

ORIGINAL ARTICLE

Remote work and its relationship to productivity in a technology company in Lima

ABSTRACT

The purpose of this research paper is to determine the relationship between remote work and productivity, in the context of the COVID-19 pandemic, in the company Indra Perú S.A. Lima, in the year 2021. The methodology used is descriptive, cross-sectional, correlational with a non-experimental design. The market research was carried out through a survey applied to 314 employees of the company, resulting in a Spearman coefficient of 0.905, which is positive and significant, demonstrating that there is a relationship between remote work and productivity. Therefore, the study concludes that the productivity of the employee working remotely can be equal or better than working in a 100% face-to-face manner in their workplace.

Keywords: Remote work; Productivity; Working conditions.

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INTRODUCTION

As a result of the COVID-19 pandemic, companies have implemented mandatory remote work in order to continue to meet their business objectives, as this mode of work is a new way of performing duties, and requires employees to balance work and family life. For Uribe *et al.* (2021):

En definitiva, la pandemia ha generado nuevas formas de convivencia comúnmente llamadas “nueva normalidad” donde el distanciamiento físico es una de las normas fundamentales. Este contexto obligó a la mayoría de gobiernos a instaurar el trabajo remoto, una modalidad de trabajo a distancia impuesta e implementada sin un marco legal ni soporte tecnológico suficientemente sólido en muchos países, entre ellos el Perú. [In short, the pandemic generated new forms of coexistence, commonly referred to as the “new normal,” in which physical distance is one of the fundamental rules. This context has forced most governments to adopt remote work, a form of telework that has been imposed and implemented in many countries, including Peru, without a legal framework or sufficiently solid technological support.] (pp. 182-183)

Yet Neufeld (1997) noted nearly two decades ago that

El interés por el teletrabajo ha ido creciendo constantemente en los últimos años. [...] abundan las anécdotas que describen estos impactos positivos y negativos, pero se han realizado muy pocas investigaciones controladas para evaluar de manera concluyente los efectos o la eficacia de este arreglo de trabajo dependiente de la tecnología. [Interest in teleworking has grown steadily in recent years. [...] Anecdotes abound describing these positive and negative effects, but very little controlled research has been conducted to conclusively assess the impact or effectiveness of this technology-dependent work arrangement.] (p. 03)

This research addresses the problem in a technology company that, despite being at the forefront of information technology processes, had not considered a system for its employees to conduct their activities remotely. For Sánchez (2017) “La velocidad de crecimiento de la tecnología es exponencial, mientras que las organizaciones y la sociedad en general nos movemos con una velocidad de cambio lineal, así que el impacto de estas tecnologías sobre las organizaciones es trascendental” [the rate of growth of technology is exponential, while organizations and society in general we move at a linear rate of change, so the impact of these technologies on organizations is transcendental] (p. 3).

Basurto (2017) adds that “El 75 % de jefes considera que el teletrabajo logró mejorar la productividad de los colaboradores, solo el 25 % considera que el sistema de teletrabajo no mejora la productividad” [75% of supervisors believe that teleworking has managed to improve the productivity of employees, and only 25% believe that the teleworking system does not improve productivity] (p. 40). Information technology companies have been on an upward trajectory as the use of technology has been prioritized to improve processes and optimize resources to achieve more efficient results. Although the start of the digital era was gradual, external and unforeseen situations, such as the COVID-19 pandemic, have accelerated its growth.

It is worth mentioning that “estudios empíricos en los últimos años han encontrado resultados favorables del teletrabajo como el mejor rendimiento, satisfacción laboral, menor desequilibrio trabajo-familia, tasas reducidas de estrés y menores intenciones de rotación” [empirical studies in recent years have found positive results of telework, such as better performance, job satisfaction, less work-life imbalance, lower stress rates and lower turnover intentions] (Contreras *et al.*, 2020, p. 3). Among the most recent studies is the one developed by Sánchez and Montenegro, who developed a research paper on telework as an innovative proposal for higher productivity in companies and concluded that “Los teletrabajadores tuvieron un incremento en su productividad laboral debido a los factores motivacionales, pues

conocen las actividades que deben efectuar, y [las] cumple[n] en el mejor tiempo posible, el tiempo restante es programado para sus actividades diarias personales y familiares” [Teleworkers had an increase in their labor productivity due to motivational factors, because they know the activities they have to perform and [they] perform them in the best possible time, the remaining time is scheduled for their personal and family daily activities] (Sánchez y Montenegro, 2019, p. 102). Similarly, Dávila *et al.* (2022), in their paper on productivity and remote work in the public sector, add that

Como producto de la emergencia sanitaria se ha conseguido una rápida adaptación al cambio, un buen manejo de las TIC, el logro de las metas de la organización en combinación con el desarrollo de las actividades personales, el fortalecimiento de la cultura organizacional y la mejora del desempeño profesional. A pesar de esto, es importante que la institución pública continúe afianzando estos comportamientos mediante la implementación de estrategias que permitan mantener altos niveles de productividad laboral. [As a result of the health emergency, there has been rapid adaptation to change, good ICT management, achievement of organizational goals combined with the development of personal activities, strengthening of organizational culture and improvement of professional performance. Nevertheless, it is important for the public institution to continue reinforcing these behaviors by implementing strategies to maintain high levels of work productivity.] (p. 408)

On the other hand, over time, there have been authors who contradict the above, such as Cruz-Ausejo y Rosales (who point out that remote work “es considerado un contribuyente positivo, no obstante estudios recientes lo asocian con la disminución de autopercepción, satisfacción en productividad y preocupación por el contagio del virus, por parte de los empleados” [is considered a positive contribution, but recent studies associate it with a decrease in self-perception, productivity satisfaction, and concern

about the spread of the virus among employees] (Cruz-Ausejo y Rosales, 2022, p. 860).

In this regard, López *et al.* (2023) add that

Las condiciones del empleo que deben fortalecerse son la estabilidad laboral, la variedad de tareas, el estímulo intelectual del trabajo, la autonomía o libertad de cátedra, las funciones y la categoría adquirida, el respeto al horario laboral y de descanso; la participación y el ejercicio de los derechos laborales y sociales. [The employment conditions that should be strengthened are job stability, variety of tasks, intellectual stimulation of work, autonomy or academic freedom, functions and acquired category, respect for working hours and rest periods, participation and exercise of labor and social rights.] (p. 19)

Therefore, the objective of this research is to determine the relationship between remote work and productivity, as well as the variables associated with this relationship: working conditions and new work tools. The intention is to show that employees can be productive as long as they comply with minimum parameters, where they not only perceive the company’s interest in achieving its objectives as an organization, but also appreciate the importance of the human factor, which, despite not occupying a specific physical space, is nevertheless key to the development of the company’s activities.

METHODS

The research is applied with a cross-sectional design. The population consisted of 1,706 employees of Indra Perú S.A. and the sample consisted of 314 valid surveys, after applying the following statistical formula for finite populations.

$$n = \frac{Z^2 * N * P * Q}{(N - 1) * d^2 + Z^2 * p * Q}$$

The questions were divided into 4 blocks, the first with general questions and the remaining three related to the contexts identified in the research, such as remote work conditions, new tools and results.

Finally, variables 1 (remote work) and 2 (productivity) were grouped to calculate the level of reliability of the instrument, obtaining a Cronbach's alpha of 0.968, which proves that there is consistency, since it is higher than 0.6.

RESULTS

A statistical relationship is shown between the variables of remote work and productivity, proving that the research objective is met, as shown in Table 1.

Hypothesis H1 is proven, where the statistical relationship between working conditions

and productivity is demonstrated; consequently, it is proven that the environment where employees are located is a priority for the performance of remote work, so that they can perform their work in a more comfortable way and this is reflected in his performance. (see Table 2).

Hypothesis H2 is proven, since there is a statistical relationship between the new tools and the productivity acquired and improved during the implementation of remote work, being more successful in their use over time (see Table 3).

Table 1
*Nonparametric correlations Variable 1 Remote * Variable 2 Productivity*

			Variable 1 remote work (Grouped)	Variable 2 productivity (Grouped)
Spearman's Rho	Variable 1 Remote (Grouped)	Correlation Coefficient	1.000	.905**
		Sig. (two-tailed)		.000
		N	314	314
	Variable 2 Remote (Grouped)	Correlation Coefficient	.905**	1.000
		Sig. (two-tailed)	.000	
		N	314	314

Note. ** Correlation is significant at the 0.01 level (two-tailed). Fieldwork - June 2021 survey. Prepared by the author, 2023.

Table 2
*Nonparametric correlations dimension Working Conditions * Variable 2 Productivity*

			Variable 1 remote work (Grouped)	Variable 2 productivity (Grouped)
Spearman's Rho	Variable 1 Remote (Grouped)	Correlation Coefficient	1.000	.807**
		Sig. (two-tailed)		.000
		N	314	314
	Variable 2 Productivity (Grouped)	Correlation Coefficient	.807**	1.000
		Sig. (two-tailed)	.000	
		N	314	314

Note. ** Correlation is significant at the 0.01 level (two-tailed). Fieldwork - June 2021 survey. Prepared by the author, 2023.

Table 3
Nonparametric correlations Dimension New Tools Variable 2 Productivity*

			New Tools Dimension (Grouped)	Variable 2 Productivity (Grouped)
Spearman's Rho	Dimension Tool Conditions (Grouped)	Correlation Coefficient	1.000	.907**
		Sig. (two-tailed)		.000
		N	314	314
	Variable 2 Productivity (Grouped)	Correlation Coefficient	.907**	1.000
		Sig. (two-tailed)	.000	
		N	314	314

Note. ** Correlation is significant at the 0.01 level (two-tailed). Fieldwork - June 2021 survey. Prepared by the author, 2023.

DISCUSSION

The results presented in this paper show that the productivity of the employees of Indra Peru S.A. can be equal or even better with remote work, even after the pandemic.

In this regard, a significant relationship and importance has been found with the continuity of remote work, since better results can be obtained at the company level, because its costs decrease at the administrative level and, in addition, it generates a benefit for the workers. This is consistent with the findings of Colbert (2011), who indicates that business interruptions and work stoppages are crucial for the productivity of an organization.

Regarding the working conditions, it was found that there is a high acceptance of the current scenarios of employees, in addition to a high rate of evidence that employees, on their own initiative, invest in their well-being and organize themselves to work at appropriate times. More precisely, a study by Forbes (2016) points out that well-being and mindfulness in the modern workplace are related to individual health, as well as productivity and commitment.

In relation to the conditions of the new tools, the results allow to demonstrate that the company has implemented different monitoring mechanisms, where it is possible to know the adaptation of the internal client to this new work mode, since it can carry out different improvement mechanisms and/or corrections that it considers based on the information obtained. Guillebeau (2016) has already pointed out in his research that technology or lack of technology affects the effectiveness of employees, which supports the results of this paper. In this regard, Indra Peru S.A. brings a fundamental value, given that being in the business of Information and Communication Technologies (ICTs), it not only performs actions for external customers, but will also focus on the internal customer of the company.

From the results obtained in the present research, at the business level, it has been shown that the company has increased its profitability, given that sales have had a significant increase according to the comparison of the re-

sults of the financial statements for the periods 2019 and 2020, where an increase in direct customers, which are Indra Perú S.A.'s own contracts, while consortium customers are contracts in which Indra Perú S.A. has been part of a consortium. On the other hand, there is evidence of a significant reduction in costs thanks to remote work, since administrative expenses in 2020 were lower than in the previous period.

The results confirm the theory gathered from the selected analysis population. In this sense, and in order to maintain the productivity of employees working remotely, communication strategies related to working conditions and new tools should be maintained.

CONCLUSIONS

The results obtained show that there is a relationship between remote work and productivity in the company Indra Perú S. A. in Lima in 2021. In addition, there are two variables identified as the conditions and the new remote work tools that contribute to the productivity expected by employees.

For future research, it is advisable to study the emotional implication of employees when performing remote work, the benefits it brought to their personal lives or, on the contrary, if they faced problems when they stopped socializing with their colleagues and with the rest of the personnel in the work environment, such as customers, suppliers, among others. In this way, the results obtained would help develop new strategies so that productivity continues to increase and the implementation of remote work continues on a constant basis. As a main proposal, it is advisable to propose business strategies that allow the continuity of productivity with remote work.

REFERENCES

- Basurto, K. (2017). *Estudio del sistema de Teletrabajo para empleados del área de Gestión y Desarrollo Humano de la empresa Telefónica Gestión de Servicios Compartidos Perú SAC (Tgestiona)* [Tesis de pregrado, Universidad Nacional Mayor de San Marcos]. Repositorio Institucional – Universidad Nacional Mayor de San Marcos.
- Colbert, C. (2011). *Telework as part of a business continuity strategy: A path toward organizational resilience* [Tesis de Doctorado, University of

- Maryland]. Repositorio institucional de la Universidad de Maryland. <http://contentdm.umgc.edu/digital/collection/p15434coll2/id/26/rec/1>
- Contreras, F., Baykal, E., and Abid, G. (2020). E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go. *Frontiers in Psychology*, 11, 1–11. <https://doi.org/10.3389/fpsyg.2020.590271>
- Cruz-Ausejo, L., and Rosales, J. (2022). Complicaciones asociadas al trabajo remoto durante la pandemia COVID-19: Una revisión rápida. *Revista de la Facultad de Medicina Humana*, 22(4), 857-864. <https://dx.doi.org/10.25176/rfmh.v22i4.4806>
- Dávila, R., Agüero, E., Castro, L. and Vargas, A. (2022). Productividad laboral y el teletrabajo en el sector público durante el período de emergencia nacional. *Revista Universidad y Sociedad*, 14(2), 402-409. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2218-36202022000200402
- Forbes, H. (2016). *Be-ing @work: Wearables and presence of mind in the workplace* [Tesis de Doctorado, Fielding Graduate University]. ProQuest Central. https://www.researchgate.net/publication/295854432_BE-ing_Work_Wearables_and_Presence_of_Mind_in_the_Workplace
- Guillebeau, S. (2016). *Exploring managers' behavioral characteristics in a virtual work environment* [Tesis de Doctorado, Northcentral University]. ProQuest Central. <https://www.proquest.com/openview/5feade61b292dd2ff538e772803f9774/1?pq-origsite=scholar&cbl=18750>
- Lóopez, M., Lóopez, L., Lóopez, P. and Quispe, R. (2023). Satisfacción Laboral y Trabajo Remoto: Análisis de la relación en los catedráticos de una universidad pública en Puno, Perú. *SciELO Preprints*. <https://doi.org/10.1590/SciELOPreprints.6195><https://doi.org/10.1590/SciELOPreprints.6195>
- Neufeld, D. J. (1997). Individual consequences of telecommuting (Order No. NQ28510). Available from ProQuest Central. (304400309). <https://search.proquest.com/dissertations-theses/individual-consequences-telecommuting/docview/304400309/se-2?accountid=12268>
- Sánchez, G. and Montenegro, A. (2019). Teletrabajo una propuesta de innovación en productividad empresarial. *Dialnet*, (4), 91-107. <https://dialnet.unirioja.es/servlet/articulo?codigo=7144041>
- Sánchez, J. (2017). *Transformación e Innovación Digital*. Barcelona:Íncipity-inesdi digital business school. Recuperado de [PDF]. <https://incipy.com/ebooks/transformacion-digital.pdf>
- Uribe, J., Jiménez de Aliaga, K., Vargas, J., Rey de Castro, D., Bashualdo, M. and Geraldo, L. (2021). El trabajo remoto y la gestión de las emociones en tiempos de la COVID-19: Una mirada de estudiantes de maestría desde el rol de trabajadores, Lima-Perú. (2020). *Industrial Data*, 24(1), 179–199. <https://doi.org/10.15381/idata.v24i1.19858>

Conflicts of interest

The author has no conflicts of interest to declare.

Author contributions

Karina Lizeth Rubio Mendoza (lead author): conceptualization, data curation, research, formal analysis, data visualization, writing (original draft, editing and review).