Translation

Die Bundesregierung

The Copernicus Strategy of the German Federal Government

Copernicus for Germany and Europe – the Federal Government's strategy and fields of action for successful implementation of the European Earth Observation Programme

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Preamble

Copernicus, which was established by the European Union in cooperation with the European Space Agency (ESA) and the Member States, has created an independent infrastructure that will, on a long-term and sustainable basis, provide data and information for knowledge-based European and national policies. Copernicus supports measures in the field of environmental protection, civil protection and humanitarian aid, maximises socio-economic benefits, promotes the European space industry and ensures autonomous and reliable access to earth observation information and corresponding key technologies. An important part of the Copernicus information services is based on satellite observations. Copernicus is a flagship initiative of European space policy.

For strategic considerations, Germany is making a considerable contribution to Copernicus and has set itself the goal of deriving maximum benefit from Copernicus.

This Strategy of the Federal Government sets out Germany's objectives for Copernicus. It identifies fields of action and motivates measures at national and European level for pursuing these objectives. It represents the framework for formulating German positions vis-à-vis the European Commission, ESA and other players and provides guidance for designing national and international measures.

The Copernicus vision

Copernicus is the operational earth observation programme of the European Union. It consists of a unique family of earth observation satellites, in situ monitoring systems and information services for data and information products dealing with land surfaces, the marine environment, the atmosphere and climate change as well as supporting disaster management and civil security.

By 2020, Copernicus will become the most powerful infrastructure worldwide for the provision of global environmental information. As a civil, user-focused programme under civil control, Copernicus supports decision-makers in government, industry and public authorities in Germany and Europe with up-to-date information on environmental and security-related issues. Data and services from satellite data are of great value, especially for national authorities. Copernicus establishes standards by providing comprehensive high-quality information that can be accessed quickly and is used throughout the world.

Copernicus is an important instrument for **managing global and European challenges** such as the impacts of climate change, the consequences of natural disasters, the preservation of biodiversity, the domains of transport and urbanization, the pressure of the growing world population on limited natural resources as well as the protection of our natural resources. With the help of Copernicus, Europe supports measures to achieve the sustainable development goals of the United Nations and helps to tackle the causes of migratory movements. Furthermore, Copernicus Services support responsible conduct at the European Union's external borders.

Copernicus enables the scientific community to generate new **findings on the earth system and global change**.

The economic importance of the markets for services and products from satellite data is increasing strongly. Copernicus contributes to creating **dynamic economic growth and new jobs** in Germany and Europe. Innovative enterprises benefit from freely available Copernicus data and information for the development of services and can thereby expand into new markets.

At the same time, Copernicus – as a programme designed for the long term – creates incentives for investments in **innovative satellite systems**. National and ESA-organised technology programmes offer extra incentives for innovative evolutions of the Copernicus space component.

In the long term, Copernicus will contribute to Germany's and Europe's **independence** concerning access to global information and key technologies in the field of satellite and data processing technologies. Thus, Copernicus stands for Europe's sovereign political action, for example when negotiating and implementing international environmental agreements. Data and information are made available to the international community for the Global Earth Observation System of Systems (GEOSS). Thus, Europe is making a decisive contribution to international cooperation by assuming global responsibility.

I. General structure and current status of Copernicus

Copernicus has been implemented as an operational programme of the European Union (EU) since 2014. In 2005, the ESA Member States approved the development of Sentinel satellites that form the core of the Copernicus space component. Since 2001, preparatory projects in the form of EU research and development programmes had been conducted.

Copernicus consists of information **services** that reliably provide information products with guaranteed quality based on **satellite systems** and **in situ[1] observation systems**.

Today, six Services addressing

- land monitoring,
- monitoring of the marine environment,
- emergency management,
- atmosphere monitoring,
- climate change monitoring,
- security

deliver more than 400 information products regularly. The service for monitoring climate change and the security service are currently being developed.

Numerous examples demonstrate the wide range of applications of Copernicus. The European Environment Agency (EEA) for example uses maps and indicators regularly provided by the Copernicus service for land monitoring to evaluate the status and development of protected Natura 2000[2] sites. This is an important contribution to the protection of habitats. The European Maritime Safety Agency (EMSA) uses Copernicus satellite data evaluated in the short term to detect aquatic pollution in European seas and sends out warnings to national authorities, which then decide on follow-up actions. In 2016, the European Commission and national bodies activated the Copernicus emergency management service more than 40 times. Up-to-date situation maps, created on the basis of satellite images, help rescue services throughout the world to prevent and respond to natural disasters and other major emergency situations. The European Centre for Medium-Range Weather Forecasts (ECMWF) provides data and predictions on air pollution (e.g. nitrogen oxides, particulate matter) that form the basis for necessary measures in cities and regions and is regularly documenting the rise in greenhouse gas concentration by using Copernicus products.
The potential for further applications is great (e.g. in the fields of agriculture and forestry, culture, development cooperation, inland waters, transport, urban development and georisks) and is growing in parallel with the development of the space component and innovative applications in downstream services.

The portfolio of the operational services is defined in consultation with user groups, and procedures for delineating them from commercially and nationally funded services and developed versions are being established.

The Copernicus Services are operated by the EEA, ECMWF, EMSA, the European Border and Coast Guard Agency (FRONTEX), the Mercator Océan marine forecasting centre, the European Satellite Centre (SatCen) and the Joint Research Centre (JRC) of the EU.

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[1] "In situ component" refers to data collected by non-space-based observation systems, such as data of measurements carried out by buoys or by aircraft. Usually, the relevant services themselves organise their access to these systems. The EEA assumes a coordinator role and concludes agreements on in situ products and services being used by several Copernicus services on a case-by-case basis.

[2] A Europe-wide network of nature conservation areas under the EU Habitats Directive.

The Copernicus space component includes Sentinel missions specifically developed for the requirements of the Copernicus Services as well as “contributing missions” of commercial or institutional partners, whose data are available in the Copernicus programme as a result of procurement or data access agreements. Today[3], there are five Sentinel satellites in orbit. To transmit data, Copernicus uses, inter alia, the EUMETCast dissemination system of EUMETSAT as well as the European Data Relay Satellites system (EDRS).
ESA and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) have assumed responsibility for the Copernicus space component.
With its high performance and operational design, the Copernicus space component has set standards worldwide and currently exceeds the capabilities of the systems operated by other major space nations such as the USA and Japan.

Apart from Copernicus Services, many thousand users regularly access Copernicus products and satellite data and use them in public, commercial and scientific applications.

Today, more than 1.5 petabytes[4] of Sentinel data are delivered to users every month. Recent trends show that this number may rise to 10 petabytes by 2018. These data volumes present us with specific challenges regarding archives, networks and processing. Boosted by rapid developments in technology, additional platforms for data access and use are currently establishing themselves. These are trialling public as well as commercial funding and operating models.

Up to mid 2017, the European Commission has analysed users’ needs as a basis for the evolution of Copernicus Services, particularly with regard to the consideration of Copernicus in the next multiannual financial framework of the EU from 2021 onwards. At the same time, the need for further Sentinel missions is being identified. It is likely that new ESA development programmes are to be adopted for this by 2019.

II. Copernicus in the national and European context

Because of its ambitious climate, environment and energy policy, Germany plays a leading role in global environmental issues at international level, especially in the field of climate change mitigation and adaptation. Germany plays a formative role in addressing European security issues, dealing with migratory movements and in external action missions of the EU. As a member of the G7 and other international forums, Germany is more exposed at international level than other EU countries. Furthermore, Germany is an important European research and technology location.

The great importance of Copernicus for important national policies results in an ambition and responsibility to lead the way for the implementation of the programme within the EU, ESA and other institutions involved. Against this background, Germany has been actively involved in developing the programme’s goals right from its beginning and has promoted the use of Copernicus in Germany intensively.

From the German point of view, Copernicus stands for political sovereignty, dynamic economic growth and an uncompromising assumption of international responsibility in environmental and security issues. Copernicus is the leading integrated earth observation system in the world. It guarantees long-term availability as well as continuity of data and products and provides the EU, its Member States and other programme participants with a unique global information basis and a unique starting position for partnerships.

[3] As at April 2017
[4] One petabyte = 10^{15} bytes

Copernicus contributes to sustainable economic development, national precautionary security measures and the conservation of our natural resources. The systematic observation of the earth system also supports scientific progress, especially in the field of earth system and environmental research. Satellite remote sensing is firmly enshrined in the National Geo-Information Strategy[5] and the German Space Strategy[6] of the Federal Government as a tool for achieving societal, economic, environmental and scientific goals. In a European context, the European Commission underlines the importance of Copernicus as a flagship of European space policy[7]. The Copernicus programme is an important measure to implement these strategies.

III. The Federal Government's objectives

Copernicus will supply reliable, efficient, long-term and global earth observation-based information. Thus, the programme will support the development and implementation of European Union policies as well as policies of the Member States. The Federal Government will pursue the following objectives within the Copernicus programme:

1) Orientation towards benefit and need

- Copernicus Services should reliably provide up-to-date information for the performance of administrative tasks at Federal Government, federal state and local authority level as well as for corresponding downstream services. This information should support decision-makers in managing challenges facing society as a whole, such as global change, nature and resource conservation, the transformation of the energy system and the security of citizens. Transparent and efficient procedures will be required to collect, evaluate and prioritize the actual needs of different, clearly identified user groups. Additional efforts will be necessary to support user groups in integrating Copernicus Services into workflows. German institutions should be effectively integrated into this process to ensure that Copernicus can optimally support specific national and regional requirements.

2) Impetus to growth for the German economy

- German enterprises should develop innovative added value services and business models on the basis of Copernicus data and services and market them at international level. The institutional market as well as the business-to-business segment will play an important role for this.
- Authorities, companies and research institutions should be able to use Copernicus data and services directly. Notwithstanding the evaluation of the programme, this should continue to be enshrined in free and open usage licences. The European Commission should establish an efficient and user-focused European data access infrastructure. Where this is necessary, national infrastructures should complement the data access options and services of ESA, EUMETSAT and the European Commission.
- Copernicus Services should integrate the capacities of the European industry. Companies in Germany should make use of these opportunities in the growing geo-information market. Small and medium-sized undertakings should be addressed specifically when making procurements within the context of the Copernicus programme.

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[5] Nationale Geoinformationsstrategie von Bund, Ländern und Gemeinden, as at November 2015. Available at: http://www.geoportal.de/SharedDocs/Downloads/DE/GDI-DE/Dokumente/NGIS_V1.html.
[6] "Für eine zukunftsfähige deutsche Raumfahrt", as at 2012. Available at: https://www.bmwi.de/Redaktion/DE/Publikationen/Technologie/zukunftsfaehige-deutsche-raumfahrt.pdf
[7] Space Strategy for Europe, Communication from the European Commission, 26 October 2016, http://ec.europa.eu/docsroom/documents/19442

Furthermore, a clear delimitation of Copernicus Services from the commercial data and services market is necessary to promote the development of innovative, commercial added value services.

- The necessary technological conditions for the independent development, construction and operation of the Copernicus space component should be maintained in Europe. Germany, as an industrial powerhouse, should play a powerful role in this process.
- The systematic observations of Copernicus should generate a rapidly growing source of data and information. These data and information should be provided in a comprehensive way, tailored to specific groups. Modern data management and processing technologies should be deployed for this purpose. German enterprises are expected to play a pioneering role in the development and provision of modern system solutions.

3) Boost international cooperation

- Copernicus Services should provide valuable bases for international political action. Germany is committed to actively establishing these services in relevant international programmes and initiatives, for example in programmes set up to achieve the sustainable development goals of the United Nations, in the implementation of the Paris Agreement against global warming or in the Sendai Framework for Disaster Risk Reduction. Copernicus data and services should become available to partner countries of German development cooperation activities, too.
- As a globally unique earth observation system, Copernicus is also of interest to international partners. By granting free and open access, Europe should be setting standards and laying the groundwork for European user groups to have access to non-European systems.
- The capacity and impact of Copernicus should be further increased by integrating non-European data and services in an appropriate way, too. This is especially true for important in situ data from outside of Europe. For this purpose, international partnerships are to be sought, which can be supported and evolved in the multilateral framework of the international Group on Earth Observations (GEO)[8].

4) Involvement of Germany's industry, scientific community and institutions

- Powerful institutions operating in the field of earth observation in Germany should have been integrated efficiently into the European Copernicus Services. This will help to exploit existing capacities in Germany while achieving a close linkage with German users.
- Especially within the context of development activities, the competence of leading German research institutes and universities active in the field of earth observation will be used for Copernicus.
- Commercial and national satellite missions should supply part of the data demand of Copernicus Services and will be effectively integrated into the Copernicus space component via data purchases. In the future, greater use is to be made of long-term purchase contracts.
- As a result of their involvement in the Copernicus programme, German technology companies will be well positioned to compete on international markets. Investments in the evolution of the Copernicus space component will maintain and expand industrial capacities in Germany.

[8] https://www.earthobservations.org/index.php

5) Ensure the sustainability and evolution of Copernicus

- Germany is committed to ensuring financial security for Copernicus as an infrastructure on a long-term basis and to advancing it beyond the EU multiannual financial framework (2014-2020). The EU is to provide the financial resources required for the long-term operation and evolution of Copernicus. The post-2020 allocation of funds has to take account of the budgetary situation after Brexit. Advance decisions regarding the future multiannual financial framework must not be taken at this stage. At the same time, it is necessary for ESA to adopt a programme on the evolution of the Copernicus space component by 2020.
- Due regard is to be paid to satellite data security policy in order to ensure a responsible handling of Copernicus data and services.
- Germany will position itself in the competent EU bodies for an appropriate protection of the Copernicus space and ground infrastructure[9].
- The protection of frequency ranges used for the operation of the Copernicus space component is to be guaranteed.
- Germany is committed to ensuring that the European Commission and the institutions involved (e.g. ESA, EUMETSAT) support the Copernicus programme with demand-oriented continuous research and development measures and advance it if necessary. This relates primarily to the EU Framework Research Programme and the ESA Earth Observation Envelope Programme (EOEP).

IV. Fields of action

To achieve the programme's goals at European and national level, the Federal Government has identified four fields of action that the government departments responsible in each case will pursue within the available budget:

1. Dialogue with user groups
2. Ensure access to data and services
3. Develop new services and technologies
4. Shape Copernicus in Europe

The measures resulting from these fields of action fall under the responsibility of different government departments. To support coordination, concrete national activities will be formulated and adopted in regular **work programmes of the Federal Government**. An initial cross-departmental work programme should be presented in 2017.

1) Dialogue with user groups

The targets concerning the utilization of Copernicus data and services in the public and private sectors cannot be achieved unless German target groups are identified and provided with up-to-date information. This is the only way to adequately integrate all stakeholders in the shaping of Copernicus. Based on the European Commission's activities, the Federal Government will continue to intensify national information activities on Copernicus and will extend them to further user groups. Public institutions from administration and academia as well as enterprises and non-governmental organisations are to be addressed specifically.

To this end, a catalogue of primary institutional Copernicus user groups in Germany will be established. The needs of these user groups at national and international level will be taken into account for defining Copernicus Services. This may include federal ministries responsible for international conventions, programmes and agreements whose implementation can be

[9] Inter alia within the Copernicus Committee and the Security Board (cf. Regulation (EU) 377/2014)

supported with Copernicus. A structured exchange with these primary national user groups should be established and maintained.

The Federal Government will expand the dialogue on the demand and plans of selected institutions, associations and interest groups in a targeted manner. New fora and formats should be developed for this purpose. Groups of users and providers as well as other experts in Germany are to be integrated into coordination and decision-making processes. Issues and requirements regarding new information content are to be included in the development measures.

National Copernicus topic coordinators[10] are to continue to support the Federal Government in its dialogue with professional interest groups. Existing professional networks of national Copernicus user groups should be expanded and to become more transparent in order to continuously and reliably integrate relevant stakeholders in Germany. Further thematic network structures will be built for this purpose. To specifically target further groups, decentralized professional and regional workshops are to be held and relevant bodies of the Federal Government and the federal states (e.g. conferences of departmental ministers, GDI-DE Steering Committee) are to be used.

2) Ensure access to data and services

Technological possibilities as well as requirements in terms of access to data and services are evolving rapidly. At the same time, information technology is continuously providing new data processing options. The Federal Government considers modern and efficient access for user groups from the public and private sectors to be a key prerequisite for the success of Copernicus in Germany. This includes on the one hand data processing platforms located close to the data. On the other hand, the interoperability of different data records, including INSPIRE compatibility, is a condition for widespread use.

The “Copernicus Data and Exploitation Platform Germany” (CODE-DE)[11] pilot project aims to provide easier access to Copernicus data and services for national users. The concept is being developed and linked up in cooperation with national interest groups and European partners. The Federal Government’s aim is to have needs-based access to Copernicus data and services in Germany as well as appropriate capacities for close-to-data processing that supplement European capacities according to national needs. The main objectives to be achieved by this central national capacity are to

- support usage scenarios of public authorities;
- provide “downstream services” based on Copernicus data and services in accordance with coordinated national requirements;
- support the integration of Copernicus data and services into relevant specialized portals and into the Spatial Data Infrastructure Germany (GDI-DE).
- provide and integrate further relevant datasets and services, enable innovative data processing approaches and support the development of innovative, experimental usage scenarios.

CODE-DE is to be evolved on a demand-driven basis. At the same time, relevant specialized portals of the Federal Government will integrate Copernicus data and services into their offers.

[10] See http://www.d-copernicus.de/nationale-fachkoordinatoren-fuer-copernicus and chapter V.
[11] CODE-DE is being realized by the German Aerospace Centre on behalf of the Federal Ministry of Transport and Digital Infrastructure within the context of the Copernicus integration measure of the ministry.

3) Develop new services and technologies

The development of innovative value-added services – tailored to the needs of the market and focusing on national user interests – for specialized applications by public authorities, industry and the scientific community is of vital importance for achieving the aforementioned goals.

The Federal Government intends to promote this in all links of the value chain; in early stages via funding, later by meeting national needs on the market:

- provide funding and other incentives for the development of new methods and innovative applications;
- carry out demonstration projects for evaluating the relevance, quality and efficiency of Copernicus products and services and of downstream applications based on them for tasks of public authorities and selected economic sectors;
- establish pilot services in federal institutions that are based on Copernicus data and services or downstream services;
- procure added value services for remote sensing services on the market, especially by adopting new commercial approaches (anchor clients, public-private partnerships).

Relevant funding and development programmes are already being implemented on behalf of the Federal Government, firstly by the national Copernicus integration measure of the Federal Ministry of Transport and Digital Infrastructure, secondly by complementary funding programmes designed within the preparation for use of the National Space Programme of the Federal Ministry for Economic Affairs and Energy. These programmes are already fostering the demonstration and evaluation of Copernicus Services in pilot projects at national institutions.

There are also other innovation and departmental research programmes like the mFund[12] of the Federal Ministry of Transport and Digital Infrastructure or the ICT funding of the Federal Ministry of Education and Research[13] that promote the development of usage possibilities, in particular with regard to the integration of different data and information systems. Further measures are being implemented as part of departmental research programmes, for example of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety or the Federal Ministry of Food and Agriculture. Some federal states have their own funding programmes for such developments.

These measures are to be continuously reviewed and evolved to progressively address relevant thematic spheres of the Copernicus value chain, including end user groups. Care must be taken to distinguish them from existing or emerging commercial offers.

As part of the National Space Programme, missions and technologies qualifying German enterprises for the competition for construction and development of the Copernicus missions are being funded. If appropriate, technologies developed in Germany are to be included in the Copernicus programme or should be taken into consideration.

4) Shape Copernicus in Europe

At European level, Copernicus is primarily implemented by the European Commission, ESA and EUMETSAT, but also by specialized organisations operating information services. The Federal Government's strategic objectives for Copernicus are a guideline for the representation of German interests at European level. Copernicus is also of great interest for international cooperation, for example within the context of GEO, in United Nations programmes or as part of the German development cooperation. To implement its national goals, Germany should assert and defend its interests in all organisations involved at international level.

[12] http://www.bmvi.de/DE/Themen/Digitales/mFund/Foerderung/foerderung.html
[13] https://www.bmbf.de/de/ikt-2020-forschung-fuer-innovation-854.html

The Federal Ministry of Transport and Digital Infrastructure will develop the German position on Copernicus, coordinate this position within the Federal Government and coordinate and be responsible for representing it at the relevant bodies.

ESA's competencies and proven tools should be used for evolving and coordinating the Copernicus space component in accordance with needs of the EU and its Member States. For this purpose, ESA should also develop the new generation of Copernicus Sentinel satellites with its own resources. Germany will engage in defining these ESA programmes and seek to adequately contribute to these programmes within the framework of the current financial planning.

EUMETSAT is responsible for the operation of the Copernicus atmosphere, climate and ocean missions and is to continue to undertake and, if appropriate, expand tasks in these fields.

Germany supports cooperation between the organisations involved in the Copernicus programme, in particular between the European Commission, ESA and EUMETSAT and other European institutions.

V. Major players and measures

The Federal Government will take steps within the fields of action described in section IV. Copernicus challenges the different players in a number of ways:

The Federal Ministry of Transport and Digital Infrastructure has lead responsibility for the Copernicus programme within the Federal Government. The ministry is responsible for the German participation in the programme design vis-à-vis the European Commission and other European players[14]. The Federal Ministry of Transport and Digital Infrastructure consolidates national interests on key issues of the programme, for example definition of the services, data access, data policy and priorities for the evolution of the space component. The Federal Ministry of Transport and Digital Infrastructure is responsible for the provision of public funds for the German contribution to the Copernicus programmes of ESA and EUMETSAT[15]. At national level, the Federal Ministry of Transport and Digital Infrastructure coordinates national accompanying measures. For this purpose, the Federal Ministry of Transport and Digital Infrastructure, in cooperation with the federal government departments involved, regularly develops a cross-departmental work programme that defines the Federal Government's activities. The Federal Ministry of Transport and Digital Infrastructure itself implements cross-sectoral measures as well as measures falling under the technical competency of the ministry and is thus contributing to the enhancement of the value and the sustainable implementation of Copernicus within the ministry and its executive agencies.

With its research and development activities carried out within the context of the National Programme for Space and Innovation, the **Federal Ministry for Economic Affairs and Energy**, as the coordinating ministry for the aerospace industry, plays a vital role in the German industry's capability of contributing to Copernicus.

[14] Representation on relevant bodies is partly exercised by other government departments or institutions, for example by the Federal Ministry for Economic Affairs and Energy (e.g. Horizon2020 Space), the German Meteorological Service (especially EUMETSAT, ECMWF) or the DLR Space Administration (especially ESA).

[15] No arrangements for future projects have been made in departmental budget 12 as the programme costs are not yet known. The application for and the decision on the allocation of public funds for the German contribution will be made during the annual procedure for drawing up the plan.

Federal government departments (Federal Ministry of Education and Research, Federal Ministry of Food and Agriculture, Federal Ministry of the Interior, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Federal Ministry of Defence, Federal Ministry of Transport and Digital Infrastructure, Federal Ministry for Economic Affairs and Energy, Federal Ministry for Economic Cooperation and Development and Federal Government Commissioner for Culture and the Media) support the institutions within their relevant area of competence in using Copernicus data and services for department-specific tasks. For this purpose, they identify and support expert contacts and contribute to the Federal Government's positioning. Upon request, integration, demonstration and development measures with a reference to Copernicus can be funded by the department responsible in order to establish a specialized use of Copernicus data and services. Furthermore, the competent federal government departments identify the needs of and the potential inherent in international conventions, agreements or programmes that are to be supported by Copernicus.

National Copernicus topic coordinators, which were appointed by the Federal Government through a decision of the Interministerial Committee for Spatial Data (IMAGI)[16] and which are hosted by specialised German authorities within the responsibility of the different ministries, support the Federal Government in informing, coordinating and connecting national players. These coordinators serve as contact persons for German users regarding technical questions on relevant topics of the competent division. They pool, prepare and distribute specialised information, carry out topic-specific workshops or events and support German delegations on the Copernicus Committee and the Copernicus User Forum at European level.

DLR Space Administration monitors the Copernicus Programme for the Federal Government on the basis of the "Act governing the transfer of responsibilities for space activities"[17] and on behalf of the Federal Ministry of Transport and Digital Infrastructure. This includes support and advisory activity in national Copernicus coordination as well as monitoring of the Copernicus programme of the EU, including delegate functions in the associated bodies as well as the representation of interests in the Copernicus programmes of ESA. DLR Space Administration also supports information and public relations activities in Germany. As a project management agency to which statutory powers have been transferred, it carries out support measures relating to Copernicus on behalf of the Federal Government. In its responsibility for implementing the National Programme for Space and Innovation, it establishes appropriate references between Copernicus and national mission and usage activities on behalf of the Federal Ministry for Economic Affairs and Energy.

[16] Interministerieller Ausschuss für Geoinformationswesen
[17] Gesetz zur Übertragung von Verwaltungsaufgaben auf dem Gebiet der Raumfahrt (Raumfahrtaufgabenübertragungsgesetz - RAÜG) of 8 June 1990