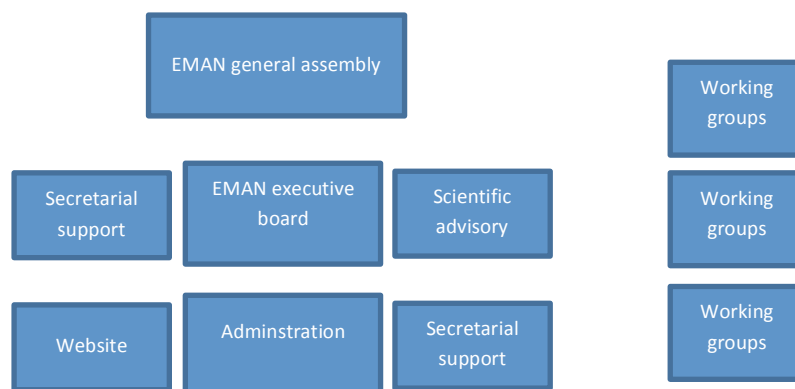
EMAN should be flexible and capable to cater for the needs of all these different stakeholders. This implies that different stakeholders must have different membership status within EMAN. Their influence on how to conduct EMAN and on which activities are performed will be reflected in their membership status. Effectively the membership fees need to reflect their level of the involvement and influence in the conduct of EMAN.

It is proposed that the level of influence is set by the voting rights assigned to each type of membership. The number and type of membership categories and the fee per share will be settled by the Project Steering Committee at the time when the necessary operational budget for the Network can be estimated.

### **EMAN Functionality Structure**

As a legal entity registered in a European Union member State, the functionality of EMAN is bound by the laws and regulations of that particular Member State. It must be refined and adjusted to meet the requirements of these laws and regulations. Below follows a proposed functionality structure that will serve as a basis for discussion in order to arrive at the final legally bound functionality structure of EMAN. Figure 2 is a schematic representation of the EMAN functionality which will be used to assist in the discussion to follow.





**Figure 2:** Schematic representation of the EMAN functionality

Any legal entity is run by a legally appointed Board of Directors and this is done by the shareholders of the legal entity at an annual shareholders meeting. In the case of EMAN, this meeting will be called the Annual General Assembly of the voting shareholders (EMAN members). The General Assembly is the body that has the highest decision making power within EMAN. This power must be specified by EMAN and be specifically mentioned in the EMAN Constitution and Statutes and be approved by the General Assembly. One example is the appointment of its Board of Directors.

The number, position and power of the EMAN Executive Directors must also be specifically mentioned in the EMAN Constitution and Statutes and approved by the General Assembly. The Executive Board will need its own secretarial support.

A Scientific Advisory Committee will be appointed by the General Assembly and will scientifically advise the Executive Board for setting the agenda for EMAN. It is recommended that such a committee should consist of five to seven members at the most.

The daily running of EMAN should be carried out by a full time Administration. The Head of the Administration will be appointed by the EMAN Executive Board and approved by the General Assembly. To start with the Head of the Administration can be appointed on a part time base. The Head of Administration will represent the administration on the EMAN Executive Board.

For the smooth running of the Administration and to deal with its daily routine, permanent Secretarial Support is considered necessary. This Secretariat Support may also cover the secretarial needs of the EMAN Executive Board.

The EMAN website is the heart and soul of the network. A successful Network should have a friendly, easily understood functionality for all the stakeholders and other interested individuals. It should be administered on a daily basis by a full time Webmaster. The website should also provide for an open discussion forum with the role of encouraging discussion on relevant issues, answering to questions and assisting in the exchange of information between the individual participants.

Specific tasks decided by the Executive Board should be carried out in working groups. Examples of such tasks are producing guidelines on for example the level of education and training for different fields. The organisation of an annual event is very important for the face to face communication of the membership of EMAN as well as others. This can be achieved by a

permanent Working Group. It is also proposed that the annual meeting of the General Assembly be held at the same time.

The mandate of each Working group will be set by the EMAN General Assembly and its membership is appointed by the Executive Board from within its members.

It is necessary take into account the desired structure of the network and the possible legal structure. The legal structure and its limitations could affect in which country EMAN will register as legal entity.

## Appendix Survey of networks in Europe

### Method of the survey

There are many networks related to EMAN. WP5 of the EMAN project has explored a number of these networks, either by electronic correspondence, personal communication or by investigating the documentation available on their websites. The following questions have been addressed:

- When has the network started?
- What are the mission and vision of the network?
- Have the mission and vision changed over time, if yes, in which way?
- How large is the network and approximately how many persons are reached?
- In which way is the network organized? (Official membership, who is entitled to join, is there a steering board or a committee?)
- How does the network communicate internally? (Website, e meetings etc)
- How does the network communicate with communities outside the network? (Newsletters, conferences etc)
- What are the main products of the network and for who is that of concern? (Decision makers, professionals etc)
- How is the network financed? (Fee, support from outside organizations, advertisements)
- How is the website maintained?

Information from the following networks was explored:

EAN: The European ALARA Network,

RECAN: Regional European and Central Asian ALARA Network,

ERPAN: The European Radiation Protection Authority Network,

EUTERP: European Platform on Training and Education in Radiation Protection,

ENETRAP: The European Network on Education and Training in Radiological Protection,

EURADOS: The European Dosimetry Group,

EUnetHTA: The European Network for Health Technology Assessment.

### Result of the survey

#### *EAN - The European ALARA Network*

EAN was supported by the European Commission from 1996 to 2004. Since 2005, EAN has been acting as an autonomous organisation, operating as a legal entity established under the French Law and coordinated by CEPN (France) together with HPA (UK). A group of experts, having expertise in various fields of radiological protection, constitute the EAN Steering Group. Their participation in the activities of the network is supported by national radiation protection authorities, or by other institutions or companies that are interested in further development and

implementation of the ALARA principle. Since 1996, the number of countries represented in the EAN Steering Group has increased from 8 to 20.

In order to ensure the network's sustainability, organisations from 14 countries are financially supporting the coordination work of EAN. Other countries support special EAN activities such as the workshops. The EAN Administrative Board consists of the Steering Group Members associated with the institutions financially supporting the network coordination. The network is chaired by one of the members of the Administrative Board. Network activities are open to any organisation from European countries agreeing with the objectives of EAN and wishing to support them. Participation in EAN activities is always done on a voluntary basis.

The initial goals of EAN have been enlarged step by step, corresponding to the network's range of action. The "Terms and Conditions" of the EAN (renewed in 2010) describe the objectives of the Network as follows:

- Promote a wider and more uniform implementation of the ALARA principle for the management of worker, public and patient exposures in all situations,
- Provide a focus and a mechanism for the exchange and dissemination of information from practical ALARA experiences,
- Identify and investigate topical issues of common interest to further improve the implementation of ALARA.

EAN regularly organizes a Workshop on a specific topic. Each **EAN Workshop** is devoted to a special subject area where the EAN Steering Group estimates that improvements may be found in terms of practical implementation of ALARA. During the workshops, recommendations are produced based on the discussion results of specific working groups and addressed to stakeholders dealing with the specific topic under consideration. The recommendations are circulated via the ALARA Newsletter and the EAN website and published in different national radiation protection journals.

From the beginning, EAN has published the **ALARA Newsletter** twice a year (27 issues in September 2010). The ALARA Newsletter mainly consists in articles describing practical cases of ALARA implementation in different sector, examples of good practices, lessons learned and workshop conclusions. The Newsletter is distributed via a number of channels, such as the national contact points, the radiological protection associations and the EAN website. The feedback from several sources reveals that the Newsletters reach several thousands experts and institutions mainly in Europe but also worldwide.

The **EAN Website** (<http://www.eu-alara.net/>) permits access to the electronic versions of the Newsletters, the papers presented at the workshops, the summarized conclusions and the recommendations of the workshops as well as different information related to ALARA. About 1000 individuals per month visit the EAN website, and a great number of documents are regularly downloaded, mainly Newsletters, and papers presented at workshops.

Since EAN was already a well-established network in 2000, it was decided to use the network as a vehicle to carry out **European Surveys** on current topics in radiological protection. The surveys are performed through national contacts and summaries can be downloaded from the website.

The recommendations of the first Workshops identified subject areas requiring further consideration. Therefore it was decided to establish **EAN Sub-Networks** enabling more detailed discussions with the aim to formulate recommendations or to develop “products” such as guides or handbooks for good ALARA practice.

In the last 14 years, the recommendations of the EAN Workshops have had considerable **impact** at the European (initiation new projects) and national levels (further development of national radiation protection regulations and provisions).

The activities of the European ALARA Network were also acknowledged at a number international events organised by organisations such as IAEA and IRPA. EAN representatives joined the IAEA/ILO Action Plan Steering Group and take part in technical support and assistance granted to the foundation of new ALARA Networks in Central and East Europe (RECAN) and in the Asia Pacific Region (ARAN). EAN served as model for the setting up of RECAN and ARAN by the IAEA.

During the first few years, participation in the EAN activities was basically confined to radiation protection experts from regulatory authorities, research institutions, and major companies. Other institutions have also been invited since 2001 and join the network activities on a regular basis today. In particular, these last years, **Cooperation Agreements** have been signed with European professional associations concerned with radiation protection issues. Representatives of these organisations are invited to participate to EAN meetings and activities.

Finally, the **EAN Forum** provides a platform for discussions among stakeholders, who would have had little or no possibility of interaction otherwise. In such an environment, where no binding decisions have to be made discussions and exchange of opinions are more open, and it is rapidly realized that all efforts have in common one goal, i.e. the practical implementation of the ALARA principle, and it is therefore easier to agree on shared interests and collective recommendations.

#### ***ERPAN – The European Radiation Protection Authority Network***

The 8th European ALARA Network (EAN) Workshop (Occupational Radiological Protection Control through Inspection and Self-assessment) held in Uppsala, Sweden in 2004 brought together many stakeholders from throughout Europe including, regulatory authorities, utilities, trade unions, research centres etc. One of the recommendations from the workshop was that there should be better communication between regulatory authorities throughout Europe in relation to the regulation of users of sources of ionizing radiation outside the nuclear/fuel cycle sector. Arising from this recommendation the Steering Committee of the EAN decided to establish a new sub-network in order to facilitate better communication between regulatory authorities. Recognizing the work of other regulatory authority networks it was recommended that this new sub-network should focus on areas such as inspection and authorization processes, rather than higher level policy making areas, and should involve participation from inspectors or managers of inspection teams across Europe.

On the 21st June 2006 the first meeting of the new European Radiation Protection Authorities Network (ERPAN) took place at the headquarters of ASN in Paris. Regulatory authorities from 12 European countries participated in the meeting at which the terms of reference were established.

ERPAN aims to promote communication between national regulatory authorities including the exchange of information, requirements and experiences on the process of authorization and inspection methods employed in European countries in order to promote the ALARA principle. It also aims to help improve the operational efficiency of radiation control across Europe while recognizing the different regulatory systems within the various countries.

ERPAN currently consists of 19 regulatory authorities from 17 countries across Europe. All European radiation protection regulatory authorities are encouraged to participate in the network. Representatives are nominated by the appropriate regulatory authority within each country. The network has a chairperson, deputy chairperson and a scientific secretary which are elected for a two years term.

All communication is through email. Once a year, a meeting is held in Paris where the network discusses topical issues. Twice a year the European ALARA Network gets an update of ERPAN's activities. Also minutes from meetings and presentations given during the annual meeting are available on a restricted (for members only) section of the EAN website. From time to time the network provide articles in the EAN Newsletter. The restricted section of the EAN website is maintained by EAN/CEPN staff.

The network is focussed on common operational issues faced by regulatory authorities and for providing information to fellow regulators across Europe. Last year ERPAN assisted the IAEA in setting up a network of regulatory bodies in Africa (FNRBA). Currently ERPAN is carrying out a survey of the application and use of dose constraints in the non-nuclear sector, the results of which will be used by the NEA/CRPPH Expert Group on Occupational Exposure.

The network is not financed by any external body. However the participating regulatory authorities indirectly support the activities of the network by providing funding for participants to travel to Paris each year for the annual meeting, and by funding joint inspections between countries.

### ***RECAN – Regional European and Central Asian ALARA Network***

A Central and Eastern European ALARA Network was established in 2001 from which the RECAN network was created in 2005.

The network is supported by the IAEA and the objectives are to improve and sustain radiation protection and safety through information exchange on cost-effective implementation of the principle of optimization in participating member states, improving radiation protection infrastructures, promoting the essential role of exchange and analysis of information for effective radiation protection programs and for the implementation and application of the ALARA principle. The network consists of 28 countries from Eastern and Central Europe and Central Asia regions.

Workshops are arranged and the first workshop discussed the expectations of members of RECAN. The summary of these expectations were the:

possibility to receive and share information and experience on optimization of radiation protection,

learning from solutions to problems encountered in other countries,

learning from requirements for radiation protection infrastructure in other countries,

participation in activities of the network (website, newsletter, workshops, conferences, news groups),

lessons learned from incidents , accidents and bad practices,

stimulation of joint education and training programmes,

organization of scientific visits for experts from countries with insufficient experience to countries having effective working ALARA systems,

guidance on quality management systems,

collaboration with and membership to other networks (EAN, Eurados, Esorex, ISOE, etc.),  
guidance and support from IAEA,

use of the network for intercomparisons (e.g., of different software used for dose assessment in different countries).

RECAN has the following objectives:

support development of a sustainable regional network which facilitates information exchange and an integrated approach to implementation of the principle of optimization,

maintain, enhance and develop competence in radiation protection with special emphasis on the implementation of the ALARA principle for occupational, public and medical exposure both in routine operations and emergency situations,

contribute to harmonization of radiation protection policies and practices, particularly concerning ALARA, both at regulatory and operational levels within participating countries,

contribute to integration and effective co-operation of expertise in radiation protection that is available in the participating countries,

cover all types of practices within the different sectors; cover radiation protection themes relevant to all sectors, as well as themes specific to one or more sector(s).

Activities that take place:

Once a year - a workshop with the support of the IAEA is organised. Its theme is selected by the Steering Committee. At the end of each workshop, recommendations addressing relevant stakeholders are issued.

Twice a year the RECAN ALARA Newsletter is published with topics such as lessons learned from incidents, workshop recommendations, examples of “good” and “bad” practices, experts view points and others

ALARA related information. A website is maintained to enable a broad public access to the RECAN information and publications (<http://www.recan.byethost13.com>). The website includes a forum for discussion between members from the participating countries.

RECAN can establish and co-ordinate sub-networks, working groups or panel groups to improve feedback, and encourage the involvement of end users. RECAN can also, according to available resources, assist and co-operate with other radiation protection networks, initiate new activities or terminate activities within RECAN as might be decided by the Steering Committee.

### ***EUTERP- European Platform on Training and Education in Radiation Protection***

The Commission launched a project to create the EUTERP platform in 2006. The platform operated and maintained an infrastructure established for the exchange of information, for drafting guidelines and recommendations, for issuing a regular newsletter and for organizing meetings or workshops. The Platform facilitated the harmonization of education and training for Radiation Protection Experts and the aimed to remove the obstacles for the mobility of these experts within the European Union. The EUTERP initiative was sponsored by the European Commission from 2006 to 2009. It was coordinated by NRG from the Netherlands.

After this period, effort has been made to continue the work and become self sustainable. The EUTERP platform is now a foundation. This foundation will continue with the work of the EC EUTERP Platform project. It has 10 affiliated members and it is financed by fees and advertisements.

The objectives of the EUTERP Platform are to support the harmonization of training and education in Radiation Protection in Europe. More specifically:

to remove obstacles for the mobility of RPEs within the European Union through harmonization of criteria and qualifications for and mutual recognition of such experts;

to collate relevant data on RP legislation, RP training and education, requirements for recognition, and training events;

to give guidance on the roles and duties of RPEs and RPOs;

to facilitate the transnational access to vocational education and training;

to evolve into a European body on quality assurance, certification and registration of training providers and training materials;

to provide and assess Quality Assurance Programmes;

to provide guidance on the structure of recognition systems;



to better integrate education and training into occupational radiation protection infrastructures in the Member, Candidate and Associated States of the European Union.

Important stakeholders for the platform are groups of institutions that will benefit from participation in EUTERP: national authorities and institutions, training providers, RPEs and RPOs, employers and EU. The platform will address issues for these different stakeholders.

Via the national contact points financial support will be asked from the stakeholders, based on the work programme.

The following elements for the work programme are identified as:

Maintain the EUTERP website (<http://www.euterp.eu>) with relevant information on RP E&T in EU member, associated and observer states;

Maintain national pages on the website with national information on RP legislation, RP education & training, qualifications for RPEs and RPOs, criteria for recognition of RPEs and RPOs;

Organize Workshops to give recommendations to national and international authorities on RP E&T issues; (in particular guidance on the roles of RPEs and RPOs);

Issue Newsletters with relevant information on RP E&T issues;

Provide and assess Quality assurance programs (in combination with ENETRAP II);

Move towards a European accreditation body on RP training providers, RP training courses and RP training material.

### ***ENETRAP: European Network on Education and Training in Radiological Protection***

The first ENETRAP project was supported by the 6th framework programme. The main objectives were:

to better integrate existing education and training activities in the radiation protection infrastructure of the European countries in order to combat the decline in both students and teaching institutions;

to develop harmonized approaches for education and training in radiation protection in Europe and their implementation;

to better integrate the national resources and capacities for education and training;

to provide the necessary competence and expertise for the continued safe use of radiation in industry, medicine and research.

A second project was started in 2009 within a 7th Framework Programme project with the aim to develop European high-quality "reference standards" and good practices for education and training in radiation protection, specifically with respect to the radiation protection expert and the

radiation protection officer. These "standards" will reflect the needs of the RPE and the RPO in all sectors where ionising radiation is used.

The overall objective of this project is to develop European high-quality "reference standards" and good practices for education and training in radiation protection, specifically with respect to the RPE and the RPO.

Specific objectives of the project are:

Develop the European radiation protection training scheme (ERPTS) for RPE training;

Develop a European reference standard for RPO training;

Develop and apply a mechanism for the evaluation of training material, courses and providers;

Establish a recognized and sustainable ERPTS "quality label" for training events;

Create a database of training events and training providers (including On-the-Job-Training) conforming to the agreed ERPTS;

Bring together national initiatives to attract early-stage radiation protection researchers on a European level;

Develop course material examples, including modern tools such as e-learning;

Develop a system for monitoring the effectiveness of the ERPTS;

Organize pilot sessions of specific modules of the ERPTS and monitor the effectiveness according to the developed system;

Development of a European passport for Continuous Professional Development in Radiation Protection

The project manager is supported by a Steering Committee, consisting of senior experts with relevant expertise in radiation protection education and training of each Consortium partner. The project is also using an advisory board to advise the Steering Committee about the best balance between supply and needs of training, thereby ensuring stable feedback mechanisms to the Steering Committee.

The composition of the Advisory Board is such that all relevant stakeholders, with respect to the stated aim of the project, are represented, i.e. regulatory authorities, international organizations, professional organizations, training providers, research institutes, medicine and industry. The consortium consists mainly of research institutes.

A website supports the work of the project (<http://www.sckcen.be/enetrap/>).

### ***EURADOS – the European Dosimetry group***

The Association serves the promotion of research and development and European cooperation in the field of ionizing radiation dosimetry.

The aims of the Association are in particular:

- (a) to advance the scientific understanding of ionizing radiation dosimetry
- (b) to promote the technical development of dosimetric methods and instrumentation and their implementation in routine dosimetry.
- (c) to contribute to the compatibility of the dosimetric procedures used within the EU and their conformance with international practices.
- (d) to stimulate scientific collaboration and the dissemination of results between European laboratories and the active co-operation with other similar associations in neighbouring areas.
- (e) to maintain active links and exchange with the broader community of international dosimetry laboratories.

The scope of EURADOS includes the fields of radiation protection, retrospective dosimetry, environmental radiation monitoring, radiobiology, radiation therapy, diagnostic and interventional radiology.

The aims are achieved by maintaining a network which includes experts, reference and research laboratories and dosimetry services which enables appropriate specialist groups to be formed in a timely manner to solve problems or promote research identified within EURADOS or upon requests from external bodies.

In the last 10 years the network grew and broadened its activities. In the past EURADOS was completely relying on EC support, while now it is self-sufficient. EURADOS consists of 54 voting members (e.g. institutes, organisations, companies and authorities). The network has a database of associate members (individuals) of around 500 persons. Another database exists for the newsletter distribution. Each year an annual meeting is held and it attracts between 150 and 200 persons.

EURADOS is registered as a German e.V and is managed by a chairperson, a vice-chairperson, as its executive board and they are the legal representatives of EURADOS. An extended executive board consists of the executive board and treasurer and secretary, these individuals run its daily management. The Council: 8 to 12 persons, elected for 3 years by the voting members. The Council meets twice per year. The general assembly, all voting members, meet once a year.

Candidate members must be approved by 2/3 of the voting members present or represented in the general assembly.

There is a EURADOS website (<http://www.eurados.org>), and a EURADOS newsletter (only electronic form). The annual meeting is also open for persons outside the network.

Reports on the activities of this network are disseminated through the newsletter. The minutes of the Council and general assembly meetings are distributed to the voting members.

The working groups report to the Council on a continuous basis and to the voting members during the general assembly. The principal activities encompass: organization of scientific meetings and training activities, inter-comparisons, benchmark studies, studies on scientific and practical problems, scientific research, coordination and harmonization matters, management of databases and web sites. The results of these activities are published in the open literature.

Membership to EURADOS is free, but a voluntarily sponsorship of minimum 1000 Euro per year is asked. About 25 to 30 institutes pay this fee or more. Other funds come from the organization of inter-comparisons, trainings, workshops, meetings etc. Some working groups are active in European or other projects, which provides income for these working groups and some overheads for EURADOS.

A webmaster is appointed to maintain the website and make changes which are requested by the working group chairpersons or the Council.

### ***EUnetHTA- The European network for health technology assessment***

The original network was established in 2006 under the European coordination action project EUnetHTA (2006-2008). After completion of the project the EUnetHTA collaboration was launched in November 2008 and is implementing the proposal for a sustainable, permanent coloration for health technology assessment (HTA) in Europe. The network aims to identify the best medical practices in order to help decision-makers to invest in safe, effective technologies and avoid spending recourses on methods that are not equally safe and effective or perhaps even harmful.

The mission of the network is to serve as a forum and focal point for cross-border HTA collaboration in Europe. The network provides informational and networking support to both producers and users of HTA. The network is working for becoming an effective tool for supporting healthcare decision-making in Europe. The main objective is to enhance the sense of the European HTA community through networking and development of common methodologies and tools, for effective use of HTA resources in Europe.

When started in 2006 the network had 51 partner organizations and has since expanded to more than 60. There is an official membership fee for the member organizations. Any organization with interest in HTA can become a member. The network is managed by a steering committee and its work is carried out within specific work packages. Each work package has its own area on the website (<http://www.eunetha.net>). Other communication is through email, face to face meetings and internal newsletters. Communication with the public is through the website. Conferences are also organised.

Guidance documents are produced on how to carry out HTA, set-up HTA agencies, Core HTA reports, and coordinated joint HTA projects are performed. These activities concern professionals dealing with HTA, delivering healthcare and health care policy m