Social interactions in mandatory teleworking: From instrumental rationality to the theory of communicative action in the workplace context

Interacciones sociales en el teletrabajo obligatorio: De la racionalidad instrumental a la teoría de la acción comunicativa en el contexto laboral

Interações sociais no teletrabalho compulsório: Da racionalidade instrumental à teoria do agir comunicativo no contexto laboral

Fábio Lucas de Albuquerque Lima
Centro de Estudos Jurídicos Celso Barroso Leite, Brazil

Viviane Alfradique Martins Figueiredo Mendes
Lawyer, Brazil

ABSTRACT Interpersonal relationships at work usually occur face-to-face. During the Covid-19 pandemic, these interactions shifted to a virtual way. This essay intends to analyze telecommuting from an individual perspective, bringing Max Weber’s theory of social action and Jürgen Habermas theory of communicative action to the discussion. Instrumental rationality has prevailed since the Second Industrial Revolution, reaching its apogee in the capitalist production system with Taylor-Fordism. It was not found in the literature an approach to telework with a focus on the interaction between individuals, the core of the Weberian theory of social action. Habermas’ theory of communicative action, in this approach, is used to emphasize the importance of language and communication in telework.

KEYWORDS Covid-19, teleworking, organizational theory, social action theory, theory of communicative action.

RESUMEN Las relaciones interpersonales en el trabajo suelen ocurrir cara a cara. Con la pandemia de covid-19, las interacciones se trasladaron a un formato virtual. Este ensayo analiza el teletrabajo desde una perspectiva individual, utilizando enfoques fundamentados en la teoría de la acción social de Max Weber y la teoría de la acción comunicativa de Jürgen Habermas. Durante la Segunda Revolución Industrial, ha prevalecido la racionalidad instrumental en las organizaciones, con su punto máximo en el taylorismo-fordismo; al respecto, no se encontraron trabajos en la literatura que aborden el
Introduction

It was March 2020 when everyone received the news that their workplace would be closed with no date to reopen. Leaving the house began to require precautions, such as the use of masks and carrying hand sanitizer available. This terrible situation that humanity has gone through may have transformed the models usually applicable to people management. Thanks to information and communication technologies and widespread access to computers, tablets, and smartphones, most employed population managed to maintain their work activity. Another part, unfortunately, was unable to work with commerce, industry, and public services closed.

Despite the fact that labor relations studied by labor law authors involve the analysis of factual situations in which work activity is carried out with other employees and supervised by intermediate management workers, there is a gap in the literature and the legislation regarding Weberian substantive rationality and Habermas’ communicative rationality.

Thus, there is a gap in legislation regarding the approach to subjectivities and new meanings that teleworking brings to labor relations, as well as the increase that the adoption of paradigms more focused on preserving the human values of work promotes in terms of increased productivity. Contrary to what studies have been suggesting regarding social support for teleworkers and the importance of distance
communication, labor legislation continues to regulate teleworking from a perspective exclusively of strategic rationality focused on ends, forgetting the spaces for rationalities on values, such as Weberian substantive rationality and Jürgen Habermas’ communicative rationality.

This essay will analyze how compulsory telework interfered with the dynamics of the social division of labor through the prism of rationality. After discussing the difficulties of conceptualizing teleworking, a brief history of organizational models will be made, from the Taylorist and Fordist systems to Jürgen Habermas’ theory of communicative action, passing through Max Weber’s theory of social action. In an exploratory way, it is intended to contribute to understanding the rearrangement of labor relations in our society during the Covid-19 pandemic.

Although the term home office is widely known by the population, and some people have telecommuted or known someone who carried out their activities remotely after March 2020, there are still difficulties in conceptualizing it.

The problem of the conceptualization of teleworking

In recent years, with the development of information and communication technologies, the number of workers who do not need to move from their homes to carry out work activities has grown significantly. As Rocha and Amador (2018) discuss, the feasibility of working anywhere has become a very accessible and often attractive reality. The term «telework» (also called home office, remote work, and distance work, among other terms) is related to the flexibility of time and space at work (Rosenfield and De Alves, 2011). In the literature, these authors are among those who have worked a lot on the multifaceted variety of ways of understanding this modality of distance work:

In a restrictive sense, telecommuting can be defined as working at a distance using information and communication technologies. In an extensive sense, used by the International Labor Organization, telework must be conceptualized in terms of different variables: i) place/space of work; ii) working hours/time (full or part-time); iii) type of contract (salaried or self-employed), and iv) required skills (work content) (Rosenfield and De Alves, 2011: 216).

However, these same authors point out how the dynamism of modern work relations and the continuous development of technologies make it difficult to admit a simple conceptualization. In general, national and international organizations related to work define telework as exercised outside the organization’s premises, public or private, using information and communication technologies. However, during the pandemic, work that required the deliberation of many people in meetings, even if these people were at the organization’s headquarters, had to be carried out virtually
and remotely, in the face of constant waves of contamination during the pandemic, even if everyone was inside the organization's head offices. It corroborates the assertion that telework cannot be conceptualized simply as distance work but as an element of strategic organizational changes that point to new forms of flexible work supported by information and communication technologies (Rosenfield and De Alves, 2011).

For didactic and less philosophical purposes, the term telecommuting, used predominantly in the United States of America, defines telecommuting as the possibility of avoiding commuting. Nilles (1975) was the author who coined the term, which became world-famous, and it is interesting to read the first articles by this revolutionary author. In Europe, on the other hand, «telework» stands out, which focuses on the process of carrying out activities with such technological means that you can work from somewhere other than the traditional workplace. Whatever the term used, remote work, within the social organization of work, signals the modern trend that some work activities are now carried out using telematic means without the worker traveling to the establishment that hires him (Rocha and Amador, 2018).

Finally, in Brazil, the expression home office was popularized, but in this essay the word telework will be used to work with the flexible work modality that is performed outside the organization, most of the time at the worker’s residence but not always or not necessarily in it. Studies on teleworking in Brazil emphasize the administrative approach (mainly functional) and, in labor law, important issues such as the principle of protection and the concept of subordination, which equates teleworkers with face-to-face workers.

The predominance of instrumental rationality

In the first Industrial Revolution, the social division of labor and strict hierarchical control by bosses over workers were already established. As technology and means of energy were still incipient, the instrumental rationality of the capitalist system only emerged more clearly in the second Industrial Revolution (Ferreira, 2000).

From the second half of the 19th century, the Industrial Revolution expanded beyond England to France, Belgium, Holland, Germany, and the United States. Steam engines were replaced by combustion and explosion engines and new energy sources such as electricity and the use of oil. While the first phase of the Industrial Revolution had fabrics as its main product, in this second phase, the mass production of goods such as engines and new materials based on metallic alloys or chemical products began (Ferreira, 2000).

During the Second Industrial Revolution, Frederick Winslow Taylor stood out as the principal founder of modern scientific management. Observing problems in the factories where he worked, he studied and proposed solutions for technical improve-
ments that would result in production and efficiency gains. Among the various problems he analyzed was that of wages, which in his opinion should be paid to stimulate productivity. To resolve the issue, he studied the time it took an excellent worker to produce a specific part (task). Next, he moved on to the study of motion, in a relentless pursuit aimed at achieving efficiency within the company. After implementing two premises (efficiency and productivity), Taylor began to study the improvement of controls, instilling responsibility in everyone, within a traditional and hierarchical system (Ferreira, 2000).

Thus, when Henry Ford founded his first factory in 1914, the principles already developed by Taylor received a potent boost with the application of the assembly line and the inclined plane, which allowed for an exponential increase in the mass production of goods. As a result of this increase, the need to solve quality problems has arisen. It was no longer enough to produce on a large scale if there was no excellence, conformity, adequacy, and value in what was produced. Faced with these problems, Feigenbaum created the concept of total quality, which took deep root in Japan post-war. Influenced by the American school, and mainly by Deming’s ideas, the Japanese model added to Taylorism and Fordism, the economy of resources (avoiding waste), with the clear objective of producing without defects. For this, employee participation and commitment to each stage of the product were rigorously adopted, and these principles application by Toyota raised it to the rank of the third largest assembler in the world. Hence the name given to these scientific management techniques application is the Toyotist model.

Another essential paradigm of scientific management Henri Fayol, with his theory of administrative functions, points to the role of supervision as fundamental in the functioning of the administrative machine. Every development that the labor division in factories and corporations has achieved, with full, compulsory teleworking in the face of a terrible health crisis, has been questioned. It has a thread of history that needs to be revisited, without that link, total isolation would most likely have collapsed the industry and served those most deeply, if you can think of it.

From 1970 onwards, with the intensive use of information technology, microelectronics, and biotechnology, as well as the emergence of new materials and new sources of energy, the Taylorist-Fordist rational and instrumental structure underwent unavoidable structural changes. Robotization and the application of new technologies diminished the worker’s power knowledge. From the point of view of hierarchical command, the most demand for worker qualification, who must receive and transmit information quickly, the trend should be for a more horizontal model in the decision chain of command. However, this did not materialize in practice.

The logic of capitalism continues to prevail that within the perspective of instrumental rationality aimed at profit, or as Ferreira explains, the capitalist instrumental rationality prevailing, the dualization of the following social phenomena remains pe-
cessation: qualification and disqualification, employment and unemployment, contractual stability and precariousness of contractual ties, social integration, and social exclusion (Ferreira, 2000). However, the prevalence of the population being allowed to work away from the factory floor promoted a rupture in work specialization, as had been the case since the Second Industrial Revolution. Until the middle of the 19th century, it was common for workers to work at home. Previously, artisans performed all tasks in their atelier and, in addition, owned the means of production.

With the pandemic and mandatory telecommuting, there was a movement to work outside the organization. So the contact in the production chain indicates a model that can deconstruct the traditional division of labor, strongly affecting the control mechanisms. The literature has already studied that telework requires different, more subtle, more fluid forms of control (Costa, 2007; Rosenfield and Alves, 2011). However, with the pandemic, something was the exception: the shortest portion of the population of workers became almost the entirety, whether in the private sector (Battisti and others, 2022; Wang and others, 2021; Braesemann and others, 2022) or the public sector (Lucas and Santos, 2021).

With the exponential development of technologies and their impacts resulting from the incorporation of their resources interfering in the division of labor, the reflections of social scientists cannot move away from technological innovations investigation. In no longer an employment relationship, reality indicates a weakening of work, as it happens, for example, in the «uberization» modality of services. Thus, in the discussion on Portuguese language labor law, despite the legislation of Angola and Portugal being ahead of Brazilian legislation on teleworking, there are still gaps that leave aside many precepts of man’s emancipation through work, with a domination of the instrumental rationality of work that is aimed at achieving the company’s economic goals.

All of this leads us to consider the need to study and incorporate other concepts and rationalities that occur when interacting in society to guarantee the social values of work. Teleworking can be studied from the point of view of historical materialism within the process of class struggles and the expansion of capitalism in a predatory way (Sell, 2020).

If Durkheim’s positivism is essential for the empiricism with which it seeks to understand social reality, the perspective of giving the character of science in the field of being to relationships in society (Machado Neto, 1974), research into teleworking from the individual’s point of view, in this approach, aims to emphasize intersubjective social interaction. Likewise, the critical paradigm of Marxist approaches is necessary to understand the weakening and precariousness of work in the Fourth Industrial Revolution, enabling the process of contradictions inherent to the capitalist mode of production and its reflection in legislative production to be identified.
However, in the present study, the focus of analysis is the interaction between individuals in social isolation and compulsorily subject to virtual work relationships carried out remotely. Likewise, the coercive character of social relations in Durkheim’s sociological model can study the phenomenon from the perspective of the social division of labor, including using the construct of organic solidarity. Nevertheless, these two methodologies do not cover the method of analyzing intersubjective interactions in teleworking, with Weber and Habermas’ theories of social action being more appropriate for studying gaps in labor laws.

**Weber’s theory of social action and Habermas’ communicative action theory**

The control and supervision mechanisms were not ready to maintain productivity and quality along the lines of the dominant instrumental rationality. How was it possible to preserve the primary social structure balance? Could it be attributed to the individual’s vocation (Weber, 2020) to work in society? These and other issues justify the importance of resuming studies on telework during the pandemic (Wang and others, 2021: 18). Based on the sociology of religion to support his studies aimed at understanding the phenomenon of capitalism, Max Weber (2020) analyzes in-depth individuals and their beliefs, comparing the Catholic faith with Reformed Christianity and the consequences of these changes in the theology of modern societies on development economy of Europe and the United States, anchored in the capitalist system.

The sociological origins of capitalist ethics studied by Weber took us back to Benjamin Franklin’s American utilitarianism, cited in *The Spirit of Capitalism*. Franklin’s moral admonitions have a functional orientation: honesty is proper because it brings credit; this also happens with punctuality, dedication, and moderation, and that is why they are virtues (Weber, 2020). Returning to what was said in the previous chapter, could the effort of all workers be attributed to what Weber called *Beruf* in German? The vocation of the teleworker, whether in the private or the public sector, deserves investigation. Or was only instrumental rationality the category that managed the economic world?

Compulsory telecommuting during the pandemic may have started a new model, already embryonic since the 1970s, in the sense of putting into question the traditional management models of producing in a highly compartmentalized way in companies and without the figure of a factory supervisor or office observing, measuring production in person. In this sense, studying telework from a paradigm of social action theory in the face of a new adaptation process in the social interaction between workers is an enjoyable alternative for future research.

The social division of labor has already been the object of extensive studies, from positivists such as Durkheim to Marxist historical materialists. While for Durkhe-
im, social facts are regarded as things, separated from the reality of individualities (Guerreiro Ramos, 1983), for Marx, social relationships stem from the dominant economic structures (Machado Neto, 1974). As part of an analysis of society as a larger organism, the collective methodological perspective as a determinant of individual behavior in this essay is not the subject of the discussion, and they aren’t incompatible with approaches that focus on individual action. But this escapes the limits of this theoretical essay, which does not aim to discuss social reality in its entirety, but a small portion of what happens in it: the individual social action about another individual (Weber, 2022). Therefore, we justify the powerful influence of Max Weber’s theory of social activity in the telework study, even though Weber has not spoken of telework or even suggested the hypothesis of its existence.

Contrary to the Marxist and positivist paradigms mentioned in the previous paragraph, whose focus is predominantly on the view that the collective determines what happens at the individual level, Max Weber idealized a methodology that paid attention to the individual and to the interactions of an individual about other individuals, an interaction that constructed the collective social fact. According to Weber (2022), social action and the meaning intended by the agent or agents is related to the behavior of others and is guided by it in its course.

The truth is that the problems inherent in teleological rationalities, both for society and for the individual as an actor of the social organism to which he belongs, tend to be accentuated in modernity, exacerbated in the period of the Covid-19 pandemic, as we know happens in times of crisis.

The classification of social actions by Weber (2022) into four categories: functional rationality (purposes), substantive rationality (values), passionate rationality (feelings), and traditional rationality (instilled via customs), facilitates the indication that in the world of production of goods and services predominates the strategic rationality aimed at achieving ends. By emphasizing that the understanding of individual behaviors become more intelligible as individual values interact to the extent that there is no gap between them, we begin to understand whether telework will highlight the accordance of social action or, on the contrary, accentuate the difficulty of producing rationally in the face of a new reality in which work processes are now being provided remotely by telematic means, in a situation of social isolation due to the health issue of the Covid-19 pandemic, in what elements of irrationality can emerge.

By studying the rationality of social action aimed at ends, Weber shows that the intelligibility and univocity in understanding a given phenomenon allow facilitation to scientifically isolate the evidence. However, social activity does not always take place without the interference of irrational factors such as fears, panics, insecurities, disturbances, affections, and sympathies, thus constituting a «deviation» from the expected course of purely rational behavior (Weber, 2022: 39).
Despite the ideal model of rationality in univocity, analyzing the effects of the adoption of telework in a period of social isolation, without understanding the intervention of irrational or subjective factors, to explain the phenomenon from the point of view of instrumental rationality will simply no longer its exact or at least your best understanding. No doubt working at home accentuated the possibility of practices related to substantive rationality, deserving empirical research to corroborate the hypothesis.

The determinations to a production increase signal that purpose and oriented rationality dominate. The individual emancipatory theoretical categories will be worked on to help the performance of strategic actions of collective telework. Thus, while studies such as those by Piloto (2022) and Pereira (2022), focused on Brazilian labor law to discuss the right to disconnection, we don’t have detailed regulations about disconnection rights in the Brazilian legal system, which demonstrate that teleworking requires the incorporation of concepts beyond functional rationality. Its regulation should strive to include principles and values in a process that allows the survival of a dialogical process between theory and practice in the organization, and these concepts and principles are included in labor law.

While in Portuguese legislation on teleworking there are provisions that aim to construct subjectivities and social rights, such as the right to telework for workers with young children (Véras Neto and others, 2020), Brazilian legislation is concerned with regulating in a minimalist way the parameters for the configuration of the employment relationship. Even though Portuguese legislation advances a little further in protecting teleworkers, both countries have not incorporated legislation on the validity assumptions for a working relationship that emancipates the worker as a human being. It confirms the broad predominance of instrumental rationality. As science already discovers that the adoption of paradigms from other rationalities can even reduce absenteeism and increase productivity in companies (Wang and others, 2021), the time has come for the legislator to think about how to incorporate these issues into labor law discoveries.

Here, a digression of Habermas’ theory of communicative action can support our work. When criticizing Max Weber’s theory of social action, Habermas, despite starting from classical authors to formulate his critical theory of social reality, emphasizes the importance of Weber’s work, influenced by the neo-Kantian philosophical movement, characteristic of the romantic period of 19th century German philosophy, the environment in which Weber is contextualized. Thus, Habermas himself states:

I intend to return to the concept of communicative action exposed in the introduction and, continuing with the theory of speech acts, to anchor in conceptual foundations the aspects of action subject to rationalization that have been neglected in the Weberian theory of speech action, in its official version (2019: 494).
As we have previously asserted, the Weberian methodology influenced this essay’s development. Such importance of methodological parameters is predicted by Habermas when he states that the problem of rationality presents itself at the same time on a metatheoretical level, a methodological level, and an empirical level (Habermas, 2019). Although the paradigm of organizational flexibility (post-Fordism) had elements that favored a dialogical managerial action (communicative action), a type of social action substantiated by the social theory of Jürgen Habermas, there is no certainty that this will predominate, or, on the contrary, if what is predicted is a weakening of labor relations and the permanence of the aggravation of the reification of the employee’s or server’s working capital.

Without claiming to exhaust the analysis of critical theories on instrumental rationality, broadly summarized in the work of Jürgen Habermas, in a holistic and transversal view, which permeates philosophical, linguistic, and psychological metatheoretical foundations, we proceed to discuss the foundations of purpose communicative and emancipatory, based on the dialogue between theory and practice, which is the Habermasian theory of communicative action.

Habermas begins his work theory of communicative action by constructing the interpretation of a social theory to fit a new concept of rationality, communicative rationality. Thus, he makes it clear that the theory of communicative action is not a metatheory but the beginning of a social theory that strives to demonstrate its critical parameters (Habermas, 2019: 9).

Dissecting teleological rational action, since Aristotle sought support in the historical development of Max Weber’s construction of strategic action, he introduces the role of language in the concept of social action, integrating it with functionalist rationality. This new view Habermas goes on to call the theory of communicative action. Habermas distinguishes that it is not just speech that constitutes communicative action but reinforces that the discursive role, which occurs between subjects through linguistic mechanisms in the social action, is the touchstone that qualifies communicative action.

Based on the argumentation that Hegel established between theoretical and practical reason as a landmark in the philosophy of law, he influenced Marx through a bifurcation: Marx criticized the self-sufficiency of a philosophical reflection with a retrospective bias (Habermas, 2019). And that from this documented methodological posture of Marx, the mediation between theory and praxis would be born (Marx cited in Habermas, 2019). However, this cannot be interpreted as disregarding a matrix of Kantian influence. Unlike Weber’s strategic action, Habermas’ communicative social action will be based on the dialogical process between communication actors, highlighting the illocutionary and perlocutionary aspects of speech acts. Here Habermas dichotomizes actions oriented towards success (instrumental rationality) and actions oriented towards understanding.
Habermas (2019) enumerates situations in which the object must be taken into account, considering speech acts in isolation, the performative attitude in which each speech participant connects it with the objective, social, and subjective world; the reflective perspective and, finally, the individual knowledge that engenders unique worldviews.

Compared to strategic action, whose teleology resides in success, the message in instrumental action can, contrary to the understanding process in communicative action, unconsciously contain distorted information or consciously contain a form of manipulation. In addition, communicative action can suffer from an excess of confidence that produces expectations of consensus that may not be achieved and emulates dissent, making the desired coordination of actions challenging (Habermas, 2019).

Even though substantive rationality advances in the humanization of work on the categorical and imperative instrumental action, Habermas points to the fallibility of traditional models, very focused on the thinking of the scientist or the philosopher, not being correct to try to solve the problem with an emphasis on rationality subjective (Tenório, 1990).

Despite the social, economic, and cultural development of the globalized society, the new paradigm of production management advocated the differentiation of the organization of production and work under the trajectory of technological innovation without indicating a movement toward the democratization of social relations in companies and institutions. English Marxist Perry Anderson points out some limitations of Habermas’ thought so that the concept of communicative rationality does not exhaust the ability to follow the «illustration» in its path, even because the Habermasian paradigm has not yet reached maturity enough to be invulnerable (Tenório, 1990: 9).

Telework which is a reality in modern organizations has not been following the permanent search for equality and freedom, with the insertion of the individual in the dialogue between capital and work to reach consensus, internal harmony, pacification, and emancipating man and woman in modern society. In practice, it appears that teleworking is implemented linearly, from top to bottom, in a typically functionalist model, with an increase in the workload due to the simple fact that the worker or server performs his actions at home, disregarding factors such as spending energy, water, physical space, psychosocial problems of isolation, which the worker has to bear unilaterally and exclusively, depriving him of income and well-being.

The interaction between workers in a telematic way brings the need to deepen studies related to control and supervision. No less important is studying the communication of teleworkers and knowledge management in organizations. At this point, given the importance that Habermas studies dedicated to the problem of communication and language, the theoretical approach in empirical research on telework can bring essential findings for the design of this modality of people management.
Final considerations

In this essay, teleworking was approached from the starting point of theories of social and communicative action of Max Weber and Habermas, respectively. With theoretical arguments that question the limitations of strategic or instrumental action, the trajectory of work at home for factories was briefly covered, mainly after 1850. This movement took a reverse direction with the rapid development of information and communication technologies, allowing the return home during the Covid-19 pandemic.

The adoption of telework on a large scale, leveraged with the coronavirus pandemic, accentuated the problems of instrumental rationality with the worker remaining in a situation of distancing from the decision and organizational processes, still not having the right measure of the harmful effects of virtual isolation to which he was subjected. Although science points to the importance of language and personal interactions for communication and knowledge management, there are no concerns about these issues.

The absence of intense group support or social support for the individual from the organization, valuing traditional forms of supervision and control, misses the opportunity to increase productivity and mitigate the problems arising from isolation in a home office.

The paradigm of organizational flexibilization (post-Fordism) had elements that signaled to favor a dialogical managerial action (communicative action), a type of social action substantiated by the social theory of Jürgen Habermas it did not advance towards greater emancipation of the individual.

Telecommuting is far from overcoming the obstacles of instrumental rationality and treading the path that modernity, under the paradigm of communicative reason, envisioned as a more democratic form of social action.

References


About the authors

FÁBIO LUCAS DE ALBUQUERQUE LIMA has a Master’s degree in public administration at Fundação Getúlio Vargas, and is a Law graduate at Universidade Federal de Sergipe. His email address is fabiolucas74@gmail.com. https://orcid.org/0009-0000-2881-3853.

VIVIANE ALFRADIQUE MARTINS FIGUEIREDO MENDES has a Master’s degree in public administration at Fundação Getúlio Vargas, and is a Law graduate at Universidade Federal Fluminense. Her email address is viviane.mendes@agu.gov.br. https://orcid.org/0009-0005-9104-0626.
La Revista Chilena de Derecho del Trabajo y de la Seguridad Social es una publicación semestral del Departamento de Derecho del Trabajo y de la Seguridad Social de la Facultad de Derecho de la Universidad de Chile, y que tiene por objetivo el análisis dogmático y científico de las instituciones jurídico-laborales y de seguridad social tanto nacionales como del derecho comparado y sus principales efectos en las sociedades en las que rigen.

DIRECTOR
Claudio Palavecino Cáceres

EDITORA
Verónica Fernández Omar

SECRETARIO DE REDACCIÓN
Eduardo Yañez Monje

SITIO WEB
revistatrabajo.uchile.cl

CORREO ELECTRÓNICO
pyanez@derecho.uchile.cl

LICENCIA DE ESTE ARTÍCULO
Creative Commons Atribución Compartir Igual 4.0 Internacional

La edición de textos, el diseño editorial y la conversión a formatos electrónicos de este artículo estuvieron a cargo de Tipográfica (www.tipografica.io)