

CENTER FOR TECHNOLOGY AND SOCIETY (ZTG): SCENARIO, LESSONS, AND LEARNINGS¹

Graziela Ferrero Zucoloto²

ABSTRACT

This paper presents the institutional characteristics of the Center for Technology and Society (Zentrum Technik und Gesellschaft – ZTG), a research center at Technische Universität Berlin (TUB). From its foundation to the present day, the center has stood out for its interdisciplinary and transdisciplinary character of the research agenda.

Keywords: German research institutions; ZTG; research team; research funding.

1 ZTG INSTITUTIONAL STRUCTURE

The Center for Technology and Society (Zentrum Technik und Gesellschaft – ZTG) is a central research facility at the Technische Universität Berlin (TUB)³ established in 1995 to enable research beyond disciplinary boundaries. It carries out projects with researchers from various fields, along with individuals, groups, and institutions from civil society, business, and government. Although it was created to facilitate interdisciplinarity at TUB' departments, ZTG's role goes beyond today, since it has its own research areas, acts as a project leader, and establishes partnership with other institutions.

The ZTG's goal is to work on interdisciplinary and transdisciplinary research projects in close cooperation with subject areas. This includes the task of introducing, at an early stage, social-scientific aspects and questions into the processes of technology development and implementation.

The following definitions are the conceptual basis:

- *interdisciplinary work* as an approach according to which several equally valued disciplines address a societal problem by means of an overarching question, with the aim to integrate heterogeneous bodies of knowledge into an overall result from multiple perspectives; and
- *transdisciplinary research* as the equitable inclusion of practical perspectives into problem-oriented research. The challenge lies in how the legitimate views of laypersons (stakeholders or “ordinary citizens”) can be integrated into the specifically academic production of knowledge.

1. This text is a result of my experience as a visiting researcher at ZTG. The information was obtained from the institution's website and through interviews with nine researchers of the Center.

2. Researcher at the Department of Sectorial Policies and Studies, Innovation and Infrastructure (Diset) at Ipea. E-mail: <graziela.zucoloto@ipea.gov.br>.

3. It is directly linked to the TUB's presidency.

1.1 Research areas

ZTG presents six thematic and three cross-sectional areas, each represented by a head and a deputy, both elected within each area. These divisions function like a matrix structure, with thematic priorities as one element of organization, and methodological priorities as another:

TABLE 1
Research and cross-sectional areas

Thematic areas	Cross-sectional areas
Climate and energy	
Land use and consumption patterns	Sustainability research
Mobility and space	Participation research
Security - Risk - Privacy	Governance and innovation research
Social movements - Technology - Conflicts	
Science studies	

Source: ZTG.

1.2 Team

Around fifty people are regularly involved in the work at the ZTG as project leaders, research assistants, and scholarship holders. The team comprises researchers from a wide diversity of academic backgrounds, including civil engineering, psychology, economics, sociology, design, political science, history, German studies, architecture, urban and rural planning, cultural science, communication science, computer science, and so on.

ZTG has four permanent positions paid by TUB: two scientific managers, whose mandate is not predefined, and two administrative officers. The other researchers are in temporary positions, working exclusively on ongoing projects.

Researchers' remuneration depends on the number of hours they work, and not on the number of projects they participate in. In general, researchers work on only one project, and many of them work part time. Besides the number of hours, their educational level (master, PhD) and their years of experience as researchers are also taken into account to define their remuneration.⁴ Although their positions are temporary, their rights, such as vacations, retirement and health insurance, are guaranteed.⁵

1.3 Projects

Research is predominantly carried out within third-party funded projects. In the recent period, ZTG has been involved in 25 to 30 projects, which last from one to five years – two or three years are the most common periods. And competition is high: the success rate of applications ranges from 10 percent to 30 percent, according to several researchers. The selection is not blind, so the success rate does not only depend on project quality: reputation, experience as a researcher, and a good network are also important to have projects approved, since these qualities increase the chance of a successful execution.

4. The remuneration of public servants is found at: <<https://bit.ly/35dPPhp>>.

5. As a formal worker in Brazil, not as a fellow.

However, this percentage can be better if researchers focus on calls with higher chances of success, if they have good partners, and, in some cases, if they are part of projects led by other institutions. Although many proposals are not approved, some researchers consider their elaboration important, as it enhances knowledge and helps establishing networking.

Project results include the delivery of previously defined products, which always contain a public final report, but also sometimes articles, books, discussion papers, manuals, and regular oral communications at conferences. However, the focus is generally not to write scientific papers to be published in a peer reviewed magazine, or produce “sociological theory” or “scientific excellence”. “We are not hired to write a paper, but to solve problems”, a researcher emphasized.

The support to technology development may also be one of the results, in which partners create devices based on the design and characteristics suggested by the ZTG team, such as a software for simulation, analysis and interorganizational processing of cascade effects and a software for participative integrated technology development.

1.4 Funding

Most part of the ZTG budget comes from projects, which represent around 2 million euros per year. From TUB, besides the building, the cleaning, the permanent staff, and some equipment, the Center receives a small amount of money – around 25 thousand euros per year –, which can be used, for example, to pay an additional administrative staff. The Ministry of Education provides an extra overhead to buy, for example, furniture, material, and equipment.

Most part of projects is funded by public sources through public calls. The main funders are the Ministry of Education and Research (BMBF), other ministries (Economy, Energy, Mobility), and the European Commission (EC), which generally require the involvement of different institutions, and, in the case of the EC, a partnership between institutions from different countries. Rules differ according to supporters. When many partners, especially international ones, are involved, the bureaucratic management of projects becomes extremely complex, and resource use can be restricted.

The ZTG can receive funding from private companies, but this rarely happens, possibly due to their low interest in social science research. Even when private companies are involved, the scientific aspect and the interests of the different players and partners are the key goals of the project – more directly, there is never marketing for private companies.

1.5 Partners

Partners, the agents affected by a certain problem (such as users, public organizations, companies, and NGOs), are essential in the proposal and development stages of projects. During the application stage, they need to be contacted (sometimes it is mandatory) and have their availability to participate confirmed by means of a letter of intent. Given the importance of partners, the long-term network established by researchers thus becomes an essential asset for project procurement and execution.

1.6 Bureaucracy

A specific department at TUB concentrates project resources and remunerate researchers. To access these resources (i.e. to buy an airline ticket with project money), researchers deal with this department, and there is no significant staff to support them. Given that researchers themselves have to deal with a variety of project-related bureaucratic issues, how important is it in their time? In this case, answers diverge. For some researchers, the

time used to deal with bureaucracy – resources to travel, conferences, etc. – is excessive and higher than that observed at other centers; for others, these tasks do not have such a significant impact.

At ZTG, unlike some other institutes, there is no staff focused on finding new calls and writing projects. This activity is up to researchers and requires considerable time and energy.

1.7 Monitoring

Projects funded by the BMBF include a periodical meeting with the project controller, an institution linked to the BMBF with scientists and specialists responsible for evaluating the work progress and present suggestions if necessary. These meetings (every six months) are considered important because all partners take part and define the following steps together. In other projects, evaluation occurs after one year; after that, the sponsor releases the rest of the money. Internal project evaluations are also carried out at ZTG, but informally.

There is some flexibility for resource reallocation (10-20%), but most part of expenditures is determined before the project is approved, so it is important to define well the resources necessary before starting a project.

2 MAIN CHALLENGES AT ZTG

2.1 Following the money

Since funding institutions linked to the German government or the European Union ultimately define research guidelines, does the need to “follow the money” preclude the inventiveness of researchers? According to several researchers, considering the different types of programs and supported themes, it is possible to include their topics and interests into existing proposals. However, this requires intense search among the programs available and adaptation of their ideas.

2.2 Temporary contracts

In Germany, temporary contracts funded by national or international institutions are the pattern for around 90% of researchers. Since these projects last on average three years, researchers have also to look for new opportunities – finding new calls and writing proposals – while they are working on their current projects, which demands considerable time and energy.⁶

This problem is well discussed at the article “Beruf & Karriere”:⁷

Fears of the future and of existence are nothing unusual among German scientists who belong to research institute work or to the academic middle class. This includes all academic and artistic employees at universities that do not hold a chair. Nine out of ten of their employment contracts are ... limited in time, more than half of which have a term of less than one year. (...) The argument that it keeps the system dynamic and creative makes it unfounded. It rather leads to appropriate behavior, because no one could afford exploratory risk.

In this system, most of the money goes to competitive research projects. That is why the “Network for Good Work in Science” has launched the campaign “Frist ist Frust”, demanding that 100% of the funding from the

6. Süddeutsche Zeitung, N.142, Samstag/Sonntag, 22./23. Juni 2019. Originally in German, translated to English by the author of this note.

7. See note 6.

next Higher Education Pact, which goes to higher education institutions to finance additional study places, be used to create permanent jobs.^{8,9}

Although instability is considered the main problem to all researchers, learning and flexibility (for example, home office) are important advantages.

2.3 Finding calls and writing proposals

A staff to help researchers to find calls and write proposals would help them save time and energy that could be devoted to their own projects. However, at the moment there is no way to provide resources to hire such professionals.

3 KEY LESSONS

3.1 The relevance of partners

“Don’t work in an ivory tower”, said one of the researchers. “Listen, listen, and listen before defining your project steps”.

The inclusion of partners is central in every project. Since the beginning of proposals, researchers aim to understand their problems and demand and discuss possible solutions. In several projects, the formal inclusion of partners is mandatory. In transdisciplinary problem-oriented approaches, both knowledges – the academic and the practical – are equally relevant.

By doing so, ZTG creates a broader knowledge base for technological development processes (demand analyses or participatory design), for technology-related decision-making processes, or for complex negotiating and regulating processes (multi-level governance or participatory governance). The goal of this procedure is to attain better results and/or increase the legitimacy of negotiation or decision-making process.

These practices are not so commonly observed in some Brazilian projects and institutions. Researchers here often define their agenda and develop their projects based mainly on articles and studies, but without directly interacting with users and the society.

3.2 Technological development

ZTG not only presents study results in reports and articles. It also initiates and supports the development of innovative technologies to solve several problems, especially in the area of inter-organisational communication. It does not only build devices, but presents the concepts and needed functions behind them.

Methodological components include the application of usability tests and acceptance research at an early stage of technological development, as well as the assessment of future relations between technological potential and societal needs (scenarios and social experiments). A software-based method for integrated

8. About this discussion, see also Ullrich, P. In itself but not yet for itself – organizing the new academic precariat. In: Baier, W.; Canepa, E.; Golemis, H. (Eds.). *The radical left in Europe: rediscovering hope*. London: The Merlin Press, 2019. Available at: <<https://bit.ly/2rZsku9>>.

9. In the case of university professors, which are not funded by third-parties, the situation is even more complicated. Science Temporary Employment Act allows professors a maximum of twelve-year term, six plus six years after graduation. For each child, the time span is extended by two years. After that, if they do not find a permanent position, they cannot continue to teach.

technology development makes it possible to incorporate ethical, legal, social, organizational and economic requirements into the design of technology at any point in the innovation process, from the initial idea to implementation and diffusion.

3.3 International network

The interaction with foreign researchers and the elaboration of joint projects is essential to add knowledge and generate new perspectives on problems and solutions.

In short, a research center cannot remain closed in on itself, defining its agendas based only on demands and academic knowledge nationally generated. It needs to listen to other players, include other users in its activities, and interact with agents from other countries, in order to increase the impact of its research and the creativity of the solutions proposed.