

The Cuban Scientific Advisor's Office: Providing science advice to the government

The Scientific Advisor's Office **_Ofascience_** since it was conceived; it has been addressed to facilitate a high advisory level in scientific issues of great importance and advanced technologies. It provides analysis and independent expertise to the State's Council **_from now own Entity_**; which represents the National Assembly of the Parliament between the sessions' period, it represents the Cuban State both, nationally and internationally, and it implements a group of legislative functions as well as some executive governmental ones. It's integrated by 31 members and chaired by the President of the Council of State and Ministers, who at the same time is the Head of the Government.

The Ofascience was founded in 2004, had its genesis in the first years of last decade; in that period, a deep and detailed analysis of the international experiences and national potentialities of this kind organization connected to the structures of Chair of States or Government was carried out. In these initial years, ideas were originated, experiences were studied, and work methods that served of base for the settlement of the content and the scope of the Office's activity were applied. From 2008, the Ofascience got into a reinforcement and maturity stage in its advisory mission. From 2012, it got completely integrated to the current state reorganization of science and innovation system, derived from the updating of the Cuban socio- economic model.

Its main goal is to provide the best possible science and technology advice for policy as well as policy for scientific-technological development to the President and the main decision makers, guaranteeing the reliability of the information provided

Functions

Among the functions and responsibilities of the Scientific Advisor Office to the **Entity**, it shall be mentioned:

To **offer** advisory on the scientific advances that could make a contribution to the development of science, technology, and innovation (STI) and to foster, through the review of national strategies, their coherence and efficiency in correspondence with the national development goals;

To **complement** the State institutions, with STI policies, and the review and upgrade of their strategy in short, middle, and long terms;

To **monitor** scientific advances and emerging technologies and to **support** the introduction of new knowledge and technology areas, through the active participation in the activities of the STI System or when it is required, providing Chief Management and Follow up of Advanced Projects;

To **provide**, the **Entity** and the general public, with an objective understanding of the problems scientific bases for an appropriate interpretation and take of decisions, as well as the enhancement of the country's culture on science and technology;

To **give** the State the complementary scientific information, useful for the handling of environmental crisis and natural disasters at national and international levels;

To **propitiate** new forms of relationship between university-research-production, leveraging STI's capabilities and expanding cooperation and close coordination among them;

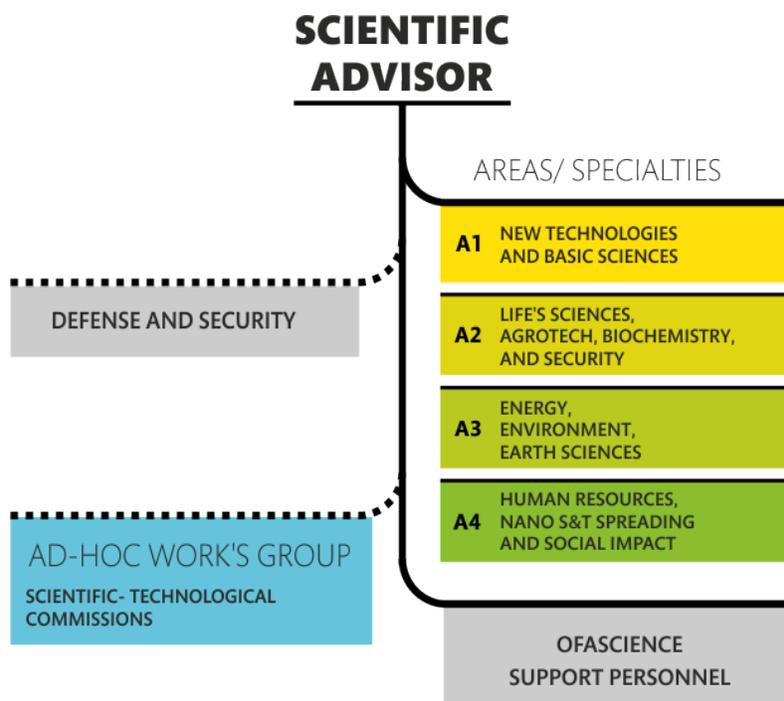
To **offer** advisory for the preparation of educational projects at different teaching levels, as well as, in the processes of creation of new educational profiles, according to the needs of professional formation in the country;

To **promote** necessary international links and collaboration and to encourage formation and training of the human resources of excellence needs.

Organization

For its functions performance and in order to guarantee the information flow and quality; the Advisor's Office is divided in areas that range the modern sciences and cutting-edge technologies, such as: **(CHART I)** New Technologies and Basic Sciences; Life Sciences, agrotech, and biochemistry Security; Energy, Environment and Earth Sciences, and the support personnel. Besides, the Scientific Advisor activities are supported by specialized temporary Scientific-Technological Commissions and Ad-Hoc Work Groups in different thematic of their expertise. These groups have a multidisciplinary composition, with a deep scientific knowledge that makes possible a reliable and reasonable advice, which is assessed, when needed, in a Scientific-technological Council previous to its submission.

Chart I. Ofascience Flowchart



The Scientific-Technological Commissions and the Ad-Hoc groups are integrated according to the topic to be deal with experts of different entities that provide advisory: the Academy of Sciences of Cuba (ACC), the Universities, the Ministries, among others, of Science, Technology, and Environment, Higher Education, Informatics and Communications, and Public Health; as well as the

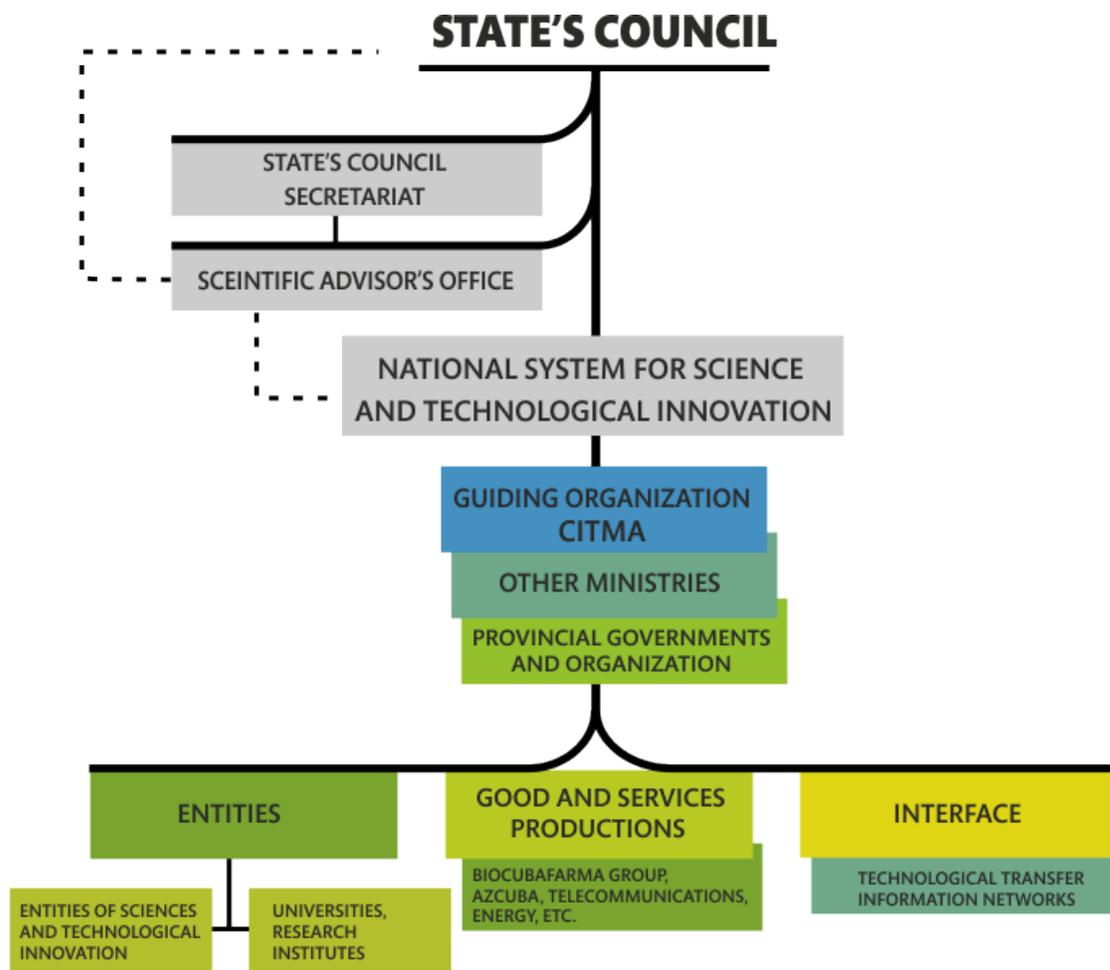
Scientific Societies, and the Research Entities, such as _the Center for World's Economy Research, the Nuclear and Advanced Technology Agency (AENTA), and the Biotechnical Scientific-Productive Complex BioCubaFarma.

These temporary groups carry out researches and elaborate reports on specific topics, which are presented to the **Entity** for their understanding, discussion, and decision making. At the same time, in coordination with the media, the popularization plan _through courses' organization and television messages, workshops, seminars, documentaries, and debates_ is designed and fulfilled for the public understanding and acceptance of the science and the new technologies, such Nanotechnology, Biotechnology, and the Information and Communication Technologies.

Science Institutional Arrangement

Ofascience produces information of excellence and comprehensive studies that are delivered throughout all the stages of policy and development to guarantee the application of the scientific efforts in benefit of the nation (**CHART II**). With this purpose, it provides advisory to the **Entity**, the National Assembly, the Entities of the STI System, starting by the regional government.

CHART II. Flowchart



The STI System is the organization that materializes the approved scientific-technological policy by the **Entity (CHART II)**. It composed by the Ministry of Science, Technology, and Environment (CITMA) as the guiding organization of the system, other ministries, together with the STI entities, the universities, the productive sectors, the enterprises for goods and services and the so called interface entities _as the scientific-technological information networks and technologies transfer. This system is supported by auxiliary offices of metrology, normalization, intellectual property; as well as the Academy of Sciences, and the National Science Union, among others.

Advisory activities

Among some topics in which the office has centered its activity in this decade are:

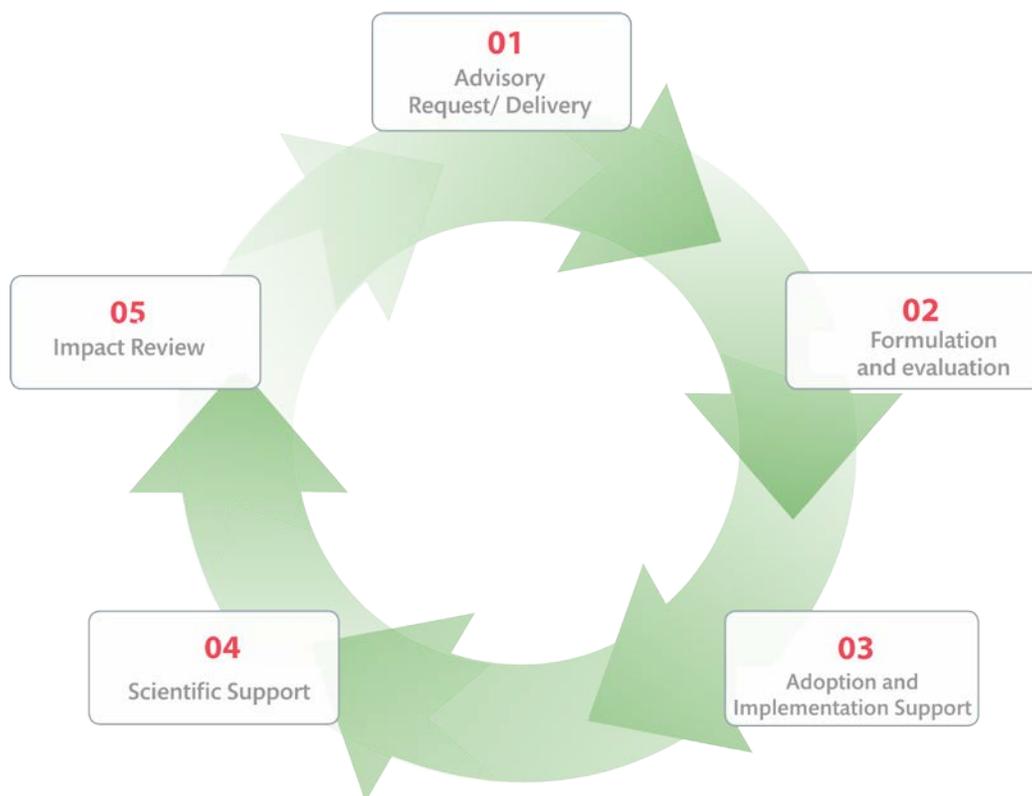
1. Advisory for the introduction in the country of new ways of innovative industries based on Knowledge and modern technology like it is the example of nanotechnology;
2. Advisory for technical evaluation of new technologies and the information on scientific advances in different areas.
3. Advisory to foster new forms of relationship university-research-production.
4. Advisory, linked to education, for preparation of educational projects for different undergraduate and postgraduate teaching levels, as well as, for transformation of educational institutions, according to the professionals' formation needs in the country.
5. Assessment and elaboration of reports for the normative processes, national strategies, and measures linked to the development of new areas of science and technology.
6. Evaluation and alert in topics that are national priorities and, that for their impact and risks, could affect or put in danger the population (climate change, nanotechnologies security, nuclear accidents, etc.).
7. Spreading and improvement of the information and the scientific processes for national specialist, through the organization of debate spaces like workshops, seminars, events, and international conferences.
8. In International affairs, the advisory work is addressed to identify excellence scientific centers with potentialities for the cooperation in high-priority areas.

Work cycle

The outline or work cycle the Office begins from two moments (**CHART III**):

- The demand or advisory request and the offer or advisory delivery to alert and upgrade the information

Chart III. Work outline



From the offer or advisory demand, experts' work groups and linked organizations are summoned up for formulation and experienced evaluation; subsequently, they elaborate reports where the scientific data, conclusions and recommendations are presented clearly. These reports are presented to the policy decision-makers and, if requested, to parliamentary hearings for the corresponding measures of implementation in each case. Supported in the technical and scientific committees of the national science system, the implementation begins, and finally the impact is evaluated.

Weaknesses and strengths

For the evaluation of the advisory impact, an effective system is not operative yet, which is a weak point in our model. Presently, there are external factors that influence the effectiveness of the advisory work, as the current re-dimension of the STI entities, the reorganization of the whole STI System, and the gaps in the legal regulation ground; which affect the interface and the communication among entities, enterprises, and research centers. However, the work of the Office is supported on its strengths; among them, it is important to mention, the multidisciplinary character of the Office, which is integrated by experts with profound scientific knowledge in the different branches. This, with the support of the Ad-Hoc groups and interdisciplinary commissions, guarantees a wide participation of all science areas. On the other hand, the Scientific Advisor, based on a broad professional career and expertise, provides the State's Council with direct advisory characterized by its objectivity and impartiality. In addition to that, the existing close relationship

between the political development and the strategy of the scientific research increases the effectiveness of work performance.

Getting ready for the future

The scientific advisors, for their knowledge, experience, and prestige, make that their work to constitute an essential feature of the scientific-technological future perspectives; therefore, an international network of scientific advisors well-known nationally and internationally would be crucial for the support and use of science in the policy formulation. It would allow the exchange and validation of scientific information and it would strengthen the importance of the advisory in the alert, to those who make the decisions, about the problems, opportunities, and current dangers linked to science, technologies and environment. It would also be a space to define the best characteristics of these models, to estimate their impact and improve them.