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RECONSTRUCTING COMMUNICATION THEORY UNDER THE LOGIC OF DATAFICATION: FROM METHODOLOGICAL CRISIS TO THE ADOPTION OF A HYBRID APPROACH

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Abstract:

The subject of this research paper revolves around the crisis of theory in media and communication sciences in the era of big data, where the concept of knowledge has changed from understanding and interpretation to prediction and measurement, and data has become presented as an alternative to theory. Focusing on the fact that this transformation has created three interconnected crises: a methodology dominated by logic "data first", a cognitive approach that excludes human meaning and context, and an ideology that claims the neutrality of data despite its service to systems of power and the economy. The article also proposes to overcome this crisis through a hybrid approach that combines quantitative and critical analysis, and the development of new concepts such as algorithmic culture, graphic colonialism, and surveillance capitalism This restores the theory's role as a critical tool that reveals the power relations underlying algorithms and preserves the human and cognitive character in a world governed by data.

Key words: Datafication, Algorithmic Culture, Hybrid Epistemology**,** Communication Theory

Introduction

The question of theory in the field of media and communication has become one of the most pressing issues today, where the epistemic the methodological, and the political intersect. Since the field's inception, theory has remained a central instrument for understanding communicative phenomena—whether by conceiving communication as a linear, measurable process; as a space for interpretation and meaning-making; or as a social system that reproduces power. Yet the digital transformations ushered in by the technological revolution and big data have shifted the debate to new planes that move beyond messages and texts alone toward seemingly endless streams of data that are measured, analyzed, and leveraged in real time.

Confronted with this shift, theory has found itself in a predicament of epistemological interrogation—an unprecedented cognitive moment. On the one hand, it has become possible to justify inferring behavioral patterns directly from data without recourse to hypotheses or theoretical models. On the other hand, its epistemic ambition has receded in favor of a predictive logic, such that the explanatory question of "why?" is replaced by the anticipatory "what will happen?". A third collision concerns the illusion of scientific neutrality attached to data, which, upon closer inspection, functions as an instrument for reproducing relations of economic, political, and cultural domination.

Persisting in talk of "crisis," however acute, risks casting the discussion of theory in a "philosophy of endings" that fails to engage the demands of cumulative knowledge. It can instead be read as the beginning of a new phase of re-formation. Today, theory is called upon to move beyond its old binaries and open itself to new epistemological possibilities grounded in a critical-quantitative hybridity; to develop a conceptual lexicon capable of capturing the specificities of the digital environment and the imperatives of virtualization; and to reclaim its critical function as a lens able to unravel the logic of data and reveal the power structures it conceals. In this sense, what may be described as a theoretical crisis becomes an opportunity

to relocate theory not at the margins but at the very heart of the transformation itself—an instrument of epistemic resistance that preserves the place of the human in a world governed by algorithms.

1- The Epistemological Background of Theory in Media and Communication

The epistemological (cognitive) dimension is the cornerstone of any scientific field, for it sets the conditions under which knowledge is produced, the boundaries within which it operates, and the concepts that frame it. In media and communication, it is clear that theory did not evolve in a vacuum but within a series of successive epistemological shifts. In its early stages, it was aligned with experimental positivism—an affinity fueled by the allure of quantitative measurement—before turning toward critical and interpretive approaches along the convergences of Marxist orientations, cultural studies, and structuralist innovations, and eventually to the digital transformations in which big data and algorithms dominate knowledge production.

1.1- Communication as Measurement and Effect

The "positivism moment" in the history of media studies appears as a phase devoted to constructing the scientificity of communication through tools of measurement and quantification. The communicative phenomenon is recast as a set of variables that can be observed, tested, and predicted. Underlying this orientation is an epistemological conviction that "objective" knowledge is attainable only when social phenomena are reduced to measurable indicators, and that explaining communicative behavior occurs when causal relations between inputs (messages/stimuli) and outputs (effects/responses) are specified. The symbolic founder of this tendency is Harold Lasswell's well-known formula: "Who says what, to whom, through which channel, and with what effect?"—a formulation that turns communicative action into a matrix of questions amenable to methodological systematization and experimental testing (Lasswell, 1948, p. 37). In the conclusion to the same article, Lasswell advances social control as an intrinsic function of managing mass communication, revealing an early collusion between measurement and the administrative normativity of communication (Lasswell, 1948, p. 51).

In parallel, Shannon and Weaver's "information theory" provided a mathematical horizon for modeling communication as the transmission of signals through a channel permeated by noise, where the properties of transmission are specified by concepts such as entropy, redundancy, and coding efficiency (Shannon & Weaver, 1949, p. 3). This conception conferred epistemological legitimacy on treating communication as an engineering problem subject to measurement and optimization, rather than as an interpretive event rich in multiple meanings. It also encouraged the generalization of an informational logic to symbolic and cultural phenomena as "content" governed by codes and measurable via error rates (Shannon & Weaver, 1949, pp. 7–8). Here, Lasswell's formula meets the Shannon–Weaver model: the former segments the phenomenon into functional elements, while the latter converts it into mathematical variables; in both cases, scientific legitimacy becomes tied to codifiability and measurability.

At the level of the measurement apparatus, the Yale persuasion program led by Hovland established an experimental school that analyzed effects by unpacking their elements: the message source (credibility, attractiveness), the content (structure, threat/fear appeals, repetition), and audience characteristics (readiness, involvement), within laboratory designs that tracked changes in attitudes and behavior (Hovland, Janis, & Kelley, 1953, pp. 3–4, 20). From within this project emerged classic formulations such as the sleeper effect, which posits the possibility of effects growing over time despite a weak source—thus buttressing the claim that persuasion can be engineered through the systematic manipulation of message and audience variables (Hovland et al., 1953, p. 106). Concurrently, election studies by Lazarsfeld

and colleagues—through fieldwork and longitudinal surveys—exposed the limits of the "hypodermic needle" model, showing that influence flows through opinion leaders and local social structures, later articulated as the "two-step flow" thesis (Katz & Lazarsfeld, 1955, pp. 32–33). This shift was not a negation of positivism so much as an internal correction: from the "direct effects" hypothesis to a "limited effects" model—while retaining the centrality of measurement and its methods.

In tandem, an administrative research infrastructure took shape, where projects in public-opinion studies, surveys, and content analysis converged with the needs of public policy and the culture industry. During and after World War II, knowing "what works" in persuasion, advertising, and political management became a practical demand that fueled institutional funding and framed research questions within what McQuail would later call the "administrative school" of media research (McQuail, 2010, pp. 83–84). Positivism thus materializes here in three interlocking layers: instruments (experiments, surveys, content coding); variable-centered theories (source–message–receiver); and an administrative telos that makes "effectiveness" the central criterion for judging communicative knowledge.

Even so, the positivist moment carries a latent "epistemological cost": metric precision is achieved by reducing meaning and context. When "persuasion" is translated into differences in means between experimental and control groups, interpretive questions—why do people ascribe meaning in this way? how does the symbolic repertoire operate?—are rolled out of the frame in favor of questions such as "what works, and with what effect size?" (McQuail, 2010, p. 45). And when the Shannon–Weaver model is imported verbatim into the social sciences, it adds further bias toward "the message as signal" and "the receiver as channel," obscuring the agonistic dimension of meaning and substituting it with an issue of transmission efficiency (Shannon & Weaver, 1949, p. 3). In this sense, the limits of positivism lie not in its "error" but in its very success: the more disciplined the metrics, the more the phenomenon becomes visible only through what the tools allow one to see, rather than through the cultural complexities the phenomenon demands.

Historically, this orientation yielded two parallel paths: a procedural–administrative one that refines tools for calibrating messages and audiences; and a corrective one from within positivism—as in "limited effects"—that revises grand hypotheses without abandoning the logic of measurement. This "internal correction" helped consolidate the standing of the positivist moment, which appeared able to adapt to field realities without any radical alteration to its epistemological architecture. Yet this very adaptability revealed its insufficiency when measurement tools collided with phenomena requiring interpretive and critical approaches (active reception, cultural hegemony, media socialization)—a turn that the subsequent critical moment would capture. Even then, the positivist legacy remained present across whole swaths of effects research—from advertising and consumer behavior to campaign studies—as a shared language for evaluation and decision-making (Katz & Lazarsfeld, 1955, p. 309; McQuail, 2010, p. 84).

In sum, the positivist moment defines media as a quantifiable input–output relation and grounds its legitimacy on three pillars: a functional model that segments the phenomenon (Lasswell, 1948, p. 37); a mathematical formulation of the communication problem (Shannon & Weaver, 1949, pp. 7–8); and an experimental measurement apparatus that tests the effects of variables on attitudes and behavior (Hovland et al., 1953, pp. 3–4, 20). Its strengths lie in rigor, in the rapid production of "useful knowledge," and in its serviceability to governance and policy. Its limits lie in producing what it measures and excluding what resists translation into variables, leaving meaning and context at the margins. Hence the later turn to critical and, subsequently, digital approaches—with their questions about power and algorithms—

constitutes a continuation of the conversation with this moment rather than a clean break from it: even when we critique positivism, we still speak in its language.

1.2- The Critical and Interpretive Moment: Media as a Space of Power and Meaning

The critical moment emerges as an epistemological response to the positivist narrowing that reduced communication to a matrix of measurable variables. It reasserts that meaning is not a raw given but is produced within social and historical relations saturated with power. From this perspective, media cease to be a neutral "channel" and become a symbolic arena in which competing definitions of reality collide and cultural hegemony is constructed through processes of representation, coding, and circulation (Hall, 1997, pp. 15–16, 25). The center of gravity thus shifts from "How much do the media affect?" to "How do the media produce meaning and normativity?" and from "Where is the effect?" to "Where is power located?" (McQuail, 2010, pp. 83–84).

At the heart of this shift stands Habermas's project of communicative action, which distinguishes between instrumental rationality—preoccupied with control of the world—and communicative rationality, which grounds social legitimacy in the possibility of mutual understanding. Within this horizon, the public sphere becomes a network of discourses in which claims to validity—truth, normative rightness, and sincerity—are put to the test, rather than merely a marketplace for message exchange (Habermas, 1984, pp. 86–101). When media move from engineering inputs and outputs to enabling the conditions of rational debate, the task of research changes: from calculating the impact of messages on attitudes to unpacking the conditions that make understanding possible—or obstruct it (Habermas, 1984, p. 99). In this sense, the procedural justice of discourse—rather than the sheer efficacy of persuasion—becomes the criterion for assessing the roles of media in the public sphere.

From another angle, Stuart Hall provided a suite of theoretical tools that shift attention from "transmission" to "encoding/decoding." Producers encode meaning within institutional and ideological frameworks, yet audiences are not passive recipients; they decode messages from their cultural and class positions, generating dominant, negotiated, or oppositional readings (Hall, 1997, pp. 25–31). This does not deny structural constraints; rather, it acknowledges that hegemony is achieved through a contingent acceptance of dominant meanings, not through a mechanical match between sending and receiving. Research thereby moves from measuring "effect size" to tracking the politics of signification: How is credibility constructed? In what ways are minorities and groups subjected to cultural control and made into objects of representation? (Pages 61–63 of Hall, 1997).

According to contemporary critical perspectives like those advanced by Fuchs, digital media not only transmit meaning but also capture and resell users' cultural labor in platform-capitalist models, where economic exploitation and symbolic dominance coexist (Fuchs, 2014, pp. 52–60). This adds a political-economic layer. "User-generated content" thus becomes an extractable resource rather than a purely expressive practice, and participation—under platform terms—functions as a mechanism for value capture and recirculation. The boundary between the cultural citizen and the surveilled consumer is consequently redrawn (Fuchs, 2014, pp. 56–58). Questions of meaning therefore intersect with questions of ownership, unpaid labor, and market structure.

In parallel, Castells broadens the lens by analyzing "communication power" within network architectures: the capacity to program the network (its values and priorities) and to switch between networks (linking and isolating) determines who controls the long-term flows of meaning (Castells, 2009, pp. 12–13, 45). Hegemony here is not a textual event but an engineering of flow that redefines the relative weight of actors and discourses. Hall's interpretive toolkit thus meets platform economics: meaning is not merely an individual reading, but an outcome shaped by networked structures that govern its visibility and

circulation (Castells, 2009, p. 425). Analysis of "who appears, when, and to whom" becomes a precondition for understanding "what it means and what it does."

Cultural studies—as crystallized in Hall's work—also deconstruct the politics of representation: discursive images of race, gender, and class do not simply reflect reality; they actively compose it through chains of institutional practices (television, journalism, education) infused with power relations (Hall, 1997, pp. 15–16, 61). Critical denaturalization of "nature" and "common sense" thus exposes the historicity—and contestability—of meanings. This reframes the scholar's role as making visible the limits that discourse draws around what can be thought, said, and represented (Hall, 1997, pp. 25–31).

Within this horizon, participatory cultures are not understood as a spontaneous democracy; while the literature on "spreadability" shows how groups circulate and reshape meaning across networks (Jenkins, Ford, & Green, 2013, pp. 2–4, 21), critical perspectives reveal that "participation" is governed by platform structures that regulate algorithms, ownership, and the rules of visibility and invisibility. Accordingly, cultural analysis does not conflict with political–economic critique but complements it: the former shows how meaning operates through audience practices, and the latter clarifies to whom value accrues and how those practices are converted into investable assets (Jenkins et al., 2013, p. 37; Fuchs, 2014, pp. 56–60).

The recent media-constructivist approaches of Couldry and Hepp propose that today's social reality is deeply saturated with mediation; that is, "mediation" is not an external skin but part of the very construction of reality itself (Couldry & Hepp, 2017, pp. 5–6, 15). On this view, we cannot separate the "message" from its technical and institutional architecture, for together they participate in producing what counts as real, reasonable, and possible. This expands critique from analyzing messages to analyzing the media formations that produce and transmit them (platforms, protocols of visibility, metrics of success), and relocates power as distributed across discourse, engineering, and business (Couldry & Hepp, 2017, p. 98).

This theoretical shift is reflected in research methodologies: instead of relying solely on opinion surveys and laboratory experiments, audience ethnographies advance, along with multilayered discourse analysis; studies of production–distribution–consumption as a single chain; and platform and algorithm research as the "infrastructure" of meaning. The aim is not to negate statistical value but to place it within a design that links measurement to context and quantitative outcomes to processes of encoding and decoding, so that effects are measured and interpreted as the outcome of a continual juxtaposition among signification, institution, and market (McQuail, 2010, pp. 83–84; Habermas, 1984, pp. 99–101).

In sum, the critical and interpretive moment shifted media studies from an economy of effects to the politics of meaning; from message engineering to the architecture of symbolic power; and from the audience as a passive receiver to an actor that negotiates meaning within boundaries drawn by the structures of networks, markets, and institutions. In doing so, it did not abolish statistical precision but refused to let precision substitute for understanding. Hence, in the age of data, the challenge is not a return to pure measurement but the articulation of understanding and prediction: to read numbers in the light of meanings, and to unpack algorithms as new politics of representation rather than mere engines of enumeration (Castells, 2009, pp. 12, 45; Hall, 1997, pp. 25–31; Couldry & Hepp, 2017, p. 98).

1.3- The Digital Moment: Data as a New Epistemological Horizon

The "digital moment" marks a pivotal phase in the history of media knowledge. Communication is no longer studied as the exchange of symbols or the flow of meanings, but as data flows that can be tracked, processed, and monetized. Since the 1990s and the broader digital turn, what van Dijck (2014) terms datafication has emerged—reducing patterns of social life to data units amenable to storage and computational manipulation (pp. 198–199).

This shift is not merely technical but fundamentally epistemological: "knowledge" increasingly comes to be defined as the capacity for prediction via inductive patterns extracted by algorithms from massive datasets (Mayer-Schönberger & Cukier, 2013, pp. 12–14). The central question of knowledge thus moves from "Why does this happen?" to "What will happen?"—from explanation to prediction.

1.3.1- The Illusion of the "End of Theory"

A striking sign of this shift is Chris Anderson's (2008) Wired essay proclaiming that a "data deluge makes the scientific method obsolete," arguing that data volume and algorithmic power suffice to discover patterns without hypotheses or causal models (Anderson, 2008, para. 3). Provocative as it is, the claim reveals a new logic that places data first and theory in the background. Critical responses were swift: as Kitchin (2014) argues, "data do not speak for themselves"; they are always produced within theoretical and ideological frames (pp. 2–4). In other words, the "alleged end of theory" merely reinscribes a form of statistical hegemony that smuggles in assumptions about its object even while claiming neutrality. Here lies the epistemological crisis: should theory be abolished in favor of algorithms, or redefined in light of data?

1.3.2- A Shift in the Object of Knowledge

The object of media inquiry is no longer the message, meaning, or even direct effect, but data themselves as the "raw material" of knowledge. Yet Gitelman reminds us that "raw data" is a mere oxymoron (2013, p. 3): every act of data collection, classification, and cleaning is saturated with theoretical and normative choices. When a platform such as X defines "engagement" as likes and retweets, it does not merely reflect reality; it reshapes it according to its own metrics (van Dijck, 2014, pp. 198–200). Data thus become not a "reflection" of reality but a knowledge–power formation that stipulates what counts and what is excluded.

1.3.3- From Explanation to Prediction

In the digital moment, prediction is elevated as the paramount epistemic value. Netflix's algorithms, for example, are not concerned with explaining viewers' tastes so much as forecasting what they will want to watch next in order to maximize watch time (Napoli, 2014, p. 63). This displacement from "meaning" to "pattern" stands in fundamental tension with Hall's (1997) critical approach, in which meaning is a negotiated social process (pp. 25–31). As Andrejevic warns, infoglut does not yield deeper knowledge; it floods attention, making it harder to discriminate the consequential from the trivial (Andrejevic, 2013, pp. 2–4). In this sense, sheer quantity does not automatically produce qualitative understanding.

1.3.4- Ideological Aspect: Making the Shift from Apathetic to Active

The Asp of Ideology Even though data are marketed as "neutral" and "objective," critical analysis exposes this purported neutrality. Beer argues that the data gaze employs computational principles to decide what can be seen and what is excluded, much like Foucault's panoptic gaze. For example: Making the Shift from Indifferent to Responsible. Beer (2017), pages 4–6. Striphas adds that we now inhabit an algorithmic culture, in which algorithms not only curate what is displayed but actively reconfigure cultural practices themselves (Striphas, 2015, pp. 396–398). From a wider angle, Zuboff describes our present as surveillance capitalism, where human behaviors are converted into economic resources from which surplus value is extracted (Zuboff, 2019, pp. 94–96). Lyon contends that we have entered a culture of surveillance that normalizes monitoring as a routine condition of everyday life (Lyon, 2018, pp. 2–3). Thus, the epistemological crisis here is not only cognitive but also authoritarian-economic.

1.3.5- Data Colonialism and the Reconstruction of Reality

Couldry and Mejias go further with the thesis of "data colonialism," arguing that data collection does not merely describe social life but reshapes it into forms that are extractable

and investable (Mejias & Couldry, 2018, pp. 2–4). On this view, everyday life is lived as "data resources" before it is lived as human experience, marking a deep epistemological rupture: reality is no longer "perceived and then represented," but "designed so that it can be collected and monetized." This radical shift opens a philosophical question: are we still dealing with "representations of reality," or with "alternative structures" that generate a new reality through algorithms?

1.3.6- Infosphere: A New Frontier in Philosophy

Luciano Floridi (2014) introduces the idea of the infosphere, a vast informational environment where data and digital technology are used to reshape the human-world relationship, to characterize this stage (Floridi, 2014, pp. 1–3). Within this horizon, communication is no longer merely a means between subjects but an existential structure in which being itself is redefined. Media epistemology thus moves beyond the bounds of traditional social science into the domains of the philosophy of technology and ontology.

The digital moment foregrounds a radical transformation in media epistemology: from messages and meanings to data and patterns; from interpretation to prediction; and from knowledge as understanding to knowledge as power. Data are not neutral tools but an ideological epistemic structure that underwrites surveillance capitalism and a new colonization of everyday life. For all their affordances, they produce a crisis for theory: either theory is sidelined in favor of algorithms, or it reconstructs itself to unravel these formations and expose their limits. In this sense, the digital moment is not "the end of theory" but a challenge to reposition theory as a critical instrument capable of grasping power and meaning in the age of data (Castells, 2009, pp. 12, 45; Hall, 1997, pp. 25–31; Couldry & Hepp, 2017, p. 98).

2- The Crisis of Theory in the Face of Big Data Logic

Since its inception, theory in media and communication has been tied to the construction of frameworks that explain communicative phenomena. With the rise of big data, however, the conditions of knowledge production have taken a radical turn. Data present themselves not merely as instruments of research but as a potential substitute for theory. This places theory in an unprecedented epistemological crisis—methodological, cognitive, and ideological.

2.1- The Methodological Crisis: From "Theory First" to "Data First"

Methodology is one of the most salient faces of the crisis confronting theory in the age of big data. For decades, the standard scientific sequence has been clear: formulate hypotheses → collect data → test → generalize. This model enshrines the idea that theory provides research with meaning and direction. The emergence of algorithmic induction has inverted this order, putting data first—not as a tool of testing, but as a source of knowledge production. In this vein, Anderson advanced his provocative thesis of the "end of theory," contending that the sheer abundance of data allows us to "let the numbers speak" without prior assumptions (Anderson, 2008, p. 3). Here the methodological crisis begins: Is theory still a prerequisite for building knowledge, or do data suffice on their own?

2.1.1- The Decline of Centrality of Hypotheses

The hypothesis is the primary tool used in the conventional approach to connect theory to reality. With big data, the focus moves from creating hypotheses to using computers to immediately uncover patterns. This change is referred to by Kitchin as "data seduction," when the researcher is drawn in by the abundance of statistical affordances in the data and stops asking theoretical questions in favor of concentrating on patterns that have been found (Kitchin, 2014, pp. 2–4). In this sense, the hypothesis—as a driver of scientific imagination—is sidelined and replaced by a quantitative loop of repetition. The risk is methodological: research becomes captive to surface correlations, with little capacity to formulate causal or explanatory relations.

2.1.2- The Deception of "Raw Data" and the Evaluation's Neutrality

Data-driven logics frequently assume that knowledge can be produced just through measurement.. Gitelman rejects this claim with the now-classic line that "raw data" is an oxymoron (Gitelman, 2013, p. 3). Collection, classification, and cleaning are never neutral; they are saturated with theoretical and ideological decisions. Digital platforms predefine what counts and what is excluded: when Facebook defines "engagement" as likes or shares, it does not record reality so much as reshape it into investable metrics (van Dijck, 2014, pp. 198–200). The crisis is clear: if measurement itself is assumption-laden, the algorithmic method does not describe the world "as it is," but produces a new, ostensibly "natural," reality.

2.1.3- The conceptual fall in creative thinking

In the social sciences, theorizing has always been a creative field that opens up new study directions, generates fresh concepts, and reframes phenomena. Overuse of algorithms compromises this function. As Mayer-Schönberger and Cukier put it, big data's operative principle is that correlation replaces causation (Mayer-Schönberger & Cukier, 2013, pp. 12–14). This logic may be effective for prediction, but it flattens inquiry into a descriptive register that explains little. As a result, theoretical inventiveness is diminished, and theory ceases to be a vehicle for conceptual innovation and instead becomes a post hoc gloss that only serves to explain statistical results.

2.1.4- Limitations of the Algorithmic Approach

The algorithmic approach has basic limitations notwithstanding assertions of impartiality and neutrality. Beer notes that the data gaze determines what can be seen and what is excluded (Beer, 2017, pp. 4–6). In other words, algorithms are not merely technical tools; they are epistemic systems that establish the limits of investigation. While projecting an aura of rigor, they conceal the selective character of computational operations. Thus the crisis shifts from a merely methodological problem to a broader epistemological one. If what we count as "knowledge" is conditioned by commercial algorithmic systems, to what extent can we trust their scientific neutrality?

2.1.5- Recommendation Platforms

A telling illustration is the recommendation algorithms used by platforms such as Netflix or YouTube. Built on analyzing past viewing behavior to predict what a user will watch next, these systems do not begin from a theoretical hypothesis about taste or culture; they luxuriate in quantitative patterning. This method reduces a cultural phenomenon to consumption indicators and sidelines social contexts and symbolic meanings. The result is knowledge that is functionally predictive for the platform yet unable to explain why a given audience prefers one kind of content over another (Napoli, 2014, p. 63). On this basis, the structure of the crisis can be summarized in three paradoxes: first, predictive success without explanation; second, a professed neutrality that masks the engineering of measurement; and third, an abundance of data that yields interpretive poverty. These paradoxes intersect with a broader shift in contemporary epistemology toward the infosphere articulated by Floridi, where the boundaries of being and knowing are entangled with digital architectures themselves, rendering "knowledge" the product of an informational environment rather than a neutral ground for grasping an external reality (Floridi, 2014, pp. 1–3). In this world, the task of theory is not to compete with the algorithm at prediction, but to repair the conditions of understanding: to identify what lies outside algorithmic vision, to reconnect measurements with their contexts, and to return the "effect" to a history of contested meanings.

2.2- The Cognitive Crisis: From "Meaning and Explanation" to "Pattern and Prediction"

The cognitive crisis becomes manifest when the horizon of knowledge as understanding—Why does something happen? How is it interpreted within a socio-cultural context?—is

replaced by a horizon that treats knowledge as a tool for prediction (What will happen, and who will do what?). This is not a mere shift in procedural priorities; it is an epistemological displacement that redefines what we count as "valid knowledge." As boyd and Crawford noted early on, the added value of big data is assessed largely by its practical capacity to generate investable predictions rather than by its ability to provide socially meaningful causal explanations (boyd & Crawford, 2012, p. 663). Along similar lines, Mayer-Schönberger and Cukier offer what amounts to a manifesto for moving from causation to correlation: it is enough that prediction works, even if we do not know why it works (Mayer-Schönberger & Cukier, 2013, pp. 12–14). Here the crisis crystallizes as instrumental success in the absence of explanatory illumination—leaving theory in the back seat.

This shift is nourished by the assumption that "data speak." Kitchin dismantles this claim by insisting that data do not speak on their own; collection, cleaning, and modeling are processes saturated with theoretical and normative choices (Kitchin, 2014, pp. 2–4). Likewise, Gitelman reminds us that the phrase "raw data" is an oxymoron: what we call "raw" is in fact the outcome of decisions that precede measurement and coding, determining what will count and what will be ignored (Gitelman, 2013, p. 3). Prediction, then, is not epistemically neutral; it rests on a carefully engineered field of what is made to appear within the space of measurement—so that what we call knowledge becomes a product of the very system that manufactures its indicators.

The crisis deepens when meanings are converted into behavioral signals reduced to clicks, views, and shares. For Stuart Hall, meaning is not content to be transmitted but a process of encoding/decoding through which meanings are rearticulated within divergent social and cultural positions, yielding dominant, negotiated, or oppositional readings (Hall, 1997, pp. 25–31). This interpretive dimension is flattened by algorithmic platforms, which equate meaning with measurability: what can be measured is what exists. Knowledge thus turns into an economy of patterns, and interpretive plurality dissolves into aggregable behavioral units. Andrejevic warns that infoglut does not produce deeper understanding; it overwhelms attention, making it harder to distinguish the consequential from the marginal and encouraging reliance on ready-made signifiers that platforms continually reproduce (Andrejevic, 2013, pp. 2–4). Quantity, in other words, can weaken rather than sustain qualitative insight.

A further paradox arises from the claim to neutrality: data are presented as a mirror of reality while in practice performing reality to fit platform logics. Van Dijck shows how engagement metrics redefine what counts as valuable, entangling commercial aims with standards of credibility and relevance, and reshaping reality around what is easiest to capture and monetize (van Dijck, 2014, pp. 198–200). David Beer calls this the data gaze, which sets the boundaries of visibility: what computational infrastructures do not register becomes less eligible for epistemic existence (Beer, 2017, pp. 4–6, 8). Meaning thus loses its place as a knowledge goal, while predictability—however opaque—ascends as the highest criterion.

The crisis acquires an even more complex dimension with the algorithmic opacity imposed by platform economies. As Zuboff explains, data are used not only to know behavior but to shape and steer it toward value extraction; knowledge here exercises power rather than merely offering disclosure (Zuboff, 2019, pp. 94–96). Couldry and Mejias describe this transformation as data colonialism, wherein everyday life is extracted as a knowledge–economic resource, and the conditions under which truth is produced become part of the architecture of control itself (Couldry & Mejias, 2019, pp. 2–4). Within this horizon, predictability is no longer a sign of scientific quality; it may serve as a cover for authoritarian representations that redefine what counts as valid knowledge.

Applied cases reveal the depth of the impasse. Recommendation algorithms—such as those of Netflix and YouTube—improve predictions of choice, yet they do not provide meaningful cultural explanations for taste and preference in contexts of digital immersion; they operate on correlation rather than causation, optimizing watch time rather than interpreting contexts (Napoli, 2014, p. 63). By contrast, the spreadability literature in Jenkins and colleagues shows that meaning circulates through communal practices and contexts of exchange that add layers of signification resistant to reduction into simple behavioral signals (Jenkins, Ford, & Green, 2013, pp. 21, 37). What is measured is not all that is lived; what is predicted is not all that is understood.

On this basis, the crisis can be summarized in three paradoxes: first, predictive success without explanation; second, a claim to neutrality that conceals the engineering of measurement; and third, a surfeit of data that generates interpretive poverty. These paradoxes intersect with a broader shift in contemporary epistemology toward Floridi's infosphere, where the boundaries of being and knowing are entwined with digital infrastructures themselves—so that knowledge becomes the product of an informational environment rather than a neutral platform for grasping an external reality (Floridi, 2014, pp. 1–3). In such a world, the task of theory is not to compete with algorithms at prediction, but to repair the conditions of understanding: to name what lies outside the algorithmic field of vision, to reconnect metrics with their contexts, and to relocate effects within a history of contested meanings.

2.3- The Ideological Crisis: Algorithmic Dominance and "Data Neutrality"

An ideological crisis occurs when statistics are presented as the new language of nature—under the pretense of objectivity, transparent, and automatic—while in practice serving as normative frameworks that determine what is and is not seen, rearranging values and interests. The discourse of neutrality conceals power dynamics embedded in the layers of data collection, modeling, algorithmic ranking, and their transformation into decisions, markets, and cultural choices. This is not merely a technical mistake. In this sense, the data regime challenges theory not only with a new method but with an ideological order that defines knowledge as liquidity, prediction, and extraction.

The first mechanism of this order is the nature of metrics that decide what counts as signal and what is dismissed as noise. When platforms define success in terms of engagement indicators and time-on-platform, reality is redefined according to what is capturable and monetizable, rather than what is socially or ethically meaningful. Van Dijck shows that datafication is not an innocent technique but an ideology of dataism that equates what can be calculated with what ought to be regarded as real and significant (van Dijck, 2014, pp. 198–200). Beer analyzes the data gaze as a regime of vision that imposes boundaries of appearance and disappearance: what falls outside the metric loses eligibility for public existence. The cultural field is thereby refashioned by computational engineering that echoes—at the level of logic—the Foucauldian disciplinary dimension, albeit through digital means (Beer, 2017, pp. 4–6, 8). us, in this account, ideology resides not only in the "content of results," but in the very structure of vision dictated by algorithms.

The second mechanism is the normalization of surveillance as a condition of digital life. Zuboff offers not merely an ethical critique but a political–economic framework—surveillance capitalism—in which surpluses of human behavior are converted into raw materials for manufacturing predictive products sold in behavioral futures markets (Zuboff, 2019, pp. 94–96). Data thus cease to represent reality and become instruments for pre-emptively shaping it. Culturally, Lyon shows how we have moved into a culture of surveillance: monitoring shifts from sovereign exception to an everyday practice distributed across state, corporations, and citizens themselves; the security logic entangles with the

commercial, and exposure becomes a criterion for social participation (Lyon, 2018, pp. 2–3, 12). From the foregoing, the claim to neutrality appears untenable: knowledge itself is derived from an institutionalized surveillance structure, which makes "facts" borne by relations of power rather than by neutral procedures of measurement.

From within everyday life, forms of engineered visibility disclose how ideology operates through simple interfaces. Pariser's filter bubble thesis shows that systems of personalization persuade individuals that they are seeing "what suits them," even as they shrink their epistemic horizons and cut off the resources of difference necessary for public debate (Pariser, 2011, p. 9). Turow's studies of behavioral targeting reveal how consumers are reclassified into segments that receive different prices and messages, transforming the market into a structure of fine-grained discrimination that is politically invisible yet socially powerful (Turow, 2017, pp. 5–7). Data ideology does not stop at commodifying attention; it redistributes opportunities and symbolic rights through algorithms without submitting to any public accountability.

All this takes on a colonial dimension in Couldry and Mejias's analysis: "data colonialism" does not colonize territories but social life itself, where value is extracted from everything lived—movement, attention, relations—and converted into private property governed by corporate standards (Couldry & Mejias, 2019, pp. 2–4). What is most ideological here is the redefinition of "participation" as a civic virtue even as it amounts to a sovereign surrender of the self to channels of extraction. This view converges with Fuchs's analysis showing how platforms convert audiences' cultural labor into unpaid work, turning "participation" into a resource for both economic exploitation and symbolic domination (Fuchs, 2014, pp. 52–60). Thus, dataism allies with platform capitalism to produce an ideological order that couples asserted objectivity with market efficacy and reduces values to whatever serves saleable prediction.

The power of normalization becomes apparent when algorithms shift from tools of ordering to normative rules for cultural existence. Striphas describes this shift as "algorithmic culture," which not only manages distribution but reshapes cultural practice at its roots—what is created, archived, and consumed, and at what rhythm—such that "meaning" becomes subordinate to the platform-defined logic of discoverability and spreadability (Striphas, 2015, pp. 396–398). This architecture intersects with Castells's "communication power": control does not reside at a single point of production but in the programming of networks and the switching across their nodes—that is, in configuring the structures that allow certain flows to dominate others (Castells, 2009, pp. 12–13, 45). In both cases, ideology is not located in discrete "messages," but in the very architecture of flow.

Hence the crisis of theory is ideological par excellence: the logic of data not only contests theory's explanatory tools; it also advances a normative conception of knowledge, reality, and participation. If theory accepts this conception, it abdicates its historical task of uncovering power and re-questioning the conditions of truth production. If, however, theory reconstructs itself, its first move is to dismantle the discourse of neutrality by showing that measurements produce the very subjects they "measure," and that prediction is less a disclosure of real structure than a pre-formulation of the horizon for action. At that point, critical research regains its role: suturing the computational to the political, reconnecting metrics to their institutional contexts, and redefining utility beyond the mere accumulation of value for platforms alone.

3- Prospects for Theoretical Reconstruction under Big Data Logic

The discussion in the previous two sections has shown that theory in media and communication has undergone major epistemological shifts. It began with the positivist moment, which foregrounded measurement and effects through linear models (Shannon &

Weaver, 1949, pp. 7–9; McQuail, 2010, pp. 55–57), before a critical–interpretive turn restored attention to meaning and socio-political context via theories of communicative action and encoding/decoding (Habermas, 1984, pp. 86–90; Hall, 1997, pp. 25–31). The digital transformation and the attendant datafication (van Dijck, 2014, pp. 198–200) have since turned data and algorithms into a new epistemological horizon, where communication is no longer understood through texts or symbols alone but through digital flows that are measured and analyzed in real time (Gitelman, 2013, p. 3; Floridi, 2014, pp. 43–45).

This move toward data logic has produced an epistemological crisis on several fronts. Methodologically, reliance on algorithmic induction has marginalized the role of the hypothesis and the theoretical frame in favor of statistical patterning (Anderson, 2008, para. 3; Kitchin, 2014, pp. 2–4). Cognitively, knowledge has shifted from the aim of explanation to the aim of prediction, so that inquiry moves from seeking causes to merely anticipating outcomes (Mayer-Schönberger & Cukier, 2013, pp. 12–14; boyd & Crawford, 2012, pp. 663–665). From an ideological perspective, it is now evident that data are not neutral but rather infused with economic interests and power dynamics. This is particularly evident in descriptions of data colonialism (Couldry & Mejias, 2019, pp. 2–4) and surveillance capitalism (Zuboff, 2019, pp. 94–96).

It is evident from these changes that theory cannot succumb to the dominance of data logic or continue using its conventional instruments. Rebuilding theory to engage data-driven rationalities without sacrificing its critical and explanatory functions is the current epistemic problem. This necessitates consideration at three interconnected levels:

- Possibilities for epistemology include using a hybrid method that combines the critical and the inductive, as well as the qualitative and the quantitative.
- Conceptual possibilities include creating a new theoretical vocabulary to understand digital phenomena, such as algorithmic culture, the data gaze, the infosphere, and surveillance capitalism.
- Restoring theory as a lens that can dissect the dominance and power dynamics that support the rhetoric of impartiality and technical objectivity is one of the critical possibilities.

3.1- Epistemological Possibilities: Toward a Hybrid Approach

A way out of the impasse of "theory versus data" begins with recognizing that the inherited antagonism between explanation and prediction is an epistemologically false dichotomy. Robust social knowledge is not reducible to either one in isolation; it is built through an interwoven dialectic that reconnects meanings with behaviors and contexts with metrics. The aim is to move beyond the assumption that data are a substitute for theory, without leaving theory suspended in untestable interpretation. Instead, a hybrid approach treats data as clues that require a conceptual frame to make sense of them, and treats theory as a scaffolding that guides data collection, cleaning, modeling, and critique (boyd & Crawford, 2012, p. 663; Kitchin, 2014, pp. 2–4). The epistemological question, then, is not whether we explain or predict, but how to found a knowledge cycle that integrates inductive, deductive, and hermeneutic-argumentative reasoning at once.

First condition: dismantling the "raw data" myth. No hybrid approach is meaningful if the pre-analytic stage remains outside critical awareness. The choices that precede measurement—from the definition of variables to storage schemas and cleaning protocols—are not merely technical; they are epistemic hinges that determine what will become visible and what will be excluded from the semantic field (Gitelman, 2013, p. 3). Theory must therefore enter the data value chain from the outset, asking: Which definition of "engagement," "attention," or "spread" are we adopting, and what does each entail for meaning and context? Here theory operates as a conceptual sensitivity, renaming things

before counting them and revealing how objects are made through the very instruments of measurement (van Dijck, 2014, pp. 198–200; Beer, 2017, pp. 4–6).

Second condition: epistemic bilingualism. Statistical language must be brought into sustained conversation with cultural interpretation—without either displacing the other. In practice, this means moving beyond mere indicator dashboards toward mixed-methods designs that stage a deliberate methodological dialogue between what patterns disclose and what contextual understanding clarifies. For example, when data reveal bias in content access, the inquiry should not end at a correlation coefficient; it should be followed by digital ethnography that analyzes user practices, meanings, and experiences within a framework of the mediated construction of social reality (Couldry & Hepp, 2017, pp. 5–6, 98). Measurement thus moves from a narrow instrumental role to a guide for qualitative observation, while interpretation steps out of textual enclosure to be tested against broad behavioral patterns.

Third condition: coupling correlation with explanation. The goal is to free prediction from its causal poverty and free explanation from its experimental isolation. A hybrid approach reformulates their relation: inductive analysis explores patterns as hypothesis-generating signals, which are then theorized and tested sequentially to probe causal relations—or at least mediating mechanisms—that render prediction intelligible rather than sufficient. In this vein, patterns can be read as algorithmic clues that call for abductive inference to connect them with concepts such as symbolic hegemony, infrastructures of mediation, or the programming of networks (Hall, 1997, pp. 25–31; Castells, 2009, pp. 12–13, 45). Prediction does not overturn explanation; it opens a pathway toward it.

A necessary normative dimension: transparency of reasons. A hybrid approach is not a mechanical toolkit mash-up; it is a commitment to articulating analytic choices within a horizon of communicative rationality—offering justifications to a scholarly community and concerned publics rather than collapsing into opaque technical authority (Habermas, 1984, pp. 86–101). Transparency operates on two levels: first, a precise account of the data pipeline (collection/cleaning/modeling) with conceptual justification for definitional and classificatory choices. Second, public contestability regarding how measurement reshapes the public sphere and cultural meaning—subjecting the data gaze to social scrutiny so it is not normalized as the sole horizon of vision (Beer, 2017, pp. 4–6; Lyon, 2018, pp. 2–3).

Conceptual synthesis and from blueprint to practice. We need a renewed vocabulary—algorithmic culture, data gaze, infosphere, data colonialism—to link statistical sensibility to structural–philosophical awareness and to keep the hybrid approach politically alert. The value of this synthesis appears when translated into research designs that accumulate understanding instead of dashboards alone: begin with large-scale pattern analysis, proceed to in-depth case studies of encoding/decoding dynamics, then conduct an algorithmic audit to confront interpretive hypotheses with platform rules of visibility and test whether network programming affords shortcuts to circulation (Hall, 1997; Jenkins, Ford, & Green, 2013; Castells, 2009; Napoli, 2014).

Practical and ethical benefits. Hybridity redefines usefulness beyond optimizing ad yield or viewing duration. By connecting quantitative rigor to public sphere goals, it promotes audience-centric measures that strike a balance between reach, variety, and justice. Public justification of efficiency itself is based on the principles of openness and participation (Habermas, 1984, pp. 99–101; McQuail, 2010, pp. 83–84).

In conclusion, the epistemic promise of hybridity is not diplomatic compromise between distant schools but a redistribution of roles: data generate probability maps that orient theoretical sensibilities, while theory generates structures of meaning that rationalize the map and disclose its limits. Between them works a critical method attentive to economic and

political architectures—refusing to let the algorithm harden into epistemic fate, and refusing to leave interpretation untested. At this juncture, theory regains its timeliness not as the antithesis of data, but as a foundational partner in producing knowledge that explains, predicts, and holds to account—simultaneously.

3.2- Potential Concepts: Revising the Theoretical Terminology

Rebuilding theory under data logic's hegemony involves more than just making adjustments to research techniques or instruments; it also entails updating the conceptual language that guides our understanding, interpretation, and thought processes. Concepts are more than just words; they are epistemic glasses that shape our perceptions of the world and how we perceive it, guiding our inquiries in some directions while blocking others. The use of the same classical ideas (the message, the effect, the passive receiver) becomes a type of theoretical rigidity when the historical and epistemic conditions change, as is the case with the emergence of large data and algorithms. Hence, over the past two decades, intellectual efforts have sought to generate new concepts capable of grasping a transforming digital reality; these constitute the nucleus of the conceptual possibilities for rebuilding theory.

3.2.1- Algorithmic Culture: From the Symbolics of Texts to the Computation of Flow

Striphas introduces algorithmic culture to signal that contemporary culture is no longer produced, distributed, and consumed according to purely human logics but through algorithms that act as dominant intermediaries in deciding what appears and what is marginalized. Our musical choices, the news we encounter, and the books recommended to us are all shaped by algorithmic filtering governed by invisible commercial and technical criteria (Striphas, 2015, pp. 396–398). “Meaning” thus becomes subordinate to a computational distributional architecture rather than the product of authorial intent or audience response. The concept opens an epistemological question: how can theory study culture in an era where the text is no longer the basic unit of analysis, but the algorithm that organizes texts?

3.2.2- The Data Gaze: Reshaping Social Vision

Beer’s data gaze unpacks how data become the frame through which reality is redefined. Much as Foucault discussed the medical gaze that produces its objects via metrics, Beer argues that the data gaze does not reflect reality but makes it through classification, ordering, and exclusion (Beer, 2017, pp. 4–6, 13). The concept equips theory to trace how boundaries are redrawn between what counts as important or marginal, visible or invisible, within digital space—moving the researcher from “What do the data say?” to “What does the data gaze allow us to see?”

3.2.3- An Exploration of Philosophy for Digital Beings: The Infosphere

By defining the infosphere as the informational universe where natural, human, and digital elements converge in a single network of constant interaction, Luciano Floridi contributes a philosophical dimension (Floridi, 2014, pp. 1–3, 43). Media are no longer merely channels between humans and the world; rather, the world itself is being reshaped within an informational space. The infosphere presses theory to rethink reality itself under digital conditions governed by informational flows, opening an epistemological–ontological debate: How do we know the world if the world itself has become suspended in a datafied network?

3.2.4- Data Colonialism: A New Exploitative Formation

Nick Couldry and Ulises A. Mejias advance data colonialism to designate a new mode of exploitation in which territories are not occupied; everyday life is—through the extraction of personal data and their conversion into private corporate property (Couldry & Mejias, 2019, pp. 2–4). The concept expands analysis from the technical to the political–economic, revealing that data are not merely a scientific resource but a colonial one that reproduces relations of domination on a global scale. By using this lens, theory is better able to analyze

the power dynamics that are hidden behind technical interfaces and serves as a reminder that any data "innovation" is fundamentally a rearticulation of uneven power relations.

3.2.5- Surveillance Capitalism: Monetizing Behavior as a Commodity

Shoshana Zuboff introduces surveillance capitalism to complete the picture: data are not merely a means of understanding but a mechanism for extracting behavioral surplus that is sold on prediction markets (Zuboff, 2019, pp. 94–96). The concept here not only offers a new reading of the digital economy; it also expands theory's remit to include analyzing the mechanisms of control that make prediction a route to the pre-emptive conditioning of behavior. Therefore, theory serves to both reveal the political economy of digital information and to explain phenomena.

3.2.6- Integrating the Concepts: Toward a New Critical Lexicon

These concepts do not operate in isolation; together they form a hybrid explanatory network: algorithmic culture describes the dynamics of distribution; the data gaze uncovers regimes of vision; the infosphere supplies the ontological horizon; data colonialism lays bare the extractive structure; and surveillance capitalism clarifies the economic logic. Incorporating this lexicon into the field allows theory to shift from a defensive posture vis-à-vis data logic to an offensive one that redefines the conceptual conditions of knowledge. It is a new critical vocabulary that enables researchers to name phenomena long presented as technical facts and to highlight their authoritarian and ideological character.

3.3- Critical Possibilities: New Lenses for Unpacking Data Logic

If the hybrid approach offers an epistemological pathway and new concepts furnish interpretive tools, the critical possibilities go further: they pose fundamental questions about power and normativity—who holds the authority to define knowledge, who benefits from predictive regimes, and who is harmed by algorithmic ways of seeing. Critique here does not merely expose the limits of data; it seeks to unmask the power–ideology nexus that governs them, turning theory into an instrument of epistemic resistance.

3.3.1- Unmasking the Myth of Neutrality: According to Beer (2017, pp. 4–6, 13), the so-called data gaze is a regime of power that establishes the limits of what is visible and what is not. It is not just a way of looking at the world. The selection and filtering processes that neutrality discourse conceals are revealed by criticism, demonstrating how every database serves as a foundation for power. It is not a rejection of data in and of itself.

3.3.2- Uncovering the Reasons Behind Conditioning and Control: Zuboff's description of surveillance capitalism makes it clear that information is not just collected for scientific purposes but also to influence behavior and future choices by obtaining behavioral surplus for control and prediction (Zuboff, 2019, pp. 94–96). What is marketed as neutral knowledge is in fact a political economy of knowledge that commodifies conduct.

3.3.3- Supervision as an aspect of culture: Lyon contends that as people embrace measurement and tracking (steps, sleep, consumption) as aspects of daily life, surveillance has become ingrained in society (Lyon, 2018, pp. 2–3). The challenge is to challenge this cultural normalization and demonstrate how seemingly commonplace—even playful—practices are used to replicate power.

3.3.4- Employing Data to Colonize Life: Media theory and anti-colonial critique are linked by Mejias and Couldry, who contend that algorithms alter the circumstances of possibility of action by regulating information flows and influencing daily decisions (Mejias & Couldry, 2018, pp. 2–4).

3.3.5- The normative Horizon Viewpoint on Algorithmic Justice: Recent debates draw attention to structural biases in AI systems and demand responsibility and openness (Turow, 2017, pp. 45–47; Pariser, 2011, pp. 55–57). The aim is not to reject technology, but to set ethical and normative conditions for its use.

3.3.6- Theory as a Tool of Resistance: Critical media theory does not compete with data on statistical grounds; it relocates its work to the unveiling of power—providing a clearer view of what numbers mean and where their limits lie.

Conclusion

The trajectory traced across the three sections shows that theory in media and communication has never been a fixed entity, but a mobile formation continually reshaped by shifting epistemic and technological contexts. From classical positivism—which conceived communication as a measurable process—to the critical–interpretive turn that restored attention to meaning and power, and finally to the digital moment that foregrounded the centrality of data and algorithms, theory has persistently engaged in redefining itself. What distinguishes the present, however, is the severity of the challenge: it is no longer a matter of tweaking research instruments, but of confronting an entire epistemic regime that presents itself as a substitute for theory.

This challenge has crystallized in a threefold crisis: a methodological crisis that has stripped theory of its orienting role; a cognitive crisis that has replaced explanation with prediction; and an ideological crisis that has entrenched the hegemony of a rhetoric of neutrality and technical objectivity. In the face of this situation, theory can neither retreat nor remain captive to its past. It is urged to recreate itself on fresh, conceptually renovated, critically operational, and epistemologically hybrid pillars.

These reconfiguration options do not require a complete breakdown into data logic or a return to previous paradigms. Instead, they look for a fresh balance that guarantees theory's status as a tool for both revelation and explanation. As long as there remains a critical consciousness that can question the meanings and powers that data generate, the future will not be solely dominated by algorithms. In this sense, despite its crisis, theory remains capable of serving as an epistemic shield in an age of digital transformation preserving the human and restoring to knowledge its interpretive and humanistic dimensions.

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