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Perception of the use of Blockchain and its impact on transparency in public institutions

Percepción del uso de Blockchain y su impacto en la transparencia de las instituciones

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Abstract

The arrival of Blockchain provides solutions to institutions in different sectors such as finance, also in other areas, such as accounting, audits, legal aspects, smart contracts, the supply chain and the transparency of institutions, which contributes in better management. Hence, this work was focused on investigating 2 objectives, the perception of Blockchain and its impact on the transparency of information in institutions, as well as the existing correlation of both variables. In this work, a descriptive and correlational analytical methodology was used, the sample was made up of 33 university professors and 142 students who have entered the labor sector through their internships and internship processes or are already working and are recent entrants. . The information was collected through a structured questionnaire, with alternatives of multiple answers. The findings showed regarding one of the objectives that the perception of Blockchain is acceptable, understanding its potential that it offers. Regarding the second objective, a correlation of 0.771 was evidenced at a significance level of 0.029, indicating that there is a high and statistically significant relationship between the perception variables on Blockchain and its impact on the transparency of information in institutions.

Transparency, Correlation, Findings

Resumen

La llegada de Blockchain brinda soluciones a las instituciones en diferentes sectores como el financiero, también en otras áreas, como la contabilidad, las auditorías, los aspectos legales, los contratos inteligentes, la cadena de suministro y la transparencia de las instituciones, lo que contribuye a una mejor gestión. De ahí que este trabajo se enfocó en investigar 2 objetivos, la percepción de Blockchain y su impacto en la transparencia de la información en las instituciones, así como la correlación existente de ambas variables. En este trabajo se utilizó una metodología analítica descriptiva y correlacional, la muestra estuvo conformada por 33 docentes universitarios y 142 estudiantes que han ingresado al sector laboral a través de sus pasantías y procesos de pasantía o ya están laborando y son de reciente ingreso. La información fue recolectada a través de un cuestionario estructurado, con alternativas de respuesta múltiple. Los hallazgos mostraron respecto a uno de los objetivos que la percepción de Blockchain es aceptable, entendiendo el potencial que ofrece. Respecto al segundo objetivo, se evidenció una correlación de 0.771 a un nivel de significancia de 0.029, indicando que existe una relación alta y estadísticamente significativa entre las variables de percepción sobre Blockchain y su impacto en la transparencia de la información en las instituciones.

Transparencia, Correlación, Hallazgos

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Introduction

The purpose of this research is to provide insight into the perception of the impact that Blockchain has on the transparency of institutions, as a tool in the use of Information and Communication Technologies, as well as to know the correlation between two study variables (Blockchain and transparency of information).

With Blockchain, money is sent directly and securely from one person to another without being physically in a bank, now, the financial world uses hybrid systems such as the Bank of England (Allison, 2015), Visa (Arnold, 2016), systems for streamlining and improving the security of real estate transactions, such as property registration or applications for improving transparency in public accounts (Goswami, 2016), thus enabling the user to clearly understand the status of the operations carried out, at least with respect to the information that is recorded in a structured manner, hence the need for organisations to orientate processes in line with technological progress.

The digitalisation of information management in companies, especially in smaller ones, is still in progress, mainly due to factors such as lack of knowledge and implementation of the technological infrastructure. In this sense, an analysis is required on the restructuring of procedures and methods according to the new scenarios of public institutions with technology and transparency, which means that every company is called upon to implement and take advantage of technological resources. Blockchain provides confidentiality of the identity of operators, an indelible record of each of the transactions and thus avoids risks in the non-secure and permanent identity, as well as the use of encrypted transfers to achieve secure communication of data (Atencio Flores & Mamani Machaca, 2017).

Blockchain makes it possible to certify the authenticity of all kinds of objects and acts, and to combat fraud, as in the case of the company Provenance, which aims to control the life and history of its wines to allow consumers to know the entire journey until they reach their table (Parker, 2015) or the case of the company Ujo Music, which ensures the management of the copyright of musical productions (Capps, 2016).

Likewise, blockchain helps in activities such as generating and knowing updated account statements in real time from a mobile device, automatic accounting of recurring expenses and invoices or bank reconciliation with a single click. Another application is smart contracts, which are automatically executed when the conditions specified and agreed in the contract with the user are met (Padilla, 2020).

With the use of Blockchain, access to information is facilitated, which has a significant impact on the basis for the construction of knowledge, so one element that must be considered at the institutional level is to have competent staff in the efficient use of technologies (Guitert, 2013).

In addition, when correct use is mentioned, it refers to the access, management and processing of information, so that it is presented in the appropriate format, achieving the automation of processes, which facilitates decision-making in real time, improving the internal logistics of a company, times in activities of different internal processes, the attention with certainty to problems that require help for the handling of private information, taking advantage of the security it provides that such information cannot be modified by a third party and there are no people who act as intermediaries who manage to violate the security of the information.

On the other hand, society requires institutions to generate transparency in the information on the management of public funds, this concern exists and the effects can be positive in terms of transparency and public innovation.

However, the principle of transparency in public institutions becomes an incomplete ideal if there are no agencies or institutions with the capacity to sanction and enforce accountability. As Jonathan Fox (2008: 174) points out, transparency confuses the normative with the analytical. In public administration, for example, records are observed in various procedures, but how to certify information such as the nationality of a citizen, the ownership of a house or an identity, so that it becomes a database to be used in public administration.

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Through the management of data, it is possible to infer some act of corruption or embezzlement, it is precisely in the processes where the evidence lies, which generates the search for greater levels of transparency in the processes of public administration, it means raising one more step on the road to greater accountability and that is where the use of technology is required (Naser, Ramírez-Alujas and Rosales, 2017).

Blockchain enables the creation of a disruptive political and governance model, allowing for transparency and fostering the creation of social trust, helping to eliminate corruption and cutting out intermediaries. The exchange of data, where transfers of value are made through the use of smart contracts, is accompanied by savings, immediacy, increased security, flexibility and optimisation of processes. The European Union, for example, analyses the application of Blockchain through an observatory, the European Union Blockchain Observatory & Forum (EUBOF), and provides a series of reports on features and guarantees (EUBOF, 2018).

De Filippi (2017) reports on transparency with pseudonymity for transactions on a Blockchain, as each user and node is identified by a unique numerical address, pseudonymous with an identity that, due to technical characteristics, is not known if the user so chooses. All transactions are immutably recorded in the distributed database, i.e. a significant set of participating nodes keep encrypted copies of each previously agreed transaction, so that it is technically impossible to delete or falsify the historical record of executed transactions (Brandom, 2019).

Blockchain, therefore, is a technology that makes it possible to create an environment of transparency, so that technology and public administration are not mutually exclusive but complementary; it is possible to achieve mechanisms of trust and improve traceability and transparency. With this tool, the institutions will be able to generate mechanisms that do not require trust in the public administration, as it is capable of eliminating the discretionality of the officials on duty, ensuring that who controls the one who controls is everyone, i.e., it makes it possible to create trust in a mechanism without the need to trust people.

Unfortunately, there is still a lack of knowledge about the potential of this technology in public institutions and this is where universities provide graduates with knowledge oriented towards technological competences so that they can develop efficiently in their professional and work context, hand in hand with technological tools such as Blockchain and the companies that demand, above all, aspects of transparency, which leads us to think that, from educational institutions, more research and use of technologies that impact areas with the possibility of counting and using financial resources. This will allow for real-time information, with feedback for the fulfilment of goals, productivity and development of new strategies to improve the logistics of the company's activities and create a culture of transparency with mechanisms of trust and improve traceability.

Metodology

Considering the objectives of the study, a combination of research methods was assumed, mainly involving descriptive analytical research procedures; this is a preliminary stage of data processing that creates a historical summary of the data to provide useful information and prepare it for further analysis, which helps to answer the question, i.e. a descriptive analytical methodology supports organisations to understand what happened in the past. By understanding the relationship between two variables, e.g. customers and products, it aims to gain an understanding of the approach to be taken in the future: learning from past behaviour in order to influence future outcomes.

For Garza-Mercado (2007) this type of research directs procedures to a study phenomenon in its entirety and interconnections to discover what accounts for its integration. This research suggests that analysis as the processing of qualitative information and statistical data is carried out in descriptive research, however, it depends on the level of research with which the researcher concludes.

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On the other hand, according to the objectives of the study, which seeks to determine the relationship between the perception of Blockchain and its impact on the transparency of information in institutions, a correlational methodology was established to measure two variables (Blockchain and Transparency of information in institutions) and its purpose is to study the degree of correlation between them, therefore, this methodology seeks to discover how one variable varies when the other does. Tamayo and Tamayo (2009) consider that this methodology seeks to determine the degree to which variables in one or several factors are concomitant with the variation of one or more other factors. Therefore, this research identifies, describes and defines the characteristics, properties and behaviours of the variables Perception of the Blockchain and its impact on information transparency in institutions.

In the same vein, Méndez and Astudillo (2008) consider that correlational research examines the relationships between variables or their results, but without explaining that one is the cause of the other. The importance of these lies in measuring the level of relationship between the two. At the end of the study, the level of correlation was established by applying Spearman's Rho formula. As for the data collection technique, a questionnaire with 10 multiple-choice items was elaborated and applied to a population of 33 university teachers and 142 students. Once the data had been collected using the instruments designed for this purpose, it was necessary to process them, that is, to elaborate them mathematically, since quantification and their statistical treatment allow conclusions to be drawn. According to Tamayo and Tamayo (2008), whatever the technique used for this, it is nothing more than the recording of the data obtained by the instruments used, by means of an analytical technique in which the conclusions were obtained.

For the analysis of the data provided by the instrument, descriptive statistics were used, by means of which the data were presented in a double-entry matrix, where the items grouped by blocks were located in the upper part, according to the indicators. Dimensions and the variable, on the left side, the research subjects were noted.

The degree of correlation between the perception of Blockchain and its impact on transparency from the information in the institutions was established using Spearman's Rho formula. These results were then contrasted with the theories underpinning the study, reviewing the conclusions to which they gave rise, and presenting the recommendations relevant to these results.

The Rho Spearman formula is described below.

Where:
Rho= Spearman's correlation coefficient.
Di= Difference between the ranks of i
N= Sample size
1= Constant

Results

The perception of Blockchain and its impact on information transparency in institutions

The innovative aspect of Blockchain is that the register is distributed among each of the members that form part of the process and, as it is not a centralised base, it is impossible to modify it, noting that once a piece of data has been published and linked to a previous block, the block is validated by the entire network in real time, giving confidence and certainty to all the nodes that form part of the network.

Similarly, Rodríguez, Acuña, Rojas & Lobato (2015), consider that technologies such as Blockchain are a way to lead companies to optimise production and services. Hence, their use requires skills and abilities to intervene in the construction and production of new services, according to the interests and desires of organisations and individuals.

Today, the proper management of these tools has a positive impact on public and private organisations, for example, bureaucracy is mainly a record that confirms facts, giving the opportunity that when there are doubts or there is no consensus, the record is reviewed, hence thinking about these distributed is a different possibility in the areas of organisations. Blockchain has the power to make the operational strategies of any institution more efficient, regardless of their scope of action, that is, to serve as a mechanism for the efficient use of resources, their measurement and control.

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This directly influences the quality of products, since the appropriate use of technologies becomes a competitive advantage for companies, which channels better ways of exercising and guiding the course of the organisations, all in search of improving services.

According to Mochi (2012), for companies to generate innovation through technology, it is not enough to install sophisticated computer programmes; it is also necessary to acquire techniques and skills in the handling of hardware and software. In addition, developing capabilities to address the specific needs of people in each area in which it operates to improve their living, working, professional and social conditions. Social benefits are linked to the work aspect, which means that as individuals develop personally, they also improve professionally and this translates into higher productivity and work performance in companies.

Concepts such as public innovation and new government processes, generate what is known as the open government ecosystem, where Blockchain can start with a simple and scalable registration to more complex processes involving more organisations or areas of government, which gives the possibility to experiment in a suitable environment to be replicable to other more complex processes.

In line with the objectives of this work, particularly the one that aims to investigate the perception of Blockchain and its impact on the transparency of information in institutions, Gargallo-Castel & Pérez-Sanz (2009) consider that the mastery that users can have of technologies adapted to each procedure and objective of the institution, generates a more efficient management to optimise productivity and compete in many sophisticated markets, Therefore, Blockchain provides innovation in the transparency of information in institutions, which confirms that mastery in the use of technological resources by companies requires productive development aimed at satisfying the current needs of societies, seeking a balance between economic growth and social welfare.

In this order of ideas, universities as institutions managing knowledge and professional training of citizens, must contribute with professionals capable of developing in a globalised world, impregnated with technological and scientific advances with the obligation to transmit new ways of learning and for the construction of knowledge, contributing to economic development, in this sense, all educational process and its levels must be directed, which is why the updating of knowledge of teachers is an imperative and to implement new models of education according to their cultural, economic, technological, among others, particularities.

Therefore, it is necessary for teachers to formulate the use of pedagogical strategies and resources based on the generation of competences that enable the appropriation and integration of the digital tools required in organisations. In this regard, Almenara-Cabero & Romero-Tena (2010) point out that the management and mastery of technologies must be a constant competence in all teaching professionals and to integrate them as part of the training processes, as it is not possible to train a person in a particular area and obtain knowledge about what they were trained for and in practice be limited by not knowing how to grasp the tools that the markets offer.

The Blockchain is a way of coping with social realities and the advances that globalisation has driven at a dizzying pace. Every company or organisation must be competitive, and to do so, it must adhere to cutting-edge, modern production systems. It must adapt its organisational and procedural structure to computerised methodologies, programmes that facilitate access to information, and break down the limitations of time and space.

Furthermore, unlike digital signatures, the Blockchain also makes it possible to certify the existence of a document or file existence of a document or file. The data contained in the blockchain comes with its own history its own history and this is a fundamental part of proving its integrity, which is a very powerful quality. Digital provenance, i.e. proof that a digital event occurred, is the most valuable contribution of this technology.

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Another strength is that it simplifies the traceability of a process and can be audited in a simpler way, which in turn provides transparency, so that third parties can audit and control the actions of the public or private company thanks to the distributed information of the Blockchain.

Implications of the Blockchain

The use of Blockchain implies that people develop a more open, flexible, critical and conscious way of thinking about their personal and social responsibilities when making use of this technology, for example, one of the central functions of governments over the centuries, from its beginnings to date, has been to certify or guarantee certain goods or processes, Therefore, the integration of this technology together with the potential and mastery of the users to use it in the work field, allows the creation of new work channels and procedures, that is to say, it contributes with innovation in the transparency of the institutions by facilitating the exchange of information, which represents a start for planning and projections in relation to the direction in which the companies should be directed and to be able to satisfy the demands of consumption and service.

Based on the values obtained from the application of the research instruments, the analysis and discussion of the results obtained in the data collection process is carried out. The data (see Table 1) are presented following the order of appearance of each of the indicators and dimensions of the variables.

Response Indicator	High	High	Media	Media	Under	Under	Minimum	Minimum
Population	Teachers	Students	Teachers	Students	Teachers	Students	Teachers	Students
Percentage	%	%	%	%	%	%	%	%
Use of Blockchain for Information Transparency Innovation	54.5	45.1	30.3	42.3	12.1	9.9	3	2.8
Elimination of Intermediaries to Simplify Processes	81.8	46.5	18.2	48.6	0	2.1	0	2.8
Accessing Documents Quickly and Reliably	72.7	43.7	21.2	47.2	6.1	5.6	0	3.5
Use of Blockchain for Reporting	57.6	41.5	36.4	52.1	0	4.9	6.1	1.4
Blockchain to Avoid Rudimentary Activities and Paper Usage	63.6	45.1	30.3	47.9	3	3.5	3	3.5
Streamlining Processes With Blockchain	75.8	45.8	21.2	49.3	3	2.8	0	2.1
Average	67.67	44.62	26.27	47.9	4.03	4.8	2.02	2.68
Percentage	56.14		37.08		4.42		2.35	

Table 1 General Data of the Blockchain Perception Dimension
Own source

Analysed Table 1 reflects the results that sought to investigate the perception of Blockchain, in relation to which a series of questions were asked to university professors and students who have ventured into the productive labour sector, noting that a 56. 14% of respondents consider that they have a high degree of perception of the Blockchain and its advantages in the use in the innovation of information transparency, elimination of intermediaries to simplify processes, access to documents quickly and reliably, use of Blockchain to generate reports, to avoid rudimentary activities and the use of paper, as well as the agility of procedures with the Blockchain.

Likewise, 37.08% stated that they have a medium perception about the Blockchain and its advantages in the use in transparency innovation, 4.42% stated that they have a low perception, 2.35% expressed that their perception is minimal.

Likewise, taking into account the teachers' average of 67.67%, they present strengths with respect to the elimination of intermediaries to simplify processes with 81.8%, agility of procedures with Blockchain with 75.8%, access to documents quickly and reliably with 72.7%, with reference to their average response rate of 44.62%, strengths can also be observed.

With regard to the relatively low percentages presented in the indicators, it is identified that on the part of teachers and students, the indicator on the use of Blockchain for innovation of transparency in information is presented as the percentage of 54.5% in the opinion of teachers and as for students with 45.1% respectively, evidencing in both opinions the lowest percentages in the High Category. With regard to the Medium Category, taking into account the average of 26.27% of teachers, it is observed that the lowest values of the indicators Elimination of intermediaries to simplify processes, Access to documents quickly and reliably, Agility of procedures with Blockchain with 21.2% and 18.2% are presented.

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Concluding this analysis, it is highlighted that the highest preference of answers by teachers and students is presented in the alternatives High and Medium, which means that the dimension Perception of the Blockchain is acceptable within the variable under study.

Table 2 shows that according to the opinion expressed by the teachers and students surveyed, the transparency of information in the institutions is Good and is a function of public debate and participation rights in the institution, use of the processes in the institution and value through the networks with Blockchain with 50.22%, followed by Excellent with 25.98%, then the option Regular with 20.6%, followed by 3.18% of Bad about the information in the institutions being transparent.

Response indicator	High	High	Media	Media	Under	Under	Minimum	Minimum
Population	Teachers	Students	Teachers	Students	Teachers	Students	Teachers	Students
Percentage	%	%	%	%	%	%	%	%
Transparency of information in the institution (without the use of blockchain)	33.3	17.6	33.3	59.2	30.3	22.5	3	0.7
Use of processes in the institution	24.2	10.6	45.5	71.8	30.3	16.2	0	1.4
Accountability in the institution	27.3	19	42.4	62	24.2	17.6	6.1	1.4
Potential of blockchain as a tool for transparency	69.7	34.5	30.3	47.9	0	15.5	0	2.1
Oversight tasks in the institution	36.4	21.8	42.4	62	21.2	14.8	0	1.4
Public debate and participation rights in the institution	24.2	19.7	48.5	59.2	24.2	19.7	3	1.4
Free access to open data in the institution	24.2	16.9	36.4	61.3	36.4	19.7	3	2.1
Transparent disclosure of data in the institution	21.2	12	42.4	66.2	30.3	19	6.1	2.8
Use of smart contracts	9.1	17.6	33.3	58.5	33.3	19	24.2	4.9
Value across networks with blockchain	51.5	28.9	45.5	56.3	3	14.8	0	0
Average	32.11	19.86	40	60.44	23.32	17.88	4.54	1.82
Percentage	**25.985**		**50.22**		**20.6**		**3.18**	

Table 2 General data on transparency of information in the institutions
Own source

It can be seen through the average obtained for teachers of 40% the strength for the indicator public debate and rights of participation in the institution with 48.5% and for students it raised its average of 60.44% strengths can be seen in the same indicator with 59.2%. Appreciating a decrease in terms of the indicators Use of processes in the institution and Value through networks with Blockchain for teachers with 45.5% and in the case of students is evident in the indicator Use of processes in the institution with 71.8% and the indicator Value through networks with Blockchain with 56.3%.

When analysing the inclination of the surveyed population, according to the response category, it can be seen that there is a greater incidence towards the Good and Excellent categories, which indicates that the distinction of the indicators of the transparency dimension in the institutions is adequately fulfilled.

Having achieved the descriptive objectives designed to give strength to this research, it is then appropriate to apply a statistic that allows inferring these values or results to the population, therefore, it was decided to apply the method of calculating the Spearman Correlation Coefficient to establish the degree of relationship between the perception of Blockchain and its impact on the transparency of information in the institutions. For this purpose, the measurements were transformed into nominal form by comparing them with the scale, using the values collected in the attached double-entry matrices, with the help of the SPSS version 23 programme.

The procedure used for the test was by means of the following statistical formula and corroborated by the results obtained from the application of the SPSS version 23 statistical programme.

$$P = 1 - \frac{6\sum d^2}{n(n+1)(n-1)}$$

Where:
ρ: Spearman's correlation coefficient.
d: difference between the ranks (X - Y)
n: number of data

Correlations				
			Perception of Blockchain	Impact on the Transparency of Information of the institutions
Spearman's Rho	Perception of Blockchain	Correlation coefficient	1.000	.564**
		Sig. (bilateral)	.	.000
		N	142	142
	Impact on the Transparency of Institutional Information	Correlation coefficient	.564**	1.000
		Sig. (bilateral)	.000	.
		N	142	142
**. La correlación es significativa en el nivel 0,01 (bilateral).				

Table 3 Correlation between the Variables Perception of the Blockchain and the Impact on the transparency of information in institutions (IN TEACHERS). *SPSS software*

Applying the formula, a Spearman correlation coefficient of 0.771 was obtained at a significance level of 0.000, which indicates that there is a high and statistically significant relationship between the variables, its positive sign indicating that as the values of the variable Perception of the Blockchain increase, the Impact on the transparency of information in the institutions increases and vice versa.

Correlations				
			Perception of Blockchain	Impact on the Transparency of Information of the institutions
Spearman's Rho	Perception of Blockchain	Correlation coefficient	1.000	.771**
		Sig. (bilateral)	.	.000
		N	33	33
	Impact on the Transparency of Institutional Information	Correlation coefficient	.771**	1.000
		Sig. (bilateral)	.000	.
		N	33	33
**. La correlación es significativa en el nivel 0,01 (bilateral).				

Table 4 Correlation between the Variables Perception of the Blockchain and the Impact on information transparency in institutions (IN STUDENTS). *SPSS software.*

Applying the formula, a Spearman correlation coefficient of 0.564 was obtained at a significance level of 0.000, which indicates that there is a high and statistically significant relationship between the variables, its positive sign indicating that as the values of the variable Perception of the Blockchain increase, the Impact on the transparency of information in the institutions increases and vice versa.

Discussion

After tabulating the results and describing them statistically from the questions asked by the respondents, it is necessary that in terms of the variable perception of the Blockchain, a significant strength is observed, in terms of the conception of this technology.

This indicates that the integration of this tool and its impact on transparency in institutions is important, even and when the processes for its use are limited, users are aware of the potential of this technology, however, it is imperative that people have skills that allow them to be implemented at a practical level and not only theoretical, which generates innovative processes in response to the challenges that arise today in the transparency of institutions, showing objective advantages of its real application.

With regard to the other variable, it is observed that in terms of the impact on transparency in institutions, the results expose the need for intellectual capital, i.e., that Blockchain knowledge is necessary for the production of goods and services in any the labour field of people's work today.

So it is necessary to generate this competence as part of the development of professionals in universities, i.e. they must contribute in part to the training of professionals who know how to solve problems using the technology that is incorporated into the productive fabric. apparatus in its fullness, as this is part of economic development and the quality of services.

In this sense, specialised training is needed to generalise the use of Blockchain systems and foster a greater culture of security among users because this technology implies a change of mentality and skills, since information transparency is not the same as information transparency. the processes of institutions, a government, for example, can open information on its expenses or contracts, with the drawback that this does not make it transparent in how that process was carried out or whether the parties to the contract were complied with.

Through data it is possible to infer corruption or embezzlement, although it is in the processes where the evidence can be found, so using technology such as Blockchain to generate greater levels of transparency in the processes of institutions means improving on the road to greater accountability (Naser, Ramírez-Alujas and Rosales 2017).

Conclusions

Regarding the objectives of the study it is confirmed based on the results of the perception of Blockchain and its impact for the transparency of information in the institutions, the initial difficulty of its implementation is presented because, even though it can offer great savings to organisations, its implementation in economic terms involves very high disbursements for the adoption of the technology, but also, because of the structural changes of the transition from centralised to decentralised systems.

Apart from the technical, operational and regulatory difficulties, what is certain is that the application of Blockchain requires significant changes in management models, public and private leadership, and even raises the need for a new civic and democratic culture, which is not simple as it directly conflicts with the functioning of institutions, governments and the State.

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As well as with regulations, political processes and customs, and can therefore represent a brake on standardisation.

However, despite the efforts made, there are still gaps in its integration, which are due to the lack of empowerment of users or workers for its proper implementation. However, it has been successfully incorporated in some larger companies; in other smaller companies, digital and technological transformations are required to have an impact on social, political and economic aspects, as well as, especially, on people's lives.

Finally, among the findings, it was confirmed that there is a correlation between the two variables of this research where the relationship coefficient obtained is a positive value, indicating that the relationship between the two variables is strong and positive, i.e. in the perception of the Blockchain as a useful tool in the labour or institutional environment for the streamlining of procedures and monitoring to contribute to transparency, there is a correlation between the two variables (they are dependent).

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