

Original article

Technology transfer and creative economies for local development in Cuba

Transferencia de tecnología y economías creativas para el desarrollo local en Cuba

Transferência de tecnologia e economias criativas para o desenvolvimento local em Cuba



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ABSTRACT

The relevance of Intellectual Property Rights in the scenarios of science, innovation and creative industries has been crucial and is highlighted among the indicators in knowledge economies, creative industries and economy. Technological development is key to the advancement of modern societies, to the extent that it maintains a direct relationship with industry and world trade. Cuba does not escape from this reality and intends the Knowledge Economy as a policy of government management based on innovation. In this context, Intellectual Property and technology transfer as tools for development have an impact at the local level and are articulated for the benefit of the country's economy. The contribution and role of the new agents of the non-state sector of the economy, especially cooperatives, are undeniable. On a global scale, these figures have anchored entrepreneurship in creative economies as a boost to local development. With the aim of providing theoretical guidelines for the improvement of technology transfer mechanisms, the challenges posed by creative economies for local development in Cuba are addressed from a legal perspective. To this end, the importance of an adequate legal framework for technology transfer has been highlighted, as well as the need for a suitable infrastructure for the development of creative economies. Among

the challenges evaluated, especially for Cuba, are infrastructure limitations, scarcity of financial resources, regulatory fragmentation and lack of access to last generation technologies.

Keywords: technology and knowledge transfer; technology transfer mechanisms; intellectual property rights; intellectual property; licensing and technology transfer contracts; creative economies; local development; cooperatives.

RESUMEN

La relevancia de los Derechos de Propiedad Intelectual en los escenarios de ciencia, innovación e industrias creativas ha sido crucial y se resalta entre los indicadores en las economías del conocimiento, industrias y economía creativas. El desarrollo tecnológico es clave para el avance de las sociedades modernas, en la medida en que mantiene una relación directa con la industria y comercio mundial. Cuba no escapa a esta realidad y pretende la Economía del conocimiento como política de la gestión de gobierno basada en la innovación. En tal contexto, Propiedad Intelectual y transferencia de tecnología como herramientas para el desarrollo impactan a nivel local y se articulan en beneficio de la economía del país. La contribución y rol de los nuevos agentes del sector no estatal de la economía, en especial las cooperativas, son innegables. A escala global, en estas figuras ha anclado el emprendimiento en las economías creativas el impulso al desarrollo local. Con el objetivo de fundamentar pautas teóricas para el perfeccionamiento de mecanismos de transferencia de tecnología, se abordan desafíos que plantean las economías creativas para el desarrollo local en Cuba, desde la perspectiva jurídica. Con ese fin se ha destacado la importancia de un marco jurídico adecuado para la transferencia de tecnología, así como la necesidad de una infraestructura conveniente para el desarrollo de las economías creativas. Entre los retos evaluados, especialmente para Cuba, destacan las limitaciones de infraestructura, escasez de recursos financieros, fragmentación normativa y falta de acceso a tecnologías de última generación.

Palabras clave: transferencia de tecnología y conocimientos; mecanismos de transferencia de tecnología; derechos de propiedad intelectual; propiedad intelectual; contratos de licencia y transferencia de tecnología; economías creativas; desarrollo local; cooperativas.

RESUMO

A relevância dos Direitos de Propriedade Intelectual nos cenários da ciência, da inovação e das indústrias criativas tem sido crucial e é destacada entre os indicadores das economias do conhecimento, das indústrias criativas e da economia. O desenvolvimento tecnológico é fundamental para o avanço das sociedades modernas, na medida em que mantém uma relação direta com a indústria e o comércio mundial. Cuba não foge a essa realidade e busca a Economia do Conhecimento como uma política de governança baseada na inovação. Nesse contexto, a Propriedade Intelectual e a transferência de tecnologia como ferramentas para o desenvolvimento têm impacto em nível local e são articuladas para o benefício da economia do país. A contribuição e o papel dos novos agentes do setor não estatal da economia, especialmente as cooperativas, são inegáveis. Em escala global, esses números consolidaram o empreendedorismo nas economias criativas como a força motriz do desenvolvimento local. Com o objetivo de fornecer diretrizes teóricas para o aprimoramento dos mecanismos de transferência de tecnologia, os desafios apresentados pelas economias criativas para o desenvolvimento local em Cuba são abordados a partir de uma perspectiva jurídica. Para isso, foi destacada a importância de uma estrutura jurídica adequada para a transferência de tecnologia, bem como a necessidade de uma infraestrutura adequada para o desenvolvimento de economias criativas. Entre os desafios avaliados, especialmente para Cuba, estão as limitações de infraestrutura, a escassez de recursos financeiros, a fragmentação regulatória e a falta de acesso a tecnologias de ponta.

Palavras-chave: transferência de tecnologia e conhecimento; mecanismos de transferência de tecnologia; direitos de propriedade intelectual; propriedade intelectual; contratos de licenciamento e transferência de tecnologia; economias criativas; desenvolvimento local; cooperativas.

INTRODUCTION

In the international context, the design of public policies, as well as programs to support the management and transfer of technology and knowledge (hereinafter, TTC, in Spanish), emphasize development in research, development and innovation. The symbiosis between technology transfer and economy is revealed as a key element for these purposes (Palao Moreno, 2020, p. 17). The importance of knowledge as a resource of the economy configures a significant competitive advantage, which must be combined with an adequate protection of intangible assets in the modern

business scenario, being in this sense the Intellectual Property Rights (hereinafter, IPR) a tool that has shown its prevalence due to the exclusive rights it confers. Science, technology and innovation constitute unquestionable pillars of the economic and social development of any country, hence their constitutional recognition (Cándano Pérez & Moreno Cruz, 2019), with which, it is not possible "to talk about a true economic growth and social development without recognizing that knowledge and its direct applied results are an essential source of the competitive advantages of enterprises at international level" (Moreno Cruz, 2016, p. 189).

In recent decades, the world economy has undergone a profound transformation in technological contexts. This has meant the challenge of adjusting emerging economic sectors to the new technological and economic realities. For the IPR, the challenge has focused on the legal protection of the work of new productive actors, crucial in the economic development of the creative and cultural industries, and in the digital economy. Precisely, the connection between creative economy and digital economy as components connected to the knowledge economy has indicated that new rules, adapted to the context, should be explored. To a lesser extent, this situation has been expressed in other sectors with macro structures, such as medicines and other proprietary technologies, but the influx of the digital era has also had an impact on their reconfiguration.

Together with the changes that have occurred in the orientation of national and international economic policies, the context leads to the need for adaptation and creation of legal tools capable of supporting the new productive arrangements (Nagao Menezes, 2021, p. 216). The mechanisms that serve these operations are characterized by their variety and diversity and from a technical legal and business point of view are complex and difficult to assimilate in terms of regulation. They are the result of technological interdependence, as well as the dissemination of knowledge in industrial and commercial activity, under the current patterns of the Knowledge Society.

The creative economy or orange economy becomes one of these new production agreements, as a concept that shows an evolution and adaptation to the very technological conditions that support it and the socioeconomic relations it promotes. It designates business or management models based on activities, products or services developed and implemented from the knowledge and creativity or intellectual capital of individuals. From the traditional economy, it focuses the individual or collective potential to produce creative goods and services, whether tangible or intangible, intellectual and artistic, with creative content and economic value for the emergence of a new form of production and distribution of wealth (Nagao Menezes, 2021). The sectors of greatest incidence are culture, with

music and handicrafts at the forefront; design, in fashion and digital and graphic design; and digital technologies, such as the development of software or computer programs and applications, electronic games and others closely linked to mobile telephony and the development of electronic devices, with expansion towards the Internet of Things and other technologies. These areas have been essential in technological innovation, revolutionizing the cultural fields of entertainment through digital platforms and social networks, where new forms have required updated responses in areas such as audiovisual, photography, as well as the uses of the *Internet*.

In the creative economy, the potential of non-traditional actors such as cooperatives, entrepreneurships and small and local figures have redefined business activity based on intellectual creations and self-management of business models. From this perspective, the new structures of the creative economy strengthen relationships between local actors, based on the acquisition of technologies and collaborative relationships, which are standardized in creative activities and transfer. The formation of collaborative networks is evident with the emergence of diversified economies around plural, small and consolidated, individual, cooperative or collective actors on various scales. The social and solidarity economy is increasingly important and technological transformations, as the results will require a more inclusive and sustainable development model, anchored in local development (ILO, 2021, pp. 3-6).

The TTC becomes the main tool for economic development in Cuba, to the extent that it designates the relations of assimilation and export of technologies, which *a priori*, due to their relevance and relationship with IPR, maintain an indissoluble connection with the economic context and have a normative reflection. Driven by the urgency of growth of the Cuban economy and its need to adapt to the standards of the international market, the TTC operations in the field of creative economies offer important avenues for endogenous development and, in turn, for insertion in the market. In this context, since the country is a niche of rich culture and unique traditions, the development of creative economies has enormous potential to foster sustainable economic growth and improve the quality of life of local communities.

The combination of mechanisms in the TTC, which are instrumental in nature, both structural or institutional, as well as legal-negotiation, depending on the scope, conditions and objectives of the transfer operations, promotes the fulfillment of the purposes of IPR (Bausa Caballero & Guevara Fernández, 2020).

As can be anticipated, with regard to the configuration of such mechanisms on a global scale, there is no uniform trend. The dynamizing character exercised by the TTC implies an additional technical-legal approach that considers the valorization of innovations, in the form of intellectual creations. Technology and knowledge as instruments of economic growth make their functionality depend, to a large extent, on the scientific-technological base that allows their absorption and implementation in the form of productive activity. This necessarily leads to the use of heterogeneous legal instruments in an area in which, given its technical complexity, errors of regulatory framework commonly occur.

In the Cuban context, the IPR and TTC systems have undergone a transformation since the enactment of a normative package that sought to update and harmonize the matter with respect to standards and in compliance with international obligations. The normative implementation of the international legal obligations of the Agreement on Trade-Related Intellectual Property Rights (TRIPS Agreement) introduces formulations and justifications based on theoretical approaches and practical experiences mostly external and foreign, that is, constructions of other scenarios that must necessarily be adjusted to the Cuban reality. This imposes rules that respond to a market economy context integrated to the multilateral trade system (Guevara Fernández, 2021, p. 176).

As an economic model that depends on the commercialization of intellectual creations, namely protectable knowledge, Intellectual Property (hereinafter IP) is a decisive factor for the growth of the creative economy. This becomes one of the fastest growing sectors in the world economy in terms of income generation, and in other areas such as the generation of sources of employment (Ottone, 2021, p. 19).

The digital environment, as already stated, offers new opportunities for creative work, but it also implies additional challenges. As transactions and operations are carried out online, adapting to the digital revolution is crucial.

The complexity of the resulting operations has been demanding the configuration of legal-instrumental mechanisms to dynamize the economic traffic of intellectual creations, as a broad and inclusive category, delineating the IPR contents in these businesses and facing dysfunctional uses of the exclusive rights conferred. This scenario is intertwined with the new directions of the non-state sector, particularly the cooperative sector, which has been facing challenges such as the lack of financing, business training and education, and access to advanced technologies. The article examines the relevance in the Cuban context in view of the updating and diversification of the

economic-social agents with a critical approach to the regulation in the matter and its future perspectives. To this end, it proposes theoretical guidelines for its improvement.

MATERIALS AND METHODS

The general methods used in the scientific research, with a theoretical scope, were: analysis, synthesis, induction and deduction, for the purposes of systematizing the theoretical foundations of the legal-instrumental mechanisms of TTC, emphasizing their elements of definition, as well as the understanding of the theoretical-conceptual apparatus of the IPR systems, the international and Cuban doctrine, in the current context. This made it possible to arrive at transcendental generalizations to the configuration of such mechanisms, based on the diagnosis of their insufficiencies in the Cuban legal regime, as well as the proposal of recommendations to solve the detected shortcomings. The transversal use of the dialectic method made it possible to reveal in the object of study, in addition to the relations between the components of the IPR systems, those contradictory aspects in the search for a new element: the legal evaluation of the nature, particularities and scope of the mechanisms of IPR technology transfer in the Cuban context, in view of the premises imposed by the Creative Economies and local development.

Likewise, theoretically oriented legal research methods were used: legal theoretical analysis for an adequate conceptual approach to the object of study; the analytical exegetical method was used to evaluate the scope and meaning of the legal norms in context. The bibliographic review technique was also used to truthfully contrast classic and updated positions on the subject. The hermeneutic method, in close connection with the exegetic one, provides precisions to the objective of the norms that govern TTC operations in Cuba, assessing the correspondence between purpose and statement regarding the mechanisms of interest.

A novel note is provided by the approach to the subject from the legal perspective. Research in Cuba has been oriented from the sciences of process and information management, in which the approaches have not been typical of legal science, resulting discrete in number and of limited impact. The bibliographic review on the subject also reveals approaches from different sciences, such as Economics and Business Administration, and Educational Sciences.

RESULTS AND DISCUSSION

Technology and knowledge transfer, intellectual property and socioeconomic actors: premises of the study

The dynamic relationships between the different actors involved in TTC operations occur through complex and diverse mechanisms. As a result, they cannot be used by each of the generators or users of the technologies, nor can they be used for any economic scenario. TTC operations combine various instrumental, contractual, structural or corporate-legal configurations, whether cooperative or individual.

The purpose and functional scope of the mechanisms designed for the exploitation of IPRs transcends the conceptual and original delimitation of the TTC. Traditionally, this concept has referred to the management and commercialization of IP in general, evolving towards the concept of knowledge transfer. Its delimitation has been carried out at different levels and with unequal results. Moreno Cruz and Morán Martínez (2017, p. 37) consider it as "an encompassing term that resembles knowledge applied to productive activities in the industrial, commercial or service sphere". Authors such as Londoño Gallego et al. (2018) consider technology transfer as a continuous process in which know-how, experience and technological equipment flow from one institution to another, whereby the term comprises the learning process to understand, use and replicate acquired technologies, including the ability to choose, adapt and integrate it to the local conditions of the recipient. Becerra (2019, p. 109) states that "the process of technology transfer involves the exchange of knowledge and technologies through the movement of people and/or artifacts and the arrangement of material, cognitive or legal structures, with the objective of producing a positive impact on people, processes, technologies and infrastructure."

Etzkowitz (2016) defines the essence of the transfer of research results from the bidirectional flow from university to industry and vice versa, with different degrees and forms of academic involvement and in which a variety of modalities coexist. It integrates the value chain from research to the transformation of that result into a new or improved product or service that responds to a society problem. With this approach, it highlights other processes, to a lesser extent connected to the creative economies in its scope of culture, art and heritage, but certainly reconnects with the digital economy. The TTC mechanisms employed for the achievement of this linkage are the result of technological interdependence and the dissemination of knowledge in industrial and commercial

activity, under the patterns of the Knowledge Society (Moreno Cruz, 2016). Although traditionally the concept has been circumscribed to "technology", referring to the management and commercialization of Industrial and Intellectual Property created essentially by public entities, in recent times, it is evolving towards the transfer of knowledge. This transcends the object and functional scope of the mechanisms for the exploitation of rights derived from intellectual creations of university origin, meaning its impact on the economies of developing countries (Yumibanda Montiel et al., 2020).

Knowledge transfer, when inextricably linked to a previous research activity, is defined as transfer of research results (Vargas Vasserot, 2012, p. 80). With this last meaning, the growing cooperation between academic and research institutions with industry, in particular universities, is weighted, adjusting the TTC to transfer of research results, which exalts the object and the condition in this link of the representative parts of the process, university and enterprise. A challenge to be faced in the Knowledge Society is related to the legal protection of useful knowledge, through IPRs and with a plural legal protection, where the regulation of IPRs prevails, with special attention to TTC agreements (Botana Agra, 2012; Palao Moreno, 2020). However, this notion would deserve an approach beyond its strict link to IPRs, referring also to the knowledge that grants the capacity of use and exploitation. Contracts play an extremely relevant role in this issue, given the possibility of diverse contractual engineering.

Arriving at a concrete definition of technology and TTC is complicated, since it is a broad term that includes knowledge in different areas. In TTC operations, various traditional, contractual, corporate configuration and corrective mechanisms of IPR systems are combined. The complexity of IPR contracting, its effects and peculiarities of the regulatory regime, the transfer for the country's economy and the subsequent solution of conflicts that arise have been a permanent concern of the regional academic production in Latin America and the Caribbean (Cabanellas de las Cuevas, 2022).

Given the particularities so far presented, it is evident that the TTC constitutes a complex theoretical construction that is expressed in operations of the same nature. That is why the approach to the mechanisms that lead to it in the economic traffic of intellectual creations is based on the legal-instrumental character of the same for the effective exploitation of rights by their holders. For the Cuban case, the authors opt for a definition based on the diversity of instruments, formulas and legal techniques in order to highlight the stages of the TTC in which clause or negotiating devices based on the existence and exercise of IPR are used. The proposed category fulfills the advantages of

clarifying or making explicit the functionality of IP clauses in dissimilar contractual figures, denoting their complexity. It also includes instruments and tools available to the agents for the transfer. It allows to focus on TTC business provisions in a broad sense, facilitating their correlation with institutions of IPR systems, being transversal to the various conceptions and flows in the TTC oriented to acquisition and transfer scenarios. This position makes it possible to distance oneself from other mechanisms coexisting in the TTC and in IP systems due to their purposes, such as legal, economic, business, corporate and cooperative embodiments or corrective mechanisms for dysfunctional uses of IPRs.

Creative economies and local development. Insertion in the context of Intellectual Property and TTC

The creative economy has been confirmed in the global context with primary importance. Given its contribution to the achievement of the Sustainable Development Goals (SDGs) from various objectives, particularly: goal 1 (End poverty); 5 (Gender equality); 8 (Decent work and economic growth); 9 (Industry, innovation and infrastructure); 10 (Reducing inequalities); 11 (Sustainable cities and communities); 12 (Responsible production and consumption); 16 (Peace, justice and strong institutions) and 17 (Partnerships to achieve the goals), they are placed in the sights of their fulfillment and public policies for sustainable development. This is reaffirmed in Resolution 74/198 of 19 December 2019, adopted by the United Nations General Assembly. It should be noted the momentum experienced in 2021, declared as the International Year of the Creative Economy.

The definition of creative economy is closely connected to the knowledge economy, as discussed above. It has been described and intended as a key driver of endogenous growth through investment in human capital, in resilient sectors and in mobilizing creativity rather than physical resources. As highlighted, it offers a viable development option for all countries and especially for developing economies.

The creative economy can be grouped into main creative areas: culture (artistic creations, music, performing arts and cultural expressions and heritage), consumption, i.e. design, architecture, fashion and advertising, media, i.e. publishing and audiovisual, and technologies, namely biotechnology and biomedicine, information and communications technology and traditional technology sectors. The United Nations Organization, in the 2018 United Nations Conference on Trade and Development Report, distinguishes three types of creativity: artistic creativity, scientific

creativity and economic creativity. Concepts such as capacity of the creative economy to be industrialized establish academic parallels to be resolved between creative industry and cultural industries. What is evident from these research results and is interesting for its extrapolation to the Cuban economy, based on cooperation formulas, is that the creative economy is a new way of doing economy, which center and production of wealth is knowledge and intellectual creativity. The main challenge lies in the design and implementation of efficient and comprehensive public policies aimed at stimulating the advancement of scientific knowledge in these areas and intellectual, artistic, cultural and digital technological creation¹. Local projection is essential in this direction, supported by political will and the impact of national decisions.

To encourage the participation of local communities in the creative economy, it is necessary to take into account a set of actions. Promoting education and training is one of them, as offering education and training programs so that people can develop the skills and knowledge needed to participate in the creative economy is one of the actions. Creating collaborative networks is fundamental, so that agents of the creative economy can connect and collaborate. Another element is the establishment of shared work spaces, such as *coworking* centers, where creatives can work together and share resources, which can be especially useful for those in the early stages. Considering that the creative economy can be a tool to foster inclusion and diversity, the implementation of strategies to promote participation, as well as to encourage the creation of products or services that are inclusive and accessible to all, is feasible. To these ends, it is essential that funding and investment opportunities be made available for creative projects. This may include grants, loans, among others. It is also important to establish policies and programs that encourage social and government investment in the creative economy.

By encouraging the participation of local communities in the creative economy, it is possible to contribute to the sustainable economic and social development of a region. The role of cooperatives and new ventures is essential to such ends, which they sustain from the perspective of cooperative alliances and general postulates of the institution (Acien Fernández et al., 2022; Campos Pérez et

¹ Some experiences are being built around heritage cities and cultural projects associated with heritage environments, with the experience of Trinidad, Sancti Spíritus and other projects. A recent case is the declaration of Santiago de Cuba and Havana as Creative Cities by Unesco, in which context the gestation of local figures that are articulated with local development is stimulated, with some financial support. In the case of Santiago de Cuba, academic production and accompaniment in that direction have been intensified.

al., 2019). In addition, the creative economy can be a tool to foster innovation and social transformation, which can have a positive impact on people's quality of life.

Creative economies can have a significant impact on the cooperative sector by providing an opportunity for cooperatives to diversify their activity and, ultimately, the supply of products and services to increase their competitiveness and generate jobs, with a sustainable and quality model. In addition, they can contribute to creating a more inclusive and participatory business environment, where cooperatives and other local actors have an important role in the creation and management of creative projects. The cooperative sector can use these creative resources to develop new products and services that differentiate themselves from the competition and meet consumer needs. It can also exploit opportunities for innovation and differentiation of local products and services, it is a laudable goal in itself.

Cooperatives can contribute to the promotion of local culture by working with local creators, artists and artisans and offering products that reflect the identity and history of the community. This is influenced by the generation of jobs, as well as spaces for education or training that diversify employment options and attract people with creative skills or talents. This approach fosters collaboration and teamwork, which can be beneficial for cooperatives, as they can work with other creative actors, such as artists, designers and artisans to develop joint projects that generate added value for the community. In that direction, the promotion of local identity and culture is a differentiating element, which can be valuable for cooperatives that focus on the production and marketing of local products and services.

Cooperatives need to develop specific skills and knowledge to participate in creative economies, including creativity, technical knowledge, marketing and sales, business management, teamwork and collaboration, and knowledge of local culture. By exploiting these practices, they can take advantage of opportunities offered by creative economies for the sustainable economic-social development of their communities, which represents an advantage over other forms of enterprise. These advantages must be skillfully employed by local decision-makers and stakeholders.

Technology transfer in the Cuban context. Guidelines for its configuration

The challenges from the law and the creative economies that must be addressed to achieve an effective and sustainable transfer face significant and considerable problems in magnitude. In order to achieve an effective transfer of technology in Cuba, it is imperative to promote the renewal of the

economic context of the creative sectors, on the one hand, and research and technological development on the other, both oriented to the vocation of local development. A legal framework is needed to promote investment in these sectors and facilitate collaboration between actors, enterprises, universities and research centers, intellectual creators, cultural groups and producers' organizations, as is the case in the agricultural sector and cultural traditions associated with products that can be protected by means of Geographical Indications. On the other hand, it is essential to foster creativity and innovation through creative economies. This can be achieved through public policies that promote entrepreneurship, the creation of collaborative networks and the formation of specialized human capital in the areas of culture, design, the software industry and an impact on technologies for the promotion and subsequent management of innovative projects.

The current Constitutional text shows a result in this area that can be described as progress. Its articles 8 and 12 offer criteria for the compatibility of the internal order with international agreements on commercial and IP matters. This makes it possible to defend, from the standpoint of national sovereignty, a balance that reaches TTC issues, corroborating the implications and observance of the TRIPS Agreement. Article 21 highlights the role of science in the economy, attributing to it in the economic fundamentals the status of a sector of special interest and promotion by the State. This is linked to the Fundamentals of Educational, Scientific and Cultural Policy contained in Title 3 of the text itself². This is complemented with the expansion of the catalog of rights recognized to natural and legal persons and the reinforcement of their guarantees.

It can be argued that TTC in Cuba is a complex process that requires adequate legal-instrumental mechanisms and a strategic vision that fosters innovation and creativity. From the law and creative economies, it is possible to address the challenges that arise and achieve sustainable and equitable development through technology. Technological development is key to the advancement of societies in today's world. In Cuba, as in many other countries, it is necessary to insist on promoting TTC as a fundamental tool for development, which leads to its consideration in local development.

With regard to the TTC, in the Cuban regulatory and practical context, the fragmentation of the current legal regime and the lack of a systematic approach to these operations can be seen. It is bifurcated in two main areas, IP and the new regulation of essential economic actors in the transfer.

² Refer to art. 32 of the Constitution of the Republic of Cuba of 2019, especially paragraphs a) f) g) and i). Articles 8, 12 and 21, previously referred to, can also be compared in the legal text. Constitution of the Republic of Cuba. Published in the Extraordinary Official Gazette No. 5 of April 10, 2019.

In IPR matters, together with the substantive rules for the protection of inventions, industrial designs, trademarks and other distinctive signs and geographical indications, the regulation of issues in business and contracts³ has been added, as well as those related to unfair competition.

Although the repealed Decree Law No. 68/1983 "On inventions, scientific discoveries, industrial models, trademarks and appellations of origin" in its context, had a novel and revolutionary nuance, it did not meet the minimum international standards, its articles 184 and 185 established for the agencies of the Central Administration of the State and the enterprises the obligations to guarantee the imposition of restrictive clauses in the negotiations for the acquisition of technologies. The enactment of Decree Laws no. 336 and 337/2018 and the patent and Industrial Property legislation, in relation to Decree Law 304/2012" On Economic Contracting" and Decree 310/2012 "On the types of contract", in relation to contractual figures, warn the undefinition of a clear systematic regarding the obligations of the parties with respect to intellectual property contracts (shortcomings in terms of contractual typicity, since the rule is not a reflection of the legal consequences of the institute), focusing on general postulates to assimilate its content to the given denomination. The anti-competitive clauses that must be avoided in Intellectual Property contracts are regulated with a similar idea. Other rules complement this scenario⁴.

An approach to the contractual figures of the TT shows a wide range of possibilities to model and modulate the will of the parties in legal-instrumental mechanisms of this nature. The specialization of these businesses is undeniable, given the subjective particularities of the knowledge generators and the purpose of the operations. The licenses, assignments, transfers or services derived from these operate as generic figures for the exploitation in the market of the intangible goods protected by the different IP modalities in a broad sense. The technical complexity of the instruments imposes a particular treatment to the rights, which conditions their interpretation. The diversification of the

³ From this point of view, problems of contractual typicity are revealed in relation to the configuration of the modalities provided by law. Likewise, the anti-competitive clauses that must be avoided in contracts are insufficiently regulated, which, in the context of the new actors, must be addressed to counteract unfair conduct in trade, repressed by Unfair Competition, but also behaviors that must be regulated by Competition, without the existence of a legal regime for anti-competitive practices. Furthermore, the impact of this matter on foreign investment is a major challenge.

⁴ Added to this are Decree No. 363/2019 "On science and technology parks and science and technology enterprises that function as an interface between universities and science, technology and innovation entities with productive and service entities", of the Ministry of Science, Technology and Environment; Resolution 286/2019 "Regulations for the organization and operation of the National Registry of Science, Technology and Innovation Entities" and Resolution 287/2019 "Regulations for the system of Science, Technology and Innovation programs and projects", of the Ministry of Finance and Prices. Empowering legitimized legal embodiments.

legal norms according to matters and modalities of protection of intellectual creations segments the Cuban legal regulation, particularizing its clause apparatus.

Licenses of patents, technical knowledge, confidential information or trade secrets, have been the contractual figures of transmission of intellectual rights and intangible goods that have supported the development of the TTC in its contractual expansion, in its doctrinal and methodological positioning as its core. The clauses referring to the subject matter of the contract determine the exclusive right of exploitation held by the licensee, establishing the content of the exercise of the conferred right. This scope is fixed exhaustively by law, in the catalog of faculties that are recognized to the licensee⁵.

In general, the Cuban regulation of the TTC from its business dimension is insufficient in aspects such as: 1) the theoretical and normative conception adopted, 2) the technical-legal construction of essential aspects related to the clause device, 3) the *a priori* description of the contractual figures with technical-legal formulation that does not opt for systematization and integration with other sectors of the legal system, all of them with transcendence to the field of legal security of the TTC operations in the economic traffic. Issues such as the essential clauses in the business dynamics, the provisions of moral content related to ownership and the delimitation and provision of abusive clauses, present theoretical and normative insufficiencies that hinder the fulfillment of the objective of preventing situations resulting in abuse and limiting the exploitation of IPR in Cuba.

There are particularities of the country's economic and social model that transcend the design of the legal-instrumental mechanisms that usually mediate the TTC. This is the case of the public nature of the universities and the main research centers, as well as of a significant number of enterprises, which are part of the Cuban Science, Technology and Innovation system. New actors have been recognized in the TTC context. Single-person or collective figures from the private sector converge, introducing situations yet to be deciphered in the entrepreneurial context, traditionally led by the public sector. Thus, technology parks and interface enterprises are converging, which acquire legal status and will presumably play an essential role in the TTC processes. Similarly, high-tech

⁵ For example, in the Cuban legal system, article 46 of Decree-Law 290 "On Inventions and Industrial Designs", of November 20, 2011, establishes, with a negative character, the patent rights of the holder, which would be completed with the exhaustion of the patent right. From a comparative perspective, the texts follow the general line set by art. 28 of the TRIPS Agreement. They endow the contract with the specification of the patented technical rule, thus delimiting the scope of the licensed inventive title, with the effect for the enforcement of the patent against infringement and establishing the acts of direct or indirect exploitation that are considered lawful and reach the license right.

enterprises and their qualification incorporate legal, economic and technological considerations into the Cuban context.

Finally, due to their relevance in the context of local development and the relationship with the creative and cultural economies, as well as the digital economy, the enactment and new legal regimes for literary, artistic and scientific creations, linked to culture and the production of knowledge as protected works in the field of copyright, and the norm updating the regulation of Cultural Heritage should be noted. In another area, equally relevant in the creative economies, the public policies and regulations of the digital transformation process in Cuba, which reach the organizational experimentations and legal regime of the developers of software, programs and computer applications, in turn protected by the new copyright legislation, incorporate another regulatory sector to be considered. As can be seen, the diversity of regulation and fragmentation implies a particular technical-legal evaluation for the TTC.

Cuban particularities demand a legal regime adjusted to the requirements of the subject and the national context. Other challenges are configured in the field of culture, heritage and tourism, which must be profoundly reviewed in the governmental context in order to make a real and direct contribution to local development, with cooperatives and state-owned corporate enterprises being an alternative for decentralization and approach to local needs.

The governance approach for the Cuban context implies an inquiry into the actors involved in TTC operations, taking into account the nature of their interests, the relationship between universities, science and research entities, state enterprises and new forms of non-state management, as well as the increasing participation of foreign actors and investors, and should consider the fact that Cuban universities do not have appropriate legal structures for these purposes, such as technology-based *startups*, *spin-offs*, associations, foundations, civil persons, or technology-based enterprises. On the other hand, the professional activity of programmers has caused a labor migration to the private sector, which imposes challenges to traditional state enterprises, but also constitutes an opportunity for articulation in the context of local development. All of which requires a particular approach to sustain the balance of public and private interests. Guevara Fernández (2021) in relation to the Cuban patent system, Bausa Caballero and Guevara Fernández (2020) in relation to the mechanisms of Intellectual Property systems, Díaz-Canel Bermúdez and Fernández González (2020) from the vision of science-based government, have contributed interesting elements to this statement.

In view of the restructuring of the Cuban legal system and economic model, among other measures that must be considered, it is necessary to review the mechanisms used to prevent and correct dysfunctional situations derived from the exercise and exploitation of intangible assets, as well as cases of unequal contracting in the arrangement and execution of business, and potential unfair practices in trade and the regulation of the concurrence of different actors in the economic sphere.

The improvement of the TTC mechanisms based on IPR negotiating provisions, with an instrumental legal entity, is required and desirable in the Cuban context. For this purpose, the following set of guidelines should be taken into account:

- *The dynamic role of technologies and knowledge as the object of TTC operations.* The theoretical-normative definition given to technologies and knowledge is decisive for the exploitation of IPRs. The multidimensionality of the term suggests taking a stance regarding its scope, for the purpose of specifying conditions and limits to the legal-instrumental mechanisms with respect to the conditions of national and international economic traffic.
- *The normative-theoretical scope of the business dimension of IPRs to be verified in the clause blocks defined for the particular configuration of the TTC operations.* In this sense, the standard must consider in its system the obligations of the parties, their effects and the phases related to the IPR exploitation, recognizing them by clause blocks correlative to the IP institutions and their risks.
- *The correlation between the clause device and IP institutions in the content of TTC transactions.* The TTC mechanisms in their instrumental legal dimension require a design that correlates the clause device and the relevant IPR institutions that may be affected in the adoption of essential clauses to the operations in the IPR economic traffic. The content of the abusive exercise of rights conferred to the holder should be defined with respect to the abuse resulting from the contractual negotiating activity as an expression of the abusive exercise of IPR.
- *The implementation of appropriate legal regulatory techniques.* The specialization and complexity of the TTC merits the determination of a legal technique that systematically allows its integration with IP legislation and systems, in order to solve the regulatory and legal technique shortcomings. The insufficiencies in the effective protection against abuses of dominant position merit a special regulation that considers the control mechanisms of the TTC.

- *The role of the heterogeneous actors involved in TTC operations.* Among the shortcomings detected is the insufficient perception of the heterogeneity of the actors involved in TTC operations. In addition to the primary formal actors, informal non-institutional actors are recognized, both in the business sphere and in the entrepreneurship and innovation ecosystem at the request of universities and public centers. This implies a regulatory provision for the protection of the disadvantaged party in the business and a verification of local power.
- *The postulation of the public interest in relation to the exploitation and purpose of IPR-based businesses.* The diagnosis of the mechanisms confirms the need for a normative formulation of the public interest in relation to the exploitation and socioeconomic purpose of IPR-based businesses. This should be interpreted as an interest in the national economy and its development.
- *Normative interpretation by integration with other provisions related to IP.* The norm must be interpreted on the basis of integration with other normative instruments that generally regulate legal transactions, labor legal relations in labor law, foreign investment, substantive norms of IP systems and other substantive or procedural regulations to be considered in the construction of the *clause device*.
- *The possibility of correcting actions derived from the dysfunctional exercise of IPR.* The recognition of dysfunctional situations and the delimitation of abusive clauses according to the phases of exploitation and essential content of the business is necessary in order to improve the regulation of corrective mechanisms. The complex panorama of anti-competitive practices confirms the need for regulatory and methodological precision in order to avoid the flourishing of this type of actions.

The adoption of the *above* guidelines will contribute to correct the insufficient theoretical-normative conception of the legal-instrumental mechanisms of TTC based on IPR negotiating provisions in Cuban legislation, in order to guarantee the exploitation of IPR and their systematics in the legal system. All this for the benefit of local development by creative economies.

The development of this work allows affirming the positive impact of creative economies in the TTC for the local context, especially in Cuba. This is based on the opportunity to provide employment and business options; the incentive to innovation and differentiation of products and services; the encouragement of collaboration and teamwork, as well as the promotion of local identity and culture. Social economy approaches, governance and networking are important for this purpose. Adaptation

to the needs and characteristics of local communities is a relevant element for the design of efficient instruments, policies and legal regimes.

The articulation of TTC legal-instrumental mechanisms with the aforementioned budgets for local development is essential. In this dynamic, non-state forms of management of the economy play a key role, among which cooperatives stand out, due to the valuable contribution that their business structure can make to the business model that bets on the approach of creative economies. All of which poses challenges for Cuban law and IPR protection. These challenges include the need to establish an adequate regulatory framework for TTC operations that guarantee the exploitation of exclusive rights over intellectual creations.

Understanding the TTC as a tool for economic development in Cuba provides entrepreneurs with a multidimensional vision that points to clear competitive advantages. The norm must reflect and support this notion. The analyses followed so far reveal a recognition of the constitutional postulates on science, technology and innovation, which requires, in its technical development, to complete the set of principles, categories and contractual solutions. These are essential issues to negotiate contracts of this nature, to comply with the purpose of granting exclusive rights and to promote their exploitation in economic terms with the correlative guarantees.

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Conflict of interest

Authors declare that they have no conflicts of interest.

Authors' contribution

Elizabeth Bausa Caballero conceived and designed the study, was involved in the collection, analysis and interpretation of the data, wrote the draft, reviewed the writing of the manuscript and approved the final version submitted.

Ernesto Guevara Fernández contributed to the conception and methodological guidance of the research, conceptualization, literature review, writing of the original draft and general supervision.

Both authors have contributed directly to the intellectual content of the work, approve the contents of the manuscript submitted to the editorial process and agree that their names appear in the authorship of the manuscript.



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