DEUTSCHE
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DAM

## STRATEGIC CONCEPT

# KNOWLEDGE TRANSFER IN THE DAM

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# TERMINOLOGY OF TRANSFER

Findings from science become socially effective 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 Humanities[1].**

In this paper, the term transfer encompasses not only technology transfer in a broader sense, but also 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 various 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 guideline[2]**
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 described as an important lever for making research results socially effective, i.e. for 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 Statement[3]**
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, with its close involvement of future users in the entire research process, is exemplary of this. 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

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 are to 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 as well as 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 terms of the exchange of knowledge with stakeholders and with regard to 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 important and well thought out.

[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

# ABSTRACT
# KNOWLEDGE TRANSFER IN THE DAM

The transfer of 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 exchange of knowledge. In addition, DAM develops strategies for cooperation with industry, for the promotion of young researchers, and the establishment of 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

The task of designing measures for knowledge transfer is carried out at the DAM for various different 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 experts from politics, business and civil society is crucial in order to develop **viable concepts for the protection and sustainable use of coastal and marine ecosystems** and to integrate 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 as well as encouraging the dialogue between the research community and protagonists in society**. Stakeholders play an important 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 issues 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 one that concerns the future of humankind**. Finding paths that lead to greater sustainability is an issue not only for science and politics, but for society as a whole. Sustainability also depends on the understanding of citizens and their willingness to participate in transformation processes and to live them. For this to be possible, everyone needs to understand what they are talking about.

In addition to a concrete exchange of knowledge with stakeholders from politics, business and civil society, there must therefore also be a broad and effective dialogue with society at large, one that **is motivating and provides opportunities for participation and education**. Appropriate formats are being developed in the core area Transfer, also in cooperation with museums, to provide access to and an overview of marine topics that are relevant to society, to offer food for thought on sustainable behaviour and to create opportunities for dialogue 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 up 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 that serve to provide this added value by combining digital solutions with offers for a 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 context of the UN Decade of Ocean Science for Sustainable Development, **knowledge partnerships with emerging and developing countries** are particularly important as a means of promoting the sustainable management of coasts, seas and oceans globally.

The DAM can enhance the **interconnections between existing capacity development measures** in order 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 major topics that are relevant to society in terms of providing for the future with regard to 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 the expertise of its members and guided by the needs of society. **The goal is to become a central partner offering advice to policymakers and society as well as encouraging the dialogue between the research community and protagonists in society.** In this sense, the DAM serves as a central "relevance agency" on the topic of oceans.

Hence the DAM provides added value for science, politics and society by making coastal and marine research more widely usable and socially effective – always with the aim of strengthening the sustainable use of coasts, seas and oceans.

The United Nations has proclaimed the years 2021 to 2030 to be the **international Decade of Ocean Science for Sustainable Development**. Policymakers, society and scientists are to work together to successfully implement the UN Sustainable Development Goals (SDGs) – for "life below water" and for the people who live by and with the oceans. The goal is to reverse the trend: to halt the further deterioration of the health of coasts, seas and oceans, and allow them to recover. Knowledge transfer plays a key role here. **All the DAM's transfer activities are also undertaken in the context of the UN Decade.** The research missions and the fields of action for DAM knowledge transfer contribute directly to the UN Decade.

# 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 meeting of the DAM's Knowledge Transfer Working Group revealed a need for a fuller exploration of the issues "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 meeting on 20 May 2021.

## 1.1. FRAMEWORK FOR THE EXCHANGE OF KNOWLEDGE AND CONSULTING

Exchanging knowledge with experts from science, politics, business and civil society is crucial in order to develop viable concepts for the protection and sustainable use of coastal and marine ecosystems and to integrate them effectively into the political and social context. This knowledge transfer is an essential element in the contribution made by science to providing for the future in order to 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. Bringing them together in this way complements the established transfer activities that individual member institutions are already carrying out, using their own specific expertise and networks, and makes the transfer of German marine research knowledge more visible as a whole.

The marine sciences have the potential and the willingness to enter into issue-oriented and fact-based dialogues with the various protagonists and interest groups from politics, business and society as a "knowledge broker", and to create platforms for the exchange of 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 with respect to 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 enable 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 in order to jointly come up with solutions and potential courses of action for marine-related issues. 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) as well as 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 both the scientific community and the stakeholders involved, and they must fit the overall goal of the "sustainable management of the oceans".)*

- **Define the objectives of exchanging knowledge and the role of the DAM**

  *(The objectives, too, must be relevant to all the parties involved; it must also be 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 in order 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 exchange of knowledge, depending on the interaction group and the objectives. It is important 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 Synthese and the communications platform SynCom).)*

- **Narrow down topic 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 topics may be added in the course of the often iterative exchange process.)*

- **Provide a comprehensible knowledge base for "eye-level dialogues" as needed**

  *(Topic-related fact sheets, infographics, visualisations that not only inform but also motivate people to engage in dialogue.)*

- **Establish criteria for the "effectiveness" of exchanging knowledge**

  *(Effective in terms of the respective objectives, taking into account all levels of impact and ensuring verifiability.)*

**Bringing together different stakeholders from politics, business and civil society** to engage in fact-based discourses about marine issues that are relevant to society **–** guided by a common objective in connection with the issue of protecting coasts, seas and oceans and using them sustainably – already constitutes one dimension of effectiveness. 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 certain 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 difficult 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 the field of 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 strategies[4] and
- on continuing to develop the scientific system in Germany[5].

[4] PDF: https://www.wissenschaftsrat.de/download/archiv/5665-16.html

[5] 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 in such a way that they can be taken into consideration 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 is able to 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 to establish a network of contacts in the political arena for this purpose, involving various departments and parliaments at the federal and state levels. The established and proven transfer activities of the DAM's member institutions in their specific fields of work remain their own 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 useful "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 consulting[6].

[6] 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/BASt_2017/DE/BASt/Leitlinien-Politikberatung.pdf?__blob=publicationFile&v=3

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

## Topic monitoring

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

Such topic monitoring should be carried out in science, politics and society and should be developed and coordinated in the DAM. In a first step, overviews of available media articles and parliamentary appointments will be compiled, which can be expanded upon. In addition, socially relevant marine issues will be raised and discussed in the DAM Stakeholder Forum, as well as 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, it is possible to provide content on key topics that will be relevant to society in the future in terms of providing for the future in order to preserve the necessities for life with regard to coasts, seas and oceans, in particular climate change, biodiversity loss (loss of habitat and ecosystem services), food security, energy supply and health, and using these across all institutions.

## Expertise matrix

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

This allows institutions to be specifically targeted to participate in specific topics. Both DAM members and, where appropriate, non-members who can contribute relevant expertise on the specific topic should be included in this. Various DAM members are already involved in consultation and decision-making processes and have relevant experience that ought to be exploited in a joint approach. Such a matrix should also list individual experts on the topics, who can participate in the synthesis and harmonisation.

## Synthesis

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

The scientific facts pertaining to 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 can be coordinated by the DAM. Advice given should not be based on the expertise of individuals, but should convey a joint

scientific synthesis. On this basis, the 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.), in order to bring together all relevant perspectives on a specific topic.

***… offering potential courses of action***

For selected topics, marine research should also come up with 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***

When it comes to selected topics, German marine research should use the framework of the DAM to engage in the discourse on how to interpret scientific results and what conclusions can be drawn from them, in order to make joint recommendations.

## 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 as well as descriptive infographics, which are prepared in a format suitable for the target group, e.g. fact sheets, position papers or discussion papers (e.g. Leopoldina[7]) and online information. Designing such formats must be based on research into best practices. Depending on the format, the German marine research community could contribute facts, highlight discourses and also offer thought-provoking ideas and recommendations.

When processing and preparing the topics, one of the key questions for users must be taken into account: “Why should I care about this when my time is already limited?” One answer is: “Because marine issues are extremely important in terms of the major challenges facing us in the future” (cf. research into providing for the future in order to preserve the necessities for life). To do this, it is necessary to link even small topics with big narratives, i.e. to establish the connection with climate change, shaping the future, sustainability, health, nutrition, the environment…

## Entering into a dialogue with policymakers

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

To achieve this, it is crucial to pursue topic- and goal-oriented networking and to cultivate contacts, especially via DAM events designed for political protagonists in ministries and parliaments, as well as other stakeholders.

[7] https://www.leopoldina.org/publikationen/stellungnahmen/

## 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 as a whole. This calls for imparting knowledge and providing opportunities for participation, to complement the dialogue with decision-makers. The DAM provides the framework within which appropriate formats can be developed in cooperation with museums and other partners *(see Field of Action 2: Dialogue with society*).

## 1.2. FORMATS FOR THE EXCHANGE OF KNOWLEDGE

Formats for synthesis and communication that are specific to the respective target groups are being developed in order 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 to involve stakeholder participation, the **involvement of potential users** is also planned when developing the transfer formats so as 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 use 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, which are utilised specifically for workshops and other dialogue formats and in addition made available on a **digital information platform**.
- 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 essential basis for further formats.
- **Webinars** or **MOOCs** (Massive Open Online Courses), which can be used digitally by a wide range of participants, are suitable for further education programmes.

### Visualisations

Photographs and film clips of coastal landscapes and underwater worlds hold a special fascination 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, both the proposed digital information portal for the DAM and other transfer formats applied for within the DAM research missions, e.g. for educational and exhibition collaborations, include visualisations for specific target groups as an essential component.

### Cooperation with the World Ocean Review (WOR)

The "World Ocean Review" series is published by **maribus**, a non-profit company founded by the publishing house **mareverlag** (https://worldoceanreview.com). maribus was set up specifically for the purpose of raising public awareness of interrelationships in marine science**.** Issue 7 of the World Ocean Review is currently in preparation and is supposed to cover topics from all different

areas (like WOR 1). The German Marine Research Consortium **KDM is already a cooperating partner of WOR** and KDM members are providing advice on content as well as expertise.

For the DAM, this creates an opportunity to go beyond the existing cooperation and establish a collaboration with maribus, using the **comprehensive and expert-reviewed synthesis on marine issues provided by WOR 7 as a basis for further communication formats**. Topics from the WOR can, for example, provide the basis for visualisations and multimedia storytelling, i.e. build upon the existing synthesis of expert knowledge. At the same time, the new formats will make the WOR's content more widely and easily accessible. Together with the KDM, corresponding opportunities for cooperation can be examined and harmonised.

## Dialogue with stakeholders

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

- **Workshops** with scientists and stakeholders for an exchange of 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**, each specifically tailored to political protagonists based in ministries and parliaments. These will be developed in the area of political communications. Regular parliamentary events will be held, both 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 ideas, involving participants from different areas of society, with the aim of jointly developing future scenarios for the sustainable management of coastlines, seas and oceans.
- Participation of the DAM in and cooperation with **already established dialogue formats** that fit the topics and provide a forum for relevant stakeholders (e.g. academies, Wissenschaft im Dialog...). Initial discussions with Wissenschaft im Dialog indicate that there is a great deal of interest in such collaborative projects.

Dialogues must be designed to fit the objectives and the target group and must be professionally moderated and supervised. They need **innovative formats for the exchange of 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 so as 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, in order to ensure a broader 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 in the form of 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 specifically developed such that they can be presented, so that they 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 relevant protagonists in 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 actively help shape the research mission.

The transfer officers of a research mission will work together closely with the DAM's core area Transfer to exploit all the **opportunities for cross-mission synergies and cooperation** while developing transfer formats and to ensure a focus on the common objectives and their implementation within society. In addition, the office will create and maintain a **network of transfer experts and institutions** to support the professional exchange of knowledge (IASS, DIE, TAB) and to cooperate with other partners (academies of science, Wissenschaft im Dialog, foundations, museums...).

## Implementation in the transfer network

In order to implement the transfer measures within the context of the DAM, corresponding project positions will be established on a decentralised basis at thematically appropriate transfer or communications departments within the member institutions. This model is already being successfully applied to the "Unterwegs" research data project in the DAM's core area Data Management and Digitalisation. Networking and strategic cooperation are coordinated by the respective core area of the DAM administrative office.

Setting up a transfer network offers an opportunity to use the existing expertise in the specialist groups for knowledge transfer and of connecting it further, in such a way that the German marine research community can benefit from it. In addition to the virtual exchange of ideas, a rotation of employees is also conceivable. Such a transfer network will include:

- The DAM administrative office (core area Transfer)
- The DAM Knowledge Transfer Working Group, representing the expertise of all the members
- The Public Relations Working Group of the DAM and the KDM, since knowledge communication and knowledge transfer overlap productively
- The strategic partners of the DAM in the area of transfer (DIE, IASS)
- The specialists who carry out transfer within the context of the research missions
- The specialists who process higher-level transfer issues for the DAM
- The DAM Stakeholder Forum
- Additional external transfer experts

# 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 the exchange of 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 cooperating with the business community, collaboration on R&D projects and technology transfer is closely interlinked with an exchange of knowledge in which the business community is involved as an important stakeholder in the dialogue with science, politics and civil society in order to address marine-related issues of sustainability and providing for the future. The focus also lies on needs-oriented offers for further education and promoting young talents.

In the context of the DAM, the core areas Research and Infrastructure are also involved in cooperating with the business community, alongside the core area Transfer. The topics are also dealt with in the DAM's Knowledge Transfer and Technology Transfer Working Groups, in order to cover the various aspects.

## 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 participation of the business community 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 issues

A survey carried out by the German Society for Marine Technology (12/2020) demonstrates that the UN Sustainable Development Goals and the related measures adopted by the German government are not nearly as well known among companies as they are among research facilities. On the other hand, many companies are very open to sustainability issues and themselves see the need to position themselves sustainably in order to be "ready for the future": Customers and investors alike are increasingly calling for sustainable business practices and sustainable products and services. In order to do justice to these market drivers, but also to the company's own ethical requirements for providing for the future and preserving the basis for life, the business community is increasingly asking for scientific findings. In this context, the exchange of knowledge must be designed to be as concrete as possible and oriented towards the needs of companies. However, it is also often mutually beneficial, because scientific institutions can often learn from pioneering sustainability solutions developed by companies. The following aspects play an important role in the exchange of knowledge:

- Communicating comprehensible and relevant knowledge, initiating dialogues on sustainability-related topics from research into industry
  - o Creating awareness in companies for sustainability as a topic for the future
  - o Providing for the future in order to preserve the necessities for life, sustainable use of marine resources, "blue growth"
  - o Protecting sustainable value chains (e.g. against piracy, illegal fishing, pollution, subversion of environmental standards by competitors)
- Corporate social responsibility
  - o Participating in stakeholder dialogues on the sustainable use of the oceans
  - o Potential for developing sustainable solutions and necessary framework conditions
  - o Think tanks set up by companies or with strong company 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)
- Supporting knowledge transfer projects (in some cases also for consolidation as start-ups) and mission-oriented innovation
- Scientifically founded benchmarking (e.g. certification, standardisation, assessment of products, processes...)
- Conversely, research must also be conducted sustainably and increasingly furnish transparent evidence of this. There are good examples of this in the business world.

## Suggestion 3: Knowledge transfer through minds and open access policies

The DAM's research institutions participate in a variety of 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 also integrated into academic degree courses such as Maritime Technologies. Many graduates go on to 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 can be drawn up by German marine research community 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 knowledge, data, software and technologies non-commercially to commercial applications as part of their open access policies. This transfer can also be supported by the DAM core area Data Management and Digitalisation and by the DAM research missions.

## Further procedure

It is recommended that all three suggestions be elaborated further and prepared for implementation. This will call for transfer experts from the DAM members for the business sector to be involved, and for a close exchange of ideas with companies and professional associations. Only if the DAM's concepts build upon existing experience and leverage and complement existing networks can German marine research generate added value for the exchange of knowledge with the business community in the DAM. The Society for Maritime Technology (GMT) is an important partner in this context, since it already has sound experience in the exchange between science and industry and is well connected with the DAM and interested in cooperation.

# 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 one that concerns the future of humankind**. Finding paths that lead to greater sustainability is an issue not only for science and politics, but for society as a whole. Sustainability also depends on the understanding of citizens and their willingness to participate in transformation processes and to live them. For this to be possible, everyone needs to understand what they are talking about.

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 issues**, illustrating interactions between people and oceans, conservation and sustainable use
- 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**).

## Exhibition and participation formats

Exhibition and participation formats that are thought up and implemented in cooperation with suitable partners offer outstanding opportunities for making the thematic world of "Humans and the Sea" experienceable and motivating people to behave in sustainable ways themselves. In addition to those museums with a direct marine connection that are represented in the DAM, these also include other **science museums, science centres and aquazoos, as well as museums and exhibition centres with a cultural connection**. These have both the expertise and the capabilities to build effective bridges with society. Experiential elements that arouse people's curiosity and facilitate access to the topics can be linked here with more extensive educational and dialogue offers. **Artists** too have the potential to create new and inspiring approaches to the thematic world of the oceans.

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

When planning joint formats, the strategic compatibility with existing concepts and projects in research museums plays an important role. On top of this, the collaborations are meant to lead to "best practice" examples that can be transferred to a broader context and that widely benefit other DAM members as well. Corresponding cooperative ventures are already being planned with the two DAM members **German Oceanographic Museum (DMM)** and **German Maritime Museum (DSM)**.

The DAM will, for example, cooperate as a **partner in redesigning an exhibition level in the OCEANOGRAPHIC MUSEUM Stralsund.** The importance of species and ecosystems as well as their services for human beings are to be highlighted by a project with the working title "OCEAN Sustainability". It aims to make visitors more aware of the complex issues involved in the sustainable management of seas and oceans, so that marine ecosystems can be preserved, used and protected sustainably in the future. Marine research is an integral part of the interaction between human beings and oceans. Furthermore, the DAM is cooperating as a partner in the DMM's project "**The Digital Ocean**". The **corresponding application to the Federal Government's Commissioner for Culture and the Media (BKM) for funding has been approved** within the context of the digitisation strategy of the German federal government to "promote cultural, (inter-)nationally significant projects".

## Project Proposals: Digitisation and the dialogue with society

The following suggestions for transfer projects are all to be viewed in the context of using **innovative digital communication media** as a source of inspiration and information on marine topics that are relevant to society. They are intended as a prelude to and motivation for subsequent **dialogue formats**, which could vary depending on the area of application (e.g. discussion events, opinions, future labs, reference to opportunities for participation such as citizen science...).

Hence the proposed projects bring together two groundbreaking developments:

- **Exploiting the possibilities of digitisation** in order to integrate innovative formats into the presentation and exhibition area. This is currently being promoted by and driven forward in museums and exhibition centres.
- **Providing opportunities and motivation for dialogues and participation**, instead of pure knowledge transfer as a one-way street.

All the proposed projects will be set up in collaboration with specialised **external production companies** and designed in **coordination with museums** as well as other **cultural professionals**.

## Project Proposal 1: Interactive World Ocean

The "Interactive World Ocean" is an attractively presented, digital interactive map of the ocean that invites viewers to explore. Interaction points in the world ocean provide an opportunity to dive into completely different regions: Selected videos (max. 140 secs long) show what things look like on the coast and underwater. The video material will be drawn from **marine research** on the one hand and from a **citizen science project** on the other. Presenting these via an interactive world map will offer a global perspective on regional focal points. The map can be used across different media: a) a **web version** that is generally accessible, b) a **tablet and smartboard version for educational**

**programmes** in schools, and c) large-format **interactive touchscreens for exhibitions.** In addition, thematically appropriate multimedia information and interactive services will be available, in particular via the DAM information portal "Oceans Online". The project is being planned in cooperation with the Ocean Frontier Institute (OFI), Halifax, Canada.

## Project Proposal 2: Digital information portal

A digital information portal – "Oceans Online" (working title) – is proposed within the framework of the DAM, to provide **up-to-date and facts-based information on socially relevant marine topics.** Its communications will focus on the sustainable management of coasts, seas and oceans. The plan is to offer information presented in a scientific journalistic manner with vivid visualisations that can also be used for **participatory, cross-media formats and in stakeholder dialogues**, because they offer an easily understandable "translation" of scientific content which is the necessary basis for a dialogue at "eye level". The "Oceans Online" information portal is directed at anyone who wants to have a say and make decisions about oceans, climate and sustainability as issues of the future.

## 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** dealing with ocean and deep-sea issues, which can be offered at planetariums and exhibition centres throughout Germany and around the world, as part of the UN Decade.

## Project Proposal 4: Marine Monitor

The German Maritime Museum (DSM) and the German Marine Research Alliance (DAM) are jointly developing the project "Marine Monitor" (working title), **a smartphone app that will be linked to a large-format façade display.** The "Marine Monitor" will offer an interactive experience that aims to fascinate and draw attention to marine issues in the context of the UN Decade of Ocean Science for Sustainable Development. Being connected with the DAM's planned digital information portal "Oceans Online", it will allow users to delve into selected topics as they choose. The partners for this collaboration are the Leibniz Research Museums and the German Oceanographic Museum.

# FIELD OF ACTION 3: PROMOTING YOUNG TALENTS

The **promotion of young scientists and engineers** is included as a task in the administrative agreement of the DAM. To this end, a strategic concept is to be developed and its implementation supported by the participating research institutions. The present results of a consultation with those responsible for the promotion of young researchers at the DAM members serve as a basis for the development of such a concept.

In addition, an overview has been created for the DAM website of all **offers by DAM members available to young scientists (students, PhD students, postdocs) as well as for trainees and pupils**, see https://www.allianz-meeresforschung.de/nachwuchsfoerderung

## Summary of the research report

At many locations of the DAM member institutions, coordinators already have many years of experience on the job and are very well networked with each other. 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 across the board.

All interviewees mentioned **networking** as an **added value** of the DAM in the promotion of young researchers. The function of the DAM should be summarised: to provide orientation, to point out focal points, and to link programmes, offers and actors.

The DAM offers a suitable framework to improve the overview and networking of offers for students, doctoral students, and postdocs, to bring university and non-university institutions closer together and to promote the processing of multi- and transdisciplinary topics as well as the **exchange between young researchers and stakeholders from politics, business, and civil society**.

DAM aims to become a central partner for stakeholder involvement in the marine sciences in Germany and is actively developing its connections to stakeholders. Bachelor's and Master's students, PhD students, and postdocs looking for professional orientation or project partners can benefit from this.

German marine research, and thus also DAM, also benefits from the networking of young scientists and stakeholders to **promote transdisciplinary research and the transfer of science into practice**. Measures to build and support this networking should combine digital information and exchange opportunities with opportunities to get to know each other and share experiences.

Due to its structure, the DAM has the possibility to act nationwide and play a central role. A **coordinating function** was expected by several interviewees and explicitly mentioned as an added value of the DAM. Offers should be open to as many members and young researchers as possible and should always promote their networking.

**Proposals based on the research interviews**

DAM Working Group for the Promotion of Young Academics

There could be a DAM working group for the promotion of young academics that meets every two years, with a rotating chair. The DAM could also organise working groups on its website (e.g. for the career/network day, with corresponding criteria) and thereby establish a bottom-up structure and try out projects (according to best practice). It would also be helpful to provide a neutral web space for expert meetings etc.

DAM exchange

Through a DAM exchange, institutional offers, e.g. certain courses (statistics with R, modelling, stable isotopes), summer schools, or practical opportunities such as the monitoring trips at the Marine Museum Stralsund and open internships could cover a demand at other locations if they were centrally coordinated.

DAM overview of co-supervision

An overview coordinated by the DAM could show with which external DAM partners or stakeholders Master's/PhD theses could be or have already been carried out in co-supervision (Master's supervisor at university or institute, PhD supervisor at university). In addition to financing issues, there would also be a number of legal issues to be clarified, e.g. how Bachelor's, Master's, and PhD theses would then be supervised. As with the "site visits", the question of insurance would also have to be clarified.

**Project proposals**

Career Day

A nationwide interdisciplinary marine science career day could be organised by DAM to promote supraregional networking. This suggestion was positively received by many interviewees, as DAM offers added value in this respect compared to institutional activities and could also involve relevant supraregional stakeholders. Since the promotion of young scientists was always seen by the interviewees as broader than just a job search, the event could be called "Networking Day" or "Day of Young Marine Scientists" and the content could be expanded accordingly.

DAM Summer School

A DAM Summer School was put forward as a proposal and sent out in the interim summary as a basis for discussion. From the feedback, it became clear that there are already many summer schools and that a DAM summer school would therefore have to offer real added value to meet a need. A special summer school on the topic of "Ocean Governance" was considered useful in further discussions, especially if international comparisons were included and the DAM invited speakers from relevant contexts who would expand and enrich the existing circle. In addition, networking among the members is also of interest here.

DAM Scholarship

A DAM scholarship was discussed in many ways in the interviews and various ideas were put forward. However, it was critically noted that classic scholarships are no longer viewed so favourably, as no employment relationship is created and the missing health, unemployment, and pension insurance aspects are problematic.

**Proposals for measures**

DAM coaches

Trained "DAM coaches": (Former) young scientists who, through certification, can provide individual assistance in overcoming challenges in a labour market in which marine scientists have so far not been perceived as generally employable. In this way, they could be helped individually and the DAM could also be perceived in an advisory capacity.

Panel discussions

Panel discussions organised and moderated by young scientists could enable exchange with stakeholders and a transfer to society, as well as creating a valuable experience for those conducting the discussions.

Practice-oriented courses

The DAM could centrally organise courses (also online) on "How to publish in peer-reviewed journals" or good scientific practice, conflict management, non-violent communication, and leadership training as well as application training for junior research group leaders and support in applying for third-party funding (e.g. how to write EU or BMBF applications).

Appearance at career fairs

A joint presence at international career fairs (or other suitable events) could be organised to increase the visibility of marine sciences and its programmes and graduate schools in Germany.

## Further procedure

The results of the research at the DAM member institutions will be used to develop an overall strategic concept including goals. To this end, a workshop is planned for the DAM member organisations' specialist managers and junior organisations.

# FIELD OF ACTION 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. Capacity development should be seen as a separate field of action for the DAM, especially at the international level (knowledge partnerships with emerging and developing countries, e.g. with the BMZ) and should be harmonised and developed in the context of the activities of the KDM and the UN Decade.

The following key points were established in collaboration with experts from the ZMT and offer stimuli for the DAM's role in capacity development, based on the added value that the DAM can provide for German marine research. Strategic cooperation with the KDM is a prerequisite for this.

## Capacity development activities of the DAM

**Capacity development** is a process by which people, organisations, and societies mobilise, adapt and expand their capabilities in order to make their own development sustainable and to adapt to changing conditions[8]. Overviews of the term are available from the IOC's Capacity Development Strategies[9] and the ZMT[10]. They show that capacity development is a very broad term, encompassing fields of action in all four core areas of the DAM. In other words, the DAM is already planning or carrying out capacity development through a range of activities without explicitly applying this umbrella term to it.

- **Research Missions**: generating socially relevant, solution-oriented knowledge, involving stakeholders, international cooperation
- **Infrastructure:** coordinating concepts for the utilisation and operation of large equipment,

  opportunities for international exchange
- **Data Management and Digitalisation:** providing open and consistent access according to FAIR principles, together with National Research Data Infrastructure (NFDI)
- **Transfer**: both technology transfer and knowledge transfer with the following fields of action:

  o Exchanging knowledge with stakeholders (science, politics, business, civil society)
  o Communicating knowledge to and encouraging participation by society
  o Education (further education, school education, promoting young scientists)

The same applies to German marine research facilities as a whole. Here, too, capacity development is carried out in many fields of action, though not explicitly named as such; only a few institutions, such as the ZMT, whose focus is on cooperation in research and development with the global South, have developed their own capacity development strategy.

[8] BMZ: https://www.bmz.de/de/service/glossar/C/capacity_development.html
[9] IOC: http://www.ioc-cd.org/
[10] ZMT: https://www.leibniz-zmt.de/images/content/pdf/Mission_Werte/Capacity-Development_Strategy_2025.pdf

Capacity development is crucial for the implementation of the UN Sustainable Development Goals (SDGs). Sustainability is a matter of human behaviour. What is needed are worldwide "SDG experts" in politics, business, science and civil society, and an informed public that accepts incentives and sanctions. In the context of the UN Decade, **knowledge partnerships with emerging and developing countries** are particularly important.

## National screening

An **overview** of the current activities of German marine research in terms of capacity development in the various fields of action is not currently available. The DAM offers a suitable framework within which such an overview can be drawn up and, based on that, a **networking and exchange platform** can be established. This would initially be limited to the national context, but have the potential to include initiatives in other countries – working together with the IOC, which pools the international activities, and the European Commission, which, through its Galway and Belém Statement collaborations, aims to set up an All-Atlantic Ocean Research Alliance, in which general principles of capacity development will play a key role.

Such a platform will be based on the following steps:

- Define the fields of action for capacity development on the basis of the IOC's conceptualisation
- Screen institute websites for capacity development activities
- In addition to this, question suitable experts from the various institutions
- Create an overview of all the fields of action and activities
- In parallel: design and technically implement a suitable platform

An overview like this will make the German contribution to capacity development visible – also and especially in the context of the UN Decade – and it makes it possible to find starting points for cooperation and for new joint initiatives.

## Research cooperation with developing countries

**Status:** Planning is under way, in strategic cooperation with the KDM, for the UN Decade in the area of capacity development (including identifying target countries with which German marine research is already cooperating and/or ought to cooperate more closely).

The DAM can serve as a **representative of Germany for initiatives on research cooperation with developing and emerging countries in the marine sector** and cooperate with the relevant institutions (BMZ, BMBF, BMBU, GIZ...). The request by the German Institute for Development Research, a departmental research institution of the BMZ, for a strategic partnership with the DAM fits in with this.

One focus could be to strengthen the **exchange of infrastructure** (ships, large equipment) with the target countries identified, together with expert support.

Another focus could be **promoting the exchange of knowledge with stakeholders**, especially in the fields of politics and administration in the target countries.

## Further procedure

On this basis, further experts from the DAM member institutions and suitable partners (DIE, IASS) are to be involved, in order to develop an **overall strategic concept** that focuses in particular on the requirements of the UN Decade. The DAM Knowledge Transfer Working Group suggests setting up a suitable working group for this purpose.

Concrete capacity development projects with international partners are also planned in the **DAM Research Missions**, e.g. knowledge partnerships on Blue Carbon as part of the research mission "Marine Carbon Sinks in Decarbonisation Pathways".