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Behavioral Influence Algorithm for High-Performance Digital Communications: A Neurobiological Methodology and Perception-Management Strategy Under Digital Transformation

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Abstract

The study is designed as a multilevel analysis of mechanisms through which trust is formed and behavior is regulated in digital environments, grounded in contemporary findings from neurobiology, behavioral psychology, and algorithmic modeling. The analysis demonstrates the fundamental importance of shifting from classical PR approaches to strategies based on neurobiological resonance, a shift driven by attention scarcity and a persistent crisis of trust in technology platforms. The study's objective is formulated as the conceptualization and detailed step-by-step description of a behavioral influence algorithm aimed at reducing audience cognitive resistance and stimulating oxytocin-mediated responses as a biological predictor of loyalty.

The methodological contour is constructed through a systematic review of 78 empirical studies devoted to algorithmic mediation, alongside analysis of representative Deloitte and McKinsey survey data for 2024–2025. As a result, a five-component framework model of algorithmic persuasion (APF) is proposed, and the suitability of the EPOCH index for diagnosing human-centered communications is empirically supported. The findings show that the combination of transparency and ethical nudging creates conditions under which brands can attain "trusted pioneer" status and is accompanied by growth in audience engagement. The material has substantial theoretical and applied value for strategic analytics in the PR industry, the design of digital ecosystems, and neuromarketing expertise oriented toward ethically calibrated reputation management in the era of agentic AI.

Keywords: *Behavioral Influence, Digital Communications, Neurobiology of Trust, Psychological Resonance, Persuasion Algorithm, Perception-Management Strategy, EPOCH Index, Oxytocin Model, Digital Ethics, PR Leadership.*

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INTRODUCTION

The digital communications landscape of 2024–2025 is defined by an exceptional pace of technological expansion accompanied by an intensifying "trust gap" between communication participants and the infrastructure of media platforms. According to the Deloitte Connected Consumer Survey 2025, average annual household spending on digital devices increased from USD 764 in 2024 to USD 896 in 2025, while the share of generative AI use in everyday practices rose from 38% to 53% [4]. At the same time, quantitative expansion does not translate into a proportional growth of trust: confidence in the ethical adequacy of data-processing practices by major technology companies remains low and is reported by fewer than one-third of users (31%), creating a systemic constraint on the construction of stable, long-term influence strategies [3, 4].

The relevance of the problem is driven by the need for perception-management methods capable of accounting for neurobiological determinants of social interaction. Within the logic of the "attention economy," traditional PR influence tools lose their former effectiveness because platform algorithms have radically reconfigured gatekeeping: message selection has shifted from "newsworthiness" to "virality," which contributes to fragmentation of the public sphere and sustains growing polarization [2, 5]. A pronounced scientific deficit persists, associated with the absence of a unified methodological algorithm that integrates neurochemical predictors of trust (in particular, the oxytocin model) with engineering and behavioral parameters of algorithmic persuasion (APF) within a single strategy that is normatively and ethically coherent.

The aim of the study is to construct a theoretical and methodological algorithm of behavioral influence that ensures high effectiveness of digital communications through mechanisms of psychological resonance and neurobiologically mediated trust.

Scientific novelty is defined by substantiating the synergistic linkage between the EPOCH index of human-intensive competencies and the algorithmic persuasion framework as a basis for designing communication environments that minimize conflict and cognitive friction.

The author's hypothesis is based on the assumption that the long-term effectiveness of digital influence is determined not by the maximal power of algorithmic targeting, but by the system's capacity to reproduce and sustain neurobiological markers of trust—through transparency, an empathic modality, and recognition of achievements—which is associated with a multiplicative strengthening of loyalty and a reduction in audience cognitive stress.

CHAPTER 1. NEUROBIOLOGICAL AND PSYCHOLOGICAL DETERMINANTS OF TRUST IN COMMUNICATIONS

Chapter 1 argues that trust in communication emerges at the intersection of neurobiological mechanisms and psychological factors. An oxytocin-based model of trust and the role of reward-related neural networks are examined, alongside the conditions under which trust responses can be stably activated in a digital environment and the limits of their context dependence. The chapter then analyzes identification processes and cognitive resonance through satisfaction of basic psychological needs (autonomy, competence, relatedness), the influence of stress and uncertainty on message processing, and the importance of reducing the "decision cost" through transparency, predictability, and explainability. The discussion concludes with an analysis of social influence in digital ecosystems—behavioral contagion, algorithmic amplification of homophily, the role of parasocial trust toward influencers, and public-attention metrics—which can accelerate normalization of behavior patterns while simultaneously increasing the risk of polarization and the displacement of individual verification by group-belonging logic.

The Oxytocin Model of Trust and Neural Reward Networks

Foundational work in neuroeconomics and social neurobiology indicates that trust is best understood not as an exclusively cultural-normative phenomenon, but as a state with a distinct neurochemical architecture. A central element in this regulation is oxytocin—a neuropeptide linking the appraisal of social safety with readiness for cooperation. In experimental protocols conducted by Paul Zak's research group, receiving a trust signal from another participant was accompanied by a rapid increase in oxytocin activity, after which the probability of reciprocal trust behavior increased in a statistically reliable manner [1, 3]. Additional evidence indicates that intranasal administration of synthetic oxytocin at a dose of 24 IU led to more than a twofold increase in the amount of money transferred in standardized economic games, while participants' indicators of cognitive integrity did not show deterioration [10].

In digital communications, neural mechanisms for processing socially significant stimuli preserve the same general logic: brand messages and communications from media personalities are interpreted as signals of intentions, predictability, and potential reciprocity and thus functionally approximate interpersonal markers of trust. For stable activation of oxytocin-linked regulation, a set of eight managerial and communicative patterns is identified:

recognition of excellence, the creation of controlled stress through challenges, provision of autonomy, opportunities for self-configuration of an activity trajectory, information transparency, intentional relationship-building, facilitation of holistic growth, and demonstrations of vulnerability [11]. In digital environments, recognition reaches the highest effectiveness under four conditions: timeliness immediately after achievement, an element of surprise, personalization, and publicity [10].

At the same time, the biological "substrate" of trust does not generate trust automatically or uniformly: oxytocin effects depend on context, prior interaction experience, and the degree to which the environment is perceived as predictable and safe. Under conditions of low transparency and ambiguous intentions, even intensive social-approval stimuli may translate not into cooperation but into vigilance, because risk appraisal and error-monitoring systems compete with affiliation mechanisms. Accordingly, the reliability of trust in digital channels is determined not by isolated "triggers," but by the consistency of signals over time, their internal coherence, and their alignment with observable actions.

A practical implication for digital ecosystems is that sustainable trust forms at the intersection of neurobiological predispositions and institutional-communicative discipline: predictable rules, explainability of decisions, and minimization of hidden costs increase the likelihood that affiliative mechanisms will support long-term loyalty. At the same time, the significance of an ethical frame increases: designing communications intended to strengthen trusting behavior requires rejecting manipulative techniques and prioritizing informed consent, because perceived unfairness can rapidly destroy accumulated "trust capital" and shift interaction into a mode of defensive rationality.

Identification Psychology and Mechanisms of Cognitive Resonance

Psychological resonance in communications is formed when a message's meaning framework is congruent with the internal identity and aspirational goals of the target group. Within the logic of Deci and Ryan's self-determination theory, motivational stability is grounded in satisfaction of three basic needs—autonomy, competence, and relatedness [13]. Under these conditions, digital communication ceases to be coded as external control and begins to function as socially recognized support for self-efficacy, strengthening the legitimacy of one's own choices and reducing the likelihood of reactive resistance. Connection to values and goals becomes not declarative but operational: the message is experienced as a resource structuring movement toward desired states.

Alongside this operates an opposing regulatory contour: cognitive stress and uncertainty act as pronounced inhibitors of oxytocin-dependent effects. Under high stress, amygdala activity dominates the executive functions of the prefrontal cortex, shifting cognitive dynamics into a protective mode of vigilant threat monitoring; as a result, receptivity to new ideas deteriorates and the likelihood of trusting acceptance of information decreases [14]. For this reason, behavioral influence in digital channels is rationally constructed as management of the "psychological cost of a decision": reducing cognitive friction—excessive steps, ambiguous wording, conflicting signals, and hidden conditions—lowers the probability of contact avoidance and supports motivational engagement [13].

A key intermediate mechanism is reducing uncertainty through predictability and explainability: the lower the cost of interpreting the communicator's intentions, the easier it is to sustain a sense of autonomy without losing control. Clear choice criteria, aligned expectations, a transparent "action—result" causality, and cognitively economical interface solutions stabilize executive functioning, shifting information processing from reactive threat appraisal toward goal-setting and planning. As a result, the probability increases that the meaning of the message will be integrated into the personal narrative as supportive rather than imposing.

Affective valence of contact also matters, because emotional tagging determines the speed and depth of subsequent cognitive processing. In the absence of psychological safety, even a correctly argued message becomes secondary to the felt experience of risk; by contrast, tension reduction through an empathically precise tone, respect for boundaries, and the absence of sanctioning rhetoric supports relatedness without destroying autonomy. Under such conditions, trust emerges as a derivative not of influence intensity, but of communication coherence with basic needs and minimization of decision costs.

Below, Figure 1 reflects the relationship between stress level and oxytocin production.

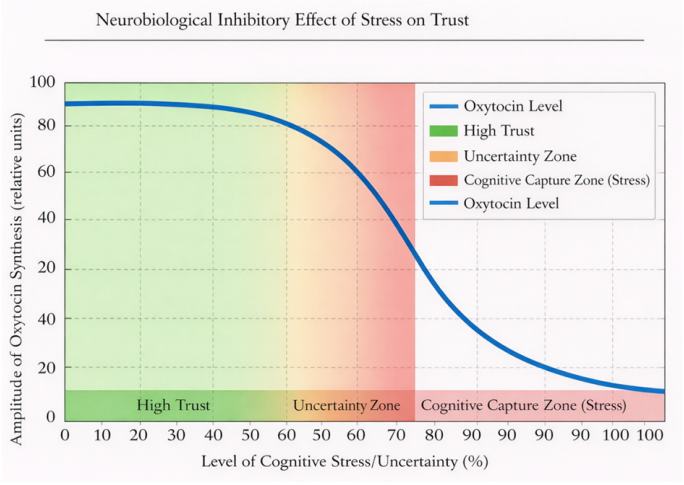

Figure 1. Relationship between stress level and oxytocin production.

As can be seen, the figure underscores the need to design communication interfaces that minimize anxiety and create a sense of psychological safety.

Social Influence and the Dynamics of Behavioral Contagion

In digital ecosystems, influence often spreads according to a "behavioral contagion" principle, in which choice norms and action patterns are acquired not so much through rational comparison of alternatives as through observation of reference-group behavior and the frequency of repeated signals [16]. Algorithmic curation amplifies this effect because ranking and personalization increase the probability of contact with cognitively and value-similar others, thereby reinforcing homophily—the tendency to form ties and information trajectories with those who are "like-minded" [16]. As a result, social proof becomes not an episodic factor but a structural property of the environment: repeated exposure to the same behavioral models accelerates their normalization and lowers the decision threshold, including for consumer choices.

Psychological research indicates that emotional conditions modify every key stage of the consumer process—from attention and interpretation to preference formation, choice, and post-purchase evaluation—shaping not only direction but also the durability of motivation [17]. In this context, parasocial relationships with influencers function as a trust "bridge," compensating for the erosion of legitimacy in traditional media institutions: recognizability, regular presence, and the illusion of reciprocity create a sense of closeness and source predictability, which simplifies delegation of epistemic trust and reduces cognitive costs of information verification [17]. Influence thus shifts from the level of arguments to the level of perceived communicator reliability and group belonging, where compliance with norms is reinforced both by social approval and by the architecture of platform visibility.

Additional amplification of "contagion" is provided by public-attention metrics—likes, reposts, comments, view counters—which act as formalized markers of social validity and accelerate heuristic processing. Under high informational load, such indicators become the shortest route to assessing relevance and safety of a choice, especially under uncertainty; consequently, emotionally saturated content that receives rapid reactions gains disproportionate distribution and consolidates behavioral templates as "obvious" and "widely shared."

At the same time, a closed-loop effect emerges: algorithms are optimized for attention retention, and attention is statistically more likely to be retained by content that matches the group's expectations and identity-related attitudes. This increases cognitive coherence within the community but reduces the probability of encountering counterarguments and intensifies evaluative polarization, so that decisions are increasingly made in the logic of group belonging rather than individual verification.

CHAPTER 2. ALGORITHMIC ARCHITECTURE OF INFLUENCE IN THE DIGITAL ENVIRONMENT

Chapter 2 explains how the digital environment turns influence into an algorithm-governed system. It first introduces the five-component Algorithmic Persuasion Framework (APF), which formalizes the loop "data — algorithm — personalized persuasion attempt — cognitive processing — effects," and it highlights the risks of self-reinforcing distortions, automation bias, and the architectural constraining of autonomy under conditions of insufficient transparency. It then analyzes hypernudging as a dynamic, AI-adaptive "choice architecture" that operates through chains of micro-interventions and the reading of micro-signals, increasing informational asymmetry and potentially disguising value substitution as "convenience." For that reason, effectiveness is framed as requiring assessment not only through conversion/retention, but also through autonomy-oriented metrics (explainability, stability of preferences outside the platform, and a right to refuse without punitive friction). The chapter further substantiates an integration strategy for personal branding and psychological resonance in PR leadership: digital channels create "symbolic closeness" and social presence, translate a product's external value into an internal experience of competence and controllability through cultural schemas and motivating language, and stabilize trust not through campaign frequency but through semantic coherence and accumulated predictability. This logic is reinforced through a comparative analysis of traditional PR versus algorithmic influence across goals, mechanisms, and ethical requirements.

The Five-Component Algorithmic Persuasion Framework (APF)

Designing highly effective algorithmic influence requires making explicit the structure of mediation between communicator and audience, because mediator links determine how persuasive intent is translated into observable behavior. The Algorithmic Persuasion Framework (APF) conceptualizes this circuit as a cyclic system of mutual reinforcement consisting of five interconnected elements. At the Input stage, large-scale data about an individual's past choices, behavioral rhythms, and contextual variables are aggregated, including time of day and device type [3]. Next comes the Algorithm block—a technical subsystem that implements filtering (collaborative and content-based) and content prioritization in accordance with the persuader's objectives [19]. The Persuasion Attempt represents the specification of a message within the chosen modality and environment, for example, as a personalized recommendation within a metaverse setting [20]. The Persuasion Process describes cognitive processing of the message, relying on relevance appraisal and the operation of automatic tendencies, including automation bias, that is, the inclination to grant algorithmic outputs an inflated epistemic status [3]. The final link—Persuasion Effects—captures intended shifts

in attitudes and behavioral acts, which are then reintegrated into the data at the Input stage, thereby closing the cycle [3].

A salient property of APF is the shift of focus from a single exposure to the dynamics of accumulation: each iteration of the cycle simultaneously functions as an act of communication and an act of measurement, because user behavior becomes parameters for subsequent personalization. This logic makes data quality not merely a technical but a behaviorally consequential variable: contextual misreadings or incorrect attribution of behavioral causes can produce self-reinforcing distortions, in which the system consolidates not stable preferences but accidental patterns induced by interface design or situational constraints. As a result, a "persuasion loop" risk emerges, where the algorithm strengthens precisely those reactions it has itself provoked, reducing choice variability and increasing the probability of inertial decisions.

The ethical and methodological resilience of the system described is determined by the parameters of transparency and the controllability of feedback: the less distinguishable the boundary between recommendation and navigational coercion, the higher the probability that a persuasion attempt will evolve into an architectural limitation of autonomy. From both research and applied standpoints, this requires differentiating optimization goals (retention, conversion, engagement) from criteria of influence acceptability (explainability, absence of hidden sanctions, and the ability to refuse without functional loss). Under such conditions, APF can be used not only as a model for increasing persuasive effectiveness but also as a diagnostic tool for risks—ranging from hyper-personalization and amplification of automation bias to the creation of cognitive friction that artificially steers behavioral trajectories.

Hypernudging Mechanics and Dynamic Adaptation

Hypernudging is interpreted as an evolutionary stage of classical "nudging," radically strengthened by AI capabilities and real-time data processing. Unlike static interface solutions based on preconfigured scenarios, hypernudging is adaptive in nature: it can interpret moment-by-moment micro-signals of behavior and state—including gaze direction or vocal tone parameters—and promptly reconfigure the communication strategy according to the current situation [20]. Through this mechanism, a dynamic "choice architecture" is formed that is experienced as natural and continuous, yet structurally oriented toward target metrics specified by the initiator of influence.

A critically important consequence of such dynamism is a shift from designing an interface to designing a trajectory: influence is realized not through a single touchpoint but through a sequence of micro-interventions optimized against probabilistic behavior models. This increases informational asymmetry between the individual and the system, because the user's interpretation of the environment more often attributes changes to "convenience," whereas the actual mechanism relies on a hidden assessment of susceptibility and contextual vulnerabilities. In this sense, hypernudging is not merely a conversion-optimization tool but an infrastructure for managing attention, decision tempo, and the set of available alternatives, where even minimal framing changes can shift the final choice without a conscious experience of being pressured.

The empirical viability of personalized approaches is typically linked not to maximizing the number of stimuli but to removing problems perceived as genuinely meaningful, which is reflected in rising satisfaction when personalization is oriented toward functional usefulness [4]. However, when the emphasis shifts from supporting decision-making to managed preference formation, a risk of value substitution emerges: increased satisfaction may reflect not improvement in choice quality but reduced cognitive costs and frictions designed by the system. Accordingly, evaluating hypernudging effectiveness requires separating "convenience" metrics from autonomy metrics, including transparency of recommendation rationales, stability of preferences outside the platform context, and preservation of the capacity for informed refusal without sanctioning consequences (see Fig. 2).

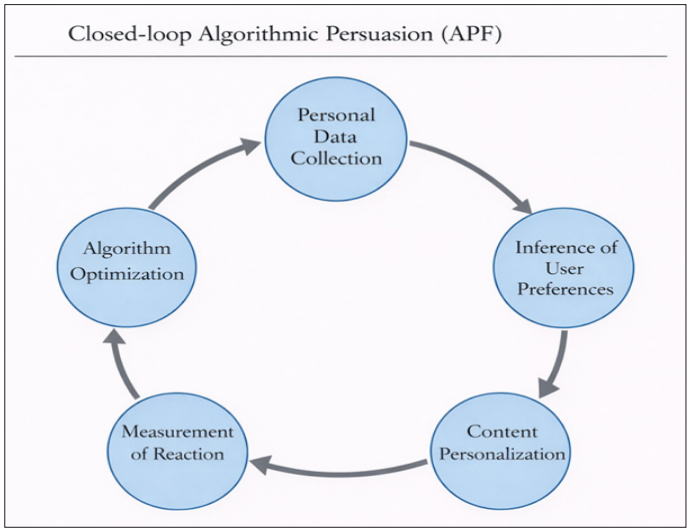

Figure 2. Cyclical model of algorithmic persuasion (APF).

Figure 2 visualizes APF as a feedback loop where persuasion effects continuously refine subsequent personalization. In hypernudging settings, this loop increases effectiveness but also heightens autonomy risks, so evaluation must include transparency and refusal-without-penalty indicators alongside conversion.

Strategy for Integrating Personal Branding and Psychological Resonance

The methodology of psychological resonance in PR leadership relies on using digital channels as an environment in which "symbolic closeness" is constructed between an organization and its audience. Engagement with brand content on social media functions not as passive consumption of information

but as participation in an integrated semiotic and value configuration that produces an experience of belonging to a certain "universe of meanings" [22]. In this mode, communication begins to operate through the logic of social presence: repeated contacts, ritualized formats, and recognizable tonality create a sense of relationship continuity, which increases the likelihood of trusting acceptance of the interpretations offered by the brand.

An effective strategy of resonant leadership presupposes translating the product's "external value"—its features, functional advantages, and promises—into "internal value," expressed as lived experiences of competence, confidence, and subjective controllability of life tasks [13]. This transition is achieved not by simply strengthening arguments, but by linking the message to stable cultural schemas: archetypal roles, familiar self-description scripts, and symbolic markers of belonging. As a result, the product begins to be perceived as a tool for sustaining a desired self-image, while communication functions as confirmation of the legitimacy of the chosen trajectory.

A special role in this transfer of meanings is played by motivating language, which structures interpretation of actions and outcomes through frames of purpose, meaning, and recognition. Research published in 2024 indicates that its characteristics statistically predict levels of support for an organization from both employees and external stakeholders, pointing to a direct relationship between the discursive architecture of leadership and the social capital of trust [23]. What is essential is that motivating language functions not as rhetorical ornamentation but as a mechanism of cognitive economy: it reduces uncertainty, offers an explainable causal logic, and thereby facilitates alignment of individual motives with collective orientations.

In high-density informational environments, what becomes decisive is not the volume of content transmitted, but semantic coherence across levels—from visual symbolism and narrative down to microlinguistic markers of recognition and autonomy. When messages demonstrate internal consistency and a repeatable meaning structure, a coherence effect emerges in which trust is sustained not by isolated campaigns but by accumulated predictability. This enables internal value to be fixed as a stable experience rather than as a short-lived emotional reaction, which is especially important for long-term brand relationships and for maintaining organizational initiatives during periods of change [13].

Table 1 below presents the results of a comparative analysis of influence models.

Table 1. Comparative analysis of influence models (compiled by the author based on [5, 6, 10, 19, 22, 24]).

Characteristic	Traditional PR	Algorithmic influence (ABI)	Neurobiological effect
Reach mechanism	Mass distribution; mass media	Algorithmic prioritization	Reduced cognitive noise
Success criterion	Reach (impressions)	Influence strength (SISI)	Activation of reward networks
Message type	Static; generic	Dynamic; adaptive	Psychological resonance
Role of audience	Passive recipient	Co-author and active participant	Increased oxytocin levels
Ethical frame	Self-regulation	Transparency and digital nudging	Strengthened legitimacy

In summary, the strategy of integrating personal branding and psychological resonance in PR leadership describes digital channels as a space for forming "symbolic closeness," in which the audience does not merely consume content but becomes embedded in a stable value–semiotic "universe of meanings," strengthening social presence through repeated contact, ritualized formats, and recognizable tonality. The key mechanism of effectiveness is the translation of a product's external attributes into internal value (the lived experience of competence, confidence, and controllability), achieved by linking messages to cultural schemas, archetypes, and markers of belonging, so that the product becomes an instrument for sustaining a desired self-image. A central tool is motivating language, which does not decorate communication but reduces uncertainty and cognitive costs by providing an explainable causal logic and aligning individual motives with collective orientations; empirically, this is associated with increased organizational support and trust. Under conditions of informational overload, the decisive factor is not broadcasting intensity but coherence of meaning at all levels—from visual narrative to microlinguistic markers of recognition and autonomy—because trust is consolidated through accumulated predictability, and resonance becomes a stable experience. These conclusions align with the comparative analysis: traditional PR is oriented toward reach and static messaging, whereas algorithmic influence and neurobiological effects shift emphasis toward influence strength, adaptivity, and psychological mechanisms of engagement under stricter requirements for transparency and legitimacy.

CHAPTER 3. INTEGRATED PERCEPTION-MANAGEMENT STRATEGY AND PR LEADERSHIP

Chapter 3 presents an integrated strategy for perception management and PR leadership, treating reputation as a proactively governed signal system within a digital environment. It first develops Organizational Impression Management (OIM) as forward-looking impression-design: visual rhetoric, alignment of narrative with an evidentiary base, and a calibrated balance between legitimization, "soft" demonstration of expert strength, and rapid adaptation while maintaining reputational invariants. The chapter then

introduces the EPOCH index as a human-centered framework for "human–AI" complementarity, specifying which PR functions should remain within the perimeter of human judgment (empathy, presence, ethical reasoning, creativity, and hope/leadership), while AI is used for monitoring and analytics. The chapter concludes with an applied discussion of motivating language and NeuroLeadership as neuro-informed tools for reducing uncertainty and stress reactivity (including prevention of an "amygdala hijack"), strengthening trust and engagement in remote and hybrid teams through predictability, explainability, communication pacing, and respect for autonomy.

Organizational Impression Management (OIM) and Digital Reputation

PR leadership in 2025 is increasingly shifting toward an anticipatory mode of impression management, in which reputational dynamics are treated as a proactively steerable signaling system rather than a reaction to events that have already occurred. Organizations seek stakeholder approval through a combination of assertive and defensive tactics distributed primarily through website content and social media, where a public stance is recorded at high frequency and becomes part of continuous evaluation [26]. A substantial component of this approach is visual rhetoric: images and visual codes in digital profiles shape perceptions of an organization's status and "type" (conventionally, for instance, as "luxury" versus "people's"), preconfiguring audience composition and expectations, as well as interpretation of subsequent messages [26].

The internal logic of perception management is built around three mutually reinforcing lines. Legitimization is achieved through demonstrating alignment with social norms and expectations via algorithmic transparency, in which explainability of decisions and procedures becomes a reputational resource that reduces suspicion and uncertainty [26]. Intimidation, permissible within ethical boundaries, is implemented as signaling expertise and leadership: emphasis on competence, quality standards, and risk-anticipation capacity performs a preventive function and reduces the likelihood of crisis challenges without crossing into threats or pressure [26]. Accommodation is expressed through high-speed adaptation to audience demands based on feedback data, allowing rapid adjustment of formats, arguments, and priorities without loss of brand semantic integrity [26].

A critically important condition for the effectiveness of anticipatory impression management is the coherence of semiotics and evidence: visual signals, linguistic tone, and factual grounds must reinforce one another; otherwise, a dissonance effect arises that is quickly detected by digital communities. For this reason, impression architecture requires simultaneous work at the levels of narrative, design, and procedural demonstration of how exactly the organization acts, not merely what exactly it promises. In this sense, algorithmic transparency gains the meaning not of a declaration, but of a regularly reproduced standard of public accountability in which explainability becomes a marker of institutional maturity [26].

No less significant is boundary management of adaptivity: accelerated accommodation increases sensitivity to public expectations, yet in the absence of a normative core it can produce an impression of opportunism and situational position-shifting. An optimal solution is formalizing reputational invariants—those principles that are not subject to bargaining—and separating them from tactical-level variables tuned through feedback data. Under such conditions, assertive and defensive tactics, visual rhetoric, and adaptive responsiveness begin to function as a unified system of anticipatory trust, where crisis prevention is ensured not by signal loudness, but by predictability, explainability, and institutional discipline [26].

The EPOCH Index: Human-Centeredness in the AI Era

One of the most notable empirical contributions in 2025 is an MIT Sloan study on human–AI complementarity, in which the EPOCH index is proposed as a typology of human capabilities that are difficult to fully replace with algorithms yet can be significantly amplified through technology [8]. EPOCH includes: E (Empathy)—empathy and emotional intelligence as the capacity to detect subtle contextual markers and shades of meaning that are not reducible to formalized features; P (Presence)—presence and relatedness reflecting the social need for "human" contact and trust-based networking; O (Opinion)—opinion, judgment, and ethics as decision-making under value conflicts and moral dilemmas; C (Creativity)—creativity and imagination as the generation of fundamentally new meaning configurations; and H (Hope)—hope and leadership as the ability to provide perspective, inspire, and sustain collective direction [8, 9].

For PR, this implies that high-performance digital communication should rely on "human-intensive" activity circuits—meaning leadership, ethical navigation, and socio-psychological precision—while AI is used rationally as an instrument for observation, data processing, and information-field monitoring [8]. Such functional separation shifts effectiveness from mechanical content scaling to managed interpretation: algorithms increase the speed and resolution of analytics, but the normative frame, responsibility for consequences, and strategic coherence of communication remain anchored in human judgment [7, 8].

The practical value of EPOCH for a communication management model lies in the fact that the index specifies criteria for designing "human-in-the-loop" not as formal control, but as a carrier of irreplaceable functions. Empathy and presence become conditions of reputational resilience during crisis phases, when audiences evaluate not only facts but also tone, fairness, and the capacity to acknowledge

complexity; the Opinion component functions as an internal regulator of permissible influence means; creativity enables movement beyond platform-optimization templates; and hope and leadership sustain long-range perspective, preventing a reduction of goals to short-term engagement metrics [8].

Methodologically, this approach requires shifting emphasis from "communication productivity" to the quality of its human effects: trust, legitimacy, readiness for cooperation, and relationship durability with stakeholders. Operationally, this implies formalizing points at which decisions must pass through ethical judgment and meaning validation, as well as developing EPOCH competencies as professional capital: trainable skills of contextual empathy, presence in professional communities, reasoned value-based choice, creative narrative construction, and leadership capacity to hold direction under uncertainty [8].

Applying Motivating Language and Neuro Leadership

NeuroLeadership is a managerial-communication paradigm in which principles of brain functioning are treated as an applied basis for designing interactions that shape trust, engagement, and the quality of joint decision-making. Within this logic, motivating language functions not as a rhetorical technique but as an instrument for regulating meaning, uncertainty, and social presence: empirical evidence shows a meaningful correlation between leaders' use of motivating language and increased employee trust and engagement, with the effect becoming particularly pronounced in remote and hybrid work formats [23].

A key mechanism of NeuroLeadership is reliance on neuroplasticity as a premise for managed change in behavioral patterns and communicative automatisms. When new strategies are rehearsed regularly—including clarifying questions, acknowledging emotions without invalidation, normalizing uncertainty, and transparently explaining decision criteria—accuracy in recognizing emotional subtext within the team increases and the probability of reactive replies that trigger defensive responses decreases. A crucial orientation is minimizing "amygdala hijack," in which amygdala dominance reduces prefrontal cortex engagement and shifts cognitive processing into a threat mode, decreasing receptivity to new ideas and cooperation [14, 18].

The practical robustness of this approach is reflected in the fact that neuro-based interventions focus on managing the conditions of information processing: communication tempo, feedback structure, predictability level, and symbolic markers of respect for status and autonomy. Motivating language, reinforced by behavioral consistency, forms a cognitively economical environment in which task meaning, responsibility boundaries, and success criteria become clearer, while uncertainty becomes less costly for the psyche; in this way, trust is supported as a resource critical for distributed teams and digital collaboration [23]. At the same time, reducing reactive stress and preventing amygdala dominance creates neurophysiological conditions for stable engagement and productive joint work [14].

CHAPTER 4. IMPLEMENTATION ALGORITHM, PRACTICAL TOOLS, AND ETHICAL IMPERATIVES

Chapter 4 outlines a practice-oriented implementation contour for ABI as an iterative, "learning" influence algorithm. The sequence starts with identifying current needs and zones of cognitive strain, with mandatory verification to separate persistent demand signals from transient noise. It then moves into an alignment phase, where complexity is translated into cognitively economical formats and a communicator is selected for maximal value resonance. Execution is framed through a 10/20/60 content-allocation plan and the use of social proof calibrated to balance competence with a supportive tone, followed by a revision phase in which evaluation targets behavioral shifts and changes in interaction dynamics, and the resulting evidence closes the personalization loop.

Ethical imperatives are then positioned as a constructive part of influence design rather than an external constraint: prohibition of dark patterns, prioritization of well-being and autonomy, and a transparency/fairness/right-to-refuse triad (explainable recommendations, regular bias audits, and opt-out without functional penalties), supported by a moral–ethical risk matrix. The chapter concludes by proposing an applied quality-control toolkit: a "Resonance Audit" checklist (cognitive economy, activation of basic needs, timely feedback and recognition, transparency of sources and selection rules) and a "metrics ladder" that progresses from awareness to understanding, trust, and sustained behavior change, with diagnostic identification of gaps between steps.

Step-by-Step Behavioral Influence Algorithm (ABI)

A method for implementing effective digital communication in the logic of ABI can be represented as an iterative circuit of managed influence, where each step simultaneously performs two functions: reducing uncertainty for the audience and increasing the accuracy of subsequent personalization by updating data. The first step—the detection stage—assumes multisensory monitoring of social streams, search trends, and relevant communities in order to identify current needs and "zones of cognitive strain," that is, topics where signs of frustration, conflicting expectations, or deficits of explainability are observed [25]. The verification component is critical because it separates situational noise from stable demand and prevents incorrect attribution of motives that can distort subsequent stages of the cycle [25].

The alignment stage is directed toward translating technically complex messages into cognitively economical forms—checklists, visual maps, and structured task-resolution scenarios—which reduces comprehension friction and lowers the psychological cost of choice [25]. In parallel, selection of a messenger (an influencer or opinion leader)

is conducted, whose image carries maximum psychological resonance for the given segment, because trust in the source in digital environments often functions as a precondition for accepting message content [25]. In this way, alignment includes not only simplifying language but also tuning symbolic compatibility between the communicator and the audience's value profile.

The implementation stage describes organizing content distribution, including through a 10/20/60 cadence: 10% urgent news, 20% deep analytics, and 60% supportive content that maintains relationship stability and predictability of communicative presence [25]. At this step, "social proof" is used as a tool for reducing subjective risk during decision-making, because demonstrating choice prevalence and approval by significant groups reduces the need for independent verification and accelerates the transition from attention to action [25]. Balance of modalities is essential: urgent and analytical components provide a basis for competence, while supportive content provides a basis for trust and relatedness, stabilizing the overall emotional background of the interaction [25].

The review stage is oriented toward evaluating behavioral change rather than only reach indicators: conversion metrics, discussion dynamics, tonal shifts, and structural changes in interaction patterns are analyzed, indicating a real transformation of attitudes and practices [25]. The results obtained are returned to the system as updated input data for the next APF cycle; thus, ABI functions as a closed learning loop in which the quality of effect interpretation determines the accuracy of subsequent influence [25].

A key methodological principle of ABI is that effectiveness is determined by coherence across stages: detection defines the correct problem, alignment reduces the cognitive cost of solving it, implementation ensures managed signal frequency and social validity, and review prevents an "illusion of success" in which high reach is mistakenly taken for stable influence. In such a configuration, ABI is not reducible to content planning but functions as a system of reputational-behavioral engineering oriented toward measurable shifts in audience decisions and practices [25].

Ethical Constraints and Protection of Autonomy

Ethical boundaries are not an auxiliary constraint but a constructive element of algorithmic communication: they determine whether influence will be interpreted as support for autonomous choice or as covert coercion. The psychology of influence indeed occupies a zone of fine distinction between persuasion and manipulation; under 2025 realities, the thesis that "trust is a function of the product" reflects a shift of reputational responsibility from the level of statements to the level of actual user experience [4]. Within this frame, an ethical PR leadership strategy excludes the use of "dark patterns" and is oriented toward individual well-being as the criterion of permissible influence, because harm to autonomy and perceived fairness quickly converts into erosion of legitimacy and reduced trust durability.

The principle of transparency presupposes unambiguous informing about how and on what basis specific content is proposed, including distinguishing advertising, recommendation, and editorial logics [32]. Transparency functions simultaneously as a cognitive and normative mechanism: it reduces uncertainty, supports a sense of control, and decreases the probability of automation bias by indicating where the source of a decision is located—within user preferences, platform objectives, or ranking rules [31, 32]. At the same time, the operational form of transparency matters: not declarations about "personalization," but explainable relevance signals accessible without specialized training.

The principle of fairness is aimed at preventing algorithmic bias that can reproduce discriminatory effects toward specific groups even without an intent to discriminate [33]. Fairness requires controls at the levels of data, models, and metric interpretation: distortions may emerge from non-representative samples, historically entrenched inequalities, or optimization toward indicators that indirectly correlate with sensitive attributes. For this reason, an ethical standard in communication systems implies regular bias audits, corrective procedures, and publicly articulated principles of unacceptable consequences [30, 33].

The right to refuse consolidates the priority of autonomy and sets a boundary between personalization and navigational coercion: the ability to exit algorithmic curation remains without loss of service quality and without sanction-like "penalties" in functionality [32]. Practically, this means availability of alternative modes—neutral feeds, manual settings, tracking shutdown, and personalization limitation—while retaining the product's basic usefulness. In this way, opt-out becomes an indicator of system maturity: the less painful refusal is, the higher the likelihood that trust is built on value rather than on a retaining architecture [32].

Table 2 below describes the moral–ethical matrix of digital influence.

Table 2. Moral–ethical matrix of digital influence (compiled by the author based on [6, 13, 21, 27, 34, 35]).

Principle	Practical implementation	Consequences of violation
Autonomy	Providing alternative choice options	Loss of trust; legal risks
Well-being	Filtering toxic and disinforming content	Increased polarization and stress
Responsibility	Labeling AI-generated content	Reputational crisis; fake news
Dignity	Excluding exploitation of psychological vulnerabilities	Erosion of brand loyalty

Ultimately, the ethical robustness of the algorithm is determined by the extent to which declared principles are embedded into solution design and measured in the same cycles as business metrics. Transparency, fairness, and the right to refuse form an interconnected triad: the first makes influence discernible, the second makes it socially acceptable, and the third makes it voluntary. When implemented jointly, trust becomes not a side effect of communication effectiveness but a reproducible property of the product and organizational practice [4].

Practical Toolkit: Checklists and Metrics

Operational evaluation of digital communication effectiveness in PR practice can be grounded in a "Resonance Audit" checklist, which translates abstract influence criteria into verifiable indicators and thereby reduces the risk of substituting behavioral effects with visibility metrics. The core diagnostic circuit includes: reducing cognitive load through clear structure, checklists, and unambiguous steps that lower interpretation and decision friction [25]; activating basic motivational needs—above all, competence and relatedness—as mechanisms that convert an informational contact into a subjectively meaningful resource [13, 15]; and providing immediate feedback capable of sustaining oxytocin-linked trust dynamics through timely reinforcement and minimizing the delay between action and confirmation of an outcome [10]. In addition, the checklist evaluates the presence of recognition elements that acknowledge audience achievements as markers of social approval and symbolic status, increasing the likelihood of repeated interaction and relationship consolidation [12], as well as transparency of data sources and the principles of algorithmic information selection, since explainability of recommendations functions as a legitimacy condition and prevents suspicion of hidden influence goals [5].

The embedded logic of the checklist is that these parameters operate at different levels of the same process: cognitive economy ensures meaning accessibility; motivational needs establish personal significance; immediate feedback and recognition provide socio-affective reinforcement; and transparency supports normative acceptability and trust in the communication infrastructure. When criteria are fulfilled jointly, the probability increases that message contact will be interpreted as support for autonomous choice rather than navigational coercion, which is particularly critical for durable trust under conditions of hyper-personalization.

Within this method, effectiveness measurement is recommended through a "metrics ladder," where indicators are arranged in a causal sequence: from awareness to understanding, then to trust, and finally to stable behavior change [25, 29]. This ordering is principled because it captures the dependence of later effects on earlier conditions: increased reach does not guarantee understanding, understanding is not equivalent to trust, and trust is not identical to action. Accordingly, a managerially sound approach is to evaluate "gaps" between ladder steps—for example, high awareness with low understanding, or solid understanding without trust—which enables localization of the problem in the message structure, the choice of messenger, a deficit of feedback, or insufficient transparency of algorithmic curation [25, 28].

CONCLUSION

The completed work provides a systemic integration of previously fragmented findings from neurobiology and communication theory, making it possible to formalize them into a coherent behavioral influence algorithm applicable to high-performance digital communications. The stated research aims have been fully realized: the determining role of oxytocin-mediated mechanisms in the genesis of digital trust is substantiated, the structural logic of algorithmic persuasion (APF) is explicated, and a PR leadership model conceptually grounded in the EPOCH index is developed.

The conclusions align with the initial hypothesis and confirm that under conditions of AI dominance, competitive advantage accrues to communication strategies oriented not toward total controllability but toward constructing conditions of psychological resonance and institutionalizing recognition of user agency. The methodological novelty of the proposed approach is defined by the coupling of "hard" algorithmic circuits with "soft" neurobiological determinants of influence, which reduces the probability of "cognitive capture" and strengthens the brand's perceived legitimacy in audience evaluations.

The practical significance for the PR industry lies in providing a verified set of tools for ethically permissible influence capable of translating trust into an economically measurable resource. Brands that achieve "trusted pioneer" status gain not only durable loyalty but also an expanded tolerance credit for errors, because the relationship with the audience is grounded in effects of genuine neurobiological resonance. The presented provisions retain applied relevance for strategic management in contexts of high uncertainty, as well as for managerial practices oriented toward forming human-centered digital ecosystems.

REFERENCES

1. Zak, P. J. (2017, January). The neuroscience of trust: Management behaviors that foster employee engagement | Rutgers CLEO. Retrieved from: https://cleo.rutgers.edu/articles/the-neuroscience-of-trust-management-behaviors-that-foster-employee-engagement/ (date accessed: October 3, 2025).
2. Zhang, Y., Tu, Z., Zhao, W., & He, L. (2022). Design of emotional branding communication model based on system dynamics in social media environment and its influence on new product sales. Frontiers in Psychology, 13, 959986. https://doi.org/10.3389/fpsyg.2022.959986

3. Zarouali, B., Boerman, S. C., Voorveld, H. A. M., & van Noort, G. (2022). The algorithmic persuasion framework in online communication: Conceptualization and a future research agenda. Internet Research, 32(4), 1076–1096. https://doi.org/10.1108/INTR-01-2021-0049

4. 2025 Connected Consumer: Innovation with trust | Deloitte Insights. Retrieved from: https://www.deloitte.com/us/en/insights/industry/telecommunications/connectivity-mobile-trends-survey.html (date accessed: October 10, 2025).

5. Hastuti, H., Maulana, H. F., Lawelai, H., & Suherman, A. (2025). Algorithmic influence and media legitimacy: A systematic review of social media's impact on news production. Frontiers in Communication, 10, 1667471. https://doi.org/10.3389/fcomm.2025.1667471

6. Molla, M. A. M., & Ahsan, M. M. (2025). Artificial intelligence and journalism: A systematic bibliometric and thematic analysis of global research. Computers in Human Behavior Reports, 20, 100830. https://doi.org/10.1016/j.chbr.2025.100830

7. Johannsen, R., & Zak, P. J. (2021). The neuroscience of organizational trust and business performance: Findings from United States working adults and an intervention at an online retailer. Frontiers in Psychology, 11, 579459. https://doi.org/10.3389/fpsyg.2020.579459

8. New MIT Sloan research suggests that AI is more likely to complement, not replace human workers | MIT Sloan. Retrieved from: https://mitsloan.mit.edu/press/new-mit-sloan-research-suggests-ai-more-likely-to-complement-not-replace-human-workers (date accessed: October 18, 2025).

9. McKinsey technology trends outlook 2025 | McKinsey. Retrieved from: https://www.mckinsey.com/capabilities/tech-and-ai/our-insights/the-top-trends-in-tech (date accessed: November 2, 2025).

10. Zak, P. J. (2017). The neuroscience of trust. Harvard Business Review. Retrieved from: https://hbr.org/2017/01/the-neuroscience-of-trust (date accessed: November 11, 2025).

11. The Neuroscience of Trust | Harvard Business Publishing Education. Retrieved from: https://hbsp.harvard.edu/product/R1701E-PDF-ENG (date accessed: November 22, 2025).

12. Butler, M. J. R., & Senior, C. (2007). Toward an organizational cognitive neuroscience. Annals of the New York Academy of Sciences, 1118, 1–17. https://doi.org/10.1196/annals.1412.003

13. Bhattacharya, C. B., & Sen, S. (2003). Consumer–company identification: A framework for understanding consumers' relationships with companies. Journal of Marketing, 67(2), 76–88. https://doi.org/10.1509/jmkg.67.2.76.18609

14. Waldman, D. A., Balthazard, P. A., & Peterson, S. J. (2011). Leadership and neuroscience: Can we revolutionize the way that inspirational leaders are identified and developed? Academy of Management Perspectives, 25(1), 60–74. https://doi.org/10.5465/amp.25.1.60

15. Aidane, S. (2013, October 29). Cultural neuroscience: Cultural intelligence for global project managers | Project Management Institute. Retrieved from: https://www.pmi.org/learning/library/cultural-intelligence-global-project-managers-5911 (date accessed: October 25, 2025).

16. Kempe, D., Kleinberg, J., & Tardos, É. (2003). Maximizing the spread of influence through a social network. In Proceedings of the Ninth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (pp. 137–146). https://doi.org/10.1145/956750.956769

17. Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The role of emotions in marketing. Journal of the Academy of Marketing Science, 27(2), 184–206. https://doi.org/10.1177/0092070399272005

18. De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. International Journal of Advertising, 36(5), 798–828. https://doi.org/10.1080/02650487.2017.1348035

19. Napoli, P. M. (2014). Automated media: An institutional theory perspective on algorithmic media production and consumption. Communication Theory, 24(3), 340–360. https://doi.org/10.1111/comt.12039

20. Neill, C., Reisch, L. A., & Vestergaard, A. (2024). Recommendation systems for the Metaverse: A systematic review. SN Computer Science, 5, 285. https://doi.org/10.1007/s42979-024-03016-2

21. Yeung, K. (2017). "Hypernudge": Big Data as a mode of regulation by design. Information, Communication & Society, 20(1), 118–136. https://doi.org/10.1080/1369118X.2016.1186713

22. Nassaf, R., & Hamadi, C. (2025). The impact of Social CRM on brand image: The intermediary role of engagement and experience in FMCGs. In A. O. Abdellah et al. (Eds.), Proceedings of the International Conference on Multidisciplinary Research in Management and Economics (ICMRME 2025) (Advances in Economics, Business and Management Research, 356, 454–465). https://doi.org/10.2991/978-94-6463-892-9_251

23. Qin, Y. S., Men, L. R., Akanbi, F., & He, H. (2025). How supervisors' use of motivating language influences employee attitudes and supportive behaviors: Exploring the moderating effects of remote work. Journal of Leadership & Organizational Studies. Advance online publication. https://doi.org/10.1177/23294884251349493

24. Chani, T., & Olugbara, O. O. (2025). Measuring behavioral influence on social media: A social impact theory approach to identifying influential users. Journalism and Media, 6(4), 205. https://doi.org/10.3390/journalmedia6040205

25. Dong, C., Zheng, Q., & Morehouse, J. (2023). What do we know about government public relations (GPR)? A systematic review of GPR in public relations literature. Public Relations Review, 49(1), 102284. https://doi.org/10.1016/j.pubrev.2022.102284

26. Bolino, M. C., Kacmar, K. M., Turnley, W. H., & Gilstrap, J. B. (2008). A multi-level review of impression management motives and behaviors. Journal of Management, 34(6), 1080–1109. https://doi.org/10.1177/0149206308324325

27. Frontiers in Artificial Intelligence. (2025). Mediating role of digital ethics on the impact of artificial intelligence usage and public relations practices: Evidence from Malaysia. Frontiers in Artificial Intelligence, 8, 1662219. https://doi.org/10.3389/frai.2025.1662219

28. Tanaka, M., & Chen, C. (2023). Towards a mechanistic understanding of depression, anxiety, and their comorbidity: Perspectives from cognitive neuroscience. Frontiers in behavioral neuroscience, 17, 1268156.

29. Balthazard, P. A., Waldman, D. A., Thatcher, R. W., & Hannah, S. T. (2012). Differentiating transformational and non-transformational leaders on the basis of neurological imaging. The Leadership Quarterly, 23(2), 244–258. https://doi.org/10.1016/j.leaqua.2011.08.002

30. Wijesundara, W. A. D. S., Perera, M. D. N., & Samaradiwakara, G. D. M. (2024). Can SEO and digital PR work together to amplify your brand? An integrative approach to enhancing online visibility. Kelaniya Journal of Management Studies, 6(2). https://doi.org/10.4038/kjms.v6i2.140

31. Huang, Y., Wu, F., & Huang, Y. (2017). Does research on digital public relations indicate a paradigm shift? An analysis and critique of recent trends. Telematics and Informatics, 34(7), 1364–1376. https://doi.org/10.1016/j.tele.2016.08.012

32. Top Trends of 2024 in Behavioral Science, Digital Tech, Data, and AI | New York City Bar Association. Retrieved from: https://www.nycbar.org/reports/top-trends-of-2024-in-behavioral-science-digital-tech-data-and-ai/ (date accessed: December 18, 2025).

33. Zhuang, Y.-B., Li, Z.-H., & Zhuang, Y.-J. (2021). Identification of influencers in online social networks: Measuring influence considering multidimensional factors exploration. Heliyon, 7(4), e06472. https://doi.org/10.1016/j.heliyon.2021.e06472

34. Boerman, S. C., Kruikemeier, S., & Borgesius, F. J. Z. (2017). Online behavioral advertising: A literature review and research agenda. Journal of Advertising, 46(3), 363–376. https://doi.org/10.1080/00913367.2017.1339368

35. Mujollari, Ç., Imeri, B., Trebicka, B., Tartaraj, A., & Krasniqi, M. (2025). Managing ethics in online marketing strategy: Assessing its impact on consumer product perception (Special issue). Corporate & Business Strategy Review, 6(3), 285–298. https://doi.org/10.22495/cbsrv6i3siart6