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Historical Transformation of the Concept of “Public Interest” and Its Transition from “Traditional Collective Interest” to “Data-Driven Interest”

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ABSTRACT

The concept of “public interest,” as one of the foundational concepts in political philosophy and public law, has undergone significant transformation throughout history under the influence of social, institutional, and technological developments. This article aims to analyze the historical evolution of this concept from “traditional collective interest” to “data-driven interest” and to explain the implications of this transition in the era of the digital economy. Using an analytical–descriptive approach based on documentary research, the study first examines the social and normative foundations of public interest in traditional societies and subsequently analyzes the role of modernity, bureaucracy, and particularly information and data technologies in redefining this concept. The findings indicate that in traditional societies, public interest was primarily defined on the basis of collective identity, tradition, and political authority, whereas in the contemporary era, data, algorithms, and evidence-based decision-making have become the principal elements in identifying and realizing public interest. This transformation has enhanced efficiency, precision, and predictability in public policymaking; however, it has simultaneously generated challenges such as the concentration of data power, threats to privacy, and algorithmic discrimination. Consequently, the article emphasizes the necessity of integrating social legitimacy and human values with technological capacities and proposes that the realization of public interest in the data-driven era requires the design of institutional and ethical mechanisms compatible with this transformation.

Keywords: *Public interest, traditional collective interest, data-driven interest, data governance, conceptual transformation.*

Introduction

Throughout history, the concept of “public interest” has constantly been subject to transformation; a transformation that has not resulted from a temporary change, but rather from profound developments in social structures, technology, systems of knowledge, and collective modes of perceiving the common good. What has made this transformation necessary is the fundamental change in the nature of society and the mechanisms that organize it. Traditional societies relied on kinship ties, informal mechanisms, deeply rooted authorities, and identity-based solidarities. In such a context, “public interest” was regarded as an internal, self-evident matter arising from tradition and social order, and it was shaped mainly through shared values, established customs, and religious or political authorities. However, with the entry of societies into the age of modernity and then into the data-driven era,



the semantic foundations of this concept underwent transformation, because the new conditions have changed not only modes of social organization but also the cognitive foundations and decision-making tools.

In the data-driven era and the digital economy, the importance of rethinking the concept of public interest has become more evident than ever. Social structures are now connected to vast volumes of behavioral, economic, environmental, and communicative data, and many public decisions are formed not on the basis of lived experience and traditional agreements, but according to patterns extracted from data and predictive analyses. This situation highlights a fundamental question: Is public interest still a collective matter arising from social solidarities, or has it now become a data-driven matter extracted from computational models, algorithms, and data-analysis processes? This conceptual transition shows that public interest in the digital age is not merely a natural continuation of traditional collective interest, but a new reconstruction that operates according to a new logic; a logic grounded in accuracy, predictability, intelligent resource allocation, and personalization of services.

This article is formed on the basis of such questions and seeks to examine the nature and origin of public interest in traditional societies; that is, how this concept was constructed within informal cultural, social, and institutional contexts, and what mechanisms contributed to its stabilization. It will then examine how modern technologies, big data, algorithms, and digital structures have redefined this concept and what consequences they have had for social justice, public decision-making, the structure of power, and privacy. The third question is what implications the transition from traditional collective interest to data-driven interest creates for the future of governance, social welfare, and the relationship between human beings and technology. It is clear that changes in the foundations of producing and interpreting public interest will have profound consequences for the structure of the state, individual rights, civic participation, and the distribution of power.

The methodology of this research is based on conceptual-historical analysis and comparative examination; that is, the study of the transformation of the meaning of public interest over time and the comparison of two different conceptual periods. Nevertheless, the research also has limitations, including the inherent complexity of the concept of public interest, the breadth of data related to modern technologies, and the difficulty of defining definitive instances in the digital age, which is still taking shape. However, the innovation of the research lies in viewing public interest not as a fixed concept, but as a dynamic process that is influenced by data-driven mechanisms and is organized in a new form. In addition, for the first time, an attempt is made to clarify the link between traditional concepts of collective interest and new structures of data analysis and technology, and to understand these two not as opposing forces but as elements located along an evolutionary path.

Regarding the novel aspect and innovation of the present study, it should be noted that this article is based on the premise that understanding public interest in today's world is impossible without recognizing its historical transformation. The data-driven era has provided new capacities for strengthening public interest, but at the same time it has also placed important ethical, legal, and social questions before us. Therefore, examining this conceptual transition is a theoretical and practical necessity for understanding the future of policymaking, public administration, and social governance.

Theoretical Foundations

To understand accurately the historical transformation of the concept of "public interest" and to analyze its transition from a traditional formulation to a data-driven formulation, the theoretical foundations of this concept must first be clarified. Public interest is not a static and self-evident concept; rather, it has been formed and given meaning

within the context of political thought, legal structures, and social orders. Therefore, explaining its traditional definition, distinguishing it from adjacent concepts, and examining its social and institutional origins are necessary conditions for entering into the discussion of its historical transformation.

The Concept of “Public Interest”

In the tradition of political philosophy and public law, the concept of public interest refers to those interests and goods whose realization is considered necessary for the stability and organization of social life and, for this reason, stands beyond scattered and individual interests. At its foundation, this concept is shaped by the assumption that political society, in order to sustain order and coordination among its members, requires a set of shared goals and values that can serve as a criterion for guiding public policymaking and the exercise of political authority. Within this framework, public interest is not merely the arithmetical sum of individual interests, but rather a normative formulation of what is considered beneficial or desirable for society as a whole and is objectified through legal and institutional mechanisms (1).

At the same time, distinguishing between concepts that refer to the sphere of social interests in theoretical literature is important for an accurate understanding of this concept. What is referred to in political literature as “public good” or “public welfare” often denotes the set of conditions and values that enable collective life to flourish, whereas “collective welfare” focuses on the material and distributive outcomes of policies among members of society. By contrast, public interest is more closely related to the normative criterion of decision-making in the sphere of public power; a criterion that enables the state and public institutions to adjudicate among conflicting interests and determine the general orientation of public policies (2). Thus, public interest is a concept located at the intersection of shared values, social interests, and the requirements of governance.

From this perspective, public interest becomes closely linked to political authority and the legal system, because its realization requires the existence of an institution capable of identifying, defining, and implementing it (3). Law, in this context, is the instrument through which the dominant understanding of public interest acquires a formal and binding form and becomes the criterion for regulating social relations. However, the legitimacy of such an understanding will be sustainable only when it is also compatible with the ethical norms and social expectations of the community, because public interest ultimately reflects society’s shared understanding of social good and the desirable direction of political organization.

The Social Origin of Public Interest

The social origin of public interest is based on the assumption that this concept is not a fixed and pre-existing matter, but rather the outcome of social, institutional, and cultural processes that have taken shape and changed over time. When public interest is understood as a social construct, it becomes clear that its meaning and boundaries depend on the forces within society that possess the power to shape collective norms, values, and rules. Political and governmental institutions play a fundamental role in formulating the concept of public interest by determining binding rules, regulating social relations, and defining public priorities. Religion and tradition also produce semantic, ethical, and normative systems that provide the foundations through which society understands what is beneficial or necessary for the collective. This process is always influenced by relations of authority, historical memory, and the cultural patterns of each society, and for this reason, understandings of public interest are diverse and sometimes conflicting across different contexts (4).

In modern and contemporary theories, this concept has been analyzed through various approaches. In the liberal view, public interest is the result of a legal and political framework that guarantees individual freedom and rights, through which social order can be formed on the basis of minimal agreements. In the republican approach, public interest is explained more in connection with civic virtue, active participation, and commitment to the common good, and collective will is given a more prominent position. The functionalist view regards this concept as the result of a necessity created to preserve social cohesion, distribute functions, and ensure the efficiency of social structures; in this understanding, public interest is a function that keeps social order stable (5). The critical approach, however, seeks to show that what is presented as public interest may reflect unequal power relations and, therefore, that the mechanisms of defining and exercising it must be analyzed in light of the dynamics of power, ideology, and domination (2). Such theoretical diversity shows that public interest is rooted in normative and institutional mechanisms and always reflects how society is organized, how power is distributed, and how legitimacy is granted to political order.

The Traditional Approach to Collective Interest

The traditional approach to collective interest was formed within social and cultural structures in which community, tradition, and deeply rooted authorities played the main role in determining the common good. Within this framework, collective interest was not the product of empirical measurements or systematic analyses, but arose from shared identities, group ties, and stable social orders. Examining this approach is necessary for understanding the historical transition of public interest.

Characteristics of Traditional Collective Interest

Traditional collective interest is formed on a foundation in which individual identity acquires meaning within a network of social, cultural, and ritual relations, and socialization plays the main role in guiding behavior and defining shared expectations. In such an order, the individual is not understood as an independent unit, but as a member of a social whole, and collective values determine his or her roles and duties. This relationship between the individual and the community causes public interest to be defined mainly as a common good resulting from the continuation of solidarity, unity, and obedience to collective rules (6). The priority of the community over the individual in this framework is not merely an ethical principle, but is regarded as a fundamental condition for social stability and cohesion, because it is assumed that without prioritizing collective consensuses, preserving order and coordination among members will not be possible.

Tradition, customs, and religion play the role of normative mechanisms in this structure; they serve as references for judging right and wrong behavior, and through them society stabilizes its criteria for identifying the public good. These sources, by virtue of their historical and spiritual legitimacy, have the ability to make behavioral rules binding and to determine acceptable boundaries for social action. Alongside these factors, central authority acts as the guarantor of the implementation of traditional order and, by relying on political or religious authority, preserves cohesion and compliance with shared principles (7). In such contexts, central authority is not recognized as an obstacle to the collective, but as an instrument for realizing unity and coordination.

Another characteristic of traditional collective interest is its emphasis on stability, homogeneity, and social control. Stability is valued as a condition of survival and social security, and even the smallest change in rules or structures may be perceived as a threat to order (8). Homogeneity is also regarded as a way of reducing conflicts and ensuring

cultural unity. Social control plays an essential role in this regard, because by monitoring behavior, preserving traditions, and protecting collective identity, it enables the continuation of the existing order and thereby keeps what is recognized as public interest within a stable and minimally changing framework.

Historical Examples

In premodern orders, the concept of public interest was formed within frameworks in which kinship ties, hierarchical structures, and ritual legitimacies were the main criteria for organizing collective life. In tribal society, public interest was defined by tribal security, relative cohesion, and the preservation of common resources, and judgment about the collective good was formed through alliance relations, respect for elders, and compliance with institutionalized norms. In the feudal order, public interest was dependent on landholding relations and the relationship of subordination, where the protection of territory, the maintenance of order, and the guarantee of mutual loyalty constituted the foundations for identifying the common good. In religious systems, public interest was defined in connection with the implementation of religious rulings, the protection of sacred values, and the preservation of an order based on divine legitimacy, and religious norms, as interpreters of the collective good, served as the main reference for political and social institutions (9).

In Iran and the Middle East, historical examples show that public interest was often linked to political stability, just rule, and the preservation of social order. In premodern Iran, teachings such as the concept of justice and the image of the king as guardian of cosmic order provided a framework in which the collective good was interpreted as social balance, the security of roads, and support for groups dependent on the structure of power. In the caliphates and religious governments of the Middle East, public interest acquired meaning in connection with the implementation of religious justice and the preservation of the unity of the community, and social order was organized on the basis of obedience to religious and political institutions (10). In other civilizations, such as China and India, the understanding of public interest was formed within contexts based on cosmic harmony, hierarchical order, and reciprocal duties between rulers and subjects.

Classical theories of traditional states also reflected this same logic and regarded public interest not as the result of individual will or civic participation, but as the outcome of preserving order, implementing justice, and sustaining social harmony. In this view, the ruler, by possessing moral or divine legitimacy, had the main responsibility for identifying and securing the collective good, and society guaranteed its stability and cohesion by obeying this authority (11). Such a model shows that in premodern orders, public interest was not a participatory concept, but a construct based on authority, tradition, and collective identity.

Limitations and Challenges of Traditional Collective Interest

In the traditional approach to collective interest, there are a number of structural limitations that prevent this model from being dynamic and responsive to the complex and changing needs of societies. One of the most important of these limitations is the absence of genuine civic participation. In such a framework, public interest is defined mostly from above, and public participation is reduced to obedience to rules and acceptance of the existing order. This situation causes the process of forming public interest to lack mechanisms of collective feedback, and the voices of different groups, especially minorities or less powerful classes, are not reflected in decision-making (12). This absence of participation not only reduces the effectiveness of decisions, but also prevents the formation of a sense of belonging and collective responsibility in society.

Another problem is the inflexibility of these systems. Traditional structures, because of their strong reliance on established norms, have little capacity for change and respond slowly to social transformation or environmental pressures. Such rigidity prevents the redefinition of public interest on the basis of emerging conditions and, therefore, limits the ability of social order to adapt to new needs (13). As a result, even when stability is apparently preserved, the capacity for adaptation in the face of crises or social diversity is weakened.

One of the important consequences of this inflexibility is the weakening of individual rights and the reduction of society's capacity to accept diversity. In the traditional approach, the collective good is defined on the basis of cultural and behavioral homogeneity, and this causes different forms of social life or individual demands to be marginalized. Instead of protecting plurality, such a mechanism creates a kind of compulsory uniformity in which differences are perceived as threats to order. This situation not only prevents individual development, but also restricts cultural and social dynamism (14).

Finally, the problem of institutionalizing public interest within informal structures is also a serious challenge. Since many traditional rules are based on custom, kinship relations, or local authorities, the possibility of converting them into stable and transparent mechanisms is limited. This causes the process of identifying and applying public interest to remain dependent on personal interpretations or local authorities, and consequently the stability, justice, and predictability of decisions are reduced.

The Historical Transition to “Data-Driven” Interest

The historical transition to data-driven interest becomes meaningful when we understand the movement beyond the traditional foundations of defining public interest and the entry into a period in which data, technology, and computational mechanisms have become the main elements shaping the common good. This transition is the result of a set of profound developments, from the intellectual and institutional transformations of modernity to the emergence of information technologies, the data revolution, and the rise of the digital economy.

The Beginning of Change: Modernity and Individualism

The transition to modernity rearranged the concept of public interest within the context of profound transformation in economic and political structures. The Industrial Revolution, through the concentration of populations in cities, the creation of large industries, and the expansion of national markets, created a network of new dependencies among individuals and groups that could no longer be managed through traditional mechanisms of collective interest. Under these conditions, the growth of administrative and bureaucratic institutions occurred as a structural response to the increasing complexity of societies, and the state gradually became an organization based on formal rules, specialized division of labor, and administrative hierarchy (15). This transformation transferred the concept of public interest from the level of personal and local relations to the level of national and planned orders and enabled broader coordination among scattered interests, but at the same time it created a distance between citizens and decision-making mechanisms.

At the same time, the emergence of the concept of the modern citizen opened a new horizon for understanding public interest. The individual was no longer merely a member of a traditional community or subject to hereditary authority, but was defined as a rights-bearing person endowed with freedom and political participation. Within this framework, public interest acquired meaning not merely on the basis of order and stability, but in connection with individual rights, political representation, and participation in collective decision-making (16). The modern citizen

expects the state not only to preserve order, but also to guarantee justice, equality, and equitable access to resources. Thus, public interest becomes an arena in which individual and collective demands must be coordinated through mechanisms of representation, legislation, and public policymaking.

As a result of these transformations, the role of the state in securing public interest underwent a fundamental change. The state was no longer merely an arbiter of local disputes or a guardian of security, but became an economic planner, regulator of social relations, and provider of public services (17). This change compelled the state to rely on new tools such as statistics, planning, and evidence-based policymaking in order to define and realize public interest, and to organize a network of specialized institutions for administering different sectors of society. In this way, modernity and individualism not only expanded the role of the state in scale and function, but also transformed the conceptual framework of public interest from a fixed and traditional matter into a dynamic, contested field dependent on interaction among the state, citizens, and mediating institutions.

The Emergence of Information Technology and Data

Fundamental changes in decision-making processes have occurred through the revolution in information technology and data in recent decades. This transformation has shifted traditional processes, which were formed on the basis of experience, norms, and individual or collective knowledge, toward the use of extensive data and advanced analyses. In this new period, the efficiency and accuracy of decision-making are largely dependent on data-driven capabilities and directly affect policymaking processes, resource management, and social control (18). In this process, data operate as tools of prediction, control, and resource allocation, so that the path of decision-making is described on the basis of statistical analyses, algorithms, and predictive models.

The use of data on a large scale has made simultaneous and multidimensional analyses of complex situations possible, and these capabilities lead to a deeper and more accurate view of public affairs. As a result, policies and executive programs are based on evidence and grounded in operational and historical data, which play an important role in reducing errors and increasing efficiency in the decision-making process (19). In addition, data mining, statistical analysis, and artificial intelligence make it possible to identify behavioral patterns, predict future events, and optimally allocate resources, which are prerequisites for the realization of evidence-based governance.

However, this process is accompanied by challenges, including how to ensure accuracy, transparency, and justice in data-driven analyses, as well as the sustainability of data-based personalization in the face of risks of inequality and deprivation of privacy. In addition, the growing importance of data in the fields of security and social control creates concerns about the concentration of power and the increasing dominance of technologies over governance processes (20). Overall, the emergence of data-based technologies has provided a new model in the administration of public affairs and policymaking that affects the analytical and executive future of public interest.

Drivers of the Transition

The transition to the concept of “data-driven interest” has been formed on the basis of a set of structural drivers that, in recent decades, have transformed the social, economic, and political foundations of public decision-making. Globalization is the first driver of this transformation; a process that has weakened economic and informational borders and has compressed interactions among states, markets, and social groups to an unprecedented extent. In such a context, states have been compelled to use extensive data flows in order to manage transnational issues and to reorganize their policymaking models on the basis of rapid and multilayered analyses (21). This growing

dependence on data has prepared the ground for the expansion of e-government; a government whose efficiency is based on the digital circulation of information, online service delivery, and smart regulation. Such a structure turns data into the central axis of decision-making and coordination among public institutions and increases the possibility of oversight, accountability, and coherent resource allocation (22).

In continuation of this process, the digital economy, as another driving force, has created a new logic of value creation and competition. In this economy, information flows acquire an infrastructural role, and economic success depends on access to, analysis of, and use of data. This transformation has altered the boundary between the public and private sectors and has turned the state into an actor that, alongside regulation, must use data for prediction, planning, and dynamic resource management. Social networks have also played an important role in redefining public interest by creating new patterns of collective communication. These networks are not only new channels of civic participation, but also produce vast volumes of behavioral and social data that influence public decision-making processes and enable the analysis of sentiments, trends, and social demands. Finally, artificial intelligence and big data constitute the peak of this transition; technologies that have brought the capacity for processing, analysis, and prediction to a level with which human decision-making alone cannot compete. In such a context, algorithms become decision-making tools and make possible the continuous assessment of conditions, optimal allocation of resources, and identification of inequalities, but at the same time they raise important questions about technological authority, transparency, and justice (23). This set of factors forms the historical and structural foundation of the transition from traditional collective interest to data-driven interest and opens a new horizon for rethinking the concept of public interest.

Data-Driven Interest

Data-driven interest is the point at which the concept of public interest moves away from traditional and experience-based frameworks and becomes grounded in a foundation where data, computational processing, and predictive mechanisms are at the center. This stage is not merely a continuation of the modern transition, but a qualitative transformation in the way the public good is identified, measured, and distributed. In this approach, data become the main tool for understanding public issues, designing policies, and optimizing services, and the role of algorithms and platforms in shaping public interest becomes prominent.

Definition of Data-Driven Interest

Data-driven interest refers to a model for defining and realizing public interest in which the recognition of social problems, the determination of priorities, and the design of public interventions are carried out on the basis of the systematic collection, processing, and analysis of data. Within this framework, public interest is not the product of general agreements, established traditions, or fixed normative understandings, but the result of extracting patterns, relationships, and trends from massive behavioral, economic, and social data. In this sense, data become a tool for understanding social reality and make it possible for public policymaking to rely not on estimation, experience, or authority, but on measurable and evaluable evidence (24). The fundamental difference between this approach and traditional public interest lies in its decision-making logic: whereas traditional interest relied on social homogeneity, normative stability, and a pre-given definition of the collective good, data-driven interest is based on dynamism, changeability, and the continuous redefinition of public needs.

In this model, algorithms and predictive models play a mediating role between data and decision. By processing vast volumes of data, these tools make it possible to predict the consequences of policies, identify risks, and allocate resources in a targeted manner, thereby turning public interest into something calculable and optimizable. Digital platforms, as the main infrastructures for the collection and circulation of data, also play a decisive role in shaping this type of public interest, because they transform citizens' interactions, consumption patterns, and social actions into analyzable data (25). As a result, public interest is no longer merely an abstract or value-based concept, but becomes a practical mechanism for managing social complexities.

However, the dependence of public interest on data and processing tools makes it strongly dependent on data quality, algorithmic transparency, and legal frameworks. Without clear rules regarding data protection and institutional accountability, data-driven interest may become an instrument for the concentration of power and the reproduction of inequality (26). Therefore, the definition of data-driven interest simultaneously requires attention to technical efficiency and to legal and ethical requirements.

Redefining Public Interest Through "Data"

The redefinition of public interest within a data-driven framework is formed on the basis of the premise that public issues can be managed only when their nature and scope are accurately understood. Big data, by revealing hidden patterns in collective behavior, make it possible to identify the roots of problems and distinguish between symptoms and causes, thereby transferring the definition of public interest from a general and normative level to an analytical and problem-oriented level. Such a transformation prepares the ground for the emergence of a new type of distributive justice; a justice based not on the assumption of social homogeneity, but on real and measurable inequalities in access to resources, services, and opportunities. Data analysis can reveal spatial, demographic, and economic differences with high precision and direct the allocation of resources toward groups that have the greatest need (27).

In this model, evidence-based decision-making becomes the main pillar of policymaking. Instead of relying on limited experience or general considerations, data make it possible to evaluate the probable consequences of each policy and measure its effectiveness, and they can even reveal unintended effects and hidden risks before they occur (28). This approach strengthens the link between scientific knowledge of social reality and policy formulation and turns the logic of public interest into an empirical and reflexive process. In continuation of this transformation, the personalization of public services emerges; a form of service in which the needs of citizens are not analyzed and delivered collectively and uniformly, but on the basis of their behavioral patterns and actual preferences. Such a process in areas such as health, education, and urban services creates the capacity to produce efficiency and justice simultaneously.

Ultimately, the realization of data-driven public interest requires data governance; a mechanism through which data quality, methods of collection, limits of use, institutional responsibility, and protection of citizens' rights are determined. Without clear mechanisms of data governance, data can become a source of inequality or abuse of power and can weaken the foundations of public interest (29). Therefore, redefining public interest on the basis of data becomes meaningful only when, alongside technical efficiency, it remains committed to ethical and legal principles.

Concrete Applications

The applications of data-driven interest in various areas of governance and public services show that data are not only tools of analysis, but also the foundation of decision-making and the redefinition of the relationship between the state and citizens. One prominent manifestation of this transformation appears in smart cities, where real-time data obtained from sensors, communication networks, and citizens' behavioral patterns reconstruct the foundations of urban management. The analysis of spatial and environmental data makes it possible to optimize resource allocation, regulate traffic flows, reduce energy consumption, and improve quality of life, and it causes public interest to be defined dynamically and responsively according to the real needs of society (30). In continuation, health policymaking is also a precise example of the function of data-driven interest. The analysis of population health data makes it possible to identify disease patterns, predict health crises, and design targeted interventions. This approach shifts the state from reactive management to anticipatory and evidence-based management (31).

In the field of electronic services, data have become the main factor of structural integration among public institutions and have made it possible to provide simultaneous, simpler, and personalized services. Services such as issuing permits, public payments, and civic interactions are carried out with lower cost and greater transparency through the circulation of data among agencies (32). Risk management is another example of the application of this logic; predictive data analysis can reveal economic, environmental, and security threats before they occur and increase the capacity for rapid and effective response. In this context, platform regulation has become a sensitive issue, because digital platforms, with their vast volumes of data and algorithmic power, play a decisive role in shaping social behavior. Regulating and supervising them through data-driven rules guarantees the realization of public interest and the preservation of digital justice.

Finally, the contactless economy, as a new symbol of data-driven organization, has transferred economic interactions to virtual levels; transactional data have replaced physical interactions, and their circulation has become the main criterion for analyzing consumer behavior and regulating the market. All of these examples show that public interest in the age of data is not objectified in an abstract manner, but in the everyday functions and practical decisions of states and societies.

Ethical and Legal Challenges and Implications

Although the transition to data-driven interest opens new horizons for efficiency, accurate understanding of public issues, and improvement in the quality of decision-making, it simultaneously creates a set of ethical and legal challenges whose understanding is necessary for a realistic evaluation of this transformation. At this stage, the issue is no longer merely the function of data and algorithms, but the consequences of the concentration of data power, the risks of pervasive surveillance, the possible conflict between public interest and individual rights, and the errors and discriminations embedded in data and computational models. In this section, these challenges are examined under three axes: the issue of data power and inequality, privacy and security, and data misrepresentation and algorithmic discrimination.

The Issue of Data Power and Inequality

The expansion of data-based decision-making systems, alongside broad opportunities for increasing governance efficiency, has also turned the issue of power concentration and inequality in access to data into one of the

fundamental challenges of public interest. In the digital age, data have become a strategic resource that enables the analysis of social behavior, prediction of future trends, and guidance of public policymaking. Under such conditions, institutions that have the greatest access to data possess greater capacity to shape public decisions and direct economic and social structures. This situation may lead to an unprecedented concentration of power in the hands of states and large technology companies and may create a new form of structural inequality in society; an inequality based not on ownership of material resources, but on control over data flows (15).

Data concentration also prepares the ground for the emergence of a kind of technological authority in which decision-making processes are increasingly delegated to technical mechanisms and data analyses. In this model, power is exercised not merely through traditional political institutions, but through analytical systems and computational models. Such a structure may increase the distance between public decision-making and democratic participation, because an important part of policymaking processes is formed within technical and specialized frameworks that are not accessible or understandable to the general public (33). As a result, there is a risk that public interest, instead of being the outcome of social dialogue and civic participation, will become the product of limited technical analyses. In addition to this issue, the lack of transparency in the operation of algorithms creates another challenge. Many decision-support systems rely on models whose internal logic is not clear to users or even to supervisory institutions. Such a situation makes it difficult to evaluate the fairness of decisions and identify possible errors, and it weakens public trust in data-driven processes. Consequently, the issue of data power and inequality shows that the realization of public interest in the data age does not depend only on technological development, but also requires mechanisms for the equitable distribution of data and the guarantee of transparency in decision-making processes.

Privacy and Security

The relationship between public interest and individual rights in the data-driven era has reached a point where any development of data capacities without attention to its consequences for privacy can disrupt a fundamental balance in social order. Efforts to secure public interest through extensive data collection, continuous monitoring of activities, and analysis of individual behavior create the risk that the boundaries of personal autonomy and fundamental freedoms may be weakened. When states or public institutions resort to the comprehensive collection of data in order to maintain security, manage crises, or improve efficiency, the possibility of conflict between the collective good and the individual right to control personal information increases. Such a conflict becomes more complex when data are not only tools of analysis, but also mechanisms for invisible surveillance and indirect influence on social behavior; a situation that may restrict citizens' capacity for autonomy (34).

Although extensive surveillance may apparently be evaluated as useful for ensuring public security, in practice it has the capacity to create an unequal and imbalanced pattern of power. When governance actors use data as a tool of constant monitoring, social trust declines and citizens feel that they live in a controlled environment, even if this surveillance is not visible. In addition, the growing dependence of public institutions on data-driven systems makes attention to the management of data-breach risk even more necessary. Any disclosure, manipulation, or theft of personal data can have profound consequences for individuals and for specific gender, ethnic, or social groups, because sensitive data may become a source of discrimination, stigmatization, or abuse (35). Therefore, the main challenge is how the use of data for realizing public interest can be harmonized with the preservation of

individual dignity, the limitation of extensive surveillance, and the guarantee of data security. A sustainable answer is achieved only when privacy-protection principles are placed at the heart of data-driven policymaking.

Data Misrepresentation and Algorithmic Discrimination

Data misrepresentation and algorithmic discrimination occur when the collected data or the analytical models built upon them provide an incomplete, distorted, or exclusionary image of social reality. Data that are influenced by hidden biases in the stages of collection, selection, or labeling prepare the ground for producing models that reproduce the same biases. This situation is not merely a technical error, but a structural issue, because every dataset is the product of power relations, governance methods, and social mechanisms, and when these data are used in decision-support models, the result is the transformation of social prejudices into decision-making rules (36). Such a process can lead to the systematic exclusion of groups that are less visible in data or whose presence is accompanied by inaccurate information.

Alongside this issue, digital inequality plays a decisive role in deepening algorithmic discrimination. Groups that have limited access to technology, infrastructure, or data literacy not only participate less in data production, but are also more exposed to the consequences of decisions made on the basis of incomplete data about them. The exclusion or underrepresentation of these groups in foundational datasets causes analytical models to treat them as marginal or exceptional, and this can reduce opportunities, intensify social labeling, and create new inequalities in areas such as public services, health policymaking, or platform regulation (37). From this perspective, algorithmic discrimination is not only a technical challenge, but also a reflection of unequal social structures reproduced in the form of decision-support models. Accordingly, achieving data-driven public interest requires that data validity, data comprehensiveness, and fairness in the representation of different groups be placed at the heart of design and analysis processes.

A Model for Integrating “Traditional Interest” and “Data-Driven Interest”

The effort to understand public interest in the data-driven era becomes complete only when attention is paid to the possibility of the coexistence of values arising from social traditions with the new capacities of data and technology. Neither of these two approaches alone can provide a comprehensive and sustainable image of the public good. Traditional interest without data-driven mechanisms lacks the necessary efficiency, and data-driven interest without reliance on values and social legitimacy is deprived of public acceptance and institutional sustainability. For this reason, this section addresses the necessity of integrating these two logics and presents a model showing how cultural, institutional, and technological layers can together create a coherent framework for reproducing and strengthening public interest.

The Necessity of Integrating the Two Approaches

The transition from traditional collective interest to data-driven interest can become a stable and reliable framework for governance only if an overlap is created between two fundamental logics: social legitimacy and technical efficiency. Although the efficiency resulting from data and technology can make public decision-making more accurate, faster, and less costly, it alone cannot create social acceptance, because every public decision, regardless of how it is produced, needs to rely on the values, identities, and cultural sensitivities of society. In the

absence of such a connection, technology risks becoming a rootless mechanism that citizens perceive not as a tool of service, but as a factor of control or a means of eliminating autonomy.

By contrast, exclusive reliance on cultural values and traditional norms also cannot respond to contemporary complexities. Today's society requires precise and data-based analytical tools to solve broad problems such as risk management, resource allocation, and the regulation of complex economic activities. Therefore, the integration of the two approaches must occur at a point where technology serves the reproduction and strengthening of human values, while these values guide the use of data and algorithms toward the public good. The outcome of this integration is a mechanism in which technology derives its legitimacy from its connection with society, and society obtains its capacity to solve its problems from the analytical power of technology.

Proposal for an Analytical Model

An effective model for linking traditional interest with data-driven interest can be realized only when the three cultural, institutional, and technological layers operate in a synergistic relationship. The cultural layer, with its set of values, traditions, collective sensitivities, and historical understandings of the public good, determines the semantic and normative boundaries of any form of decision-making and provides a value-oriented direction without which no data-driven mechanism can have sustainable legitimacy. The institutional layer transforms this orientation into practical mechanisms: laws that determine the limits of data use, transparency mechanisms that preserve public trust, and participatory mechanisms that enable citizens to intervene in the decision-making process all help align technology with social needs. Alongside these two layers is the technological structure, which, by relying on data, algorithms, and intelligent systems, makes possible the accurate analysis of public issues and the efficient allocation of resources. The synergy of these three layers is formed when technology operates not as an independent force, but within the context of transparent institutions and rooted values, and when culture and institutions, in turn, use the analytical capacity of technology to improve the quality of decision-making and promote public justice. Such a model not only increases the efficiency of decisions, but also prevents technology from becoming detached from society and prevents the formation of a gap between technical logic and social logic.

Conclusion

The transformation of the concept of public interest can be regarded as a reflection of profound changes in the social, political, and technological structures of human societies. In traditional societies, public interest was mainly defined as a form of collective interest rooted in cultural, religious, and customary orders and based on the priority of the community over the individual. Within such a framework, the public good was determined not through analytical or data-based processes, but through established traditions, political authorities, and shared social norms. Social stability, value homogeneity, and preservation of collective cohesion were among the most important criteria according to which what was beneficial to society was identified. Although this type of understanding of public interest played an effective role in creating order and social cohesion, it was also accompanied by limitations, including the limited real participation of citizens in determining public interests and the limited possibility of revising decisions or adapting them to changing social conditions.

With the expansion of modernity, the formation of bureaucratic states, and the emergence of the concept of the modern citizen, this understanding of public interest gradually underwent transformation. The increasing complexity of social structures and the growing scale of administering societies intensified the need for more accurate and

systematic methods for identifying and realizing public interests. In this process, the role of knowledge, statistics, and analytical tools in public decision-making was strengthened, and the ground was prepared for a transition to an approach in which data became one of the main sources for understanding public issues. In recent decades, this transformation has gained remarkable speed with the expansion of information technologies, communication networks, and data-processing capacities. Under such conditions, public interest is increasingly redefined as a data-driven concept; a concept in which the analysis of extensive social and economic data makes it possible to understand problems more accurately, predict trends, and allocate resources more efficiently. In this way, public decision-making has moved away from reliance solely on historical experiences or general understandings and toward analyses based on data and evidence.

Nevertheless, data-driven organization does not in itself guarantee the realization of public interest. Although data technologies can increase the accuracy and speed of decision-making, in the absence of appropriate ethical, legal, and social frameworks they may lead to the formation of new forms of power concentration and inequality. The monopoly of data by states or large companies, the lack of transparency in algorithmic functioning, and the possibility of reproducing social biases in data are among the challenges that may endanger the concept of public interest. Moreover, the expansion of data-based surveillance mechanisms may blur the boundary between securing the public good and restricting individual freedoms. Therefore, the main issue in the data-driven era is not merely the use of technology, but the way in which the relationship between technological capabilities and human values is regulated.

In this regard, balanced interaction between human beings and technology becomes fundamentally important. Data and analytical tools can increase society's capacity to understand complex problems and manage resources, but the orientation of these tools must be determined within the framework of social values, principles of justice, and cultural norms. Technology can serve public interest only when it operates as an instrument within social and institutional systems, not as an independent force that imposes its own logic on society. In other words, the social legitimacy of data-driven decisions is formed only when citizens can understand how data are used, what rules govern this process, and what mechanisms exist for accountability and oversight.

From a futures-studies perspective, the study of public interest in the data-driven era can be expanded in several main directions. First is the examination of how to design legal and institutional bodies capable of balancing technological efficiency with the preservation of citizens' rights. Second is the analysis of the ways in which data and technology can be used within different cultural and social value frameworks, because the concept of public interest may have different meanings and priorities in different societies. Third, the study of citizens' participation in data-driven decision-making processes is important, because the expansion of digital technologies can create new opportunities for social participation and public oversight. Finally, attention to the ethical and social-justice dimensions of data use can help shape frameworks in which technology contributes not only to increasing governance efficiency, but also to strengthening public trust and reducing social inequalities. Such an approach can prepare the ground for a balanced understanding of public interest in the contemporary world; an understanding in which the analytical capacities of technology are linked constructively with human and social values.

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All authors equally contributed to this study.

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Transparency of Data

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