

STRATEGIC CONCEPT

KNOWLEDGE TRANSFER IN THE DAM

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TERMINOLOGY OF TRANSFER

Findings from science become socially influential when they lead **to innovations, developments, decision-making, or knowledge growth outside of research**. At the same time, socially relevant questions and perspectives can flow into research through an exchange with non-scientists. Transfer in the DAM is based on the following definitions:

1. Position paper on knowledge and technology transfer by the German Council of Science and Humanities¹.

In this paper, the term transfer encompasses technology transfer in a broader sense and interactions between scientific actors and partners outside science. Scientific and technological knowledge is "transferred" via various transfer activities in society, culture, the economy, and politics, ranging from science communication, advising different actors in politics and civil society, translation in medicine, service tasks in the form of approvals, authorisations, standardisation, cooperative research with industrial partners, to new and spin-off companies.

2. Transfer term from the LeNa guideline²

The LeNa Guidelines were developed by the partner organisations Fraunhofer-Gesellschaft, Helmholtz Association, and Leibniz Association and funded by the BMBF. According to it, the transfer and exchange of knowledge between research organisations, science, civil society, politics, and business encompass the following areas:

- Science communication
- Open Access
- Involvement, dialogue, and participation
- Knowledge and technology transfer teaching as well as supervision of student and scientific qualification work

Knowledge transfer is essential for making research results socially effective, i.e., triggering developments, decision-making or knowledge growth outside the scientific community. Opportunities also open up for new impulses for research through appropriate public participation.

3. The Leibniz Association's Transfer Mission Statement³

The Leibniz Association's transfer model refers to the exchange between science and the non-academic world. Transfer links the need for knowledge in society and existing knowledge in society with the research agendas of Leibniz institutions and enables actors outside science to understand and apply scientific findings, their prerequisites, and their limitations. Technology transfer exemplifies this by closely involving future users in the research process.

¹ Position paper Wissenschaftsrat: <https://www.wissenschaftsrat.de/download/archiv/5665-16.pdf>

² LeNa: <https://www.nachhaltig-forschen.de/handlungsfelder/organisationsfuehrung/transfer-und-austausch/>

³ Leibniz: <https://www.leibniz-gemeinschaft.de/en/transfer/knowledge-and-technology-transfer>

The Leibniz Association addresses the following transfer areas:

- Exhibitions and art
- Education, training, and further education
- Capacity Building
- Policy advice
- Research for society and with society
- Technology Transfer

Transfer in the DAM

The transfer includes the two fields of competence: **technology transfer** (in the sense of a transfer of scientific findings into an application) and **knowledge transfer**. The technology transfer is developed within the framework of the DAM research missions in cooperation with the industry. The basis for this is the administrative agreement. According to this, research missions enable the elaboration of research and development projects in partnership development projects in close cooperation with the private sector.

This document deals exclusively with knowledge transfer. The framework for action is formed by the following tasks of the DAM as specified in the administrative agreement:

- *“Together with the member institutions, the DAM’s administrative office supports and promotes the transfer of knowledge about topics, research questions and results to politics, business and society.”*
- *“The DAM administrative office will draw up a strategic concept to promote young scientists and engineers and to develop capacity, and will assist the research institutions involved in implementing it.”*
- *“The DAM communicates the issues of marine research as preventive research to the public using appropriate formats.”*

This document is based on a concept for knowledge transfer by the DAM that was developed in 2018 based on explorative interviews with transfer and communications officers at the DAM member institutions and other experts and adopted by the action group set up by DAM members in 2019. Further fields of action and measures were then developed, and the overall concept was discussed and harmonised with the DAM Executive Board, external transfer experts, and the Knowledge Transfer Working Group, which had been established as a “sounding board” for DAM knowledge transfer.

In February 2021, the strategic concept for knowledge transfer was adopted by the DAM’s Administrative Council, and this served as the basis for further strategic development by the Perspective Group Transfer, which was established at the management level by the DAM members. This led to significant enhancements, especially in exchanging knowledge with stakeholders and regarding the business community as a target group. The enhancements were adopted by the General Assembly in May 2021 and incorporated into the existing version. At its meeting in July 2021, the DAM International Advisory Board emphasised the importance of transfer and recognised the strategic concept for knowledge transfer as necessary and well thought out.

ABSTRACT

KNOWLEDGE TRANSFER IN THE DAM

Transferring scientific findings to politics, the economy, and society is a **strategic core element and a cross-sectional task of DAM** to strengthen the sustainable use of coasts, seas, and oceans. To this end, DAM pools expertise from German marine research and ensures a target- and demand-oriented knowledge exchange. In addition, DAM develops strategies for cooperation with industry, promoting young researchers, and establishing knowledge partnerships.

In the **transdisciplinary, solution- and application-oriented DAM research missions**, science-based options for sustainable management of the coasts, seas, and oceans are developed and made available to policy-makers and society. In addition, the research missions are intended to facilitate the transfer of scientific findings into application. To this end, relevant non-university research institutions and universities work together with partners from industry and other stakeholders.

Fields of action for knowledge transfer in the DAM

Designing measures for knowledge transfer is carried out at the DAM for various objectives and interaction groups in parallel. In the following, the expression “the DAM” refers to the German Marine Research Alliance (DAM e.V.) as the union formed by its members and the DAM Executive Board, together with its administrative office. The transfer concepts and measures are developed jointly and in agreement with the DAM members. The following fields of action can be distinguished:

1. Exchange of knowledge with stakeholders

Exchanging knowledge with political, business, and civil society experts is crucial to developing **viable concepts for protecting and sustainable use of coastal and marine ecosystems** and integrating them effectively into the political and social context. The expertise of the German marine research community can be brought together in the DAM to produce science-based analyses of issues relating to the sustainable use of the oceans.

The DAM can ensure that knowledge is exchanged in ways that are appropriate to the objectives and needs, and it can become a **central partner offering advice to policymakers and society and encouraging the dialogue between the research community and protagonists in society**. Stakeholders play an essential role in the DAM’s research missions, ensuring that practical aspects are incorporated into the research projects and that science-based courses of action can be developed. In addition, cross-cutting transfer formats are being developed to bring together the expertise of the member institutions on socially relevant marine topics in a needs-oriented manner.

2. Dialogue with society

The sustainable management of our natural resources – including coasts, seas and oceans, which constitute the largest habitat on earth – is a **challenge for society and concerns humankind's future**. Finding paths that lead to greater sustainability is an issue for science, politics and society. Sustainability also depends on citizens' understanding and willingness to participate in transformation processes and live them. For this to be possible, everyone must understand what they are discussing.

In addition to a concrete exchange of knowledge with stakeholders from politics, business and civil society, there must, therefore, also be a broad-based dialogue with society that includes **motivation and opportunities for participation and educational opportunities**. In the core area of Transfer, appropriate formats are being developed in cooperation with exhibition centres and educational institutions to provide access and an overview of socially relevant marine topics, give food for thought on sustainable action and create opportunities for education and participation.

3. Promoting Young Talents

The DAM is developing a strategic concept for **promoting young scientists and engineers** and supporting and implementing it with the help of the participating research institutions. The DAM can provide added value by offering a more comprehensive **overview linking the offers** available to students, PhD students and postdocs and by promoting the **exchange between young talents and stakeholders** in politics, business and civil society.

Based on the **research and needs analysis conducted at its member institutions**, the DAM is developing measures to provide this added value by combining digital solutions with offers for personal exchange.

4. Capacity development

Capacity development is a broad term that covers various training, exchange and support measures for different target groups in a national and international context. The three fields of action already discussed in the context of exchanging knowledge are also part of capacity development. In the UN Decade of Ocean Science for Sustainable Development context, **knowledge partnerships with emerging and developing countries** are critical to promote global sustainable management of coasts, seas and oceans.

The DAM can enhance the **interconnections between existing capacity development measures** to increase their strategic effectiveness and supplement them with **targeted new measures**.

Added value of the DAM for knowledge transfer

Working together in the DAM, the German marine research community can achieve **greater visibility and effectiveness in politics and society** and, to this end, provide content on significant topics that are relevant to society in terms of providing for the future about coasts, seas and oceans (including climate change, biodiversity loss, transformation towards sustainability, food security, energy supply). For topics like these, DAM can play a cross-institutional role – always building on its members' expertise and guided by society's needs. **The goal is to become a central partner offering advice to policymakers and society and encouraging the dialogue between the research community and protagonists in society.** In this sense, the DAM is a major "relevance agency" on oceans.

The DAM, therefore, achieves added value for science, politics and society by making coastal and marine research more widely usable and socially practical - constantly strengthening the sustainable management of coasts, seas and oceans.

A study⁴ from the INTERNAS knowledge transfer project, for which 22 experts from administration, research and nature conservation (2020) were interviewed using the Delphi method, shows the importance of DAM. Various fields of action were identified as relevant contributions of German marine research to the sustainable development of the oceans and linked to the statement: "These fields of action were addressed by the Federal Government in 2019 with the establishment of the German Marine Research Alliance (DAM)." The DAM research missions and the DAM Transfer implement vital fields of action:

- Emphasising the importance of the oceans and the consequences of interventions
- Communicating research results in a generally understandable way
- seek viable solutions for the sustainable use of the oceans
- Developing a basis for policy decisions
- Develop scenarios.

The United Nations has declared the years 2021 to 2030 **the International Decade of Ocean Science for Sustainable Development**. Politics, society and science are to work together to successfully implement the UN Sustainable Development Goals (SDGs) - for "life under water" and the people living from and with the ocean. The aim is to reverse the trend: The health of the coasts, seas and oceans should not deteriorate further but improve again. Transfer plays a vital role in this. **The DAM's transfer measures are all part of the UN Decade.** The research missions and the DAM knowledge transfer fields directly contribute to the UN Decade. The aim is to

- Strengthen knowledge about the ocean
- Announce new research partnerships
- Anchor the importance of the oceans more firmly in politics and society.

⁴ Download-Link:

https://www.awi.de/fileadmin/user_upload/AWI/Forschung/Besondere_Gruppen/ESKP/2020_INTERNAS_Factsheet_Meer.pdf

FIELD OF ACTION 1: EXCHANGE OF KNOWLEDGE WITH STAKEHOLDERS

A “Framework for the Exchange of Knowledge and Consulting” has been drawn up for Field of Action 1, summarising the outcomes from several discussions and working groups, in which the topics “Exchanging Knowledge with Stakeholders” and “(Political) Consulting” were discussed on a professional and strategic level:

- Meeting to discuss statements by the DAM on 07/12/2020
- Open board meeting on 21/12/2020
- Meeting of the Public Relations Working Group on 4/02/2021
- Meeting of the Knowledge Transfer Working Group on 12/02/2021
- Discussion group: The DAM’s Knowledge Transfer Working Group meeting revealed a need for a fuller exploration of the topics “Exchanging Knowledge with Stakeholders” and “Political Consulting” by a smaller group. All interested parties from the Working Group were invited to take part, and the following group was formed: Ulrike Bernitt (GEOMAR), Sven Grimm (DIE), Ralf Röchert (AWI), Peer Seipold (Hereon / GERICS), Christian Wagner-Ahlfs (KMS), Ute Wilhelmsen (DAM)
- Perspective Group Transfer, on 11/03/2021 and 26/03/2021

The DAM General Assembly adopted the Framework at its May 20, 2021 meeting.

1.1. FRAMEWORK FOR THE EXCHANGE OF KNOWLEDGE AND CONSULTING

Exchanging knowledge with science, politics, business, and civil society experts is crucial to developing viable concepts for protecting and sustainable use of coastal and marine ecosystems and effectively integrating them into the political and social context. This knowledge transfer is an essential element in the contribution made by science to provide for the future and preserve the necessities for life, especially in the fields of environment, climate, energy, and nutrition.

The expertise of the German marine research community is being brought together in the DAM to produce science-based analyses of issues relating to the sustainable use of the oceans. Combining them complements the established transfer activities that individual member institutions already carry out, using their specific expertise and networks. It makes the transfer of German marine research knowledge more visible.

The marine sciences have the potential and the will to act as “knowledge brokers” with various stakeholders and interest groups from politics, business and society to conduct topic-oriented and fact-based dialogues and establish platforms for exchanging knowledge. The goal is to consolidate the sustainable management of coasts, seas and oceans. Working together in the DAM, the German marine research community can achieve significant visibility and effectiveness within society and on the political agenda concerning sustainability and providing for the future.

This dialogue-based interpretation of transfer practised by the DAM is in line with the German government's High-Tech Strategy 2025, which names the DAM as a new research policy initiative: *"With this, we are strengthening transfer and networking, to allow all protagonists in science, business and society who are involved in the innovation process to contribute in new constellations across established thought patterns and disciplinary boundaries. A special focus lies on new ways of jointly generating ideas and acquiring and sharing knowledge that enables innovation processes to be redesigned and opened up."*

1.1.1 Exchange of knowledge with stakeholders

Exchanging knowledge with stakeholders integrates practical know-how and application-related aspects to jointly develop solutions and potential courses of action for marine-related topics. In addition, this approach allows the process to be guided by the needs of potential users. Users are those stakeholders who – directly or indirectly – use the scientific results (incl. information, data, technologies and software) and the knowledge base for action provided by science.

Exchanging knowledge with stakeholders requires the following steps:

- **Establish the topic for the exchange of knowledge**
(Topics must be relevant to the scientific community and the stakeholders involved and fit the "sustainable management of the oceans" goal.)
- **Define the objectives of exchanging knowledge and the role of the DAM**
(The objectives, too, must be relevant to all the parties involved and transparent whether marine research has an explicit vested interest in the topic.)
- **Conduct stakeholder mapping based on the topic and objectives**
(Which practical protagonists are needed to produce results on the topic in a way that satisfies the goals and needs? Who are the users?)
- **Provide suitable formats and professional moderators for the dialogue**
(Different formats will be used for the particular knowledge exchange, depending on the interaction group and the objectives. It is essential to involve transfer experts and to align with best practices.)
- **Cooperate with partners to use synergies in the exchange of knowledge**
(Cooperate as needed with knowledge organisations pursuing similar topics and objectives (e.g. Helmholtz synthesis and the communications platform SynCom).)
- **Narrow down topics and objectives with stakeholders, establish a common understanding of work processes and results**
(Stakeholders must be able to help shape the exchange of knowledge. Topics may also change, or new issues may be added during the often iterative exchange process.)

- **Provide a comprehensible knowledge base for “eye-level dialogues” as needed**
(Topic-related fact sheets, infographics, and visualisations that inform and motivate people to engage in dialogue.)
- **Establish criteria for the “effectiveness” of exchanging knowledge**
(Effective in terms of the respective objectives, considering all levels of impact and ensuring verifiability.)

One dimension of effectiveness is already the bringing together of different interest groups from politics, business and civil society for fact-based discourse on socially relevant marine topics - guided by a common objective in the context of the protection and sustainable use of coasts, seas and oceans. This is where the DAM can play a crucial role as a knowledge broker, using the knowledge base for action provided by the scientific community.

In developing criteria for the effectiveness of the transfer, it must be taken into account that these can only partially be measured quantitatively and will often remain qualitative (and narrative), e.g. in the context of case studies. The input and output parameters of the transfer are comparatively easy to determine or assign directly or indirectly to specific activities and to document. The impact of the transfer depends on a variety of factors and protagonists. Often, it only occurs after a time delay, which makes it a problematic criterion to measure – though essential for success.

The prerequisite for an effective exchange of knowledge is a long-term and regular cultivation of contacts with stakeholders from politics, business and civil society, in which the German marine research community establishes itself – via the DAM – as a relevant knowledge partner for marine-related issues of sustainability and providing for the future.

The DAM Stakeholder Forum offers a suitable platform for this purpose. It is complemented by stakeholder dialogues on specific topics and the involvement of stakeholders in the transdisciplinary research missions.

1.1.2. Dialogue-oriented consulting

Exchanging knowledge with stakeholders is an essential basis for the DAM’s role as an “advisor” or “information provider” to decision-makers in politics and other areas of society. The focus is on dialogue as a means of exchange, resting on sound scientific foundations and incorporating relevant practical aspects. This involves offering both **responsive and anticipatory advice** while also **setting the agenda** for marine and sustainability-related issues of the future.

The understanding of providing scientific advisory services is based on two position papers published by the German Council of Science and Humanities:

- on knowledge and technology transfer as an object of institutional strategies⁵ and
- on continuing to develop the scientific system in Germany⁶.

⁵ PDF: <https://www.wissenschaftsrat.de/download/archiv/5665-16.html>

⁶ PDF: <https://www.wissenschaftsrat.de/download/2021/8834-21.pdf?blob=publicationFile&v=15>

Among other things, they address the following need for action: *“Plural networks and cooperative forms of work should increasingly be established between scientific and political protagonists, as a basis for responsive as well as anticipatory policy advice, and the task of policy advice should be strengthened in some institutions.”*

The DAM can coordinate the expertise of the German marine research community across different institutions and bring together and process scientific facts so that they can be considered, particularly in administrative and political decision-making. **The broad positioning of the DAM provides added value, with university and non-university institutions that complement each other, as well as departmental research and strategic partners from the transfer sector.** The DAM can work on marine topics on which political/societal decisions need to be taken in an overarching, forward-looking manner to contribute in a needs-oriented manner and establish a network of contacts in the political arena for this purpose, involving various departments and parliaments at the federal and state levels. The set and proven transfer activities of the DAM’s member institutions in their specific fields of work remain their responsibility; however, the DAM’s communication platforms can help them achieve higher visibility, e.g., as best practice examples.

A prerequisite for providing effective advisory services is to be perceived as a reliable and valuable “knowledge network” and not as a “lobby network” (representing the interests of marine research). This can be achieved provided the following conditions are met:

- Focussing on marine issues that are relevant to society and offering systemic knowledge as an added value
- Planning events in the network with competent partners (DAM members and knowledge organisations covering appropriate topics)
- Involving stakeholders having different perspectives, presenting controversies and reflecting on them scientifically
- Establishing long-term and reliable networks as well as offering resources, structures, processes and know-how as a basis for effective consulting
- Building trust in stakeholders, among other things, by getting them involved at an early stage
- Analysing the effectiveness of consulting formats, developing best practice approaches

The evaluation of scientific advisory services must be based on the rules of good scientific consulting⁷.

⁷ Examples of guidelines for professional best practices in science-based policy advice:

- https://www.leopoldina.org/uploads/tx_leopublication/2014_Leopoldina_Leitfaden_Politikberatung_02.pdf
- https://www.thuenen.de/media/ti/Ueber_uns/Das_Institut/Thuenen-Leitlinien_guter_wissenschaftlicher_Politikberatung.pdf
- <https://www.acatech.de/akademie/leitlinien-politikberatung/>
- https://www.bfn.de/fileadmin/BfN/wirueberuns/Dokumente/BfN_Leitlinien_Politikberatung_2014_barrierefrei.pdf
- https://www.bam.de/_SharedDocs/DE/Downloads/Rechtliche-Grundlagen/leitlinienpolitikberatung.pdf?__blob=publicationFile
- <https://www.bibb.de/dokumente/pdf/leitlinien-wissenschaftlicher-politikberatung.pdf>
- https://www.bast.de/BASSt_2017/DE/BASSt/Leitlinien-Politikberatung.pdf?__blob=publicationFile&v=3

The following steps are intended to establish and implement German marine research advisory services in the DAM:

Topic monitoring

Identifying – in a timely and needs-oriented manner – topics relevant to decision-making and linked to the sustainable management of coasts, seas and oceans.

Such topic monitoring should be carried out in science, politics and society and developed and coordinated in the DAM. In the first step, overviews of available media articles and parliamentary appointments will be compiled, which can be expanded upon. In addition, socially relevant marine topics will be raised and discussed in the DAM Stakeholder Forum and other forums and working groups. The selection of the topics should be based on the following criteria:

- Socially relevant and needs-oriented
- Making use of the DAM's added value (e.g., cross-institutional issues...)
- Matching the aims of protecting coasts, seas and oceans and using them sustainably
- Building upon sound scientific foundations (no speculation)
- Having wide-ranging relevance (not serving short-term special interests of stakeholders)

Through the DAM, the major socially relevant future topics of general interest concerning the coasts, seas and oceans can be filled with content and utilised across institutions. In particular, climate change, biodiversity loss (loss of habitats and ecosystem services), food security, energy and health are addressed.

Comprehensive monitoring of socially relevant marine topics⁸ has been carried out and is used for transfer projects and dialogue with politics and society.

Expertise matrix

Conducting preparatory research into which institutions can offer expertise on which topics.

This allows targeted participation of the organisations on specific topics as required. Both DAM members and, where appropriate, non-members who can contribute relevant expertise on particular issues should be involved. Various DAM members are already engaged in consultation and decision-making processes and have relevant experience that should be utilised for a joint approach. Such a matrix should also list individual experts on the topics who participate in the synthesis and coordination.

⁸ Anlage 1: Transfer-Themen

As part of the "digital information portal" transfer project (see 2.3.), the DAM member institutions will be extensively involved in the compilation of demand-orientated documents and media on relevant marine topics via the knowledge transfer working group and the public relations working group, which will be made available via the information portal. This will also include topic-specific links and a network of experts.

Synthesis

Compiling the relevant specialist knowledge guided by the topics, goals and applications

The scientific facts about a particular topic may be assessed differently, even within the scientific community, depending on one's discipline or perspective. Knowledge deficits should also be pointed out. Discourses and diverging results should be presented transparently unless they can be clarified through a harmonisation process, which the DAM can coordinate. Advice given should not be based on the expertise of individuals but should convey a joint scientific synthesis. On this basis, scientific experts can provide technical advice to the users themselves.

... building upon the exchange of knowledge

Ideally, consulting is not based solely on a scientific synthesis but incorporates practical knowledge and a corresponding exchange of knowledge with stakeholders, early on or iteratively (see 1.1. and 1.2.), to bring together all relevant perspectives on a specific topic.

... offering potential courses of action

For selected topics, marine research should also develop potential courses of action and scenarios that provide sound, scientific foundations for political decision-making. Depending on the topic, this can be a time-consuming and labour-intensive process, which could take place in the context of a research mission, for example.

... giving recommendations

Within the DAM framework, German marine research should engage in a dialogue on interpreting scientific results and their conclusions to make joint recommendations on selected topics.

Both in the current DAM research missions CDRmare and SustainMare, as well as within the framework of the overarching transfer from the DAM Secretariat, knowledge for action is being compiled and processed in a needs-oriented manner. The DAM transfer project "Digital Information Portal" (see 2.3.) makes this knowledge accessible to stakeholders and all interested parties.

Translation

Preparing expert knowledge, potential courses of action and statements in such a way that they meet existing needs and can be used by the respective target group.

This includes using language that is easy to understand and descriptive infographics, which are prepared in a format suitable for the target group, e.g. fact sheets, position papers or discussion papers (e.g. Leopoldina⁹) and online information. Designing such formats must be based on research into best practices. The German marine research community could contribute facts, highlight discourses, and offer thought-provoking ideas and recommendations depending on the format.

When analysing the topics, a key question must be considered from the user's perspective: "Why should I be interested in this in my limited time?" One answer is: "Because marine topics are essential for the major challenges of the future." (Keyword: research on services of general interest). To achieve this, it is also necessary to link small topics with big narratives, i.e. to establish a connection to climate change, shaping the future, sustainability, health, nutrition, the environment, etc.

The implementation takes place within the framework of the digital information portal (see 2.3.) in the form of texts and visualisations. The portal will be developed in dialogue with user groups to ensure it meets their needs.

Entering into a dialogue with policymakers

Introducing marine (research) topics specifically at the federal and state levels and potentially at the European and international levels in future.

Topic- and target-orientated networking and maintaining contacts, mainly through DAM events developed for political players in ministries, parliaments and other stakeholders, is crucial to the dialogue with policymakers. Parliamentary events are planned in the northern German states and at the federal level.

The DAM has established, therefore, regular exchange formats for dialogue with politicians.

These include parliamentary evenings organised alternately in the northern German states and parliamentary breakfasts at the federal level. Parliamentary breakfasts are held on specific topics with the participation of the DAM research missions. The DAM Stakeholder Forum, which brings together representatives from politics, business and civil society, also meets twice a year.

Enable participation

Involving citizens and incorporating their knowledge and perspectives to create a dialogue within society as a whole.

A sustainable management of our natural resources, which is viable for the future, can only be successful if it is done by society. This calls for imparting knowledge and providing opportunities for participation to complement the dialogue with decision-makers. The DAM provides the framework for developing appropriate formats in cooperation with museums and other partners (see Field of Action 2: Dialogue with society).

⁹ <https://www.leopoldina.org/publikationen/stellungnahmen/>

Key issues paper for dialogue with politicians

At its meeting in September 2022, the DAM General Assembly used this framework for action as a basis to discuss how dialogue with politicians can be shaped in a targeted and needs-oriented manner. A key points paper¹⁰ summarises the current status—an overview¹¹ of the feedback from politicians on the events and formats supplements this.

1.2. FORMATS FOR THE EXCHANGE OF KNOWLEDGE

Formats for synthesis and communication specific to the respective target groups are being developed to support the **active dialogue** with stakeholders. To this end, appropriate formats have been requested in the networking and transfer projects of the DAM's two current research missions, which will also be used in a cross-mission context of the DAM. Since the research missions are designed to be transdisciplinary and involve stakeholder participation, the involvement of potential users is also planned when developing the transfer formats to meet existing needs.

Effective transfer formats stagger the depth of the information provided (quick overview and in-depth, as required) and use visualisations (infographics, animations) for a better overview. The **multiple uses of** content (cross-media) must always be taken into consideration as well.

- The necessary background information for non-scientists is provided in a way that is easy to understand and descriptive, using science journalistic storytelling formats, utilised explicitly for workshops and other dialogue formats and made available on a **digital information portal**.
- The knowledge base for action for the specific target group in question is summarised concisely and graphically in the form of **fact sheets**, for example. These can draw on the contents of the information portal (cross-media use).
- In-depth **assessment reports** present the current state of scientific knowledge on a topic and are the basis for further formats.
- **Webinars** or **MOOCs** (Massive Open Online Courses), which can be used digitally by many participants, are suitable for further education programmes.

Visualisations

Photographs and film clips of coastal landscapes and underwater worlds are fascinating and offer emotional access. Infographics and animations make **complex connections and scenarios clear** and help to present specialist topics in a way that is easy to follow. Nowadays, 360° videos, virtual reality and augmented reality formats are also increasingly being developed and setting new standards in the field of visual communication. **Here, the DAM offers the opportunity to implement innovative visualisation projects in close cooperation with the DAM members**, thereby supporting the transfer objectives of the DAM and the research missions. For this reason, the proposed digital information portal for the DAM and other transfer formats applied within the

¹⁰ Anlage 2: Eckpunkte für den Dialog mit der Politik

¹¹ Anlage 3: Feedback Politik

DAM research missions, e.g. for educational and exhibition collaborations, include visualisations for specific target groups as an essential component.

Both visual and various text formats are developed and used in a target- and demand-orientated manner as part of the overarching transfer of the DAM office and in the ongoing DAM research missions. In particular, status reports and fact sheets are produced on socially relevant marine and climate topics, such as munitions in the sea, offshore wind energy, deep-sea mining, CO₂ storage in the ocean, marine protected areas and sustainable use. The upcoming digital information portal Meere Online makes relevant offers from German marine research available and easy to find. In addition, the DAM transfer project "Interactive World Ocean" offers fascinating visual access to the coasts, seas and oceans and is designed as an educational programme (see 2.3.).

Cooperation with the World Ocean Review (WOR)

The "World Ocean Reviews" (WOR) are published by **maribus**, a non-profit limited company founded by **mareverlag** (<https://worldoceanreview.com>). **maribus** was explicitly established to sensitise the public to marine science topics. KDM is already a cooperation partner of WOR, and KDM members provide advice and expertise. In a discussion with the publishing house management, the intention was to continue and expand the cooperation with WOR after the merger of KDM and DAM (for WOR: N. Gelpke, J. Lehmköster, for DAM: A. Lehmann, U. Wilhelmssen).

The DAM has the opportunity to establish a collaboration with **maribus**, particularly for the digital information portal, to utilise synergies and increase the reach of both formats.

Dialogue with stakeholders

Various formats exist for an **active dialogue** with stakeholders, each with different objectives:

- **Workshops** with scientists and stakeholders to exchange knowledge at eye level, aimed at jointly coming up with answers to specific questions. These are both relevant to the exchange with the DAM Stakeholder Forum and intended to inform the transdisciplinary approach of the DAM research missions.
- **Political events** tailored explicitly to political protagonists based in ministries and parliaments. These will be developed in the area of political communications. Regular parliamentary events will be held in the northern German states and at the federal level, each of which will be prepared in conjunction with the marine research institutions on the ground and with the DAM research missions.
- **Future labs** with innovative and creative impulses and participants from different areas of society to jointly develop future scenarios for a sustainable approach to the coasts, seas and oceans. The "Ocean Future Lab" project initiated by the DAM and partners as part of the "[Wissenschaftsjahr 2022 – Nachgefragt!](#)" uses this format and invites all interested parties to develop ideas and impulses for a desirable future for our blue planet (see 2.1.).

- Participation of the DAM in cooperation with **established dialogue formats** that are thematically appropriate and provide a forum for relevant stakeholders (e.g. academies, Science in Dialogue (WiD), topic-specific dialogue forums, etc.). The DAM regularly participates in corresponding formats, such as the dialogue series "Wissenschaft kontrovers" by WiD and the Marine Protection Dialogue Forum of the Federal/State Working Group on the North and Baltic Seas (BLANO).

Dialogues must be designed to fit the objectives and the target group and be professionally moderated and supervised. They need **innovative formats to exchange knowledge** at the interface between science, politics and civil society. These formats ought to be long-term and regular and take advantage of opportunities to collaborate with the media and other partners to develop reach and effectiveness.

Added value can be provided by linking the exchange of knowledge to the formats outlined in Field of Action 2 (Dialogue with society), which are aimed at a broad public audience and offer opportunities for participation to ensure a wider involvement of society in transformative processes on sustainable development.

Exchange of knowledge in the DAM research missions

The DAM's research missions are set up to be transdisciplinary, i.e. the **practical knowledge of protagonists outside science** – e.g. in politics, administration, business, NGOs – is integrated into the ongoing research process as a dialogue. The aim is to ensure that practical new ideas and the priorities set by society are incorporated into the research projects and that science-based potential courses of action are developed explicitly so that they can be presented to find their way into the relevant institutions and political processes and lead to benefits. To this end, thematic groups will be set up in the research missions, in which pertinent protagonists of politics and administration, as well as representatives of the business community, NGOs and other groups within civil society, will come together to engage in **goal-oriented dialogues** and to help shape the research mission actively.

The transfer officers of a research mission work closely with the DAM's core area of transfer. By working together, all **cross-mission synergies and opportunities for cooperation** can be utilised in developing transfer formats. Focussing on the shared objectives and their implementation in society is ensured by cooperation. The DAM office also creates and maintains a **network of transfer experts and institutions** to support the professional knowledge exchange.

Implementation in the transfer network

Transfer within the DAM is based on comprehensive networking with German marine research institutions and with suitable partners who, for example, contribute their expertise in the various transfer areas and projects as part of collaborations. Such a transfer network offers the opportunity to utilise the existing expertise in the specialist groups for knowledge transfer in such a way that German marine research as a community can benefit from it.

The DAM transfer network includes:

- The DAM office (core area of transfer, including transfer projects)
- The DAM's Knowledge Transfer Working Group, in which all members are professionally represented
- The public relations working group of DAM and KDM, as knowledge communication and knowledge transfer overlap productively
- The strategic partners of the DAM for the area of transfer (RIFS, IDOS)
- The experts who carry out transfer as part of the DAM research missions
- The DAM stakeholder forum
- The DAM commissioners¹² for research museums (S. Kleingärtner) and the UN Ocean Decade (M. Visbeck)
- The Oceans and People Network (DAM and Leibniz Research Museums)
- Other external transfer experts from science, politics, business and civil society who work on the topic of oceans and climate
- Cooperation partners of transfer measures and projects¹³ (e.g. Wissenschaft im Dialog (WiD), German Aerospace Centre (DLR), Informationsdienst Wissenschaft (idw), German Centre for Artificial Intelligence (DFKI), Federal Competition for Artificial Intelligence (BWKI))
- The German Ocean Decade Committee (ODK), of which the Head of the Transfer core area has been a member since January 2024 and has taken over the leadership of the Education and Society working group.

¹² Anlage 4: Die Rolle der DAM-Beauftragten

¹³ Anlage 5: Anfragen und Kooperationen zum Kernbereich Transfer der DAM

1.3. DISCUSSION PAPER ON THE EXCHANGE OF KNOWLEDGE WITH THE BUSINESS COMMUNITY

The following paper is an outcome of the DAM Perspective Group Transfer and is based on three thought-provoking suggestions put forward by Uwe Freiherr von Lukas (Fraunhofer IGD), Eberhard Sauter (AWI) and Torsten Schlurmann (FZK). They examine the role and added value that the DAM can offer in exchanging knowledge with the business sector as a cross-institutional organisation for German marine research and in close cooperation with DAM members.

The **Administrative Agreement for the DAM** states:

“The activities of the DAM, especially its research missions, are designed to allow research and development projects to be established in close cooperation with the business community.”

In cooperation with industry, collaborations for R&D projects and technology transfer are closely interlinked with an exchange of knowledge that involves industry as an essential stakeholder in the dialogue with science, politics and civil society to work on marine-related topics of future provision and sustainability. The focus also lies on needs-oriented offers for further education and promoting young talents.

As part of the DAM, the areas of research, data management and digitalisation, as well as infrastructures, are involved in cooperation with industry alongside the transfer area.

Suggestion 1: Integrating businesses into the DAM’s research missions

Companies can benefit in many ways from participating in DAM research missions while, in turn, enriching those missions effectively as important stakeholders and partners. Aspects from which both sides can benefit include:

- Joint R&D projects, trials, innovation and technology transfer
- Personnel development and promoting young talents *Communicating maritime occupational profiles early on, lifelong learning, opening up prospects for the future through new scientific findings, also getting technicians involved*
- Sustainability *Jointly driving ahead a sustainable use of coasts, seas and oceans that is fit for the future*
- International contacts *Particularly smaller companies can benefit from the international interconnectedness of German marine research*

Future research missions should consider the business community's participation from the outset, also in terms of co-design, if this makes sense for the specific topic and is expedient. In this context, the DAM can serve as an “enabler” between research and industry, facilitating the exchange of ideas and developments. This could also lead to a virtual campus, firmly establishing the cooperation between science and industry on a broad basis and independently of location and building upon the experience of the Ocean Technology Campus Rostock.

Suggestion 2: Exchange of knowledge on sustainability topics

A survey conducted by the Gesellschaft für Maritime Technik (12/2020) shows that companies are much less aware of the UN Sustainable Development Goals and the related measures taken by the German government than research institutions. However, many companies are very open to sustainability topics and recognise the need to position themselves sustainably to become "fit for the future". Customers and investors alike increasingly demand sustainable business practices and products and services. To fulfil these market drivers and their ethical requirements for providing services of general interest and preserving the basis of life, there is an increasing demand from the business community for scientific findings. The knowledge exchange must be as concrete and needs-orientated as possible for companies. However, it is also often mutually beneficial because scientific institutions can learn from pioneering companies that develop sustainability solutions. The following aspects play an essential role in the exchange of knowledge:

- Communicating comprehensible and relevant knowledge, initiating dialogue on sustainability topics from research to industry
 - Creating awareness in companies for sustainability as a topic for the future
 - Services of general interest, sustainable use of marine resources, "blue growth"
 - Protection of sustainable value chains (e.g. from piracy, illegal fishing, pollution, undermining of environmental standards by competitors)
- Corporate social responsibility
 - Participation in stakeholder dialogues on the sustainable use of the oceans
 - Development potential for sustainable solutions and necessary framework conditions
 - Think tanks initiated by companies or with corporate solid involvement, e.g. World Ocean Council (<https://www.oceancouncil.org>),
 - Sustainable Ocean Business Action Platform of the UN Global Compact (<https://www.unglobalcompact.org/take-action/action-platforms/ocean>) or High-Level Panel for a Sustainable Ocean Economy (<https://oceanpanel.org>)
- Support for knowledge transfer projects (in some cases also for stabilisation as start-ups) and mission-oriented innovations
- Scientifically based benchmarking (e.g. certification, standardisation, evaluation of products, processes ...)
- Conversely, research must also be conducted sustainably, which must increasingly be demonstrated transparently. There are good role models for this from the business world.

Suggestion 3: Knowledge transfer through minds and open access policies

The DAM's research institutions participate in various ways in teaching, training and promoting young scientists and engineers. Interdisciplinary offers are also available in the natural sciences and

engineering; for example, climate and ecosystem knowledge is integrated into academic degree courses such as Maritime Technologies. Many graduates work for companies, bringing their expertise into the business world.

In addition, companies need to keep refreshing this know-how to pick up new ideas and findings from science and to use them in their corporate development. This calls for needs-oriented further education programmes (with certificates), which the German marine research community can draw up in the DAM. In addition, exchange programmes and qualification initiatives, e.g. for technical or teaching staff, encourage networking and the exchange of innovative ideas and inspiration. This requires suitable conditions and resources.

Furthermore, research institutions transfer non-commercially knowledge, data, software, and technologies to commercial applications as part of their open access policies. The DAM core area of Data Management and Digitalisation and the DAM research missions can also support this transfer.

Further procedure

It is recommended that all three impulses be further developed and prepared for implementation. This requires the involvement of transfer experts from DAM members in business and a close exchange with companies and professional associations. Only if the concepts of the DAM build on existing experience and utilise and complement existing networks can German marine research in the DAM generate added value for exchanging knowledge with industry.

In addition to the exchange and cooperation with industry in the DAM research missions, the DAM (Executive Board and Secretariat) is building a network with relevant industry associations. In the **DAM Stakeholder Forum**, a regular exchange occurs with representatives of the German Maritime Centre, the Society for Maritime Technology, the German Engineering Association and the German Fisheries Association.

There is also close cooperation with the Gesellschaft für Maritime Technik, including two coordinated **status reports on munitions in the sea and their value creation prospects**, which have attracted much political attention.

The DAM is also a **Helmholtz innovation platform SOOP (Shaping an Ocean of Possibilities)** partner. The vision of SOOP is to create a market for ocean observation technology that is used by a wide range of ocean stakeholders worldwide and provides the data needed for a sustainable ocean.

FIELD OF ACTION 2: DIALOGUE WITH SOCIETY

The sustainable management of our natural resources – including coasts, seas and oceans, which constitute the largest habitat on earth – is a **challenge for society and concerns humankind's future**. Finding paths that lead to greater sustainability is an issue for science and politics and society. Sustainability also depends on citizens' understanding and willingness to participate in transformation processes and live them. For this to be possible, everyone must understand what they are discussing.

In addition to sharing knowledge with selected stakeholders, the dialogue with society must also be broadly based and combine formats of **knowledge communication, education, and participation**, in order to:

- **Provide access to and an overview of marine topics**, illustrating interactions between people and oceans, conservation and sustainable use
- **Create educational programmes** to provide people at different stages of life with needs-based access to knowledge
- Enable **society to participate** through formats such as dialogue events, citizen science, future labs in cooperation with museums, science centres, etc.

The core area Transfer is developing appropriate formats in cooperation with museums and other partners. The proposed measures are a visible **contribution to the UN Decade of Ocean Science for Sustainable Development by the German marine science community**, which calls on society, politics and science to work together to successfully implement the UN's ocean-related Sustainable Development Goals. One condition for achieving this is to understand the many ways in which the seas and oceans affect us as human beings and the basis for our lives, and, conversely, how our lifestyle affects the seas and oceans (**ocean literacy**). In addition, a specialist group of communicators from German marine research, on the initiative of the DAM, has drawn up a key points paper¹⁴ on science communication as a core element of a national strategy for the UN Decade, which is being further developed and implemented in the Media Working Group of the German Ocean Decade Committee (ODK).

2.1. EXHIBITION AND PARTICIPATION FORMATS

Exhibition and participation formats, designed and realised in cooperation with suitable partners, offer outstanding opportunities to bring the theme of "Man and the Sea" to life and motivate people to join in and act sustainably. In addition to the museums represented in the DAM with a direct connection to the sea, these include other **research museums, science centres and aqua zoos**. These have the expertise and the opportunities to build effective bridges to society. Here, experience-oriented elements that arouse curiosity and create access to topics can be combined with further educational and dialogue offerings. **Artists** also have the potential to create new and inspiring approaches to the world of the oceans.

¹⁴Anlage 6: Strategisches Eckpunktepapier: Wissenschaftskommunikation für die UN-Dekade

The global challenges related to **climate change** and **biodiversity loss** in marine habitats provide the thematic framework, as do the United Nations ocean-related Sustainable Development Goals (SDGs), which are also the focus of the UN Decade of Ocean Science for Sustainable Development, from 2021 to 2030. Another important context is the “Green Deal” promoted by the EU, with its marine components, as well as the German Sustainability Strategy.

Cooperation with research museums

Together with the Leibniz Research Museums (LFM), the DAM has initiated the **“Oceans and People Network”**. The network partners are pooling their expertise to communicate complex topics and interrelationships that are socially relevant and essential for a transformation towards sustainability. The network focuses on the challenges of our time, with a particular focus on the oceans. This includes the sea as a natural space and climate regulator, as well as the historical, cultural, economic and social connections.

The “Seas and People” network initiates exchange and cooperation on a jointly defined thematic framework aimed at a sustainable approach to the coasts, seas and oceans, which is described in a joint impulse paper¹⁵.

There is also further cooperation with the two members of the DAM, **the German Maritime Museum (DMM) and the German Shipping Museum (DSM)**. Together with the Institute for Art and Innovation, the DAM, DMM and DSM have initiated the **“Ocean Future Lab”** project as a contribution to [Wissenschaftsjahr 2022 – Nachgefragt!](#) which brings together artists, researchers and interested citizens in workshops to jointly develop creative ideas and impulses for a desirable future for our blue planet. The results are summarised on the Ocean Future Lab¹⁶ website and in the final report¹⁷.

The DAM also supports redesigning an exhibition level in the DMM with a jointly developed exhibition concept entitled **“MEER Nachhaltigkeit (OCEAN Sustainability)”**¹⁸, which highlights the importance of species and ecosystems and the services they provide for humans. The aim is to sensitise visitors to the complex issues of sustainable use of the seas and oceans so that marine ecosystems can be preserved, used and protected sustainably. The DAM is also a cooperation partner for the DMM's **“Digital Ocean”** project. **The corresponding funding application to the Federal Government Commissioner for Culture and the Media (BKM) was approved** as part of the Federal Government's digitisation strategy for the “Promotion of cultural, (inter)nationally significant projects”.

¹⁵Anlage 7: Ein Netzwerk für Meere und Menschen: Perspektiven für eine Zusammenarbeit der Leibniz-Forschungsmuseen (LFM) und der Deutschen Allianz Meeresforschung (DAM)

¹⁶ <https://www.oceanfuturelab.de>

¹⁷Anlage 8: Abschlussbericht: Ocean Future Lab – Wie wollen wir mit den Meeren leben?

¹⁸ Anlage 9: Ausstellungskonzept „MEER Nachhaltigkeit“

2.2. EDUCATIONAL FORMATS

Marine and climate research topics move many people and are of great importance for understanding and overcoming the challenges facing humanity in the future. Marine research institutions and other organisations offer educational opportunities for people at different stages of their lives. One focuses on the younger generation, who can participate in school labs, excursions, and various hands-on activities. In addition, different teaching materials on marine and climate topics are also offered, which can be used in school lessons or daycare centres.

In this context, the DAM offers added value in two respects:

- creating a needs-based overview of existing educational programmes to facilitate access and promote use
- to supplement the educational programmes offered by German marine research with targeted, cross-institutional formats.

As a first step towards a corresponding overview, the Transfer core area, in collaboration with the DAM and KDM public relations working group, has compiled the programmes **offered by DAM members for school students** and published them on the DAM website¹⁹ [FN <https://www.allianz-meeresforschung.de/nachwuchsfoerderung/schuelerinnen-und-schueler>]. The offers include internships, project work, courses, competitions, experiments in the school laboratory, taster sessions on Future Day and the opportunity to complete a voluntary ecological year. The offers are linked to the respective organisations' websites, which provide contact details and information about the offers. This overview will be further expanded for the **DAM's digital information portal** (see 2.3.) and equipped with search and filter functions as required.

In the area of education, the core area of transfer is working closely with **the German Ocean Decade Committee (ODK) and the Education and Society working group** to create a comprehensive overview of educational programmes on marine and climate topics that includes other stakeholders (e.g. NGOs, foundations, initiatives) in addition to marine research.

One new educational programme is the "**Future Box Oceans**", which DAM and Futurium developed jointly as part of the Ocean Future Lab (see 2.1.). The "Future Box" format was developed by Futurium and is based on methods of futurology, education for sustainable development and design thinking. The aim is to help pupils understand the future as an opportunity they can consciously and independently help shape. With the "Future Box Oceans", pupils from all types of schools from year seven onwards and adults can playfully develop future scenarios in workshops on the question: "What will our oceans look like tomorrow? How can we deal with the seas, coasts, and oceans in a sustainable way that safeguards our natural resources? How can we shape a desirable future on our blue planet?". The Future Box is free to download from the Ocean Future Labs website²⁰ [FN Future Box] and can be obtained as a complete box from the DAM on request.

¹⁹ <https://www.allianz-meeresforschung.de/nachwuchsfoerderung/schuelerinnen-und-schueler>

²⁰ <https://www.oceanfuturelab.de/zukunftsbox-meere/>

Another educational programme is currently being developed as the DAM transfer project "interactive world ocean" and is described in section 2.3.

Furthermore, the DAM has been a cooperation partner for the Federal Artificial Intelligence Competition (BWKI) ²¹ [FN bwkilink] for school students since 2021 and has initiated a new special prize, "Environment & Sustainability", to address young people with the future topic of AI and sustainable future design and to raise public awareness of the topic.

2.3. PROJECT PROPOSALS: DIGITALISATION AND DIALOGUE WITH SOCIETY

The following proposals for transfer projects are all about using **innovative digital communication media** as a source of inspiration and information on socially relevant marine topics. They bundle the expertise of German marine research and prepare it in a needs-oriented manner. The projects are intended as a prelude and motivation for subsequent **dialogue formats**, which can vary depending on the area of application (e.g. discussion events, opinion polls, future labs, reference to participation opportunities such as citizen science ...).

The proposed projects thus combine two pioneering developments:

- **Using the possibilities of digitalisation** to integrate innovative formats into the education and exhibition sector.
- **Offering opportunities and motivation for dialogue and participation** instead of pure knowledge transfer as a one-way street.

All proposed projects will be developed in collaboration with DAM member institutions and other cooperation partners and designed in **consultation with museums** and other **cultural professionals**.

Project Proposal 1: Interactive World Ocean

The "Interactive World Ocean" is a digital and interactive map of the ocean for schools and exhibitions, which is attractively presented and invites visitors to explore.

The northern German federal states have funded the "Interactive World Ocean" project since the second half of 2022, and it will be implemented by the end of 2024. In the world ocean, interaction points offer the opportunity to immerse yourself in different regions - from the river and coastal systems to the open ocean and the deep sea, from the tropics to the polar regions. The presentation as a world map forms an overarching thematic bracket, shows connections and links regional focal points with a global perspective.

The interactive ocean map can be used cross-medially for various media. A version is being developed for **tablets and smartboards for schools and other educational institutions and used on large-format touchscreens for exhibitions and presentations.**

The project is being developed in collaboration with German marine research institutions. The cooperation partner is the German Aerospace Centre (DLR). Further information can be found in the

²¹ <https://www.bw-ki.de>

core area Transfer on the DAM website²² [FN DamIWOLink] and in the project proposal²³ [FN Project proposal IWO].

Project Proposal 2: digital information portal

The digital information portal "Meere Online" offers science-based information on socially relevant marine topics.

The northern German federal states have funded the "digital information portal" project since the second half of 2022, and it will be implemented by the end of 2024. The portal networks and pools the expertise of German marine research. Generally understandable information can be found and compiled according to need. The focus is on the sustainable use of coasts, seas and oceans. The portal is aimed at anyone who wants to have a say and make decisions on seas and climate, natural services, utilisation, and sustainability goals. The information portal is being developed in cooperation with German marine research institutions. In partnership with the German Research Center for Artificial Intelligence (DFKI), an AI-supported semantic search function is being developed to enable the rapid and targeted retrieval of relevant, science-based information. In cooperation with Informationsdienst Wissenschaft (idw), marine research news will also be available in a searchable format.

The project is presented in the core area of transfer on the DAM website²⁴ [FN DAM MeOn link] and described in the corresponding project application²⁵ [FN Meon project application].

Project Proposal 3: Fulldome film "The Cosmos and the Deep Sea"

Cold, dark and largely unexplored: Outer space and the deep seas are the last big unknowns of our time. A film project for dome projection (fulldome) in planetariums, exhibition centres or domes will combine unique images of the deep sea and outer space. The space perspective shows impressively how unique life is on planet Earth, whose largest habitat is the deep sea. The film provides an impressive prelude to **lecture and discussion events with scientists** on the subject of the oceans and deep sea, which can be offered in planetariums and exhibition centres throughout Germany and internationally as part of the UN Decade.

The project proposal²⁶ was submitted to the DAM Board of Directors on 29 September 2021 as one of three project outlines and was given lower priority than the two project proposals, 1 and 2. Implementation is, therefore, still pending.

Project Proposal 4: Marine Monitor

Based on a project idea from the German Maritime Museum - Leibniz Institute of Maritime History (DSM), a proposal for the "Meeresmonitor" project (working title) was developed together with the

²² <https://www.allianz-meeresforschung.de/kernbereiche/transfer/der-interaktive-weltozean>

²³ Anlage 10: Projektantrag: „interaktiver Weltozean“ der Deutschen Allianz Meeresforschung

²⁴ <https://www.allianz-meeresforschung.de/kernbereiche/transfer/meere-online>

²⁵ Anlage 11: Projektantrag: „digitales Informationsportal“ der Deutschen Allianz Meeresforschung

²⁶ Anlage 12: Projektvorschläge zum Dialog mit der Gesellschaft

DAM: **an app for smartphones that is coupled with a large-format façade display.** The "Meeresmonitor" offers an audiovisual and interactive overall experience to fascinate and draw social attention to marine issues in the UN Decade of Oceanography for Sustainable Development context. By linking to **the DAM's digital information portal "Meere Online"**, users can select topics as required and receive science-based and needs-orientated information.

An agreed outline of the project proposal²⁷ is available. Due to a lack of resources and a major reorganisation at the DSM, it has not yet been implemented.

²⁷ Anlage 13: Ideenskizze Meeresmonitor

FIELD OF ACTION 3: PROMOTING YOUNG TALENTS

The DAM's administrative agreement of July 2019 enshrines promoting young researchers as a task. Specifically, it states: "The DAM office will develop a strategic concept for the promotion of young scientists and engineers and support its implementation by the research institutions." As a basis for this, research was carried out among those responsible for promoting young talent at DAM member institutions. The results were discussed at a strategy workshop with those responsible and then presented to the heads of the DAM member institutions (meeting of the open Executive Board on 22 May 2023). This summary shows the results presented in more detail in a concept paper²⁸.

The promotion of young scientists is very well established in German marine research. Both at the universities and the non-university DAM member institutions, Bachelor's and Master's students, doctoral candidates, and postdocs can take advantage of numerous programmes, graduate schools and, in general, courses and summer schools. The range of programmes on offer is extensive, and the programmes are already interlinked at the regional level. The DAM website provides an overview of the programmes offered by DAM member institutions for students, doctoral candidates and postdocs²⁹.

All of the surveyed subject managers cited networking, particularly, as an added value of the DAM in promoting early career researchers. As an organisation, the DAM offers the opportunity to link DAM members with each other across institutions, to operate throughout Germany and to identify opportunities for cooperation. The DAM provides a suitable framework for improving the overview and networking of programmes for students, doctoral candidates, and postdocs, providing orientation, highlighting key areas, and bringing subject managers and university and non-university institutions closer together. This will ensure and further increase the high quality and international visibility of German marine research in the future.

The DAM also promotes the processing of interdisciplinary and transdisciplinary topics and the exchange between young scientists and stakeholders from politics, business and civil society. Such an exchange can open up additional career prospects and facilitate cooperation. The increased exchange between social, scientific and technical study and training programmes and the involvement of practitioners are essential factors in working on solution- and application-oriented issues.

For the coordination and implementation of the promotion of young talent within the framework of the DAM, it is proposed to create a central interface that includes both a digital interactive platform and human and financial resources for exchange and events in presence. The services are aimed at those responsible for promoting early career researchers and early career researchers. In addition, project ideas were developed and discussed, which, based on the added value of the DAM, could supplement the existing programmes for the promotion of early career researchers at DAM member institutions.

²⁸ Anlage 14: Konzeptpapier zur Nachwuchsförderung im Rahmen der DAM

²⁹ Link: <https://www.allianz-meeresforschung.de/nachwuchsfoerderung>

FIELD OF ACTION 4: CAPACITY DEVELOPMENT

Capacity development is enshrined as a task in the DAM's administrative agreement. To this end, a strategic concept will be developed, and the DAM member organisations will support its implementation. The following analysis of the initial situation and the resulting impulses for the role of the DAM in capacity development, which are based on the added value that the DAM can offer as a cross-institutional platform for German marine research, serve as preparatory work.

Initial situation

Capacity development is a broad term encompassing various educational, exchange and support measures for different target groups in a national and international context. Capacity development describes a process through which people, organisations and societies mobilise, adapt and expand their skills to shape their development sustainably and adapt to changing conditions. This includes recognising obstacles to development, developing solution strategies and then implementing these successfully³⁰. The IOC's³¹ capacity development strategies and the ZMT³², which focuses on research and development cooperation with the Global South, provide an overview of the term.

Capacity development is of crucial importance for the implementation of the UN Sustainable Development Goals (SDGs). Sustainability is a question of human behaviour. What is needed are "SDG experts" worldwide in politics, business, science, and civil society, as well as an informed public that helps shape transformation processes.

Capacity development is a term that encompasses fields of action in all four core areas of the DAM. The DAM is, therefore, already planning and implementing capacity development with a range of activities without explicitly using this term.

- **Research missions:** generating socially relevant, solution-orientated knowledge, involving stakeholders, international cooperation
- **Infrastructures:** Coordination of utilisation and operating concepts for large-scale equipment, opportunities for international exchange
- *Data management and digitisation:* open and uniform access according to
- **FAIR** principles, together with the National Research Data Infrastructure (NFDI)
- **Transfer:** both technology transfer and knowledge transfer with the fields of action:

³⁰ BMZ: https://www.bmz.de/de/service/glossar/C/capacity_development.html

³¹ IOC: <http://www.ioc-cd.org/>

³² ZMT: https://www.leibniz-zmt.de/images/content/pdf/Mission_Werte/Capacity-Development_Strategy_2025.pdf

- Knowledge exchange with stakeholders (science, politics, business, civil society)
- Knowledge communication and participation of the society
- Education (further education, school education, promotion of young scientists)

Capacity development should be seen as a separate field of action for the DAM, especially internationally. Coordination and cooperation with the existing interfaces, which are listed below, are essential for this.

In German marine research, KDM has a vital interface function for capacity development, particularly at the European level (Brussels Office). One such project is the *All-Atlantic Ocean Research Alliance*³³, a European Commission initiative in which KDM and ZMT are significantly involved and in which capacity development plays a key role.

The UN Ocean Decade emphasises capacity development as one of the ten challenges³⁴: *"Skills, knowledge and technologies for all: We want to ensure comprehensive and global capacity development and fair access to data, information, knowledge and technologies on all aspects of marine research for all stakeholders."* The relevant national interfaces are the German Ocean Decadal Committee (ODK) and the Secretariat of the German Section of the Intergovernmental Oceanographic Commission of UNESCO (IOC), based at the BSH³⁵.

Added value of the DAM

The DAM can increase the networking of existing capacity development measures to increase their strategic effectiveness and supplement them with targeted new measures. This requires close integration and strategic cooperation with KDM and ODK, IOC and other interfaces for capacity development in German marine research.

The following impulses for the role of the DAM in capacity development are based on the added value that the DAM can offer as a cross-institutional platform for German marine research and were developed in collaboration with Martin Visbeck (ODK and DAM representative for the UN Ocean Decade), Sebastian Konitzer (KDM), Matthias Wunsch (IOC Secretariat) and Werner Ekau (ZMT).

National screening

To date, there has been no reliable overview of the activities of German marine research in the field of capacity development. UNESCO/IOC has set up a corresponding international online portal: *Gateway to Ocean related Capacity Development opportunities around the world.*³⁶

Various activities involving German marine research, sometimes in a leading role, are also listed here, divided into thematic areas. However, as of August 2023, this list was incomplete and possibly not known to all DAM member institutions.

³³ <https://allatlanticocean.org>

³⁴ <https://ozeandekade.de/herausforderungen>

³⁵ https://www.bsh.de/DE/Das_BSH/Wir_ueber_uns/Internationales_Netzwerk/Deutsches-IOC-Buero/deutsches-ioc-buero_node.html

³⁶ <https://oceancd.org>

As a result, the portal was presented at the DAM General Assembly on 18 September 2023, with an appeal to marine research institutions to report relevant activities there. Reporting is straightforward via email to info@unesco.org. The same call was sent to the DAM's Public Relations and Knowledge Transfer working groups. The aim is to use the existing UNESCO portal to provide a comprehensive overview of the activities of German marine research in capacity development and thus increase international visibility.

Research cooperation with developing countries

In the context of the UN Decade of Marine Research for Sustainable Development, knowledge partnerships at the international level with newly industrialising and developing countries are critical to promoting the sustainable use of coasts, seas and oceans globally. KDM is already involved in the planning for the UN Decade in the area of capacity development (including identifying target countries with which German marine research is already cooperating and should cooperate more closely).

Building on the current state of affairs, the DAM could act as Germany's representative for marine research cooperation initiatives with developing and newly industrialising countries and work with relevant institutions (BMZ, BMBF, BMBU, GIZ ...).

One focus could be strengthening the exchange of infrastructures (ships, large-scale equipment) and technical support with the identified target countries. Another focus could be to promote knowledge exchange with stakeholders, particularly from politics and administration in the target countries.

One of the BMZ's existing initiatives is MeerWissen³⁷. This initiative strengthens partnerships between marine research institutions in Africa and Germany. It builds on the regional expertise of African partner countries and Germany's international pioneering role in marine research. The BMBF's Africa Strategy³⁸ also aims to provide impetus for cooperation with African partners in education, science and research.

Next steps

Developing a strategic concept for capacity development should be further advanced under the joint umbrella of DAM/KDM and with the involvement of ODK and IOC. The strategic partners of the DAM, the German Institute of Development and Sustainability (IDOS), and the Research Institute for Sustainability - Helmholtz Centre Potsdam (RIFS) should also be included in the further process.

³⁷ <https://www.bmz.de/de/themen/biodiversitaet/meeresschutz/meerwissen-african-german-partners-for-ocean-knowledge-70874>

³⁸ https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/2/30928_Afrika_Strategie_des_BMBF.pdf

ANNEX

Attachments list (in German)

Anlage 1: Transfer-Themen

Anlage 2: Eckpunkte für den Dialog mit der Politik

Anlage 3: Feedback Politik

Anlage 4: Aufgaben der DAM-Beauftragten

Anlage 5: Tabelle mit Anfragen und Kooperationen im Kernbereich Transfer

Anlage 6: Strategisches Eckpunktepapier: Wissenschaftskommunikation für die UN-Dekade

Anlage 7: Impulspapier: Perspektiven für eine Zusammenarbeit der Leibniz-Forschungsmuseen (LFM) und der Deutschen Allianz Meeresforschung (DAM)

Anlage 8: Abschlussbericht Ocean Future Lab

Anlage 9: Ausstellungskonzept „Meer Nachhaltigkeit“ im Deutschen Meeresmuseum

Anlage 10: Projektantrag interaktiver Weltozean

Anlage 11: Projektantrag digitales Informationsportal

Anlage 12: Projektskizzen zum Dialog mit der Gesellschaft

Anlage 13: Ideenskizze Meeresmonitor

Anlage 14: Konzeptpapier Nachwuchsförderung im Rahmen der DAM