MAX-PLANCK-GESELLSCHAFT

The Max Planck Society

At home in Germany - present throughout the world

Internationalisation – the Max Planck Society's role in safeguarding Germany's future

Cooperation across national borders is one of the most important prerequisites for successful scientific research. By combining different scientific approaches and resources, cross-border partnerships result in valuable synergies, which are crucial to scientific breakthroughs. International collaboration is therefore a key factor in enabling the Max Planck Society to fulfil its own mission. Against this backdrop, the Max Planck Society has initiated a process in recent years to systematically further develop its international profile – fully in accord with the objectives agreed with the funding organisations in the Joint Initiative for Research and Innovation.

The internationalisation strategy has three priorities. The first is to promote international cooperation between the Max Planck Institutes by increasing the exchange of scientists. The second is to enhance the Max Planck Society's international profile by intensifying its presence in key target countries. And the third priority is to support the scientific community as a whole by improving the representation of German research organisations abroad.

The Max Planck Society considers one of its main roles to be promoting the internationalisation of science, both on its own behalf and also on behalf of Germany as a research location. To do this, it has developed a set of measures that can be adapted and tailored to reflect the intensity of cooperation and the special requirements of specific disciplines and regions.

The basis for these measures is the promotion of international cooperation between the Max Planck Institutes through the exchange of scientists, the establishment of partnerships with international institutions and colleagues and the operation of research infrastructure facilities abroad. Partner groups, research groups abroad and Max Planck Centers constitute complementary strategic instruments with which new qualities of international scientific cooperation can be achieved.

One particular aspect of this set of measures designed to enhance the Max Planck Society's international profile is the setting up of new Max Planck Institutes abroad. The Max Planck Society regards such an establishment of Institutes abroad – provided that optimal local research and funding conditions are present – as similar to the expansion of core activities, which globally active companies pursue as part of their internationalisation strategy. In the case of the Max Planck Society, such an expansion enables it to gain a unique foothold in high-performance science environments.

The Max Planck Society – the international dimension

In basic research, an international focus alone ensures successful participation in competition. Isolation hampers performance and leads to disengagement from international scientific progress.

No other European research organisation has an international network to match that of the Max Planck Society. The Max Planck Institutes are unusually attractive at an international level, as selected statistics prove the high degree of internationalisation of the institutes:

- 30% of institute Directors are non-Germans;
- 33% of all academic staff come from outside Germany;
- this figure rises to almost 47% among more than 5,200 Ph.D. students, primarily because of the success of the International Max Planck Research Schools;
- just under 89% of post docs come from outside Germany;
- each year, 7,000 guest scientists and fellowship holders from abroad work at Max Planck Institutes ;
- the institutes themselves also boast a large number of international partnership projects: in 2012, this amounted to more than 4,500 such projects with approx. 5,400 research partners throughout the world.

An international dimension is a prerequisite for

- gaining access to outstanding research facilities and subject-matter experts;
- appealing to elites as a research location;
- attracting high achievers;
- ensuring increased opportunities for junior scientists.

1. Cooperation and exchange

International Max Planck Research Schools

Since 2000, the International Max Planck Research Schools (IMPRS) have played a key role in promoting Ph.D. students in the Max Planck Society. Talented junior scientists have the opportunity to obtain their doctorates while working in a top-class research environment. A common feature of these graduate programmes at the Max Planck Institutes is their close cooperation with universities. IMPRS are considered to be exemplary models in enhancing and internationalising Germany's status as a centre of research, as they attract junior scientists from all over the world: of approx. 2,700 doctoral students in 62 IMPRS, almost half come from abroad.

Several IMPRS maintain active partnerships with foreign universities, e.g. in France, the UK, Italy, Japan, USA, Israel, Canada, the Netherlands, Austria, Poland, Sweden, Switzerland, the Czech Republic and Estonia. This also strengthens the formation of international networks.

Partner groups as bridgeheads to the world

Junior scientists from outside Germany whose research work is particularly outstanding and who return home to their own country following a research residency at a Max Planck Institute are supported by the Max Planck Society in establishing a partner group in their home country. Partner groups are one of the most successful vehicles for establishing a sustainable link between the Max Planck Institutes and high-calibre junior scientists from abroad, particularly in countries where science is undergoing a process of transformation and research structures are developing rapidly.

The Partner Groups, which are established for five years, are important bridgeheads for German science abroad and play a key role in the ‘brain circulation’ of young junior scientists between Max Planck Institutes and the home institutions of the Partner Groups. As of November 2013, a total of 38 Partner Groups were active in Asia, Eastern Europe and South America. 83 Partner Groups have been established around the world since 2000.

2. A presence abroad

In addition to the measures designed to promote junior scientists in the international community, the Max Planck Society also promotes internationalisation by maintaining a presence abroad.

This happens in manifold ways, particularly at institute level. These include

- research labs that are operated autonomously abroad (e.g. a tropical field station in Manaus, Brazil);
- research equipment financed and used abroad as part of international cooperation projects (particularly telescopes in the area of astronomy in Spain or in Arizona, USA, for example);
- "virtual laboratories" operated as part of an international partnership (e.g. Laboratiores Européens Associés (LEAs) with the CNRS, France).

Max Planck Centers and Max Planck Institutes abroad (Member Institutes) complete the existing portfolio. These are strategic vehicles that enhance the Max Planck Society's representation abroad. Max Planck Centers and Max Planck Institutes outside Germany gain access to international cutting-edge research and innovation potential abroad. This can be used to

- exploit growth dynamics abroad;
- increase the international visibility of the Max Planck Society;
- optimise recruitment conditions;
- expand the research portfolio;
- publicise the success principles of the Max Planck Society.

Max Planck Centers

The international Max Planck Centers were launched to complement the existing vehicles of international cooperation. The Centers are successfully operated under the auspices of the Max Planck Institutes, and exemplify a method of cooperation that is structurally effective for the Max Planck Society as a whole. The aim of Max Planck Centers is to promote scientific cooperation at the very highest levels with partners outside Germany. They offer platforms on which partnerships with selected research partners are placed at a new and visible level. Fourteen Max Planck Centers have been set up since 2010.

The programme has been successfully established as an important structural element of the Max Planck Society's international strategy. Max Planck Centers fulfil this function in a variety of ways:

- as a platform where the participating Max Planck Institutes and their international partners pool their respective skills and expertise, thus creating scientific added value;
- in the establishment of a permanent network structure, based solely on excellence (with selected, particularly high-performance facilities especially in Europe, North America and Japan);
- as a gateway to selected top-class partners in emerging scientific nations, enabling the Max Planck Society to attract potentially strong partners in these countries to Germany at an early stage, thus boosting Germany's status as a centre of science and technology;
- as a gateway to particularly highly-skilled junior scientists.

The collaborative initiatives engaged in by the Centers extend far beyond bilateral partnerships: they demonstrate the scientific potential of the Max Planck Institutes and increase the visibility and attractiveness of the cooperation projects. They provide a flexible framework for the application of various internationalisation and cooperation initiatives in the successfully established programmes of the Max Planck Society (e.g. the International Max Planck Research Schools, Max Planck Partner Groups, Max Planck Research Groups, Max Planck Fellows).

In terms of structure, the Max Planck Society's Partner Institutes are positioned between the Max Planck Centers and the Max Planck Institutes abroad. These are institutions that are integrated administratively into international partner institutions via a cooperation agreement with the Max Planck Society. However, the Max Planck Society does not have institutional responsibility for the Partner Institutes. Such institutional forms are established when international partners express interest in applying the model of the successful principles of the Max Planck Society in their own institutions.

To date, two Partner Institutes have been set up: in Shanghai and in Buenos Aires. No further Partner Institutes are currently planned.

Max Planck Institutes abroad (Member Institutes)

Max Planck Institutes abroad offer the opportunity to broaden the international basis in the Max Planck Society, and at the same time safeguard the future viability and competitiveness of Germany as a centre of science and technology. In doing so, the Max Planck Society will not stray from its core mission in the German research system and its 'corporate identity' as a German-based, but internationally focused cutting-edge research institution. Max Planck Institutes abroad represent a sustainable pillar of the Max Planck Society's internationalisation strategy, while also enhancing the organisation's profile.

Examples of such institutes include the Max Planck Florida Institute and the Max Planck Institute in Luxembourg.

The success of the Max Planck Society is due in large part to the fact that – with long-term financial planning certainty – it can make decisions with complete autonomy and focus on quality, particularly when it comes to selecting research topics and institute Directors. Similarly, the Directors of its institutes enjoy a high degree of independence in relation to their research work. These basic prerequisites must be in place in the foreign research institutes in the same way that they are in Germany. Max Planck Member Institutes therefore need to fully adopt the autonomous decision-making procedures and processes of the Max Planck Society, particularly when it comes to selecting research topics and Directors.

Max Planck Institutes abroad allow the Max Planck Society to expand its research portfolio considerably through customised additions to the research activities of existing Max Planck Institutes and in this way develop new opportunities for cooperation. They can play a part in shaping new, emerging locations of science and technology.

This presence abroad facilitates a strategic positioning in the research environment of the relevant country. It results in added scientific and technological value that benefits the innovativeness of the Max Planck Society. In the international competition to find the 'best minds', recruitment conditions are optimised and opportunities for junior scientists to obtain training and gain further qualifications are increased.

3. Presentation abroad

In addition to a scientific presence, the presentation of German research abroad is extremely important, particularly as part of a shared presence for German science. The following measures are intended to enhance the presentation abroad of German research organisations:

- German Houses of Science and Innovation
- Science Tunnel
- Science Express
- "Images of Science" exhibition

Systematically drawing attention to research in Germany and its ability to deliver is therefore a challenge shared by all German research organisations. For this reason, the Max Planck Society is actively involved in designing the German Houses of Science and Innovation (*Deutsche Wissenschafts- und Innovationshäuser,* DWIH), which it uses as a platform for exhibitions and for information and publicity purposes, thus incorporating it into its internationalisation strategy.

The Science Tunnel is a proven and successful initiative devised by the Max Planck Society to present science abroad. The Max Planck Society intends to use the Science Tunnel to communicate an image of the international capability and attractiveness of research in Germany. The Science Tunnel provides visually impressive photographic and video material showing cutting-edge research in Germany, particularly at Max Planck Institutes, but also in German universities and other research facilities. The Science Tunnel has already been seen in several cities around the world. The third version of the Science Tunnel is being exhibited in Sao Paolo, Beijing and Shanghai in 2014.

In 2007, a multimedia show based on the Science Tunnel was hosted in a train in India. On 30 October 2007, German Chancellor Angela Merkel and Indian Prime Minister Manmohan Singh launched the Science Express in Delhi; by the beginning of June 2008, it had covered 15,000 kilometres and visited 55 cities throughout India. Indians exhibited overwhelming interest in the train, which received 2.2 million visitors. The Science Express is still travelling today under the sole responsibility of the Indian Department of Science and Technology and to date has welcomed six million visitors.

The **"Images from Science"** exhibition offers fascinating insights into the world of research. More than fifty large-scale images of science are currently available and have

already been shown very successfully in varying configurations as a touring exhibition in many venues. In 2013, the images were exhibited in Oviedo, Spain, and in Cairo, Egypt. In cooperation with the Goethe Institute, a special edition has been shown in cities across Russia since 2012. For 2014, further touring exhibitions are planned to take place in India and the USA. The "Images from Science" gallery is also available as online exhibition: www.bilder.mpg.de