

ORIGINAL

Organizational management and cognitive privacy: ethical challenges in the use of data for business decision-making

Gestión organizacional y privacidad cognitiva: desafíos éticos en el uso de datos para la toma de decisiones empresariales

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ABSTRACT

Introduction: organizational neuromanagement emerges as a field that integrates neuroscientific knowledge and cognitive analysis to understand decisive processes of work behavior, creativity, and performance. The growing use of technologies based on neurodata and artificial intelligence models makes it possible to anticipate cognitive patterns, manage risks and support strategic decision-making; however, it also poses ethical risks linked to mental privacy, personal autonomy and protection of cognitive integrity. In this context, it is necessary to evaluate how workers from different fields perceive the incorporation of neurotechnologies in business environments and the risks associated with their possible use.

Method: a quantitative, non-experimental and cross-sectional study was applied, with a descriptive-correlational scope. 120 workers from areas related to management, innovation and administration participated. A structured questionnaire of 28 Likert items ($\alpha = .89$) was used, designed to measure neuromanagement practices, acceptance of technologies that collect neurodata, and perception of cognitive privacy.

Results: neuromanagement practices are moderately average, while the acceptance of neurocognitive technologies is initial but prudent. The perception of ethical risks and cognitive privacy reaches high levels, evidencing sensitivity to a possible violation of internal thinking. Significant differences were observed between work areas and positive correlations between technological familiarity and greater acceptance.

Conclusions: organizational neuromanagement is advancing as an emerging practice, but its ethical adoption will depend on neurodata protection frameworks, institutional transparency, and guidelines that guarantee the mental autonomy of workers.

Keywords: Organizational neuromanagement; neurodata; cognitive privacy; applied neuroethics; organizational intelligence.

RESUMEN

Introducción: la neurogestión organizacional surge como un campo que integra conocimiento neurocientífico y análisis cognitivo para comprender procesos decisivos del comportamiento laboral, la creatividad y el rendimiento. El uso creciente de tecnologías basadas en neurodatos y modelos de inteligencia artificial permite anticipar patrones cognitivos, gestionar riesgos y apoyar la toma de decisiones estratégicas; sin embargo, también plantea riesgos éticos vinculados con privacidad mental,

autonomía personal y protección de la integridad cognitiva. En este contexto, resulta necesario evaluar cómo trabajadores de distintos ámbitos perciben la incorporación de neurotecnologías en entornos empresariales y los riesgos asociados a su posible uso.

Método: se aplicó un estudio cuantitativo, no experimental y transversal, con alcance descriptivo-correlacional. Participaron 120 trabajadores de áreas vinculadas a gestión, innovación y administración. Se empleó un cuestionario estructurado de 28 ítems Likert ($\alpha = ,89$), diseñado para medir prácticas de neurogestión, aceptación de tecnologías que recolectan neurodatos y percepción de privacidad cognitiva.

Resultados: las prácticas de neurogestión presentan una media moderada, mientras que la aceptación de tecnologías neurocognitivas es inicial pero prudente. La percepción de riesgos éticos y privacidad cognitiva alcanza niveles elevados, evidenciando sensibilidad ante una posible vulneración del pensamiento interno. Se observaron diferencias significativas entre áreas laborales y correlaciones positivas entre familiaridad tecnológica y mayor aceptación.

Conclusiones: la neurogestión organizacional avanza como práctica emergente, pero su adopción ética dependerá de marcos de protección de neurodatos, transparencia institucional y lineamientos que garanticen la autonomía mental de los trabajadores.

Palabras clave: Neurogestión organizacional; neurodatos; privacidad cognitiva; neuroética aplicada; inteligencia organizacional.

INTRODUCTION

In recent years, organizations have begun to incorporate tools based on neuroscience and cognitive analysis to understand better the human behavioral processes that influence decision-making, job performance, and organizational dynamics. This interest stems from the need for more accurate models of how people perceive fairness, manage attention, or respond to complex environments. Since the first contributions exploring the relationship between neural responses and perceptions of fairness at work,⁽¹⁾ neuro-management has established itself as an emerging field that systematically integrates brain activity with leadership, creativity, and organizational behavior processes. Recent research has delved deeper into these links, showing that creativity, attention, and the generation of novel ideas are supported by specific cognitive pathways that can be enhanced or inhibited depending on the work context.⁽²⁾

At the same time, the emergence of technologies based on artificial intelligence and neuro-fuzzy models has expanded companies' analytical capabilities. These systems enable the processing of complex information and the generation of useful predictions for selecting projects, managing risks, or evaluating digital behaviors.^(3,4) In various sectors, these tools have been used to optimize energy systems, improve threat detection, and anticipate demand patterns.^(5,6) Although initially developed for specialized fields, these algorithms have begun to migrate into corporate environments, where they aim to understand human behavior at work better and even anticipate levels of stress, engagement, and cognitive load.

This advance has raised significant ethical concerns. The possibility of inferring mental or emotional states from biological data raises unprecedented dilemmas for human rights and personal privacy. Proposals such as those by Lenca et al.⁽⁷⁾ emphasize that cognitive privacy and mental freedom should be considered new fundamental freedoms in the age of neurotechnology. In turn, experts in neuroethics have noted that integrating neurodata into organizational processes must consider principles such as personal agency, responsibility, and fairness.⁽⁸⁾ These reflections are particularly relevant in organizations where ethical culture and institutional values influence transparency in processes, the way supervision is exercised, and the management of internal complaints.^(9,10)

In addition, the manipulation, storage, and circulation of neurodata requires robust digital governance frameworks. Advances in brain data standardization and protection have shown that anonymization is a complex process and that neurodata has unique characteristics that make it highly sensitive.^(11,12) Several researchers have insisted that the ethical use of these technologies requires open metadata models, conservation protocols, and rigorous consent processes.^(13,14) At the same time, workplace well-being remains a fundamental element in assessing the impact of any technological innovation. Perceptions of support, fairness, and organizational climate are directly related to how workers interpret surveillance or the use of personal data,^(15,16) as well as to how inclusive practices are integrated into neurodiverse environments.⁽¹⁷⁾

In this context, organizational neuro-management appears as an opportunity to improve internal processes, but also as a field that requires clear regulations to prevent the violation of mental autonomy. Therefore, the overall objective of this study is to analyze the ethical challenges associated with the use of neurodata for business decision-making within the framework of organizational neuro-management. The main variables are: neuro-management practices, processing and use of neurodata, and cognitive privacy

in corporate environments. A documentary and analytical study is proposed based on specialized, current scientific literature.

METHOD

This study used a quantitative approach to analyze perceptions, acceptance, and ethical risks associated with the use of neurodata in organizational neuromanagement processes. This approach enables the objective measurement of participants' attitudes, beliefs, and knowledge regarding emerging practices in cognitive privacy and decision-making based on neurophysiological information.

Type of study

A non-experimental, cross-sectional design with a descriptive-correlational scope was used. The study is non-experimental because no variables were manipulated; cross-sectional because the data were collected at a single point in time; and correlational because it sought to establish relationships between the main variables of the study:

1. Organizational neuromanagement practices,
2. Use and processing of neurodata, and
3. Perception of cognitive privacy and ethical risks.

Population and sample

The population consisted of professionals and workers in the business sector who work in areas related to human talent management, innovation, technology, or organizational management. Given the exploratory nature of the study and the participants' accessibility, non-probabilistic convenience sampling was used. The sample consisted of 120 participants, a number considered adequate for fundamental descriptive and correlational analyses.

Description of the environment

The study was conducted in private organizations with administrative, technological, and strategic management activities. These entities represent environments where neurotechnologies could be incorporated for performance evaluation, cognitive monitoring, behavior prediction, and selection processes.

Instruments

A structured questionnaire with 28 items was designed for data collection, based on theoretical categories derived from previous studies on neuro-management, neuroethics, cognitive privacy, and data governance. The instrument was organized into three sections that evaluated:

- A. Emerging neuro-management practices (10 items).
- B. Use and acceptance of technologies that collect neurodata (10 items).
- C. Perception of cognitive privacy and ethical dilemmas (8 items).

Responses were measured using a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Validity and reliability verification

The questionnaire was subjected to content validity by three experts in neuroethics, organizational management, and quantitative methodologies.

Reliability was assessed using Cronbach's alpha, yielding a value of 0,89, which is considered excellent for social studies.

Data collection procedure

Participants were contacted digitally, and the questionnaire was sent electronically. The confidentiality, voluntariness, and anonymity of responses were guaranteed. No actual neurophysiological data were collected; only perceptions and attitudes about its possible use were investigated.

Data analysis

The data were processed using SPSS v.29.

The following analyses were performed:

- Descriptive statistics (means, standard deviations, frequencies).
- Pearson correlation tests to examine the relationship between the main variables.
- Fundamental comparative analyses between groups according to age, work area, and level of education.

The results allowed us to identify trends, associations, and potential perceived risks associated with the use of neurodata in business management.

RESULTS

The results obtained allow for an analysis of general trends in organizational neuro-management practices, the acceptance of technologies that collect neurodata, and perceptions of risks associated with cognitive privacy. These findings are organized according to the three main variables of the study and the statistical analyses performed.

Table 1.
Descriptive statistics of the main variables (N = 120)

Variable	Mean	Standard deviation	Minimum	Max
Organizational neuro-management practices	3,42	0,68	1,80	4,90
Use and acceptance of neurodata technologies	3,10	0,74	1,60	4,80
Perception of cognitive privacy and ethical risks	4,15	0,59	2,9	5,0

The descriptive data show that participants have a moderate perception of the presence of neuro-management practices within their organizations, suggesting that, although the concept is beginning to be recognized, it is not yet fully incorporated into work environments. Acceptance of technologies that use neurodata is also moderate, indicating initial openness but accompanied by reservations about systems designed to measure or interpret cognitive states. In contrast, the perception of risks associated with cognitive privacy reaches a high average, evidencing a strong concern that these technologies may violate internal dimensions of thought, mental privacy, or personal autonomy. This last variable is the most sensitive point within the set of initial findings.

Table 2.
Comparison by work area (ANOVA)

Work area	Total mean	SD
Human talent (n = 35)	3,55	0,62
Innovation/technology (n = 40)	3,72	0,57
Strategic management (n = 25)	3,38	0,71
General administration (n = 20)	3,01	0,69

Note: ANOVA: $F(3,116) = 6,42, p < ,01$

The comparative analysis shows significant differences between work areas. Participants in the innovation or technology area report the highest scores, which can be explained by their regular exposure to automated systems, predictive models, and AI-based solutions, facilitating greater openness to tools related to neuro-management and neuro-data. Human talent shows a moderately high average, likely due to the need to understand new performance evaluation and monitoring tools. On the other hand, administrative staff show the lowest scores, suggesting less familiarity with these technologies and a more cautious perception of their application. These differences suggest that acceptance and perception of risks are not uniform across all areas, but depend on the type of activities performed and the level of exposure to advanced technologies at work.

DISCUSSION

The findings of this study show that organizational neuro-management practices and the acceptance of technologies that collect neurodata are at moderate levels. At the same time, concern for cognitive privacy is significant. This unstable balance between openness to innovation and fear of violating mental life aligns with the views of Ienca et al.⁽⁷⁾, who warn that the expansion of neurotechnologies beyond the clinical setting creates a new field of tension between efficiency and the protection of rights, especially

regarding the privacy of mental states. Along the same lines, Yuste et al.⁽⁶⁾ argue that incorporating neurotechnologies and AI systems into everyday contexts requires prioritizing principles such as privacy, agency, and responsibility, as reflected in participants' heightened sensitivity to the ethical risks associated with the use of neurodata.

The positive correlation between neuro-management practices and the acceptance of neurodata-based technologies suggests that familiarity with neuroscientific discourses and tools may facilitate a more favorable attitude toward their adoption in work environments. This result is in line with the model of neuro-organizational justice proposed by Beugré⁽¹⁾, who argues that perceptions of fairness and legitimacy in organizational processes are influenced by how evaluation and decision-making mechanisms are communicated and justified. In organizations where neuro-management is presented as a strategy to improve performance, creativity, or well-being, workers are likely to perceive these technologies as part of an inevitable modernization, which would explain the increase in acceptance.

However, the negative correlation between acceptance of neurodata technologies and concern for cognitive privacy indicates that perceptions of risk constrain the willingness to use these tools. This behavior aligns with Eke⁽¹⁴⁾'s analysis, which points out that the governance of neurotechnologies faces a "double mandate": to promote innovation while ensuring that individuals retain control over their brain data and mental integrity. Similarly, Berger et al.⁽¹⁸⁾, in analyzing the lessons of large technology companies in AI ethics, conclude that the social acceptance of advanced technologies depends largely on transparency, clear regulatory frameworks, and organizations' ability to demonstrate that their practices are not invasive or discriminatory.

The results also show significant differences between work areas, with higher levels of acceptance in innovation and technology, and lower scores in administrative areas. This variation may be related to differences in experience with complex systems and in daily exposure to automation and advanced analytics tools.^(19,20,21) Yeo et al.⁽²⁾ highlight that environments that demand high levels of creativity and complex problem-solving tend to be more receptive to approaches that integrate specific cognitive-attentional pathways, which could explain why those working in innovation perceive neuro-management as a natural extension of the tools they already use.^(22,23) In contrast, less technologically advanced sectors may view these same technologies as sophisticated surveillance that threatens mental autonomy.

From a data management perspective, the results underscore the importance of robust neuroinformation governance structures. The high level of concern about cognitive privacy expressed by participants aligns with the warnings of Reimer et al.⁽¹²⁾, who note that neurodata, due to its richness and specificity, requires particular technical and ethical standards, such as those promoted by the Neurodata Without Borders initiative. Mandava et al.⁽¹³⁾ reinforce this approach by proposing open models for developing data and metadata standards, emphasizing that interoperability and transparency are key to building trust in systems handling highly sensitive information. In the corporate sphere, this would involve designing clear policies on who can access neurodata, for what purposes it is used, how long it is retained, and under what mechanisms its anonymization is ensured.^(24,25)

Overall, a comparison with the literature suggests that organizational neuromanagement is in an early stage of adoption, characterized by a tension between the desire to exploit the advantages of applied neuroscience and the need to safeguard cognitive privacy as an emerging right. The perceptions gathered in this study coincide with the proposals of Ienca et al.⁽⁷⁾ and Yuste et al.⁽⁶⁾ on the urgency of incorporating neuro-rights and specific ethical principles into the design of organizational policies, especially in contexts where neurodata could influence sensitive decisions such as personnel selection, performance evaluation, or risk profiling. Thus, the results not only confirm some existing theoretical concerns but also provide empirical evidence of how these tensions manifest in the perceptions of workers from different areas, offering a starting point for the design of more ethical and responsible neuro-management frameworks.

CONCLUSIONS

The results show that organizational neuro-management is beginning to position itself as an emerging practice, although its adoption remains moderate and varies by work area. Participants recognize the value of technologies that use neurodata but remain highly concerned about the risks to cognitive privacy. The observed correlations reveal an apparent tension between openness to innovation and fear of violating mental autonomy.

The study shows that acceptance of neurocognitive technologies depends largely on workers' familiarity with advanced analytical models and their level of trust in organizational practices. Areas linked to innovation show greater openness, while administrative teams express significant reservations. Likewise, the high perception of risk indicates that the use of neurodata cannot be considered solely a technical advance, but rather a process that requires specific safeguards to protect mental privacy.

Future research should delve deeper into how cultural, regulatory, and organizational factors influence the acceptance or rejection of neurodata-based technologies. It would be pertinent to incorporate mixed-

methods approaches that integrate quantitative measures with in-depth interviews to better understand subjective perceptions of cognitive surveillance and mental autonomy.

The phenomenon of organizational neuro-management not only challenges companies but is also related to broader debates on neuro-rights, digital privacy, and ethics in artificial intelligence. The protection of mental life emerges as an essential component of contemporary citizenship, especially in a context where the boundaries between biometric, cognitive, and behavioral data are becoming increasingly blurred.

If current trends continue, it is likely that, in the coming years, neuro-management will expand toward more integrated models of cognitive analysis, provided that adequate regulatory frameworks and high levels of institutional trust are in place. Organizations that responsibly adopt these technologies could improve decision-making processes, workplace well-being, and creativity. At the same time, the opaque or invasive use of neurodata could generate resistance, ethical conflicts, and a loss of legitimacy.

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