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Abstract: In June 2020, the Latin American Thought Network on Science, Technology and Society (PLACTS Network) was created. Made up of members of the scientific, technological and university sectors, it promotes an agenda that puts knowledge, resources and the S&T complex in projects aimed at solving the needs and problems of our society. It aims to participate and influence the decisions taken in the management of S&T organizations, contributing with proposals and ideas that contribute to build a project of a popular, egalitarian, democratic, sovereign, supportive country, with a feminist and federal perspective. It rescues and recovers, in projects and concrete actions, the contributions of what was historically PLACTED (Latin American Thought in Science, Technology, Development and Dependency). This first document describes the main characteristics of the dominant techno-scientific dynamics at a global level and it also presents some proposals to promote a technological scientific style of its own in our country and the region.

Keywords: RED PLACTS, PLACED, Argentina, Science and Technology, Scientific and Technological Policy.

SCIENCE, TECHNOLOGY AND GLOBALISED CAPITALISM

One of the historic challenges that Argentina in particular, and Latin America and the Caribbean in general, face is linked to the integration of science and technology into national and regional development and the construction of a different model of society.

At the present stage, capitalism is characterised by a global economic and social order in which the delocalisation of production in global value chains converges with a speculative financial logic. The mode of accumulation it promotes, together with the accelerated development of new technologies, generates an enormous impact on production, the environment and society's quality of life. An enormous deployment of resources and an incessant development that feeds, under the paradigm of the free market, an unjust economic, political and social system that condemns millions of human beings to hunger, misery and structural underdevelopment.

Against this background, there is a close interrelationship between science, technology, innovation and production which, with the leadership of multinational corporations, has produced great changes in the processes of generation, circulation and use of knowledge. Thus, science and technology, together with the exploitation of other knowledge, have been transformed into one of the central engines of capital accumulation in this stage which, among other names, has been labelled "cognitive capitalism".

Using a concept proposed by Oscar Varsavsky, a *scientific and technological style* has thus taken shape, which contributes to programmed deterioration, planned obsolescence, exacerbated consumerism, growing militarisation, environmental degradation, economic inequality and social injustice. New forms of social control are also emerging through information technologies. "Surveillance capitalism" is weakening democracies by conditioning citizens' choices and perceptions of reality. It is about the possibility of impacting on the subjectivity of individuals and inducing changes in human behaviour. And, although there are actors who propose other uses for these technologies, the bias in the design of these systems and products promotes a type of material and subjective life that is closely linked to the power relations deployed by current capitalism.

In this scientific and technological style, processes such as the following are evident: (a) a growing competition between core countries and the hyper-concentration of resources in very narrowly defined subjects, in which there is an immediate two-way interrelationship between basic research processes and the commercial product (for example, in areas such as biotechnology, photonics, nanotechnology and materials science); (b) a growing internationalisation of higher education according to business, competitive, productivist and mercantile criteria; c) a new international division of scientific labour, based, among other things, on the delocalisation of some activities to the periphery through the delegation of specialised tasks within the framework of international networks of "cooperation" and funding (strongly conditioning the already limited degree of autonomy that peripheral countries have to set the scientific agenda).

This incomplete list of some contemporary trends in science and technology seems to confirm what Varsavsky pointed out fifty years ago: science and technology do not create all kinds of instruments, but only those that the system encourages them to create. The distribution of scientific effort is determined by the needs and rules of the game imposed by the system, and those needs are today those of globalised capitalism.

COVID-19 PANDEMIC AND GLOBAL INEQUALITIES

The emergence and spread of SARS-CoV-2 is an expression of the mode of production, circulation and consumption of goods and services under the logic of globalised financial capitalism. There exists a proven link between the recurrent emergence of epidemic diseases and the overexploitation of nature - by industrial and technoscientific methods - to supply global value chains. This is the main factor in the fragmentation and disturbance of environments on a global scale.

In addition, the health and economic crisis resulting from the pandemic has accentuated structural inequalities, exposing the critical social situation in which we find ourselves. This is clearly palpable in the case of women, since they have had to bear greater burdens of care, suffered the loss and precariousness of work sources, and face increased vulnerability and risk of domestic violence and harassment. The pandemic, and the consequent global economic crisis, have highlighted the dynamics that were unfolding within and among our societies. Inequality gaps between countries, as well as social polarisation within both rich and poor countries, have been accentuated in the pandemic scenario. But COVID also exposed other expressions of inequality. For example, by accelerating and exposing new dimensions of inclusion and exclusion based on access to technology, access to public and private infrastructure (such as the internet) and family and household conditions.

On the other hand, isolation precautions have increased the digitalisation of our lives, strengthening platform capitalism, e-commerce, companies that profit from data and distance education. Large corporations in the info-communication sector have made fortunes from the pandemic. At the same time, we are witnessing the resurgence of the struggle between the great powers for supremacy in the technologies of the so-called Fourth Industrial Revolution (artificial intelligence, internet of things, fifth-generation telecommunications, Big Data, quantum computing, "green" technologies, etc.), producing a scenario of even greater uncertainty in relation to peripheral economies.

In this context, a large part of humanity places its hopes on vaccines as the solution to the pandemic, in the belief that they will be accessible to all human beings. However, in parallel with the dizzying scientific advances we are witnessing, it is clear that, unfortunately, competition continues to prevail over cooperation. Agencies in the core countries, transnational biotechnology companies and pharmaceutical oligopolies are competing to achieve results in an accelerated process that would normally take years. The logic of production in which they are immersed means that the possible solutions are for these sectors a business and, for the countries, a factor of strategic power in symbolic and geopolitical matters. On the other hand, will the shortening of protocolised times for the generation of vaccines make it possible to generate them without long-term side effects?

In this context, we at the PLACTS Network maintain that it is essential that these developments in vaccines become a global public good without patents or profit, as proposed by various international organisations and the Covax initiative (Covid-19 Vaccine Global Access). Furthermore, we believe that addressing the inequalities highlighted by the pandemic is the central challenge that both the scientific and technological system and the strategic efforts of the State must have as a priority. And, on the other hand, a process of reflection and critique on the current dynamics of development and the way of life they imply is more necessary than ever, thinking and rethinking strategies that allow us to build relationships between populations, common goods, and different cultures in terms of justice and equality. This is a process in which our region can and must have a leading voice. The PLACTS Network intends to contribute to this aim.

SCIENCE AND TECHNOLOGY IN LATIN AMERICA AND ARGENTINA

The techno-scientific dynamics described above have specific characteristics in peripheral countries. It is expressed in a scarce integration between public policies, social needs, S&T resources and production, and in research agendas that are largely camouflaged with those of the core countries. In this way, they are disconnected from local socioeconomic realities, reinforcing an endogamous academic culture that feeds back said disconnection.

On the other hand, in some Latin American and Caribbean countries there are recognised trajectories linked to scientific management, but there is a weakness in technology management capacities. There is also a persistence and, in some cases, a sharpening of scientism which - to use Amílcar Herrera's categories - contributes to the implementation of "implicit policies" that block any change introduced from "explicit policies".

On the other hand, the business culture, especially in those branches that respond to globalised logics, tends to be refractory to the objectives of national development, growing equity and wealth redistribution. And in the political and business sectors, and even among workers' and popular organisations, the idea that science and technology are neutral and can serve any political project is widespread.

Likewise, since the 1990s there has been an emphasis in the region on innovation-based strategies, as a process to incorporate new technologies and knowledge into companies, with a view to improving their competitive position or as a product to integrate into global value chains controlled by transnational corporations. This policy has been a failure mainly because in the peripheral countries, the actors involved - and particularly the entrepreneurs - do not respond as envisaged in the innovation manuals coming from the core countries.

There is also a lack of integration and the absence of a view towards strategic south-south alliances. For this reason, we believe that a profound revision of the framework of thought from which science and technology policies are elaborated is required. Not only with regard to their design, implementation and evaluation, but also, and especially, from the conceptual framework within which they are developed. For example, a critical analysis needs to be made of the real impact of approaches such as innovation systems, cluster policies and other mechanisms unthinkingly transferred from experiences in core countries. It should be a matter

of debate that these "recipes for development" have come from the hand of international organisations and their adoption was made a necessary condition for receiving financing from them.

These weaknesses in scientific-technological activities and their disconnection from the local socio-economic reality in peripheral countries are not the consequence of ineptitude, inefficiency or incapacity, but rather the determining and constitutive obstacle is geopolitical. In the case of our region, it is yet another manifestation of the cultural and economic dependence in which Latin America and the Caribbean find themselves in the international capitalist order. This subordination is supported by global governance organizations (IMF, World Bank, WTO, OECD). This subordinate position is reinforced by the interests of the concentrated local, financial, extractive and low-raw material processing fractions.

These actors strongly shape scientific and technological practices by directing research agendas, institutional articulation and productive policies through their financing. Moreover, given the widespread recognition that many of the proposals arising from these spaces have not achieved the expected results, the systematic restriction of local resources for these activities has left vacancies that have been exploited by core countries. The challenges and progress in defining their own research agendas are critical given this framework.

Thus, in our country, we have a S&T complex with great capacities, but which has historically served mainly to produce - directly or indirectly - human resources and research for the core countries (brain drain, foreign definition of research agendas, dominant publication spaces, blind technology transfer, etc.). At the risk of sounding repetitive, let us say that S&T policies have historically been supply-driven, with agendas defined by the scientific sector at the request of international organisations and based on themes and trends in core countries. In other words, an agenda defined on the basis of their criteria of importance and their needs, and not those of our countries.

But there have also been, at different stages, clear examples that show that when the state focused on sovereign public policies, the results were successful. This is demonstrated by nuclear, aerospace, and satellite developments, the federal fibre optic network, public drug production, and other strategic developments and projects (for example, more recently, testing teams for COVID-19). However, these paths have been systematically frustrated or have often coexisted in tension, either with policies contrary to these developments, or with implicit policies that contradicted them. Nevertheless, they are undoubtedly niches of autonomy that need to be strengthened, expanded and taken as a reference.

ANOTHER SCIENTIFIC-TECHNOLOGICAL STYLE IS POSSIBLE

Recovering the ideas of PLACTED, we can affirm that the scientific-technological style of globalised capitalism is not the only one possible, let alone the adequate one to build a better society and a socially, economically and environmentally sustainable model. Solving the problems of our country and the region requires, in the first place, setting our own objectives. And, in doing so, we must also modify the logic of the expected responses, considering long-term effects and their articulation with other objectives and needs. When that happens, we find that the technologies offered to us by core countries do not usually provide answers to many of the practical problems that these objectives force us to solve, and we must have a determined creative attitude. This implies building our own scientific-technological style.

With the conviction that this is possible, in the midst of the pandemic we have created the Latin American Thought Network on Science, Technology and Society (PLACTS Network). We have formed it with the aim of promoting a S&T agenda set and willing to solve the needs and problems of our society, with a view to building a project for a popular, egalitarian, democratic, sovereign country, with a feminist perspective, in solidarity and from a federal perspective. Within this framework, we propose to put knowledge, resources and the S&T complex into projects aimed at solving national and regional needs of a strategic, social, economic

and environmental nature, where science and technology become tools for the development and well-being of our communities.

We also seek to rescue and recover, in projects and concrete actions, the contributions of what was historically PLACTED (Latin American Thought on Science, Technology, Development and Dependence). And we aspire to politically participate and influence in the decisions that are taken at the management level of S&T organisations, contributing with proposals and ideas at the national, provincial and municipal levels. Finally, we wish to integrate ourselves at the Latin American level with other spaces and colleagues in order to generate a wider network that adds synergies and complementarities to achieve common goals.

To this end, we propose some ideas to promote a new S&T agenda at this stage, based on the central role of the State as the driving force and articulator of development and on a leading role for the community. This agenda should be oriented, on the one hand, towards financing projects and actions for the resolution of problems and strategic demands related to aspects of sovereignty, expansion of rights and economic growth. We believe that these demands could be addressed with so-called *mission-oriented policies*, focused on an objective, centred on strategic sectors and technologies and rooted in problems of socio-economic relevance (actions against hunger, production of medicines and vaccines, energy development, communications, satellite and aerospace policy, environmental policy).

On the other hand, this agenda should respond to the demands generated by public policies and national and provincial state-owned companies. The recent MINCyT calls for proposals "Science and Technology against Hunger" and the ImpaCT.AR programme are excellent advances in this direction.

It is also necessary to urgently address national, regional and municipal socio-productive demands. These demands could be addressed with a *problem-solution* logic through projects with concrete objectives. In order to define these demands, inter-institutional and inter-sectoral coordination is necessary, with the participation of SMEs and social and popular production organisations to define them, design projects and set up interdisciplinary teams that can address them, select the best solutions for each context and place, advance in addressing the problem and guarantee its resolution. This task must be done horizontally and in the territory, together with the different actors involved. Thus, there is a need for an effective *federalisation* of science and technology policies, not only as an instance of democratisation of scientific and technological knowledge, in which the territory can be a place of appropriation of this knowledge for local decision-making - for example, by municipalising some issues of the S&T agenda - but also of deconcentration and regional redistribution of resources, with a view to greater territorial equity and a more institutional decentralisation. Financing for these projects could be provided through open calls for proposals based on problems in which what is needed is defined and the S&T sector is invited to propose solutions. The experience developed with the COVID-19 Unit is a way forward.

We also stress the need to advance in schemes that promote virtuous transformations at the regional level, seeking to consolidate mechanisms that go beyond the national perspective and that propose a strategy for Latin America and for the bloc of countries in the extreme south. It is a matter of creating common axes of interest and collaborative financing funds to promote regional research projects, which allow for a unique and original positioning in matters of technological and scientific knowledge. The recent announcement of the creation of the Latin American Space Agency is an encouraging sign in this regard.

Finally, we believe that in order to generate jobs and growth, it is not enough to strengthen SMEs and develop national companies. Argentina has a very important part of its economic activity based on popular production, which generates goods and provides services in order to meet community needs, putting profit in the background and thus moving away from the typical scale of values of capitalism. Its social scope includes all those individual and collective actors who develop an informal economic activity, organised in cooperatives, micro-enterprises, small production structures, peasant or artisan organisations and recovered enterprises. This is a universe that, added to the independent workers who do not have any space for appropriation of income -that is, the majority of personal service providers-, represents around

40% of the total economically active population. It is therefore about strengthening this economic sector by adapting and interactively developing technologies to provide added value, offering access to management and marketing processes, to the management of alternative energy sources for small production spaces, to the automation of simple processes, to waste or effluent treatment, etc.

These ideas are just a few examples of what a situated science and technology could be. Disconnected but not disassociated from the agendas of the core countries. Defined on the basis of our own criteria of importance and our own needs. And, above all, in the context of the current civilisational crisis, a science and technology for life.

NOTES

1 This article is a translation of the original version in Spanish into English by Rocío Montes and Betsabe Borya.