

Law nº 14,133 (Brazil, 2021), Partnerships for Productive Development in health and the search for technology development¹

A Lei nº 14.133 (Brasil, 2021), as Parcerias para o Desenvolvimento Produtivo na saúde e a busca pelo desenvolvimento de tecnologia

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Abstract:

The reality of the public health system demands constant innovation and improvement measures, given the need to advance the population's levels of demand (greater satisfaction of human dignity), amidst the perspective of evolution of fundamental rights. In this aspect, we sought to analyze whether the opening granted by Law No. 14,133 (Brazil, 2021) to allow the insertion of new technologies into the health system, through direct contracting, would be effective in promoting the development of this system or whether it would promote even more dependence on the country, in relation to private companies, especially from developed countries (with resources to encourage national companies to acquire knowledge, machinery and other inputs). Through qualitative research strategies, in which documents were analyzed (normative acts and decisions from an external control body), as well as through critical-reflective analysis on the state of the art, it was found that the aforementioned general law on bidding and contracts, by enabling the purchase of technology by the public health system from private companies especially from developed countries, maintains Brazil's dependence on these nations. Furthermore, there was no relevant initiative from the Federal Government to change this reality.

Keywords: Public health system. Technology. Partnership for Productive Development. Development.

Resumo:

A realidade do sistema público de saúde demanda constantes medidas de inovação e aperfeiçoamento, tendo em vista a necessidade de avanço nos níveis de exigência da população (maior satisfação da dignidade humana), em meio à perspectiva de evolução dos direitos fundamentais. Nesse aspecto, buscou-se analisar se a abertura concedida pela Lei nº 14.133 (Brasil, 2021) para que se permita inserir novas tecnologias junto ao sistema de saúde, por meio de contratação direta, seria eficaz para se promover o desenvolvimento desse sistema ou se promoveria ainda mais dependência do país, em relação a empresas privadas, especialmente advindas de países desenvolvidos (com recursos para estimular empresas nacionais a adquirir conhecimento, maquinário e demais insumos). Por meio das estratégias de pesquisa qualitativa, em que se analisou documentos (atos normativos e decisões de órgão de controle externo), bem como mediante análise crítico-reflexiva sobre o estado da arte, constatou-se que a apontada lei geral de licitações e contratos, ao

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possibilitar a compra de tecnologia pelo sistema público de saúde de empresas privadas especialmente advindas dos países desenvolvidos, mantém a dependência do Brasil, frente a essas nações. Além disso, não se constatou iniciativa relevante do Governo Federal para se alterar tal realidade.

Palavras-chave: Sistema público de saúde. Tecnologia. Parceria para o Desenvolvimento Produtivo. Desenvolvimento.

1 Introduction

After the creation of the Unified Health System (SUS), together with the text of the Constitution (Brazil, 1988), the Brazilian State was obliged to implement essential measures for the implementation of universal health in the social structure. Legal and administrative tools needed to be created to allow access to health in the different parts of the country.

Over time, new demands for healthcare services arise, as the aim is to continually improve the population's quality of life, given that fundamental rights cannot be retroactive². In this ongoing movement of expansion and innovation, it is assumed that the Right to Health must use technological innovations. Law No. 14,133 (Brazil, 2021), the general law on tenders and contracts, allows this use of new technologies, with the provision for direct contracting of strategic technology products by the SUS. Thus, the question arises as to whether this context fosters the development of the healthcare system or generates even greater dependence of the country on private companies that supply new technologies.

The hypothesis of the work is that direct contracting for the transfer of technology of strategic products to the SUS creates opportunities for foreign companies to operate in the healthcare area. Thus, the country's dependence on foreign and private technologies increases, as well as discouraging the autonomous development of goods and services of this nature by Brazil.

To verify the hypothesis, the qualitative and deductive research method was used, in which the regulatory structure on the examined research object was measured, through textual analysis of the following standards: Constitution (Brazil, 1988); Law No. 8,080 (Brazil, 1990); Law No. 14,133 (Brazil, 2021); Decree No. 11,715 (Brazil, 2023a); Decree No. 9,245 (Brazil, 2017a); Ordinance No. 2,531 (Brazil, 2014); Ordinance No. 2,261 (Brazil, 2023b). In

² The State is prohibited from eliminating fundamental rights that have already been acquired. It is prohibited to reduce the protection of legal assets that have already been acquired, so as not to disrespect human dignity, which is considered the purpose (ultimate goal) of fundamental rights (Vasconcellos; Luiz, 2015, p. 41).

addition to Ruling No. 1,730 (Brazil, 2017b), of the Federal Court of Auditors. The strategy of critical-reflective analysis on the state of the art was also used. Using the methods presented, the aim was to assess whether the facilitation granted by Law No. 14,133 (Brazil, 2021) for the SUS to absorb technology has an impact on the national economic reality. The presentation began by addressing the normative provisions set forth in the Constitution (Brazil, 1988), regarding the structure of the economic order (Economic Constitution) and the guidelines that these standards establish for the achievement of technological innovations for the SUS. Next, the option for the Partnership for Productive Development (PDP) tool was discussed, in order to absorb technology for health and this strategy does not allow the achievement of the sovereign autonomy of technological production, as established in article 219 of the Constitution (Brazil, 1988). The following section presented the excerpt on telemedicine as a public health policy authorized by Law No. 8,080 (Brazil, 1990). Afterwards, the problem of Law No. 14,133 (Brazil, 2021) was addressed, in the context of facilitating hiring under discussion. Finally, the low stimulus for research and extension, together with the educational policy in the country, and the consequences for the capacity for technological innovation were discussed.

2 Economic Constitution, Constitutionally Adopted Ideology and the promotion of technology insertion in the public health system

Understanding the inclusion of technology in the health system involves addressing the normative-axiological structure of the constitutional text, since it refers to the regulatory framework that structures the Democratic State of Law. As it is the basis of the legal and social system, it reflects the different individual manifestations that exist in society, with the aim of safeguarding and fostering them, based on the structure of the State. The constitutional text has different nuances, especially with regard to the implementation of economic policy. The Constitution (Brazil, 1988), with its analytical nature, allows Brazilian society to be structured in a plural way, so as to provide citizens with equal opportunities in the process of social inclusion and recognition. This idea, when directed towards improving the health system, allows citizens to receive positive benefits from the State, with a view to improving their own quality of life, in order to enjoy the constitutionally established rights and establish

themselves in society in a dignified manner. In this sense, the economic policy for the development of such a system is constitutionally protected by the objectives established therein, such as reducing social inequalities and ensuring national development, as set out, respectively, in items III and II, article 3, of the Constitution (Brazil, 1988). The improvement in the provision of health services, as stated, must provide for the safeguarding of the maintenance of the individual's life with dignity, in order to allow him/her to act as another actor in the economy and, consequently, in the development of the country.

This circumstance is in line with the precepts of the Constitutionally Adopted Ideology, given that this value construction is the result of the political-legal process of converting pure economic ideologies, such as capitalism, socialism and nationalism. These ideologies are brought together and mixed, according to a legally positive order in a single text (Clark; Corrêa; Nascimento, 2020, p. 42a).

The Constitutionally Adopted Ideology has the function of establishing itself as a hermeneutic filter capable of preventing pure ideologies from standing out and imposing constitutional interpretation, according to themselves (Clark; Corrêa; Nascimento, 2020, p. 42a). This filter can be extracted from an elementary set of provisions provided for in articles 170 to 192 of the Constitution (Brazil, 1988). This set is called the Economic Constitution and represents the normative-axiological vector appropriate to the process of substantiating economic policies (Clark; Corrêa; Nascimento, 2020, p. 44a). The Economic Constitution is a political commitment to building a development model centered on changing economic production structures, inducing the domestic market, and forming a plan for the country's insertion into the international economic order with social justice (Clark; Corrêa; Nascimento, 2020, p. 71b).

However, the aforementioned constitutional provisions do not exhaust the regulatory hypotheses for this context under analysis. The normative provisions for the adequacy of the applicable economic policy in the context of the national reality can also be found in articles 1 and 3 of the Constitution (Brazil, 1988), for example. It is worth noting that the inclusion of technology in the SUS is in accordance with the aspects of the Economic Constitution, provided for as foundations of the Democratic State of Law, such as national sovereignty (item I, article 1) and human dignity (item III, article 1). Furthermore, national development (item II, article 3) is established as an objective to be achieved in the structuring of such a policy. The constitutional provision that raises doubts regarding the direct contracting of technologies for the SUS, which may favor foreign companies, is Article 219 of the

Constitution (Brazil, 1988), which establishes the domestic market as a national asset, to be encouraged in order to enable cultural and socioeconomic development, the well-being of the population, and the technological autonomy of Brazil.

The Brazilian socioeconomic reality has historically depended on the import of technology (Conceição; Dalto, 2022, p. 27). The option to develop technology together with health, the largest public policy instituted in the country, also requires confronting prominent interests in the pursuit of the aforementioned constitutional objectives. The reduction of constitutional social guarantees, especially regarding the positive provision of the Right to Health, represents a strategy that stimulates the full capacity for capital accumulation, mainly in favor of the financial sector (Clark; Corrêa; Nascimento, 2020, p. 69b). This circumstance fits the context of the evolution of the Brazilian reality, after the 1990s, called Regulatory and Austerity Neoliberalism. In this reality, state intervention should only be to induce the economy (induction policies) and regulate the market (via regulatory agencies). The entrepreneurial State would not be appropriate, especially in nations with peripheral economies (Clark; Corrêa; Nascimento, 2020, p. 48a). Thus, economic concentrations are stimulated or maintained, in order to stratify society, preventing new subjects from acquiring social relevance among layers with greater socioeconomic capital, which should remain unattainable, such as the super rich.

There is neoliberal criticism of the inefficiencies of the Social State, as it represents an attempt to appropriate the most sustainable and even profitable areas (market vision) of this State model. Thus, the public authorities would be responsible for intervening in areas of little or no profitability (Barata; Carmo, 2014, p. 19).

The development of national technology, together with the health system, also has the power to allow the country to achieve sovereignty using its own means, in order to mitigate modern models of colonization (Dussel, 1992). Avoiding the insertion of technologies, through external investments, in a public policy with national scope and such capillarity, means maintaining the country's control over the productive apparatus and mitigating the worsening of the vulnerability of the internal economy (Vasconcelos, 2023, p. 151).

3 Partnerships for Productive Development, the absorption of technology by the SUS and the permanent technological dependence of the Brazilian State

The insertion of technologies within the SUS is a challenge for the Brazilian State, given the scope of this public policy and the country's institutional gap in the autonomous development of innovative products, in general. Thus, the Union, the federated entity responsible for adopting measures to coordinate guidelines with the public health system, as established in article 16 of Law No. 8,080 (Brazil, 1990), adopts a strategic mechanism to mitigate such a gap, with the aim of achieving more satisfactory health promotion rates.

In this sense, it is worth noting that, through Decree No. 11,715 (Brazil, 2023a), the Federal Government established the National Strategy for the Development of the Health Economic-Industrial Complex. This is a State policy³ aimed at finding productive and technological solutions to face health challenges, reduce the vulnerability of the SUS and expand access to health, since, as is well known, there are bottlenecks and lack of assistance in the public system that need to be resolved. Among the initiatives, we can point out: implementation of technology from a private partner, technological orders in the health area and compensation measures in the health area.

Furthermore, the search for institutionalization of innovation policy within the healthcare system is a recent phenomenon in Brazil. Therefore, the implementation of changes resulting from ongoing projects depends on a reasonable period of time. As established by Ordinance No. 2,531 (Brazil, 2014), the maximum term of validity of the PDP is ten years, with variations within this period being possible, according to the degree of complexity of the executed project.

The aforementioned ordinance defines, in item I, article 2 (Brazil, 2014), PDPs as partnerships that involve cooperation, through agreement (contracting), between public institutions and between public institutions and private legal entities for the development, transfer and absorption of technology of strategic products for the SUS. Thus, despite the search for improvements in the aforementioned public policy, the instrument under examination is not limited to the means made available by the public sector. On the other hand, it promotes collaboration with the private sector, so as to allow all participants involved in this reality to obtain some advantage.

In this context, PDPs are part of the so-called Health Economic-Industrial Complex (CEIS), defined by Ordinance No. 2,531 (Brazil, 2014), in section IV, article 2, as the health

³ The public policy of the State extends beyond the term of office of the governments, that is, regardless of who exercises the functions of public manager, the actions established in such function must be adopted. This context is different from the public policy of the Government, which, on the other hand, are actions linked to the ideological interests of the members of the Executive Branch during their management.

production system, which includes pharmaceutical industries, health products and services. It refers, then, to the infrastructure that brings together different institutions (Economic Institutional Law) established to create, implement and evaluate the elements (goods and services) used in the health system.

The CEIS is a strategy designed by the Brazilian State to organize legal entities of different natures (public and private) and purposes (laboratories and industries, for example), that operate in the health sector. The objective of this strategy is to enable the country to become self-sufficient in the production of medicines, medical equipment and other supplies.

In the equipment sector, Brazil has a high external dependence on the electronic components industry, as there is low national competitiveness (Pimentel; Paranhos; Chiarini, 2022, p. 382). Thus, it depends on the import of technology to benefit from more advanced equipment (with a high degree of innovation), which harms the trade balance.

These imports are mostly made using the US dollar. Due to the devaluation of the Real against that currency, this increases the costs of national health systems (Guimarães et al, 2019, p. 885). It is estimated that the deficit in the CEIS reached US\$ 20 billion in 2023 (Ministry of Health, 2023). Therefore, the search for the autonomous development of products with greater aggregate technology also aims to balance this budgetary reality.

Thus, the vulnerability of the SUS is due to the fragility of the Brazilian industrial system, which is not relevant in production compared to international companies. There is low capacity for innovation due to the lag in the industrial parks established for this purpose. Furthermore, there is a shift in its scientific and technological basis from the population's health needs, that is, there is no adequate attempt to solve society's health demands, in relation to the socioeconomic and regional differences that exist in the country (Pimentel; Paranhos; Chiarini, 2022, p. 382).

PDPs are the main instrument of economic rationality used by the state structure to develop (technology and innovation) the health system. In this aspect, this tool, in summary, is based on the linking of a purchase contract with the requirement of technology transfer of the acquired good to a Brazilian public institution (Rauen, 2022, p. 34), with the objective that this entity dominates it and contributes to the reduction of the trade balance deficit. Until 2016, for example, the development of PDPs generated savings of approximately R\$ 4.5 billion in the acquisition of health products (Guimarães et al, 2019, p. 883).

The PDP agreement involves three parties: the Ministry of Health, which undertakes to purchase the product for the SUS for a set period, usually one year; the second actor is the

private company, which has as a counterpart the need to transfer the production technology for that product; the third element is the public laboratory, which must be able to absorb the transferred technology within the same period. At the end of the partnership, the public entity is expected to be able to supply the item to the Ministry of Health independently and be able to transfer the technology to other public laboratories (Pimentel; Paranhos; Chiarini, 2022, p. 380), as provided for in articles 59 and 60 of Ordinance No. 2,531 (Brazil, 2014).

The Ministry of Health is not responsible for selecting the private partner, a task that is assigned to public entities, considered the main agents of this partnership model (Pimentel; Paranhos; Chiarini, 2022, p. 386). Therefore, these entities are responsible for seeking partners committed to supplying the Brazilian State with the product with the technology they have developed in order to profit from the activity. In addition, these agents are committed to passing on the knowledge and inputs necessary for the absorption of the technology involved, in order to enable the improvement of the health system.

State oversight must be constant, because the longer the technology transfer period, in the midst of a PDP, the higher the remuneration of private companies that supply the technology, which leads to opportunism (Pimentel; Paranhos; Chiarini, 2022, p. 412). Strict control is required regarding the acquisition projects presented, as well as the company's documentation, in order to avoid favoritism and condoning misappropriation of funds.

Regarding this situation, the Federal Court of Auditors, through Ruling No. 1,730 (Brazil, 2017b), determined that the Ministry of Health should guide public laboratories on the need to carry out a selection or prequalification process for private partners eligible to participate in PDPs. Given the feasibility of establishing partnerships directly, questions arose about the fairness of the procedure, which led to the need for a more active stance by the Ministry of Health. In fact, there must be more transparency and publicity in this procedure.

It is noted that there is significant room for pressure from business sectors, which seek to formalize contracts to supply products during the period in which the technology is absorbed by public entities. In this way, they can achieve a profit margin in the development of the activity, have security in contracting with public institutions and enjoy sufficient time to develop new products. The Brazilian State acquires a product whose manufacturing processes the company has mastered for some time, so this is not a significant loss to its intellectual property, which would cause a market retraction. On the other hand, this legal entity has the conditions to advance in the field of activity, driven, among other things, by the income from the contract established in question.

These technologies come from a robust industrial segment, highly internationalized, oligopolized and research-intensive (Guimarães et al, 2019, p. 885). It is clear that the country seeks goods or products that are not innovations per se for the global reality of implementing health measures. Even if they are new to the national public health policy, this does not alleviate the dependence on formalizing future partnerships with the private sector.

Therefore, there is no prospect of the country escaping this reality of technological submission, especially in the face of international companies. The absorption of knowledge, techniques and manufacturing equipment occurs in situations dominated by external agents, which continue to influence the public health system. The demands for improvements in this area are continuous and need to be met by the State, to the greatest extent possible, as determined by the Constitution (Brazil, 1988), especially in articles 5, 6, 196 to 200.

4 Telemedicine and the development of technology

The technological dependence of the Brazilian public health system on large corporations can be seen in different aspects, as pointed out in the previous section. It is not only restricted to the discovery of new medicines, but also encompasses the sphere of creation of equipment, directly linked to the provision of services by health professionals. In this sense, the context involving telemedicine is presented.

Law No. 8,080 (Brazil, 1990), legislation that regulates the health system at the national level, highlights among articles 26-A and 26-H legal provisions that deal with the remote provision of health services. Thus, the SUS expressly authorizes the provision of remote health services, through the use of information and communication technology, to transmit health data and information. This tool is called telehealth.

The infra-constitutional legislator noted the relevance of this modality of providing health services, in order to improve care in this area, as well as reduce levels of lack of assistance. Given the feasibility of carrying out healthcare actions remotely, the immediate physical presence of the professional with the patient is dispensed with and provides the opportunity for services to reach locations that did not receive them adequately.

It is important to emphasize that it is up to the professional to evaluate the use of this tool in relation to the patient's needs, and that federal professional associations must also regulate the ethical manner in which care should be provided in these circumstances. Health services are traditionally provided through direct contact between the professional and the

patient, mainly due to the vulnerable situation in which the individual finds himself and the importance of proximity to a professional specialized in providing health care. The caution in drafting the law is in line with this characteristic and grants the necessary autonomy to professionals to assess the relevance, according to the case faced.

Telemedicine fits into this reality as one of the ways of providing health services, through the medical professional. It is the technological tool that doctors use to provide care, exchange information about experienced cases, analyze exams and pass on knowledge, for example. It is important to emphasize that the constant process of technological evolution expands the possibilities of using telemedicine, and may even encompass medical specialties that were initially not aligned with the characteristics mentioned above.

The aim was to analyze whether the Brazilian State adopts technology absorption measures that encompass the viability of telemedicine as a public health policy, in accordance with the legal provision of Law No. 8,080 (Brazil, 1990). Thus, it was assessed, through the PDP instrument, whether there was an attempt to obtain technological tools related to the development of telemedicine. To this end, it was considered that, in the normative acts that regulate the subject, equipment and software related to the search for the performance of remote medical services should be present.

It should be noted that it is the responsibility of the Ministry of Health, with the assistance of the Executive Group of the Health Economic-Industrial Complex, under the terms of article 2 of Decree No. 11,715 (Brazil, 2023a), to define the priority demands of the SUS, in the form of health challenges and productive and technological solutions. Thus, it is up to the aforementioned group of public actors to direct the actions of the Brazilian State towards carrying out important measures to obtain/develop technology to be implemented within the SUS.

Thus, it was found that the Ministry of Health, in December 2023, published Ordinance No. 2,261 (Brazil, 2023b), which established the matrix of productive and technological challenges in health to be implemented within the CEIS. In this regulation, no concrete initiatives were found to enable the implementation of telemedicine. Only item 6 was listed in Annex I, in Block I, which deals with the preparation of the health system for health emergencies. This item points out technologies for SUS health systems as one of the challenges in health. To this end, it indicates productive and technological solutions such as productive platforms for software and applications, artificial intelligence, the Internet of Things and digital systems. The same item lists the development and local production of

technologies used in health care, such as telehealth, as well as information and connectivity technologies for inventory management, as products.

In Annex II, which lists the strategic products for SUS in current PDPs, no technology equipment is listed, but fifty-four items are listed, including medicines, vaccines and drugs. In fact, it was found that there is no expressly indicated initiative regarding the acquisition of technology for the purpose of developing the telemedicine tool.

It should also be noted that Ordinance No. 2,261 (Brazil, 2023b) revoked Ordinance No. 704 (Brazil, 2017c), which, to the same extent, established strategic health products and did not contain specified technology equipment. Even though this ordinance expressly established forecasts of strategic products for the year 2017, it remained in force until the year 2023, without undergoing changes, so as to add, for example, the aforementioned technology equipment.

Thus, it was noted that the Brazilian State, despite the relevance of the insertion of telemedicine for the improvement of health services, did not consider the structuring of the health system as a first-order measure for this purpose. It is worth noting, however, that the change in Law No. 8,080 (Brazil, 1990), which included telehealth as a public policy, only occurred in 2022, through Law No. 14,510 (Brazil, 2022). This legislative change possibly allowed for a paradigm shift in the public health system, in order to include technology equipment in this area, which was seen, for example, with the publication of the ordinance in 2023 (Brazil, 2023b).

Therefore, the intention to include telemedicine as a public policy within the SUS is a recent phenomenon in Brazil. Thus, it lacks more sophisticated regulations and measures that directly implement this intent.

In this sense, as an example, it is worth noting that, in 2021, three PDPs were under development for health products (defibrillator, multiparameter monitor and rapid test) and eighty-five for medicines, vaccines and blood products (Pimentel; Paranhos; Chiarini, 2022, p. 380). None of the products mentioned are related to the structuring of equipment for telemedicine.

In addition, we sought to analyze the scenario of PDPs at the time the research for the development of this work was carried out. Therefore, we checked the field related to actions and programs developed within the scope of Science and Technology in Health on the official website of the Ministry of Health, located on the Federal Government platform. In this field, the tool related to partnerships for productive development was selected. Next, on the website

page corresponding to issues related to PDPs, the field “Health products” that were under development (current) through such partnerships was chosen. Thus, it was found that there were only three products under development, namely, defibrillator/cardioverter; multiparametric monitor; rapid immunoglobulin G (IgG) and immunoglobulin M (IgM) test for dengue, Zika and Chikungunya. The first two, at the State University of Paraíba and the third at the Bahia Foundation for Scientific Research and Technological Development, Supply and Distribution of Medicines (Bahiafarma) (Ministry of Health, 2024).

It was found, therefore, that the same three PDPs measured in 2021 were maintained for 2024. Despite this, increases were noted in relation to the items developed by PDPs, according to the content of Ordinance No. 2,261 (Brazil, 2023b). Even so, there was no evidence of information on the development, in the year 2024, of technology items or software that could be used as inputs for the insertion of telemedicine into the SUS, which corroborates the finding of a lack of immediate focus by the Brazilian State to implement this tool as a public policy. Should there be future concern, there are no institutional instruments (Economic Institutional Law) capable of achieving this intent autonomously.

5 Law No. 14,133 (Brazil, 2021): facilitation for the acquisition and absorption of technology from the private sector

As previously pointed out, PDPs are the main instrument for absorbing technology by the SUS. In line with this, the bidding and contract legislation, Law No. 14,133 (Brazil, 2021), contains provisions that encourage the facilitated acquisition (waiver of bidding) of products developed through this system. It is worth noting that the constitutional values established in article 196; in items I and IV, article 200; and in articles 218 and 219 (Brazil, 1988) served as the basis for the aforementioned law to eliminate the obligation to bid. However, this regulation maintained the search for competition and the commitment to price reduction, in view of the strategy of technologically qualifying new institutions (Sundefeld; Souza, 2013, p. 122).

The SUS is responsible for approximately one-third of the healthcare medicine market, 90% of the vaccine market, 50% of the healthcare equipment market, and 100% of the services provided to Brazilians (Guimarães *et al*, 2019, p. 882). Therefore, it represents a relevant public policy for the Brazilian context, which attracts the attention not only of individuals who intend to realize the guarantee of the Right to Health, but also becomes an

important marketing channel for the private sector (especially in the context of technology absorption).

Law No. 14,133 (Brazil, 2021) establishes, in items XII and XVI, article 75, the exemption from bidding to acquire, in summary, strategic health inputs, produced by an institution included in the PDP instrument, that is, products generated from the transfer of technology to the SUS. In this way, the infra-constitutional legislator granted an important margin of possibility to the public authorities to purchase, regardless of bidding, an item inserted in the national reality, to supply the health system, in which the absorption of technology by the State is verified.

This opening can be analyzed as a way to promote institutions (public laboratories) amid the reality of the SUS. It is not enough to hold bids to, in the end, enable the purchase of equipment offered by a few multinational suppliers, which will only import technology from abroad at high costs (Sundefeld; Souza, 2013, p. 104). Direct acquisition, in this context, is not restricted to public laboratories, because during the stages of technological absorption by the public partner and until it is able to produce the equipment or medicine on a significant scale, it is the private partner who manufactures it to supply the entire SUS (Sundefeld; Souza, 2013, p. 119).

Thus, the legislation in question, especially in the aforementioned item XII, article 75 (Brazil, 2021), does not bind the Ministry of Health to the acquisition of products from PDPs. This allows the government to establish a legal relationship with the private partner that is part of the technology transfer system, regardless of whether a competitive process is carried out for this purpose (Pimentel; Paranhos; Chiarini, 2022, p. 414). This leaves room for the possibility of granting economic benefits to the private sector that owns the technology to be absorbed, both at the time the public laboratory is chosen and during the process of technology transfer to the Brazilian State.

The private partner has an interest in the exclusive purchase by the government during the PDP execution period, with remuneration that includes the cost of technology transfer (Varrichio, 2017, p. 191). In the midst of this process, the private party is allowed to earn a significant profit margin, since the technology absorption system begins with the formalization of the partnership with the private company, which owns the desired technology and transfers it to the public laboratory. However, during this process, the product is contracted directly by the SUS. Therefore, as pointed out above, in partnerships that, as a rule, last for years, given the complexity of this system, the private partner can obtain considerable

income. This income can be used to invest in new research, in order to discover other technologies that can be acquired in the future by the public entity.

The choice of the private partner was questioned by the Federal Court of Auditors, due to the risk of undue favoritism from the private partner (Menezes; Mikamura, 2023, p. 267). In Ruling No. 2015 (Brazil, 2023c), it was determined that the Ministry of Health should not enter into other PDPs, given the lack of objective criteria and evaluation parameters for defining which products would be strategic. There were no criteria for selection and distribution of demand. Thus, there was a lack of transparency in the choice of the private partner.

It is clear that, even though public laboratories have production capacity, they will not be responsible for creating innovations, since this is a private activity (Varrichio, 2017, p. 192). At all times, the public entity is seeking products developed by the private sector, regardless of the possibilities of stimulating these creations internally. The state entity is lagging behind the private sector, which takes advantage of this opportunity, with legal authorization, to strengthen itself financially and advance in more research, with the aim of establishing future partnerships, in a cycle of prosperity for itself.

Law No. 14,133 (Brazil, 2021) allows the purchase of products from foreign companies. This reality, therefore, encourages the prospects of direct influence over the country, amidst the scope of a neocolonialist policy, which maintains Brazil's technological dependence on advanced capitalist nations. This circumstance confirms the research hypothesis raised.

6 Research and extension in higher education in the country and the development of technology: impacts on the health system

Given the scenario presented, it was noted that the option for PDPs maintains the country's technological dependence on advanced capitalist nations, given that large corporations that hold the technological knowledge absorbed by Brazil are headquartered in these countries. Thus, the way in which it is possible to change this reality of subordination and alter Brazil's development pattern is to invest in research and innovation.

Therefore, the fundamental element for the advancement of productive innovation in health is the strengthening of the Health Economic-Industrial Complex, considered a policy that brings together the articulated development of scientific-technological, industrial and

service elements (Guimarães et al, 2019, p. 883). By directing budget amounts towards this end, it is possible that, at least in the medium term, some change in this context may arise.

However, federal investments in science and technology fell by approximately 37% between 2013 and 2020, resulting in a reduction in the innovation rate from 36% to 33.6% in the period from 2015 to 2017, compared to the years 2012 to 2014 (Fernandes; Gadelha; Maldonado, 2023, p. 381). Brazil is among the 12 countries with the highest Gross Domestic Product. Despite this, it allocates the lowest rate of resources to research and development. In 2012, with values established in dollars, the USA invested 419.5 billion; China, 132 billion; Japan, 208 billion; and Germany, 97 billion. Brazil, 28.2 billion dollars (Santos Neto; Araújo, 2021, p. 27).

In 2023, for example, 0.29% of the federal public budget was allocated to science and technology, while 43.23% was allocated to paying interest and amortizing the public debt (Auditoria Cidadã da Dívida, 2024). It is clear, then, that the government has chosen to meet the economic desires of individuals linked to financial capital, to the detriment of the possibility of improving the country's development. Technological innovation allows the domestic market to strengthen and gain relevance in the face of external pressures.

Furthermore, investment in science and technology involves improving higher education in the country, given that it is in this area of education that research and extension projects capable of creating and innovating more quickly within society are established. However, higher education in the country, especially public institutions, has been experiencing a process of resource contingency.

Since the 1990s, especially after the publication of Decree No. 2,207 (Brazil, 1997), which authorized the exploration of educational activities by private companies for profit, a large educational market has been formed in Brazil (Clark; Nascimento, 2008, p. 4502). As a result, there has been a progressive shift away from the allocation of funds from the public budget to this area, in order to allow for an increase in the capillarity of private institutions. This context has promoted the concentration of higher education in these educational institutions (Clark; Nascimento, 2008, p. 4503).

In this way, higher education was treated as an economic activity. The State then began to finance commercial higher education companies through public policies specifically instituted for the purpose of capitalizing the private sector, such as the University for All Program (PROUNI) and the Higher Education Student Financing Fund (FIES) (Clark; Nascimento, 2008, p. 4508). Despite the relevance of the debate on these policies, due to the

thematic scope of this research, the socioeconomic problems arising from such choices were not addressed.

As has been seen, higher education, conceived as a commodity, aims to guarantee capitalist profit (Chaves; Amaral, 2016, p. 58). Private education provides the possibility of exponential growth in the financial sphere, providing returns to its investors in the stock market, for example (Santos Neto; Araujo, 2021, p. 24).

This circumstance is not in line with the constitutional precepts relating to the provision of public education services, considered a fundamental social right, as established by article 6 of the Constitution (Brazil, 1988). It is up to the State to provide positive actions aimed at mitigating the social imbalances present in the national reality, according to item III, article 3 of the Constitution (Brazil, 1988).

Furthermore, the vast majority of private higher education institutions have a college-style academic organization. In 2022, for example, of the higher education institutions classified as universities, 90 were private and 115 were public. In relation to the college format, this difference increases even more: 1,822 were private colleges and 146 were public (Brasil, 2022). Thus, there is an intention to pulverize the teaching structure (Tonegutti, 2017, p. 130) and, consequently, the research structure.

Furthermore, private for-profit higher education, mainly, has the characteristic of being faster and cheaper, in order to allow for the rapid obtaining of a diploma and, possibly, to allow the individual to enter the job market. Therefore, the focus is on teaching and not on the achievement, in conjunction, of research (Chaves; Amaral, 2016, p. 58).

Resources allocated to the research and development sector are constantly diverted to the financial system and private institutions, directly or indirectly, through subsidies, tax amnesty and labor relief, for example (Santos Neto; Araujo, 2021, p. 28). Therefore, the option to establish education as a market for these institutions does not contribute to the evolution of research and innovation in the country.

On the other hand, public universities are characterized by the development of research. They do not aim to meet the logic of the market and the process of transforming knowledge into a commodity (Santos Neto; Araújo, 2021, p. 28). In fact, investing in this model of institutional structure for education contributes to the mitigation of social and regional inequalities, given the opening of vacancies for individuals, regardless of the immediate financial compensation. It also allows the country's economic development, through the discovery of new technologies.

However, it has been noted that transnational companies are joining the process of dismantling research developed at public universities and defend that public resources be allocated to the private sector (Santos Neto; Araújo, 2021, p. 28). This logic, to some extent, has been met by government choices.

7 Conclusion

The autonomous development of technology in the SUS is relevant to achieving economic sovereignty, as well as enabling greater balance in the trade balance. This context is consistent with the aspects of the Economic Constitution, given that it is a political commitment to building a development model centered on changing economic production structures, inducing the domestic market and creating a plan for the country's insertion into the international economic order with social justice.

Therefore, telemedicine presents itself as an important technological strategy to improve the provision of health services, especially regarding the possibility of extending such services to areas that do not have specialized medical care. Despite this, it was found that, among the PDPs in force, there was no attempt to obtain (absorb technology) technological tools related to the development of telemedicine. Much less was there any prospect of changing this reality, in relation to the analysis of the regulations that deal with the perspective of technological development of health supplies and materials, together with the Health Economic-Industrial Complex.

It was also found that Law No. 14,133 (Brazil, 2021) granted significant scope for foreign companies, mainly to supply, through direct contracting, products equipped with technology developed by them for the SUS. This reality demonstrated Brazil's dependence on other advanced capitalist nations, due to the fact that it acquires technology already dominated by a foreign company and does not encourage the search for national autonomy of this technology.

Finally, there is no investment necessary for the autonomous development of technological innovation. Resources are not directed to research and there is no structuring of the education system to contribute to the country's technological evolution process.

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