HBM4EU science and policy for a healthy future

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Strategy for the communication and dissemination of HBM4EU results

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WP 2 Knowledge Hub

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HBM4EU Management Board

Strategy in a nutshell

What needs does HBM4EU respond to?	• Sound policy making on chemicals should be based on robust scientific evidence of human exposure to chemicals and the possible health effects.
What problem will HBM4EU solve?	• The lack of harmonised information at European level concerning the exposure of citizens, including workers, to chemicals and their impacts on health presents a major hurdle to the reliable risk assessment and management of chemicals
What new knowledge will HBM4EU generate?	• HBM4EU will coordinate human biomonitoring in Europe to provide better evidence of the actual exposure of citizens to chemicals • We will provide a robust interpretation of human biomonitoring data and the possible impact of chemical exposure on human health, using the most up to date scientific tools.
Who will use HBM4EU results?	• Chemical risk assessors and chemical risk managers • Scientists • Civil society organisations • HBM4EU survey participants • The media and users of social media • European citizens
What benefits will be delivered?	• HBM4EU contributes to the improvement of health and well-being for all citizens, by investigating how exposure to chemicals affects the health of different vulnerable groups, such as children, pregnant women and workers.
How will end users be informed about results?	• We will identify and engage with end users to understand their needs • We will produce communication products tailored to the needs of end users • We will disseminate our results broadly through electronic and printed media and at events • The HBM4EU ambassador will promote our project to strategic influencers • We will connect with other relevant projects and foster synergies • Data will be made available via the Information Platform for Chemical Monitoring Data

1 Horizon 2020 framework

Horizon 2020 (H2020) is the European Commission's framework Programme for Research and Innovation under which the Human Biomonitoring project (HMB4EU) is funded. H2020 is a financial instrument aimed at fostering competitiveness and growth and increasing benefits to the European Union (EU) economy and citizens. The framework programme promotes the research as an investment in the future and puts it at the heart of the EU's blueprint for smart, sustainable and inclusive growth and jobs.

Horizon 2020 supports research and development activities with the goal of converting the public investment into **socio-economic benefits for society**. The HBM4EU project contributes to the goals of the Horizon 2020 Pillar on Societal Challenges, falls under the Work Programme on Health, Demographic Change and Wellbeing (2016-2017), and specifically responds to the call under topic SC1-PM-05-2016: The European Human Biomonitoring Initiative. Aiming for better health for all, the Work Programme addresses the **improvement of health and well-being for all age groups**.

Effective communication, dissemination and exploitation of HBM4EU results are fundamental to ensuring that the project **delivers societal impact**. In the context of this project, **dissemination** means sharing results with potential end users, including peers in the research field, industry, other commercial players and policy makers. **Exploitation** means the use of results in policy making. Efforts for the dissemination and exploitation of results should address all **potential end users** of HBM4EU results.

HBM4EU activities to communicate, disseminate and exploit results include efforts to increase **public awareness** and understanding of results and their implications for policy making, as well as promote responsible lifestyle management amongst citizens. A public engagement component is included whereby citizen science approaches to human biomonitoring (HBM) are to be explored.

Finally, all communication and dissemination products produced under the project, including scientific publications, will acknowledge support and funding with the following clause: "This project has received funding from the European Unions´ Horizon 2020 research and innovation Programme under grant agreement No 733032 HBM4EU."

2 HBM4EU objectives and project organisation

The European Human Biomonitoring Initiative (**HBM4EU**) is a joint effort of 26 countries, the European Environment Agency and the European Commission, co-funded by Horizon 2020. The main aim of the initiative is to coordinate and advance HBM in Europe. HBM4EU will thereby provide better evidence of the actual exposure of citizens to chemicals and the possible health effects to support policy making.

People are exposed to a complex mixture of chemicals in their daily lives through the environment, consumer products, food and drinking water and at work. HBM4EU will use HBM to assess **human exposure to chemicals in Europe**, to better understand the associated health impacts and to improve chemical risk assessment. At the level of the individual, HBM data can inform medical treatment or guidance on the need to reduce exposure.

HBM4EU will form a **bridge between science and policy**. Our research will explore current questions in chemical risk assessment and management and will deliver answers that help policy makers to protect human health. Policy makers, stakeholders and scientists will together shape the strategic direction of HBM4EU activities. This transparent and collaborative approach will ensure our research generates knowledge that addresses genuine societal concerns.

HBM4EU partners will establish a **dialogue with policy makers** to ensure that our results can be used to support the development of policies, to evaluate existing policies and to design measures to

reduce exposure to toxic chemicals. Our results will inform the safe management of chemicals and so protect human health in Europe. **Knowledge will be actively and effectively communicated to policy makers.**

HBM4EU is based on the **co-creation of knowledge in collaboration with society**, since it is based on samples donated by citizens, who will benefit individually from receiving their results and more broadly from resulting policy actions to reduce the exposure of the European population to harmful chemicals.

The **main objectives** of HBM4EU are to:

- Harmonise procedures and tools for HBM at EU level;
- Provide and, where missing, generate internal exposure data and link this data to external exposure and the relevant exposure pathways;
- Develop novel methods to identify human internal exposure to environmental and occupational chemicals and establish the causal links with human health effects;
- Provide policy-makers and the general public with science-based knowledge on the health risks associated with chemicals exposure; and
- Improve chemical risk assessment in the EU through the effective use of HBM data.

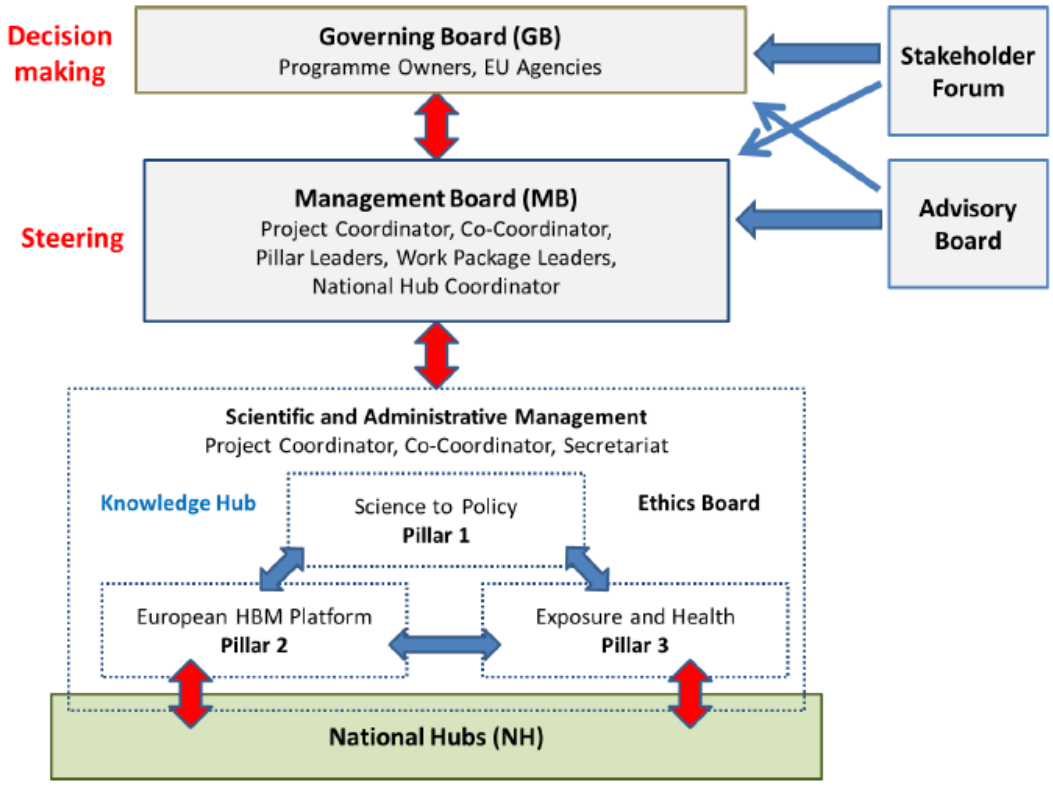
For the first annual work plan, based on an initial set of prioritization criteria, **9 chemical substance groups** have been selected, including:

- Phthalates and Hexamoll® DINCH;
- Bisphenols;
- Per-/polyfluorinated compounds;
- Flame retardants;
- Cadmium and chromium VI;
- Poly aromatic hydrocarbons;
- Aniline family;
- Chemical mixtures; and
- Emerging substances.

As for the **overall organisation,** HBM4EU is structured along the following main components (see figure 1 below):

- **Governing Board:** Programme owners of the participating countries, the European Chemicals Agency (ECHA), the European Environment Agency (EEA) and the European Food Safety Authority (EFSA).
- **Scientific and Administrative Management**: the Project Coordinator will be supported by a Secretariat and the **Management Board**.
- **National Hubs**: a long-term network bringing together national HBM activities and ensuring that they are coordinated, feed their national needs into the European process, contribute to the objectives and learn from the work done in HBM4EU.
- **Stakeholder Forum**: representatives of stakeholders from outside the project (e.g. NGOs, industrial associations) that will participate in the prioritization process and provide strategic input in order to enhance the accountability and credibility of our activities.
- **Advisory Board**: including international HBM experts with knowledge and experience to contribute to the project.
- **Ethics Board:** composed of specialists in ethics and in legal matters relevant for the initiative available in partner organisations.

Figure 1: HBM4EU governance structure



HBM4EU activities are organised under three pillars, including:

- **Pillar 1:** Science to Policy: an activity focused on the translation of project results into policy.
- **Pillar 2**: European HBM platform: a platform providing support for field sampling and analytical work by competent national laboratories and a data infrastructure.
- **Pillar 3**: Exposure and Health: a research activity to assess the impact of chemical exposure on human health.
- Key elements of the HBM4EU communication strategy

2.1 Objectives of the HBM4EU Communication Strategy

The effective and targeted dissemination of outputs from the HBM4EU is crucial to ensuring that our results are understood and used for the protection of human health by key audiences, including policy makers, the scientific community and other stakeholders. The principle objectives of the strategy are to:

- Build a **bridge between science and policy** through continuous dialogue and engagement between individuals involved in cutting edge scientific research and individuals involved in all stages of chemical risk governance;
- Channel **new knowledge to policy makers** on current open questions regarding the impacts of chemicals on human health and facilitate the exploitation of this knowledge in chemical risk governance;
- Foster **stakeholder engagement** in HBM4EU, so that stakeholders can both contribute to shaping our research agenda and exploit our results in their own activities;
- Make HBM data used under HBM4EU available via the **Information Platform for Chemical Monitoring Data (IPCheM)** for re-use and in particular for combination with other data sets, to promote the exploitation of results by other researchers;

- Undertake targeted **training and capacity building** with the aim of harmonising HBM methods and approaches across Europe, in order both to contribute to scientific excellence in Europe and to produce a coherent and robust HBM dataset as a basis for policy making;
- **Raise public awareness** with regards to chemical exposure, **making pollution personal** and providing insights into possible behavioural changes that can reduce chemical exposure and improve health and well-being;
- Engage with societal actors and public focus groups to better understand **societal concerns** regarding chemical exposure, so that we can tailor our research to respond to those needs.
- Communicate effectively with **survey participants** to ensure their understanding of broader project objectives and their own role in HBM4EU research, follow up by explaining individual results to participants in a manner that is sensitive to their needs and technical understanding, including the provision of advice on reducing exposure, where relevant; and
- Raise awareness of the role of HBM activities in protecting human health from chemicals, with the aim of catalysing the development of a **sustainable European HBM initiative post 2021**.

These objectives are designed to contribute to delivery of the impacts expected from HBM4EU. These impacts are described in greater detail in section 4. Key steps in achieving these objectives include:

- **Identifying users** of our outputs in the policy making community and relevant policies for which they are responsible, users in the scientific and stakeholder communities, and users in the general public;
- Understanding the **knowledge needs** of end users;
- Ensuring upfront that our knowledge **outputs match user needs** through ongoing dialogue and engagement with users;
- Actively **disseminating outputs** to our extensive range of contacts with existing networks, including with EU and national policy makers as well as via the Stakeholder Forum; and
- Engage with **stakeholders** that can channel our messages through their own networks and so multiply our communication efforts;
- Targeting users with **tailored communication products** that specifically address their concerns at an appropriate level of technical detail and thereby enable their **exploitation of results**;
- Providing **Open Access** to resulting publications and making HBM data available via **IPCheM;** and
- Producing communication products for **EU citizens**, explaining how HBM makes pollution personal.

These steps will be implemented under two sets of activities:

Dissemination - making our results and outputs available to a broad audience through generic materials and activities; and

Communication - engaging with end users to understand their priorities, concerns and knowledge needs and to communicate results to them in a targeted fashion that responds to their needs.

These two dimensions of the strategy are presented in separate sections below. In their concrete implementation they remain **strongly connected** to ensure the coherence of our overall messaging. Implementation of the communication strategy for the HBM4EU project will be based on the following **principles**:

- A broad dissemination of results;
- Transparency;

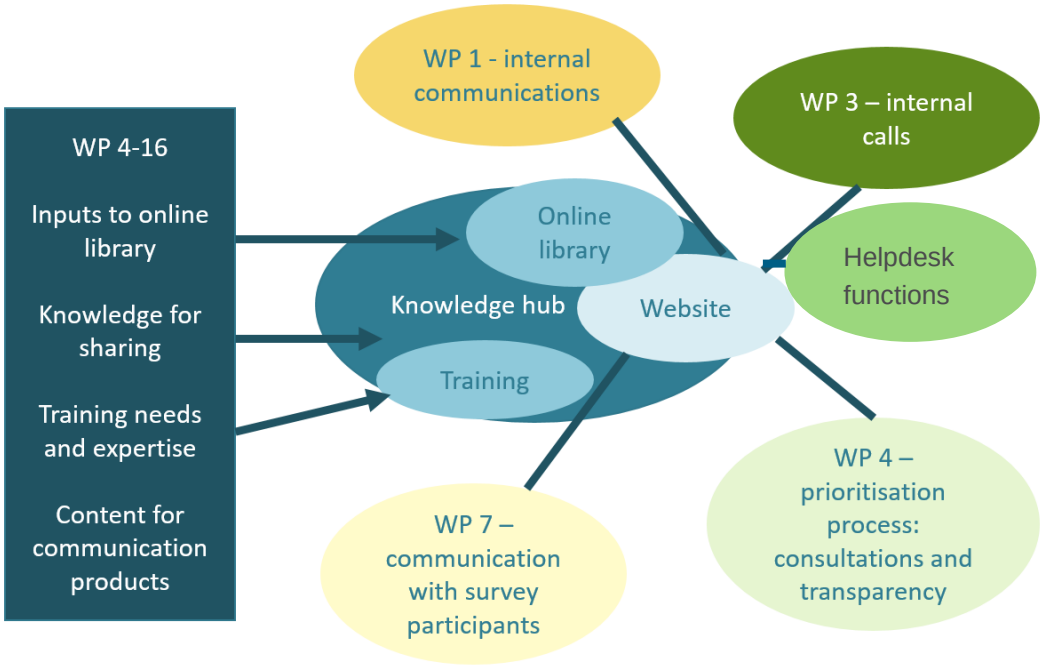
- Reliability;
- Open engagement with stakeholders; and
- Targeted communication with different audiences.

2.2 Management and coordination of the strategy

The Work Package on the Knowledge Hub is implementing the strategy, led by the EEA and in close collaboration with the project coordinator, the co-coordinator, the pillar leaders and the leaders of the other work packages.

Due to the role in consolidating, communication and disseminating results, the Knowledge Hub draws on the outputs of all other work packages. At the same time, the Knowledge Hub delivers services to the other work packages, in producing communication products, providing a platform for internal communication, hosting helpdesks and sharing documents. Figure 2 below provides an overview of how the Knowledge Hub works with other work packages to achieve results.

Figure 2: How the Knowledge Hub links to other HBM4EU Work Packages (WP)



Content to be included in targeted communication products will be produced in collaboration with the Work Packages involved in producing data and research outputs. EEA will provide support to the development and design of communication products, as well as to the formatting and editing of products. UMIT will produce audio-visual materials.

Recognising the European scale of the initiative, proposed dissemination measures target audiences at EU, regional and national levels and their implementation will involve both the Knowledge Hub and the National Hubs.

The Knowledge Hub also contributes to efforts to establish a sustainable future European HBM initiative, in particular the election of an ambassador for the HBM4EU project and planning of the ambassador's activities.

Work under the Strategy will be guided by frameworks established in a number of other project documents. Efforts to disseminate results will fully respect the conditions regarding the dissemination of project results that are stipulated in Article 8 of the HBM4EU **Consortium Agreement**. Another key document that will guide efforts to make HBM data available is the **Data Management Plan**. All communication and dissemination activities will respect requirements related to ethics and security, including data protection legislation at European and national levels, as captured in the **Legal and Ethics Policy Document**, to be produced by May 2017.

Finally, the Strategy will be closely linked to the **Annual Work Plans** of the HBM4EU project and will be updated to ensure that communication and dissemination activities support the implementation of the Annual Work Plan.

2.3 Sharing scientific knowledge

In our age and society, **scientific knowledge** has a high value, in particular when it can be effectively communicated to potential users. In other words, science has a higher value when it circulates within the society, to be shared and exploited. In the case of HBM4EU, **scientific evidence in co-created in collaboration with society**. This characteristic of the project creates enormous potential for communicating evidence that makes pollution personal for the European population.

Science communication is increasingly characterised by some specific phenomena that influence this strategy, including:

- The **empowerment of the citizen** searching for specialized information;
- **Ranking reputation** through the online sharing of opinions;
- The increasing trend towards online **fact-checking**;
- The tendency for individuals to **quality and share their health status** online, making "biological measurement" a theme in narratives beyond the scientific field, as well as connecting with innovations in personalised medicines.

This strategy establishes the basis for a **multilateral knowledge sharing process**, involving a large number of different end users in building a robust, evidence-based scientific understanding of chemical exposure and the associated impacts on human health. Knowledge based on independent, quality-assured scientific evidence empowers people. It helps them to engage in discussions, influence policy developments and make everyday decisions to protect their health and the environment.

3 Expected impacts of HBM4EU

The strategy for the communication and dissemination of HBM4EU results will contribute to the delivery of a number of impacts expected from the project. These impacts are described below, together with the principle end users that can exploit HBM4EU results to generate impact.

3.1 Understanding the chemical exposure of the EU population

HBM4EU will produce a coherent set of HBM data on the priority substance groups, taking into account external exposure routes and sources, as well as impacts on health of citizens of all age groups, including workers. These efforts will improve the evidence basis for chemical risk assessment and targeted risk management, so enhancing chemical safety for the EU population.

Key end users who can deliver these benefits include **risk assessors** and **policy makers**. **Civil society organisations, trade unions** and **industry** can also protect human health through

awareness raising campaigns and improved occupational health and safety measures. These users will be targeted by tailored communication products and engaged in dialogue with HBM4EU partners.

3.2 Establishment of an EU-wide base of human exposure data

HBM data will be made available to user groups including EU and national policy makers, as well as to scientists of the consortium. This will ensure that results can be analysed at the EU level as well as at the national level.

By using IPCheM, we will automatically connect to other chemical monitoring data, including data on chemicals in food and feed, indoor air, consumer products and the environment. HBM4EU will work with the **IPCheM team** at Directorate General (DG) Environment, the Joint Research Centre and EEA to ensure that HBM data is made available via IPCheM. As such, HBM4EU will add value to IPCheM and will stimulate the use of HBM data across policy domains.

IPCheM will also facilitate data exchange with bodies at global level**,** such as the Organization for Economic Cooperation and Development (OECD) and United Nations Environment, for example to support implementation of the Minamata Convention on Mercury and the Stockholm Convention on Persistent Organic Pollutants (POPs Convention).

3.3 Raising awareness of HBM and building trust

The involvement of **European and national policy makers and stakeholders** through a participatory approach will foster a better understanding and acceptability of the outcome. We also aim to increase the awareness of the **general public** created by producing non-technical communication products that deliberately target a lay audience and via the website. Focus groups will be organised in order to capture the perspective of **lay people** in the prioritisation exercise.

In addition, we will develop targeted material in different languages in order to provide tailored information to **survey participants** of different ages and different educational status. Establishing a trust will be crucial to our relationship with survey participants, who are critical co-creators of knowledge in HBM4EU.

HBM4EU will interact closely with national initiatives, as well as other programmes that collect HBM data at European level and at the level of the United Nations in order to ensure our **international visibility**.

3.4 Coordinated HBM initiatives in Europe at national and EU level

HBM4EU aims to foster a common approach to the development of new HBM programmes and research activities. HBM4EU scientists will develop new approaches and protocols, so advancing the field.

Key end users inside the consortium include the **National Hubs**. The National Hubs are major actors in spreading best practice and capacity building. Additional end users include the scientific community outside the consortium. The HBM4EU training programme will contribute to the dissemination of skills and methods. The online library will make protocols, guidance and methods available to users.

3.5 Preparation of a sustainable public-public partnership

Article 185 of the Treaty on the Functioning of the European Union enables the EU to participate in research programmes undertaken jointly by several Member States, including participation in the structures created for the execution of national programmes. By creating a strong partnership with

the involvement of **National Hubs** from each participating country, we will pave the road towards a sustained programme. Other key stakeholders include global organisations such as the United Nations organisations and the OECD, as well as **institutional actors at EU level**.

3.6 Indicators of successful impacts

HBM4EU partners are currently developing a set of **indicators to measure the performance and impacts of the HBM4EU**, with a first set of indicators to be available in June 2017. These indicators will measure successful implementation of research activities, impacts on science, policy, and society, increased national coordination of HBM related activities, increased engagement of less experienced countries and progress towards an EU-wide HBM platform. The indicators focus on key strategy foci, including:

- Added value for science;
- Added value for policy;
- Added value for society;
- Sustainability and capacity building for HBM in Europe;
- Communication and dissemination; and
- Project management.

The successful delivery of this strategy will contribute under all of these strategy foci. In particular indicators of success are proposed with regards to communication and dissemination, shown in table 1 below. The Knowledge Hub will collaborate with relevant partners in the further development of these indicators.

Table 1: Indicators of successful communication and dissemination of HBM4EU results

Indicators	
Output	Hits on the HBM4EU website Volume of material, including guidelines, biomarkers, protocols and research results available via the Knowledge Hub Number of technical reports and briefs, non-technical information leaflets and videos produced and disseminated Followers on Twitter and Facebook Presentations at international conferences and workshops Presentations in non-scientific traditional media (TV/radio, non-scientific press) Number of references to HBM4EU in publications Number of policy briefs written by HBM researchers Number of presentations on (external) invitation
Outcome	As policy makers, we receive positive feedback on communication campaigns. *(Public appreciation for communication campaigns)*
Impact	HBM4EU helped to find consensus on environmental health messages towards the public.

4 End users of HBM4EU results

To achieve the main project objectives and ensure that our results are exploited and generate impact, we will need to disseminate our outputs and actively engage with a broad range of end users. These end users can be categorised under the following groups:

- Policy makers;
- Chemical risk assessors;
- International organisations;
- Scientists;
- Stakeholders;
- The European public;
- HBM4EU survey participants; and
- The media.

In table 2, specific examples are identified under each group, together with their **knowledge needs**. This list represents our initial thinking at this early stage in the project. HBM4EU remains open to engaging with additional stakeholders as awareness of our work grows.

Table 2: End users of HBM4EU results and their knowledge needs

End users of HBM4EU results	Knowledge needs
Policy makers	
▸ DG Environment ▸ DG Health and Food Safety ▸ DG Employment, Social Affairs & Inclusion ▸ DG Internal Market, Industry Entrepreneurship and SMEs ▸ Joint Research Centre ▸ Members of European Parliament ▸ National ministries responsible for public health, environment, labour, occupational safety and research ▸ National members of parliament	Timely and reliable scientific evidence addressing key policy issues related to chemical exposure and impacts on health Access to robust, comparable HBM data at a relevant level of aggregation representative of the European population An understanding of how the exposure of a national population relates to the broader exposure of the EU population.
EU agencies involved in chemical risk assessment	
▸ ECHA ▸ EFSA ▸ European Agency for Safety and Health at Work ▸ European Medicine Agency ▸ National chemical risk assessors	Disaggregated HBM data in relevant metadata formats, including parameters relevant to source identification HBM-based approaches to risk assessment Open access to peer reviewed scientific articles
International Organisations	
▸ United Nations Environment ▸ Food and Agriculture Organization ▸ International Labour Organization ▸ World Health Organization	Evidence on chemical safety relevant to the Sustainable Development Goals and the objectives of the European Environment and Health Process Access to robust, comparable HBM data representative of the European population for

End users of HBM4EU results	Knowledge needs
▸ Inter-Organizational Programme for the Sound Management of Chemicals ▸ United Nations Institute for Training and Research ▸ United Nations Development Programme ▸ United Nations Industrial Development Organization ▸ Organisation for Economic Co-operation and Development ▸ World Bank	chemicals listed under the Stockholm Convention and for mercury Capacity building to promote harmonized approaches to human biomonitoring Access to guidelines and training materials via the online library
Scientists	
▸ Universities and research institutes ▸ National research institutes and agencies in the field of public health and environment ▸ Industrial R&D Centres and laboratories ▸ Scientific associations and societies	Latest results from HBM4EU Open access to peer reviewed scientific articles Access to analytical methods and protocols via the online library Access to HBM data via IPCheM
Industry	
EU industry representatives and associations ▸ The European Chemical Industry Council (CEFIC) ▸ Business Europe ▸ Eurometaux ▸ European Centre for Ecotoxicity and Toxicology of Chemicals ▸ European Association of Craft, Small and Medium-sized Enterprises ▸ Health insurance industry and the health sector ▸ Specific sectors that are end users of chemicals	Knowledge on possible risks for workers and consumers from chemical exposure Recommendations and best practice on chemical safety measures Understand the HBM4EU project and prioritisation process to enable effective engagement
Trade unions	
▸ European Trade Union Confederation and European Trade Union Institute ▸ National trade unions federations and confederations ▸ Trade union organisations for specific sectors impacted by chemical exposure	Knowledge on possible risks for workers Reliable information to support campaigns and policies for the improvement of occupational health and safety Understand the HBM4EU project and prioritisation process to enable effective engagement
Non-governmental organisations	
▸ Health and environment alliance ▸ European Environmental Bureau ▸ The European Consumers' Organization, ▸ CHEM Trust ▸ ChemSec ▸ WWF ▸ Greenpeace	Knowledge on possible risks to human health and the environment from chemical exposure in Europe Reliable information to support campaigns on public health and environmental quality

End users of HBM4EU results	Knowledge needs
▸ The Global Health Network ▸ Planetary Health Alliance ▸ European Patients Forum ▸ Women in Europe for a Common Future ▸ European Union of General Practitioners ▸ European Network of Safety and Health Professional Organisations ▸ International Network Children's Health Environment and Safety ▸ International Society of Doctors for the Environment ▸ European Respiratory Society ▸ European Academy of Environmental Medicine	Understand the HBM4EU project and the prioritisation strategy to enable effective engagement
Citizens	
▸ Citizens and concerned citizens ▸ Students, employees, professionals and entrepreneurs in the fields related to chemicals, health, environment ▸ Pregnant and breastfeeding women ▸ Children and young people ▸ Workers ▸ People with health conditions that increase the risk of immunologically-mediated toxicity ▸ Vulnerable groups	Awareness raising on chemical safety Reliable information on lifestyle and dietary choices and their role in health Awareness of the specific potential risks related to their situation or condition
HBM4EU survey participants	
▸ All individuals that participate in a survey under the HBM4EU project	Awareness of the specific potential risks related to their situation/condition Reliable information on lifestyle and dietary choices and their role in health
Journalists	
▸ Mainstream media ▸ ENDs Europe ▸ Chemicals Watch ▸ Bloggers ▸ Specialised media and journalists	Succinct, reliable and information and clear messaging Check facts of public interest
Think tanks	
▸ Bruegel Centre for European Policy Studies ▸ European Policy Centre ▸ Centre for the New Europe ▸ Friends of Europe	Raising awareness of HBM4EU

5 Dissemination

Dissemination involves disclosing HBM4EU results to the public, by appropriate means, including scientific publications.

This includes making our research outputs readily available to a broad audience using a generic range of tools, with a particular focus on digital communication tools. This provides the framework for more targeted and detailed communication and engagement with end users. We foresee the use of a wide range of tools under the HBM4EU dissemination strategy, described in turn below.

5.1 Leaflets and newsletters

A **leaflet on HBM4EU** was produced in December 2016 for the launch event, with the aim of providing a brief overview of the project, with contact details. The HBM4EU leaflet has been translated into a range of languages, including German, French, Dutch, Spanish, Greek, Czech, Polish, Italian and Portuguese, and will soon be made available on the HBM4EU website.

With the aim of effectively communicating on our progress with ongoing activities, the Knowledge Hub will produce **biannual technical newsletters**, published in PDF on the HBM4EU web site. The newsletter will provide a regular update on project activities. It will highlight specific dimensions of the work and summarise results, as well as flagging upcoming events and publications. We will work with our contacts across the science-policy domain to build up a list of regular recipients of our Newsletter and so communicate our results. The newsletter will be disseminated via social media, at events and through European and national networks.

Looking forward, we expect to produce additional leaflets on specific dimensions of our work. They will make use of clear and concise texts, with use of graphics, tables and infographics, and provide an overview, complemented with links to deeper information.

5.2 HBM4EU Website

The HBM4EU website provides the main tool for the dissemination of project results, targeting a broad range of end users and audiences. As well as serving the consortium partners, stakeholders and policy makers, the website has the potential to reach citizens, influencers and the media.

The site will serve to **promote HBM4EU** to external audiences, describing the project and its goals and introducing the pillars and the work packages. It will serve as a **platform** for the dissemination of research outputs, technical guidance and method. It will also profile the link to **IPCheM**, directing users to HBM data, as well as hosting the **online library**. Contact points will be provided to process enquiries and channel enquiries to relevant partners in the consortium. All partners will be identified, with a focus on promoting the **National Hubs**. Additional elements include a **calendar of events** and **links** to relevant projects. Continuous updates will ensure the website is dynamic and effective as an information hub for the initiative.

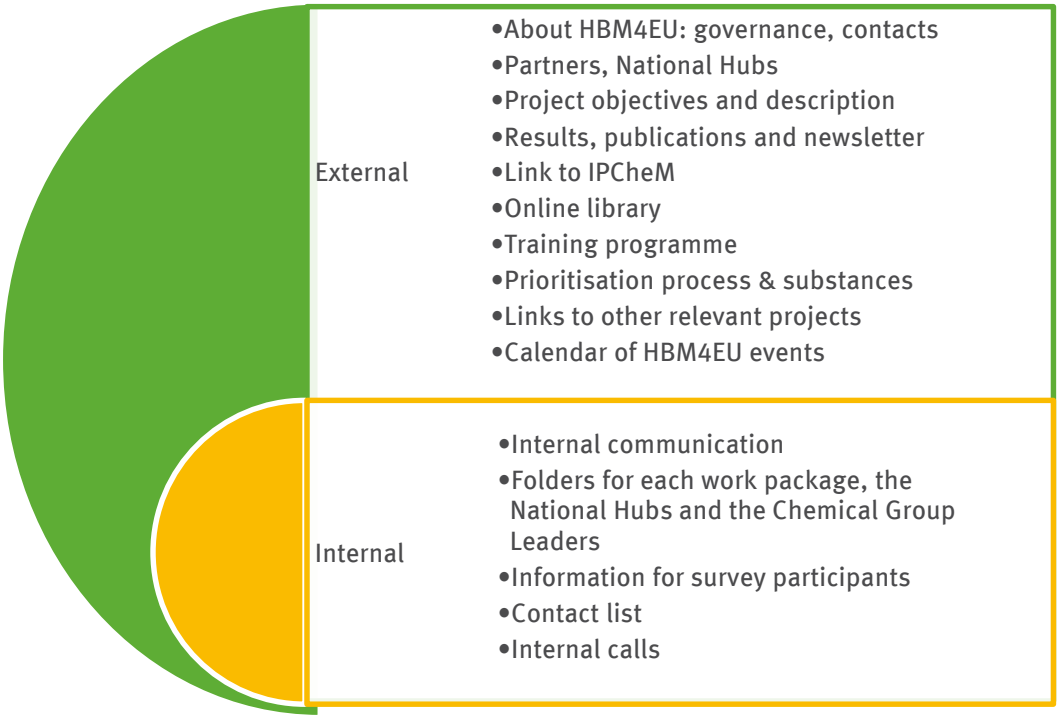
The website will also serve as an **internal communication tool**, featuring web pages for internal information sharing accessible via password. A webpage on training will profile the capacity building activities under HBM4EU, providing the **training programme** and options to sign up.

The website will feature individual pages for each of the **priority substance groups** that are the focus of HBM4EU activities. These webpages will be regularly updated and will feature information regarding the current legislative status of the substances, as well as on any ongoing processes.

Finally, the website will also provide a **channel for engaging with survey participants**, supporting recruitment by providing information regarding what may be expected from participants and providing a contact point for enquiries.

Figure 3 below provide an overview of the various elements of the HBM4EU website, both internal and external.

Figure 3: Elements of the HBM4EU website



The HBM4EU website will host a number of online tools, identified in table 3 below.

Table 3: HBM4EU online tools

Online library	A searchable online library that will make guidelines, methods, protocols and research results available to the public. We will establish clear rules for the publication of material on the online library. Metadata will be defined to allow the online library to be searched.
Intranet	The Intranet will provide a space for knowledge sharing and internal communication, providing a joint working space for each work packages, the National Hub Coordinator and the Chemical Group Leaders.
Training platform	The HBM4EU website includes pages profiling the annual training programme and materials, allowing interested participants to sign up to training events.
Helpdesk functions	The website will provide entry points for helpdesks under the project.

5.3 Online library

The HBM4EU website will include a searchable online library, providing rapid access to guidance, methods, protocols and research outputs. This will include both protocols developed under the HBM4EU, and other relevant, publicly available guidance and materials. By including existing

materials from across our partners, we expect to bring together a rich array of existing materials. This will include training materials produced for capacity building under the HBM4EU.

The goal is to build a European HBM library to serve as a repository that can be widely used by scientists and policy makers involved in public health and occupational health and safety. The online library will include:

- Guidelines, protocols and SOPs;
- Biomarkers;
- Laboratories;
- Research results;
- Training materials and guidelines; and
- The scoping documents.

Since it will be an open access platform, all documents and materials must have a "public" level of privacy. To avoid copyright issues, for documents obtained from other sources and training materials developed by individuals, copyright owners will be contacted to obtain their permission to make materials available on the HBM4EU website, with disclaimers.

For **scientific publications**, these will be available on the online library if they do not conflict with the Publisher's copyright and license restrictions. In line with the H2020 recommendations, open access publications will be therefore preferred.

5.4 Access to data via IPCheM

Within the context of this initiative, we will make both existing and new HBM data available via the online Information Platform for Chemical Monitoring data (IPCheM) developed by the JRC under mandate from the Directorate-General (DG) for Environment and the DG for Health and Food Safety (DG Santé).

Data used and produced under HBM4EU will be archived and preserved in the **HBM module** of IPCheM hosted by JRC, and organised into an appropriate form for analysis. This includes both new HBM data generated under the HBM4EU and existing data that is currently available for HBM4EU substances, while respecting national and EU rules and regulations. This platform collates HBM data centrally and is backed up to ensure **long-term data preservation**.

By including HBM data in IPCheM we will harmonise information on population exposure to chemicals across the EU accessible to potential users via IPCheM. IPCheM provides the key tool for sharing HBM4EU data and making them available for use and exploitation by a broad range of users.

The **HBM4EU Data Management Plan** will explicitly refer to the IPCheM Data Policy, in particular the data access regime. The IPCheM data policy describes rules for regulating access to the data, and allows the data owners to define access rights for different IPCheM user groups. Following this framework, HBM data will be made available to IPCheM user groups including EU and national policy makers, as well as to scientists of the consortium. This will ensure that results can be analysed at the EU level as well as at the national level.

With regards to new data, individual anonymous data will be made available in order to facilitate more complex analyses, including associations with behaviour and socio-economic status. For existing data, data will be provided at the highest level of detail possible, while respecting national and international ethics and legal requirements. Given data protection legislation at EU and national level, we anticipate that HBM data can only be made available to public users at an aggregated level

in order to protect individual privacy. The use of HBM4EU data for commercial purposes will not be permitted. Annotation flags on these datasets will be produced and incorporated in IPCheM.

IPCheM users can explore and use available data both at national and European level. The primary objective of IPCheM is to provide policy makers with access to chemical monitoring data from a range of matrices and media. HBM4EU will generate data on new, emerging and less-investigated chemicals and will make data accessible via the IPCheM platform.

By using IPCheM, we will automatically connect to other chemical monitoring data available via IPCheM, including data on chemicals in food and feed, indoor air, consumer products and the environment. As such, HBM4EU will add value to IPCheM and will stimulate the use of HBM data across policy domains. The accessibility of HBM data online via IPCheM will also enable cross-analyses with chemical monitoring data from food and feed, the environment, products and indoor data.

5.5 Scientific publications

The HBM4EU project is expected to produce at least **50 high-level scientific articles** drawing from the on-going researches and their results.

HBM4EU research will be published in selected leading international, peer-reviewed journals, such as: Environmental Health Perspectives, The Lancet, International Journal of Hygiene and Environmental Health, Environment International, Toxicology Letters, Food and Chemical Toxicology, Regulatory Toxicology and Pharmacology, Science of the Total Environment, Chemosphere, and Environmental Health. Scientific papers will be freely accessible via the HBM4EU website alongside or after publication in peer-reviewed journals (timing will depend on whether the publishers request an embargo period). Our goal is to produce at least 50 high-level articles from HBM4EU research. Contributions to EU publications, for example Horizon magazine and research*eu magazines, will also be published. All publications will be disseminated via social media and via the HBM4EU newsletter.

HBM4EU scientists commit themselves to make their best efforts to ensure that electronic copies of publications become freely available, either through an institutional or subject-based repository, as soon as possible, and no later than six months after publication. The beneficiary that intends to disseminate must give the other beneficiaries at least 45 days advance notice (together with sufficient information on the dissemination). In its effort to disseminate outputs, the project will comply with Article 31.5 of the Grant Agreement on “Access rights for the EU institutions, bodies, offices or agencies and EU Member States”, as stated in the Consortium Agreement. Box 1 below outlines the procedures for producing scientific publications under HBM4EU, as drawn from the Consortium Agreement.

To this end, when publishing scientific articles we will adopt either **‘green’ Open Access**, which may entail an embargo period, or the **‘gold’ model,** involving a fee. The HBM4EU website will provide a list of published articles, linking to the relevant edition of the online journal.

The HBM4EU partners recognise that policy makers need access to results in a timely fashion, in order to feed evidence into the tight timeframes under an evolving policy agenda. HBM4EU partners will make every effort to rapidly disseminate results through peer reviewed publications. Our engagement with policy makers and risk assessors in the EU Policy Board also provides a channel for the direct communication of results to expert groups and committees through bilateral dialogue. This is addressed under section 7.3 on engaging with policy makers.

Box 1: Extract from the consortium agreement, section 8 on results

8.5.2.2.2 Any Party or Linked Third Party or other subcontractor can propose a publication that uses Data or other results from the HBM4EU Programme submitting a written publication proposal to the Coordinator.

The publication proposal shall specify:

- The proposer and his or her affiliation;
- The target journal;
- A working title;
- An outline of the manuscript;
- A proposed work schedule and date of submission for publication;
- A proposed leader;
- A tentative manuscript group.

8.5.2.2.3 The Coordinator submits the proposal to the Management Board for decision and informs the proposer of the decision. The manuscript is prepared by a manuscript group and overseen by a leader. Authors shall be significant contributors to the design of the study including questionnaires, quality assurance protocols and programs, Data preparation, analysis, design of the publication, and/or writing. They shall be consulted by the leader at key stages and have seen and approved the final draft before submission to the Coordinator. Data and other Results from the HBM4EU Programme may be used for the analysis only with written approval from the owner of these Results. The owner can propose additional members to the manuscript group. The lead author shall inform the Coordinator of the publication of the manuscript.

8.5.2.3 Publications shall be made available in the Knowledge Hub and disseminated to relevant policy bodies at national and EU levels when deemed useful.

5.6 Conferences and events

Events provide a channel for **dialogue** and communication with a range of potential end users, **networking opportunities** and an opportunity to make the HBM4EU brand **visible**.

Participation in events is key to:

- Communicating the results and main achievements of the project;
- Fostering the exchange of technical methods, protocols and best practices;
- Receiving valuable expert feedback on project goals, work plans and results;
- Identifying synergies with other projects; and
- Raising awareness about HBM4EU and its results.

For the first year of the project, an introductory HBM4EU presentation is under production to ensure that we channel a common set of messages with a common visual image. This presentation will be made available to partners on the HBM4EU website for widespread use.

Members of the HBM4EU team will actively participate in **major international conferences** and symposia and act as our ambassadors. Relevant conferences include the series of annual conferences of the Federation of European Toxicologists and Societies of Toxicology (EUROTOX) and the US Society of Toxicology, the bi-annual International Congress of Toxicology, the annual conferences of the International Society of Exposure Science (ISES) and the International Society for Environmental Epidemiology (ISEE). We will also communicate our results at conferences organised at regional and/or national level, harnessing the range of languages available in our multi-cultural team.

In addition, we will organise **side events at international negotiating fora** relevant to chemicals management and public health more generally, such as the Conferences of the Parties to the Stockholm, Rotterdam and Basel Conventions and future sessions of the International Conference on Chemicals Management.

Participation in conferences organised by the European Commission provide an additional channel for dissemination. The annual EU Open Door Day offers an opportunity to present HBM4EU to the public using visual tools, with the aim of explaining how HBM4EU might impact on the everyday lives of the European population.

The 2017 Annual Communication Plan provides an overview of the events at which partners in the HBM4EU consortium will present in 2017. Events are a rolling item on the Management Board agenda, whereby events are identified and speakers are nominated to present HBM4EU.

The HBM4EU consortium will also organise its own events, to increase the visibility of the project, engage with stakeholders and fulfil their knowledge needs.

The HBM4EU partners intend to organise **stakeholder conferences** on the HBM4EU, in collaboration with the Policy DGs of the European Commission. This will provide us with a platform for the dissemination of our results, as well as for direct engagement with key stakeholders.

The range of events that the HBM4EU consortium might organize include **institutional events** such as high-level conferences and the annual project meetings, and **operational events** such as seminars, workshops and webinars. Options are captured in table 4 below.

Table 4: Possible HBM4EU events, features, target audiences and objectives

Type of event	Features	Target audience	Objectives
Institutional Events			
Stakeholder conferences	A high number of participants from different areas of expertise Participants can exchange perspectives and best practices	Policymakers, EU agencies, NGO, trade unions, industry, media	Reach key stakeholders Enhance networking Strengthen project visibility
HBM4EU annual meetings	Agree on objectives, annual work plan, consult stakeholders	HBM4EU Governing Body and consortium, EU Policy Board, Advisory Board, Stakeholder Forum	Agree on objectives, annual work plan, consult stakeholders
Operational Events			
Seminars Workshops Roundtables	Can be either informative or dialogue-based Allow participant engagement	Policymakers, scientists, EU agencies, stakeholders, general public, survey participants	Sharing knowledge, either at a technical or non-technical level Promote an exchange of views

Type of event	Features	Target audience	Objectives
Webinars	Online workshops involving presentations and limited exchange	Scientists, risk assessors, consortium partners	Knowledge exchange

5.7 HBM4EU Ambassador

A **dedicated HBM4EU Ambassador** will lobby all stakeholders regarding the ambition and subsequent achievements of this initiative. The Ambassador will be nominated in **June 2017** by the Management Board and confirmed by the Governing Board in September 2017.

She or he will promote the project to national and international key stakeholders and will ultimately work to develop a sustainable framework for a long-term initiative at European level.

In order to secure political buy-in for a long-term HBM4EU, a robust proposal must be presented to key stakeholders at both EU and national levels. This will be the role of the HBM4EU Ambassador, an individual with the **access and credibility** to be able to convincingly promote a future HBM4EU.

The Ambassador will strategically **target key stakeholders**, **promote the impacts** of the HBM4EU and **work to secure commitment and resources** for the development of a sustainable framework that can deliver a long-term initiative at European level.

5.8 Social media strategy

Today it is on social media that people **share knowledge**, organise their activities and **shape their opinions**. Social media represents an important channel for the dissemination of HBM4EU results.

At the same time, the concise nature of exchanges on social media present challenges to communicating complex, scientific knowledge. Recognising this, social media can be used to create an online buzz around specific events or publications, through the use of tags and the provision of links to more detailed information materials. Social media provide an opportunity to:

- Promote the HBM4EU brand and build a robust reputation;
- Create awareness;
- Inspire stakeholders and the public to engage in dialogue;
- Give visibility to project results, actions and events; and
- Enhance the recruitment of survey participants.

As lead of the Knowledge Hub, EEA is responsible for developing and managing the project's social media presence. The following channels will be employed:

- **Facebook** represents an extraordinary platform of communication, marketing and promotion. In addition to being more popular than the other social networks, it embraces a generalist and transversal audience, for age, gender, provenience and interests, that makes it a fundamental tool to grasp and intercept new and wider target groups. Facebook will be used to highlight activities and events to regular follows, including both citizens and scientists.
- **Twitter** has more than 200 million active users and offers opportunities to raise visibility and communicate. Twitter stimulates user interaction and can be used to build reputation, share links to new communication products and create buzz around events. Twitter will be used to reach out to stakeholders and the media, as well as citizens. The project hashtag is #HBM4EU.

Golden rules for social media

- Use simple and direct language, avoiding scientific terms
- Provide a context, be it graphics, a video or an image
- Link to more information
- Engage other scientists, influencers and journalists to promote the visibility of the project

5.9 Media Strategy

Both the specialist and the mainstream media offer a gateway to the public, stakeholders and policy makers, accessing new audiences and multiplying messages. Our media approach will range from electronic to printed media, targeting both news and feature pieces.

At the same time, chemical risk is a **complex and sensitive** issue and these factors affect the modalities of communicating with broader audiences. It will be important to reflect on the balance between the responsibility to communicate evidence of negative impacts on health and any possible negative impacts of raising public concern, in particular if the potential for change is limited. We will also need to decide *when* evidence is sufficiently robust to be communicated, and *how* we can clearly communicate any **uncertainties** in the evidence, as well as reflecting diverse opinions on the interpretation of evidence.

A first step involves **identifying the media channels**, both specialist and mainstream, that might effectively serve to disseminate HBM4EU results. We will select the media that we wish to work with depending on the messages we want to convey and the target group we aim to reach. EEA has an experienced and active communications department, with a core network of journalists around Europe who have proven to be serious, reliable and interested in environment and health. In addition, we will work with the National Hubs to identify target media outlets in each partner country. The Knowledge Hub will draw on this extensive network to disseminate HBM4EU results through a targeted media approach.

Actions to secure media coverage include producing **press releases** and contributing to **editorials**, including through the provision of targeted materials and/or participation in **interviews**. We may also explore the possibility to link to relevant **bloggers**. Serious and reliable bloggers can be difficult to identify and their influence is difficult to quantify. They can be journalists who blog, citizen journalists or simply people who like to share their opinions online. Inviting bloggers to share specific contents and/or participate in events and write about their experience is a simple way to encourage them to share blog posts with their networks.

Press materials shall include an eye-catching headline, summarise key facts and statistics, feature useable quotes and include links to background materials and references. A press release must not be over a page and a half, with links leading to: further information such as video content and video interviews, visuals and data. Press materials will be tailor-made to target specific journalists. An open dialogue with journalists can help to identify the most newsworthy subjects for **interviews**.

We will follow up with journalists to answer any follow-up questions, provide any further materials as appropriate, ask where and when articles and features are to be published and assess the level of satisfaction with the media relations service provided.

We will produce **a base of ready to use press materials** and video materials available for journalists/bloggers. Those materials should focus on HBM4EU goals and activities and will be regularly updated.

6 Communication

Communication involves promoting HBM4EU and its results, by providing targeted information to multiple audiences, including the media and the public, in a strategic and effective manner.

We will convey messages that are coherent with the overall strategy while at the same time tailored to meet the knowledge needs of the end users. As such, communication activities often involve direct engagement with end users, and focus at a high level of technical detail.

In implementing our communication strategy, we will leverage the broad range of contacts that we have across project partners in HBM networks at global, European, regional and national levels. We will establish collaborative relationships with all potential users of our results and promote their understanding and exploitation of HBM4EU outputs through an active dialogue maintained through email contact, phone conversations and face-to-face discussions at meetings and workshops.

Key communication activities are described in turn below.

6.1 Tailored communication products

The communication strategy will rest on a set of coherent but differentiated communication products and activities, with the separate products tailored to match the needs of the different end users and audience.

We will summarise our research results on particular substances and related policy questions in concise and targeted **technical reports**. We will ensure that key audiences receive these reports and follow up to provide any additional clarifications.

In order to keep other scientific researchers updated, we will generate concise and informative **research briefs**. Our aim with these short publications will be to inform parallel scientific research groups of our current progress and interim results, in order to maximise synergies with other ongoing research projects.

A series of **policy briefs** will be developed, timed to target specific policy processes at the European level and within Member States, including REACH and relevant sectorial policies. In addition, a policy-relevant synthesis of the overall results derived from the project activities will be delivered at the end of the project. For both research briefs and policy briefs, we will take care to ensure that the early release of results does not jeopardise the publication of results in peer-reviewed articles, an important indicator of success for the consortium. The HBM4EU partners will work with the EU Policy Board to ensure that evidence can be brought into decision-making processes in a timely fashion. In some case, policy briefs may be confidential and shared with a limited group of risk assessors and/or policy makers.

Non-technical information leaflets will be developed to communicate clear messages to specific target audiences, for example describing the HBM4EU project to individuals participating in field sampling undertaken as part of the HBM4EU. For specific sub-groups, we may identify opportunities for behavioural change that can significantly reduce exposure. In such cases, we will draw on the expertise of social scientists in the HBM4EU to ensure that we disseminate results to people in a sensitive, understandable, useful and respectful manner.

The types of publications and characteristics of the content type foreseen are presented in table 5 below.

Table 5: Publications and type of content

Publication	Content
Technical report	Reports summarising the main research results with a high level of technical detail, including on methods and approaches
Research brief	Detailed technical documents, explaining the main scientific activities and approaches May be focused on individual priority substances groups Track progress and present interim results
Policy brief	Addressing current policy questions and targeted at chemical risk assessor and risk managers Timing of publication to dovetail with relevant decision making processes and meetings of expert groups and committees
Non-technical leaflet	Clear concise content describing HBM4EU project goals, the role of survey participants in the project and possible health risks resulting from exposure to priority substance groups

6.1.1 Tailoring products to suit the end users

When profiling target groups for such a wide and heterogeneous group of end users, it is critical to **tailor** the communication products to the relevant audiences.

Communication products must be made accessible and comprehensible to all target groups identified, by considering for example the **technical understanding** in the different socio-cultural contexts involved.

With regards to targeting the public with awareness raising activities, the level of technical understanding can be interpreted on the basis of Open Data provided by Eurostat (e.g. Level of internet usage in household and enterprises) and/or Eurobarometer reports (e.g. "Europeans and their language report", 2012).

Some communication products will be **translated** into a range of languages, reflecting the partner countries, the level of English spoken in those countries and the relative size of the populations speaking each language. We will judge the need to translate communication products against the following criteria:

- Need to access a specific target audience, for example survey participants or residents living close to a point source of pollution or influential decision makers from a particular region;
- English language skills of that audience;
- Opportunities to disseminate the communication products to that audience, such as at a planned event; and
- Potential to achieve impact through the audience.

With regards to the use of the internet as a dissemination tool, **printed products** may be chosen over digital-based products when the level of internet access is low for a specific population or sub-group.

Content creation involves **shaping the message to suit the end user**. The **style** should be **informative**, objective and factual, and **descriptive**, rich in detail and specifications. When targeting citizens, the informative and descriptive approach can be combined in a **narrative approach**,

whereby we tell “real stories”, for example through interviews with researchers or stakeholders focused on key topics.

When communicating scientific content, the **density of information** can be adjusted to the knowledge needs and socio-cultural characteristics of the end-users. We foresee four degrees of informational density for different audiences, as follow:

- Very high for scientists;
- High for policy makers, stakeholders and specialist media;
- Medium for generalist media, survey participants and stakeholders; and
- Low for citizens.

Golden rules for creating targeted content

- Content for **policy makers** will be comprehensive, reliable, concise and understandable. Evidence must be presented in a clear manner, supported by graphics where appropriate. Data will be accompanied by clear explanations and an overall interpretation of their policy relevance. Uncertainties in the evidence and interpretation will be transparently communicated.
- Content for **scientists** will include a high degree of scientific detail, including a description of methods and analytical approaches. Content is likely to be disseminated through peer-reviewed scientific articles, or in some cases through technical reports.
- Press releases and other materials for the **media** will be concise, targeted and reflect on the societal implications of the results. Information will be fully referenced and organized in a modular structure to provide for flexibility in use across contexts.
- Messages for **stakeholders** will be engaging and reliable, addressing the implications of project results for the specific interest group.
- Messages for **citizens** will be straightforward and easy to understand, making use of graphical illustrations. Technical information will be limited to the most relevant details, with links to more detailed information provided. The concrete implications of project results for people will be made clear, where possible through simple recommendations.

Table 6 below provides an overview of the products and activities we intend to use to communicate and disseminate our outputs, and maps them against user groups and the impacts can result from the exploitation of our results by these users.

Table 6: Users, communication tools and potential impacts

Users	Communication tools	Impacts
Policy makers at all levels	Dialogue in targeted workshops, technical reports, policy briefs, IPCheM, blog	Evidence fed into chemical risk management
EU Agencies	Technical reports, technical newsletters, policy briefs, dialogue in targeted workshops, IPCheM, blog	Evidence fed into chemical risk assessment
Scientists	Technical reports, research briefs, targeted workshops, IPCheM, Advisory Board, Open Access publications	Build knowledge on exposure and exposure sources and link exposure to human health impacts

Users	Communication tools	Impacts
		Feed into parallel research Harmonisation of HBM methods and tools
Sub-groups at risk and survey participants	Non-technical focus groups, non-technical leaflets, social media	Changes in lifestyle, diet and habits resulting in reduced exposure to harmful chemicals
Stakeholders	Technical reports, policy briefs, IPCheM, dialogue at meetings of the Stakeholder Forum, Open access publications, specialist media	Knowledge fed into stakeholder initiatives to prevent and reduce chemical exposure Enhancing competitiveness by improving occupational health and safety in EU industries and promoting innovation on safe technologies
Citizens	Mainstream media, social media, non-technical leaflets, blogs	Changes in lifestyle, diet and habits resulting in reduced exposure to harmful chemicals

6.1.2 Creative and visual solutions

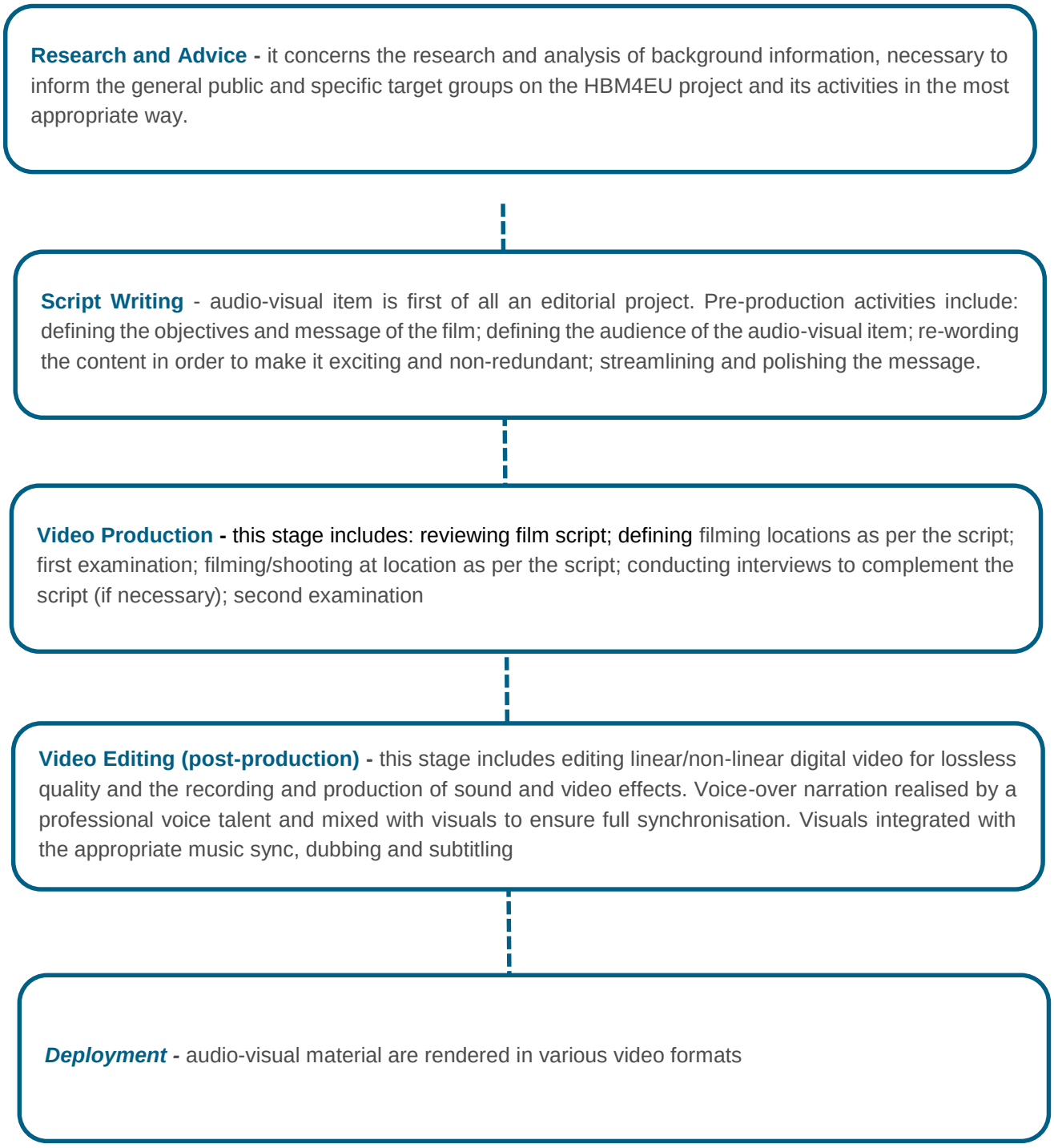
An extensive use of **graphic design** is foreseen to facilitate the understanding and memorability of messages based on complex scientific information and data. Infographics and data-visualisation are tools that combining aesthetic quality with simplicity in translating messages to target audiences. **Infographics** can facilitate understanding of project activities and can be used to raise awareness of the project, specifically via sharing through social media. **Data visualisation** can support the communication of complex data in an intuitive manner.

Another option for efficiently communicating and disseminating messages is through the design and production of short **videos and animations**. Videos can be simply and relatively low in information, acting as a "teaser" to activate the users' curiosity and lead them to more detailed information. Videos can assume different purposes for different users: while general public can stop on the first "step" of the exploration process, journalists and other scientists can go on finding more in-depth contents and information. The University for Health Sciences, Medical Informatics and Technology is responsible for the production of videos and animations in the context of this project.

The **video and audio-visual production process** follows the phases shown in figure 4 below. Different videos might contribute to a wide dissemination of the project's results, namely:

- **HBM4EU video** an introductory video showing the main project objectives and how it will contribute to society, this could include an introduction by the HBM4EU Ambassador;
- **Video clips in graphic animation** concerning different aspects of the project's action for dissemination on social networks;
- **Video tips series in graphic animation** providing guidance to the general public or to sub-groups on reducing exposure to chemicals;
- **Video testimonials** whereby HBM4EU partners share their experiences and perspectives.

Figure 4: Process for producing audio-visual content



6.1.3 Procedures for producing communication products

In its role as lead of the Knowledge Hub, EEA will produce a set of templates for branded communication products, to include templates for a newsletter, policy briefs, technical reports, PowerPoint template.

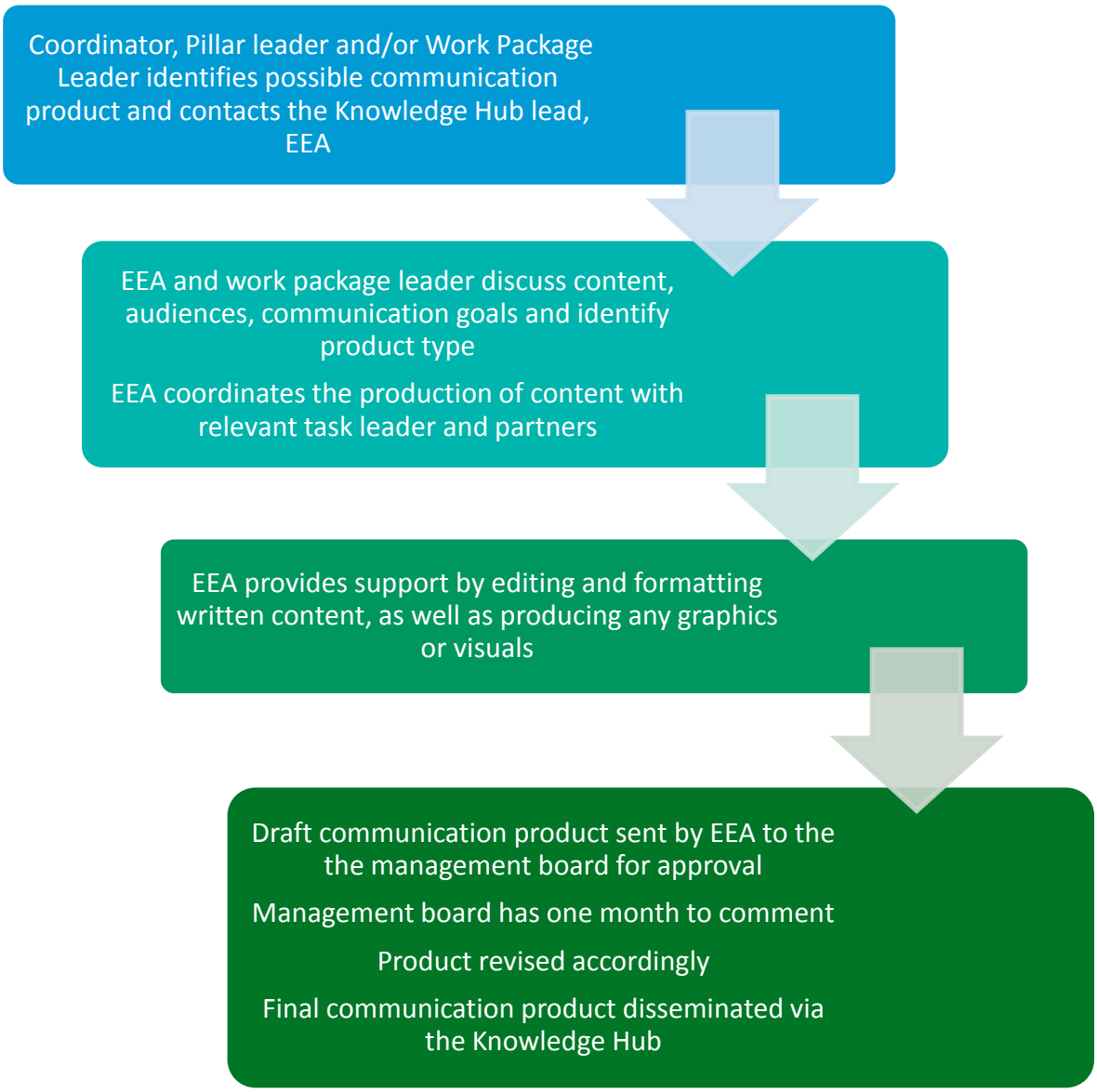
In producing communication products, EEA will provide advice and support on the development of communication products, as well as language editing, formatting and production. For more generic content, EEA is happy to produce a first draft and ask for Management Board approval. For more

specific technical content, we rely on the Work Package leaders and Task Leaders to develop content and support its refinement and translation into polish products.

In spring 2017, EEA will produce a short guide for project partners entitled “How to produce an HBM4EU communication product”. This guide will be made available on internal pages of the HBM4EU website, together with templates for communication products and short descriptions of their suitability for different target audiences.

The process for producing communication products is presented in figure 5 below.

Figure 5: Process for producing communication products



6.2 Engaging with stakeholders

Stakeholders are potential users of HBM4EU results. HBM4EU partners will collaborate with a range of stakeholders throughout the implementation of the project. Effective stakeholder participation is essential to:

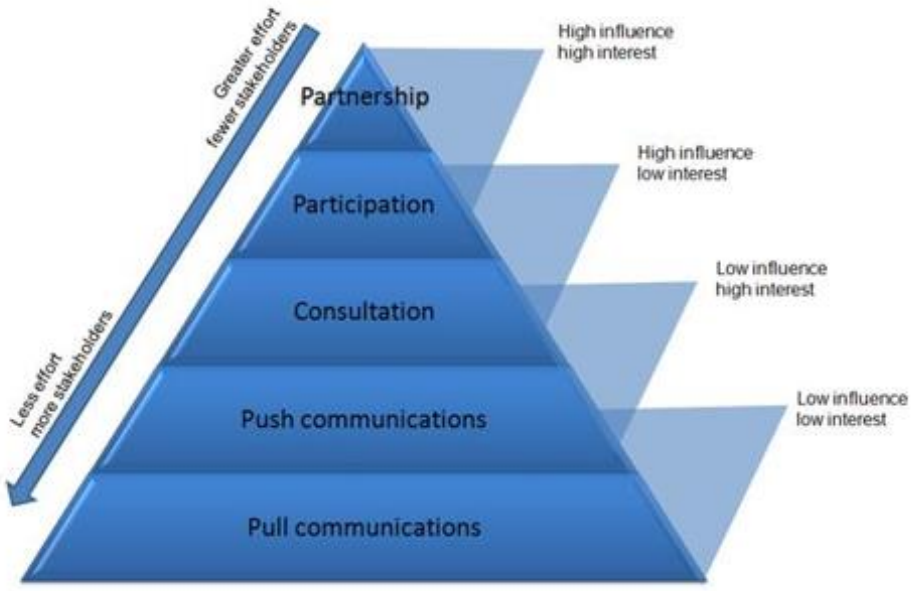
- Understanding societal challenges and needs;
- Setting research priorities that address those needs;

- Ensuring that HBM4EU-related activities are legitimate and credible;
- Communicating HBM4EU results effectively to different end users to ensure the exploitation of results; and
- Implementing procedures that are transparent and accountable.

Our strategy for engaging with stakeholders aims to promote their actively participation in the project. Engagement implies that the targets do not merely receive information, but that they contribute to, understand and exploit the results. HBM4EU stakeholders will have the chance to influence the decision-making process and shape outcomes, increasing their capacity to exploit our results.

Stakeholder engagement approaches depend on the level of interest and the level of influence of the stakeholder. The higher the influence and the interest of the stakeholder are, the greater the investment in their participation should be. Figure 6 below illustrates the relationship between stakeholder influence and the investment in stakeholder engagement.

Figure 6: Relationship between stakeholder influence and approaches to stakeholder engagement



In planning stakeholder engagement, the HBM4EU partners will reflect on the following questions:

- What is important to the stakeholder?
- How could the stakeholder contribute to the project?
- How could the stakeholder hamper or block the project?
- How can the stakeholder exploit our results to deliver impact?

Certain stakeholders can act as multipliers of HBM4EU messages. By reaching out to their constituencies and to the public, stakeholders have the potential to disseminate our messages to a larger audience and to increase our visibility. European level stakeholders with extensive networks in the Member States can access audiences at the national level. Such stakeholders can also gather input from their constituencies to feed into project activities, so increasing the credibility and legitimacy of HBM4EU.

The HBM4EU launch event, held on 8-9 December in Brussels, Belgium, included a stakeholder consultation with the aim of gathering input from a range of stakeholders. The stakeholder consultation represented the start of an ongoing collaboration between HBM4EU partners and stakeholders.

6.2.1 Stakeholder Forum

HBM4EU partners will communicate regularly with stakeholders to explain the results of the project in understandable language through the **Stakeholder Forum.** The Stakeholder Forum will be established by May 2017, to include representatives from NGOs, industry associations, employers' organisations and trade unions.

Candidates for the Stakeholder Forum are currently being reviewed against a set of criteria to identify those stakeholders that are most suitable in terms of their expertise, outreach and representation. Possible members are being assessed against the following criteria:

- Expertise in environmental health and/or chemical safety;
- Engagement with the EU;
- Interest in HBM4EU;
- Capacity to provide input to the HBM4EU project;
- Capacity to act as a sounding board for the HBM4EU partners;
- Potential to support the dissemination of results through networks at European and national levels; and
- Representation of groups in society that have a critical stake in issues relating to chemical risk governance.

The Stakeholder Forum will meet once annually at a minimum, back to back with the Governing Board, with a first meeting foreseen for September 2017. At this meeting, HBM4EU partners will provide updates on our progress with key stakeholder priorities. HBM4EU partners will be available for meetings with key stakeholders, organised via the Stakeholder Forum, to address ongoing questions and concerns and provide feedback.

6.3 Engaging with policy makers

HBM4EU will support European and national chemical policies in various policy domains. The success of the project will depend on whether project outcomes are accepted and exploited by **policy makers** to improve chemical risk management. We will target both agencies involved in chemical risk assessment and policy makers involved in risk management.

In engaging with policy makers, we will present results that specifically address policy questions currently under the spotlight, feed into problem formulation and advance understanding of possible policy options. Our presentation and provision of knowledge and data will be tailored to maximise its utility to users, for example by pro-actively investigating and then respecting any requirements for metadata templates, the level of data aggregation, geographical and temporal scope and, crucially, the timing of inputs.

To raise awareness and ensure that outcomes serve policy demands, policy makers will be systematically involved in all stages of the project through an iterative consultation process, organised in collaboration with an **EU Policy Board**. A broad range of EU services are represented on this board, including DG Santé, DG Environment, DG Internal Market, Industry, Entrepreneurship and SMEs, the Joint Research Centre and DG Employment, Social Affairs and Inclusion, as well as EFSA, ECHA and EEA.

The legislative context serves as a basis for identifying communication targets in the policy area, and includes the following policy domains:

- Chemicals regulation
- Food Safety
- Consumer safety
- Occupational Health and Safety
- Environmental legislation

Relevant pieces of EU legislation are identified in table 7 below, together with the responsible policy DG and the committees and expert groups involved in decision making. Aside from EU directives and regulations, HBM4EU may serve to inform the implementation of several EU strategies and broad policy areas, listed below.

- The Strategy for a non-toxic environment, currently anticipated for 2018;
- The EU Action Plan for the Circular Economy (COM/2015/0614 final);
- The Thematic strategy for soil protection (COM(2006)231);
- The Clean Air Policy Package;
- The Communication on the Combination effects of chemicals (COM (2012) 252); and
- The EU 7th Environment Action Programme (Decision No 1386/2013/EU).

Table 7: Policy domains, legislation, lead DGs and relevant committees and expert groups

Policy domain	Legislation	Lead policy DG, committees and expert groups
Chemicals	Regulation (EC) No.1907/2006 REACH Regulation (EU) No. 1272/2013 REACH amendment of PAH Regulation (EC) No. 1272/2008 Classification, labelling and packaging of substances and mixtures Regulation (EU) No. 528/2012 Biocides Regulation (EC) No. 1107/2009 Plant Protection Products Directive 2009/128/EC Framework for Community action to achieve the sustainable use of pesticides Regulation (EU) No. 757/2010 Implementing the Stockholm Convention on Persistent Organic Pollutants (POPs) Directive 2009/48/EC Toy Safety Directive 2011/65/EU Restriction of the use of certain hazardous substances in electronic and electrical equipment	DG Environment and GROW • Competent Authorities for REACH and CLP (CARACAL) • POPs Competent Authorities ECHA • Member State Committee • Committee for Risk Assessment • Committee for Socio-Economic Analysis • Biocidal Products Committee • Endocrine Disruptor Expert group • PBT Expert Group • CMR Coordination Group • Sensitiser Coordination Group
Food	Council Regulation (EEC) No. 315/93 Procedures for contaminants in food Directive 2011/8/EU Restriction of use of Bisphenol A in plastic infant feeding bottles Regulation (EC) No. 1935/2004 Food contact materials Regulation (EC) No. 396/2005 Maximum residue levels of pesticides in or on food and feed of plant and animal origin Regulation (EC) No. 1881/2006 Maximum levels for certain contaminants in foodstuffs amended by Regulation (EU) No. 488/2014	DG SANTE • Standing Committee on Plants, Animals, Food and Feed Working groups from the PAFF: • Industrial and environmental contaminants • POPs in food • Agricultural contaminants • Food contact materials EFSA • Pesticide Steering Committee

Policy domain	Legislation	Lead policy DG, committees and expert groups
	as regards maximum levels of cadmium in foodstuffs Regulation (EU) No. 10/2011 Plastic materials and articles intended to come into contact with food Commission Recommendation 2014/118/EU Monitoring of traces of brominated flame retardants (BFRs) in food Regulation (EC) No. 66/2010 EU Ecolabel	• Scientific Network on Food Contact Materials • Chemical occurrence network • EFSA Scientific Committee in consultation with CONTAM, ANS and CEF panels and the Pesticides unit
Cosmetics	Regulation (EC) No. 1223/2009 Cosmetics Resolution ResAP (2008)1 on requirements and criteria for the safety of tattoos and permanent make-up	
Air Quality	Directive 2008/50/EC Ambient Air Quality Directive 2010/75/EU Industrial Emissions	DG Environment • Ambient Air Quality Committee • Ambient Air Quality Expert Group • Industrial Emissions Expert Group • IED Article 13 Forum
Water quality	Directive 98/83/EC Drinking water Directive 2003/40/EC Natural mineral waters and spring waters	DG Environment • Working Group on Chemicals • Expert Group Drinking Water • Expert Group Bathing Water
Occupational health and safety	Directive 98/24/EC Chemical agents at work Directive 2004/37/EC Carcinogens or mutagens at work Directives 2000/39/EC, 2006/15/EC, 2009/161/EU Indicative occupational exposure limit values	DG Employment • Advisory Committee on Health and Safety at Work (ACSH) • ACSH Working Party Chemicals at the work place (WPC) • Scientific Committee on Occupational Exposure Limits (SCOEL) • Senior Labour Inspectors Committee – working group on chemicals (CHEMEX)

The leader of the Knowledge Hub, EEA, is both a partner in the project and a member of the EU Policy Board and so acts as a bridge connecting the two communities. EEA will work with the EU Policy Board to establish dialogues between the scientists involved in HBM4EU and the individuals involved in risk assessment and risk management. From the side of the consortium, we anticipate involving the **chemical group leaders**, as well as scientists working in the work packages undertaking surveys and subsequent analysis.

The HBM4EU consortium engaged with the EU Policy Board in the first exercise to prioritise chemicals for research under HBM4EU and in the development of our 2017 work plan. The EEA is currently conducting a survey with the EU Policy Board to better understand their knowledge needs. Their input will be fed into the revision of the scoping documents that define the HBM4EU research priorities for each group of substances.

Once we generate results, we will organise workshops with relevant **committees and expert groups** to directly communicate our results, providing a forum for joint interpretation and facilitating the exploitation of our results by policy makers. Through this direct engagement, we aim to deliver our results to risk management and risk assessors in a timely and targeted manner. Recognising the imperative to publish results in peer-reviewed journals, we may set embargo periods during which our results cannot be shared more broadly.

Relevant committees involved in chemical risk assessment include the **EEA Scientific Committee**, the **EFSA Scientific Committee**, the various committees at **ECHA** and the committees under DG Santé, including the **Scientific Committee on Consumer Safety** and the **Scientific Committee on Health, Environmental and Emerging Risks**, as well as DG Employment's **Advisory Committee on Health and Safety at Work**. Specific committees and expert groups that feed into the implementation and development and of legislation are identified in table 7.

The **European Parliament** is a key partner in the EU legislative process. By providing timely, targeted information on exposure to chemicals and resulting health effects to Members of the European Parliament, HBM4EU can contribute to the development of Community legislation. In particular, we will engage with the Committee on Environment, Public Health and Food Safety. We will also explore the possibility for organising press events in the European Parliament.

At international level, HBM4EU will collaborate with the **OECD** and relevant **UN bodies**, in particular the **World Health Organization** and the secretariats of the chemicals-related multilateral environmental agreements, namely the Stockholm, Rotterdam and Basel Conventions, as well as the Strategic Approach to International Chemicals Management.

HBM4EU will also target policy makers at national level. The **National Hubs** will actively disseminate project results on the national level in their mother tongue, and as such will serve as antennae reaching out to citizens at the local level. Each National Hub will decide which communication medium to employ, at their discretion. The Knowledge Hub will provide support to the National Hubs in developing communication materials that are suitable for dissemination at national level.

In addition, the EEA has an extensive network, **Eionet**, through which HBM4EU will have access to a broad range of policy makers, agencies research institutes and private sector consultancies in 33 member countries. An important group for whom HBM4EU results will be of interest is the **National References Centres on Environment and Health**. EEA is already communicating with this network to raise awareness of the HBM4EU project.

6.4 Dialogue with survey participants

HBM4EU research activities ultimately depend on the generosity of survey participants in providing samples for analysis. Our work depends on a foundation of trust between the scientists involved in taking samples and the participants. Effective dialogue is essential in building this trust, and is a process that starts before samples are taken, with the initial recruitment of participants, and only ends once results and, where relevant, recommendations, have been clearly communicated in a confidential, sensitive and respectful manner.

Confidentiality is the cornerstone of this relationship, with our work in conducting surveys and using subsequent data guided by the legal and ethics considerations identified in the HBM4EU Report on Ethics. Our communication with survey participants will clearly explain their rights in terms of data protection under the General Data Protection Regulation (EU) 2016/678, as well as under relevant legislation at national level. We will also describe possible future uses of their samples and resulting data, including making anonymised data available via IPCheM.

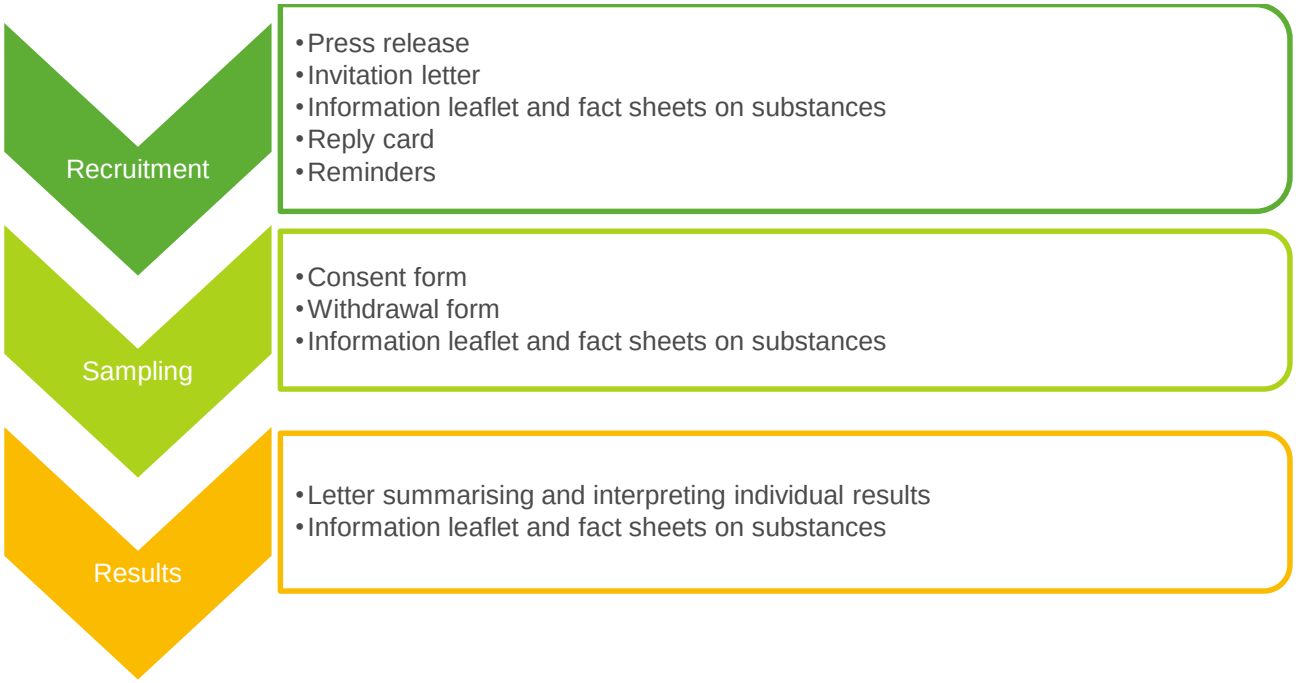
Key aims of our dialogue with survey participant are as follows:

- Promoting a culture of trust, transparency and openness, while fully respecting confidentially and data protection legislation at both EU and national levels;
- Introducing the HBM4EU project and clearly explaining project goals;
- Supporting the recruitment of survey participants;
- Receiving the informed consent of survey participants;

- Reporting individual results to participants in a sensitive manner, taking into account uncertainties and citing the individual in the broader populations;
- Making any relevant recommendations for changes to behaviour, lifestyle or diet, recognising the practical and/or financial limitations that an individual may face; and
- Raising awareness of the potential health impacts of chemical exposure and the use of HBM as a tool in chemical safety.

We will tailor out communication materials to meet the information needs of the survey participants. The range of communication materials that we intend to produce for survey participants are listed in figure 7 below.

Figure 7: Communication materials for survey participants at different stages



Our materials will be easy to read, provide clear descriptions of the project and the sampling process, aiming to minimise the burden of the participants. In particular age, gender, socio-economic status and occupation will all influence the modalities of communication. For example, where children are participating in surveys, we will take care to explain our messages in a simple and attractive manner using graphics. We may choose to make use of short video animations to explain the HBM4EU project and its goals.

The communication materials will be translated into the national or regional language and may require adaptation for the local socio-cultural context. We will provide a national contact point, who can be contacted with any questions about the survey by potential participants.

In communicating results to our survey participants, will related the results of the individual participants against health-based guidance values, where available and taking into account scientific uncertainties.

We will also consider that participants are likely to open material on mobile devices, and structure materials accordingly. We will structure our materials so that those individual who want to dig deeper and access more scientific information on the project and/or their own results can do so through links to additional information. In particular, we intend to make use of mobile technology to send reminders to survey participants in advance of appointments.

The National Hubs may also consider workshops to inform participants about the project results, to give them the opportunity to understand their data in the context of overall findings and to ask questions.

6.5 Outreach to other relevant projects

The HBM4EU-website will profile the activities of relevant international, EU-wide and national projects and site the HBM4EU amongst them in terms of our specific contribution to the knowledge base.

In collaboration with the National Hub Coordinator, EEA will seek input form the NHCPs on an annual basis, requesting concise lists of relevant projects at regional, national, EU and global levels. EEA will maintain a webpage profiling relevant projects. EEA will monitor the outputs from EU level research projects, such as technical reports and briefings, and will disseminate outputs to HBM4EU partners. National Hub Contact Points will monitor outputs at national level and feed them to EEA through the National Hub Coordinator, for further dissemination to partners.

EEA will coordinate outreach to other research initiatives and international organisations in a pro-active and structured manner. The following criteria will serve to guide the selection of projects with which to collaborate:

- Relevance in terms of technical content;
- Potential for active collaboration on research topics;
- Sharing guidelines, materials, data and/or results;
- Potential to produce joint outputs;
- Opportunities for joint training activities;
- Strategic importance in view of a post 2021 sustainable HBM4EU.

EEA will provide a list of relevant contacts to work package leaders and will track formal communications in order to ensure a coordinated approach.

6.6 Training programme

The broad range of national experience held by HBM4EU partners will contribute a diversity of skills and solid expertise to training and capacity activities. We will generate added value in terms of increased scientific excellence, through an exchange of expertise, including training to promote the use of common methods and protocols. In this way, the HBM4EU will promote the adoption of best practice in HBM activities across Europe.

The HBM4EU training programme will include both basic courses, targeted courses, workshops, and train-the-trainer sessions, as well as capacity building for PhD students. The programme is being developed on the basis of a survey of the capacity needs of HBM4EU partners, matched against available training capacities. The 2018 training programme will be made available in November 2017, and is intended to serve the HBM4EU partners. We will establish linkages with existing training programmes, such as those organised by the WHO.

Where there is availability, certain events may be made open to external participants, so building capacities outside the consortium. Training therefore provides an opportunity to promote the visibility of the project, as well as promoting the harmonisation of HBM approaches and methods.

7 Communication during a crisis

It is a possibility that over the five-year duration of the project the project may face a crisis. This may emerge from an unforeseen problem with project implementation, or the misinterpretation of project results by external audiences. In such a situation, the HBM4EU Management Board will meet to determine an appropriate course of action. Depending upon the nature of the crisis, this may include identifying one party to communicate a clear and consistent message to external audiences.

A crisis may emerge from the misinterpretation or indeed the misuse of HBM4EU results by an external party, disseminated through the media. Misinformation is often generated by a single individual or community and can rapidly affect larger groups of individuals. When reacting to the use of HBM4EU evidence in misleading ways, our response will be to clearly and concisely correct any misinterpretation. Some ideas on how to tailor the response to a media crisis are captured in table 8 below, differentiated by media type.

Table 8: Ideas for responding to misinformation spread through different media channels

Media	Reaction	Action
Social media	Substantiate, offer further evidence Propose open dialogue, be available	Write reliable and concise content, clearly correct the misinterpretation
Press	Substantiate, offer further evidence	Concise press release with the correct interpretation and evidence
Webpage	Substantiate, offer further evidence	Use understandable language to correct the misinterpretation, do not engage in lengthy explanation
Word of mouth	Propose open dialogue, be available.	Respond through a media able to reach the community in which the misleading information is being disseminated

Communication crises emerging from online communication have specific characteristics, including:

- Amplification;
- Speed;
- Penetration; and
- Pervasiveness.

Box 3 captures a number of recommendations for how to effectively manage a social media communication crisis.

Box 2: Recommendations for managing a social media crisis

Before the crisis

Set procedures for how to respond to a social media crises, EEA to inform the Management Board and request rapid feedback on proposed actions.

Monitor social media in order to identify any content that promote misinformation or a misinterpretation of results.

During the crisis

Identify the most suitable channels to be used, on the basis of the target and the message.

Act rapidly to correct misinterpretation and provide correct and reliable information.

Monitor the resulting conversations to observe what the users write, in order to evaluate whether and how to intervene.

After the crisis

Once the crisis is solved, reflect on what worked and what did not.

8 2017 Annual Communication Plan

Communication and dissemination activities already undertaken and/or foreseen for 2017 are listed in table 9 below. Communication products are highlighted in blue, while presentations at events are highlighted in yellow. HBM4EU events are highlighted in green.

We expect that additional products, events and activities will be added, as the project develops over the first year.

Table 9: Communication and dissemination activities foreseen for 2017

Month	Communication products and events
January	▸ HBM4EU introductory leaflet available
February	▸ Summary report of the stakeholder consultation held on 9 December 2016
March	▸ Translation of the HBM4EU leaflet into 10 languages
	▸ "Human biomonitoring as a tool to support chemicals regulation in the European Union" Catherine Ganzleben, Jean-Philippe Antignac, Robert Barouki, Argelia Castaño, Ulrike Fiddicke, Jana Klánová, Erik Lebret, Nicolas Olea, Dimosthenis Sarigiannis, Greet R. Schoeters, Ovnair Sepai, Hanna Tolonen, Marike Kolossa-Gehring, International Journal of Hygiene and Environmental Health, in press, available online 22 February 2017, http://dx.doi.org/10.1016/j.ijheh.2017.01.007
	▸ Informationsplattform IPCheM: Zentraler Zugang zu Daten des Chemischen Monitorings in Europa, Gerlinde Knetsch and Maria Rüther, UMID, 01/2017
April	▸ Presentation on HBM4EU by Marike Kolossa-Gehring at the JRP MeTra – Traceability for mercury measurements, 4-5 April

Month	Communication products and events
	▸ Presentation of HBM4EU by Robert Barouki at a side event at the Conference of the Parties to the Rotterdam, Stockholm and Basel Conventions, 27 April 2017, Geneva
	▸ Brochure for stakeholders introducing HBM4EU
May	▸ Guide for HBM4EU partners “How to produce an HBM4EU communication product”
	▸ Brochure for stakeholders on the HBM4EU prioritisation process and mapping of knowledge needs
June	▸ 1st HBM4EU newsletter
	▸ Presentation of HBM4EU by Erik Lebret at the 2nd Fresenius Mixtox Conference: Toxicity of Chemical Mixtures: Risk, Hazard and Exposure Assessment, 8-9 June, Cologne, Germany
	▸ Side event on HBM4EU at the Ministerial Conference on Environment and Health led by UNECE and WHO Europe, 13 June 2017, Ostrava, Czech Republic
	▸ Presentation of HBM4EU by Argelia Castaño at the XIV Spanish and IV Iberoamerican Congress of Environmental Health, 21-23 June, Zaragoza, Spain
September	▸ 1st meeting of the HBM4EU Governing Board, Consortium, Stakeholder Forum and Advisory Board, Berlin, Germany, 4-8 September
November	▸ 2nd HBM4EU newsletter
	▸ Stakeholder Workshop, Brussels, Belgium
	▸ Presentation of HBM4EU by Hanna Tolonen at the 10th European Public Health Conference, Sustaining resilient and healthy communities, 1-4 November, Stockholm, Sweden

In addition, a number of HBM4EU processes will require stakeholder input in 2017 and 2018, and are listed chronologically in box 3 below.

Box 3: Engagement with stakeholders in 2017 and early 2018

By May 2017, HBM4EU will propose a **Strategy for the prioritisation of new substances for research under HBM4EU**, including a set of criteria that will be used to prioritise substances. From 15 May to 15 June 2017, stakeholders will be asked to provide their feedback on the strategy and criteria. The prioritisation strategy and decision criteria will be finalised and sent for approval to the HBM4EU Governing Board in September 2017.

Over a three-month period from 15 May to 15 August 2017, members of the Stakeholder Forum will be invited to provide **input on priorities for action** under HBM4EU, including both nominations for substances to be the subject of future research activities and, where relevant, specific population groups for investigation.

In addition, a broader range of stakeholders will be invited to nominate substances for future research via the HBM4EU website from August to October 2017.

A **stakeholder workshop** will be organised in the autumn of 2017, providing a forum for open discussion with a range of stakeholders on priorities for future research activities under HBM4EU.

By early 2018, HBM4EU partners will score all nominated substances against the decision criteria. The Stakeholder Forum will be consulted on the proposed scoring. The scores will then be finalised and used to produce a **second list of priority substances** in May 2018.

In February 2018, HBM4EU will organise **focus groups with members of the public** to gather input on public priorities for activities under HBM4EU.

Early in 2018, HBM4EU will conduct a survey regarding stakeholder expectations for a sustainable HBM initiative beyond 2021. This will feed into the development of a proposal for a **possible future initiative**.