What are the perspectives for technology platforms in the field of neuroscience?

Technology platforms have undergone a huge development, especially over the past decade. In 2004, the European Commission created a group entrusted with studying the development and deployment of a common research agenda (1). Of the 23 platforms (active or under imminent activation) identified, only two related to medicine and the content of one of these (the one devoted to nanotechnologies) was, in any case, strongly technological/industrial in nature. Most of them concerned industrial sectors (e.g. textiles, aviation, etc.) or services (maritime transport, rail transport, etc.). The diversity of the areas covered goes some way towards explaining the differences between the various platforms and the non-uniqueness of their definition, organization and roles (2). This applies particularly in certain sectors such as medicine, where the boundaries between organizational and technological aspects are sometimes unclear.
The characteristics, objectives and organization are often defined by the proposing body, particularly taking into account the parties involved, and their national or international character (3).
The European Community has been a major promoter of the creation of technology platforms.
The European Technology Platforms (ETPs), often incorporated into framework programs, are generally informal, industry-led private fora that benefit from the participation of academic institutions and research organizations. Governmental organizations (national or European) are not direct participants, but rather engage in active exchanges with the ETP stakeholders, informing them of available financial instruments. ETPs do not carry out research activities themselves, but instead support research indirectly, contributing to the development of plans for research funding or creating infrastructure or technology-sharing links between participants.
Their function, as organized aggregations, and their close relationship with industry are two important distinguishing features of ETPs. Even though, as already said, ETPs are not themselves research organizations, they end up playing a very important role in promoting research and are fundamental in studies involving the collaboration of numerous centers or in which the sharing of technology is an important aspect. Some sectors, like medicine, given their transversal nature, have enormous potential for development in this regard.
The neuroscience world, on account of its complexity and the increasingly important role of advanced technology within it, is perhaps one of the most promising in this sense.

Italy's IRCCS (scientific research and care institutes) operating in the neuroscience field have felt the need to create a network, identifying a number of areas in which to combine their skills and expertise. The creation of technological platforms (some, such as biobanks, research networks, etc., already exist and are operational) can play a very important role, acting as a bonding agent capable of producing significant indirect effects on research and its capacity to fund itself. In fact, the sharing of advanced technologies helps to reduce the costs and therefore increase the productivity of a project. Another very important aspect is the need to collect very large patient series, and this is another area in which the creation of technological platforms in the neuroscience sector could play a key role, also impacting positively on the time needed to conduct a study and therefore increasing the credibility and appeal of a project seeking funding. Even leaving aside the epidemiological impact of the populations studied (the difficulties in conducting studies on rare diseases are well known), this is a very important aspect. Personalized medicine, for which the field of neuroscience offers very interesting prospects, requires the identification of markers of disease progression or response to treatment, and the study of large populations, and all this will only be possible through the deployment of national and European technology platforms.

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1. Technology platform from definition to implementation of a Common Research Agenda (21/09/2004). (http://www.cordis.lu/technology-platforms).
2. Innovative medicine for Europe (http://europa.eu.int/comm7research/fp6/index_en.cfm?p=1_innomed).
3. Commission staff working document strategy for European technology platforms: ETP 2020 (ftp://ftp.cordis.europa.eu/pub/etp/docs/swd-2013-strategy-etp-2020_en.pdf).