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Inmutation theory and handicap theory: paths of intersection

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Abstract

Relevance. In the digital age, the intensive mediatization of social life and the rapid development of digital platforms have triggered a profound crisis of trust in communicative signals. Social networks, mass media, and political discourse have become arenas of «signal wars» where fakes, deepfakes, and simulacra are disseminated on a massive scale. Traditional communication models are no longer capable of explaining the mechanisms of stability and transformation of meaning under conditions of information overload. In this context, a conceptual synthesis of the theory of inmutation (Холод, 2011) and the handicap principle (Zahavi, 1975) appears particularly relevant.

Aim. The aim of the study is to identify the conceptual points of intersection between the theory of inmutation and the handicap theory (costly signaling) and to demonstrate their heuristic potential for analysing the reliability, stability, and transformation of social communication in the digital environment.

Methods. The research employs a comprehensive methodological approach combining the comparative-analytical method, semiotic analysis, systems approach, and elements of discourse analysis. A theoretical synthesis of the concepts and their empirical illustration based on real-world cases were carried out.

Results. The study reveals common features of both theories (the problem of signal stability/instability and contextual dependence) as well as their key differences (irreversible negative transformation versus a positive mechanism of honesty). The author proposes a new synthetic category – "inmutational handicap." Its heuristic value is illustrated through specific cases: President V. Zelenskyy's addresses to world parliaments (2022–2025), the Russian deepfake video calling for "capitulation" (2022), and Russia's global information-psychological operations (IPSO) involving bots and deepfakes (2022–2026).

Conclusions. The synthesis of the two theories fills a significant scientific gap in communication studies and offers a new analytical lens for understanding "signal wars." The category of "inmutational handicap" holds important practical value for developing strategies of communication security, enhancing media literacy, and countering disinformation in the digital age.

Introduction

The modern era is characterized by intensive mediatization of social life, the rapid development of digital platforms, and the widespread adoption of information technologies, which are radically transforming the processes of social communication. In this context, the problem of the crisis of trust in communicative signals has become particularly acute. Social networks, mass media, and political discourse have turned into arenas of so-called «signal wars» where actors seek to convince audiences of the authenticity of their

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messages while simultaneously facing the massive spread of manipulations, fakes, and simulacra. Traditional communication models focused on information transmission prove insufficient for explaining the mechanisms of stability or destabilization of meaning under such conditions. It is therefore relevant, in our view, to compare two theoretical approaches that focus on the internal mechanisms of reliability and transformation of communicative signals – the handicap principle and the theory of inmutation.

The handicap principle, introduced by the Israeli biologist Amotz Zahavi, explains the evolution of honest signals through the principle of «costly» investments that serve as reliable indicators of the sender's quality, since falsifying such signals requires disproportionately high costs (Zahavi, 1975; Zahavi & Zahavi, 1997). This idea was further developed in economics (Spence, 1973), biology, and gradually adapted to the social sciences and humanities, particularly for the analysis of political communication, branding, and digital self-presentation. In communication studies, the handicap principle helps explain why certain messages are perceived as credible even in conditions of information overload.

The theory of inmutation, developed in Ukrainian communication studies by О. М. Холод (2011), views communication as a process of irreversible transformation (inmutation) of the communicative code, behavioral scenarios, and social meanings under the influence of purposeful influence technologies. Inmutation is understood as a negative change that leads to the destruction or significant deformation of the previous meaning structure, in contrast to mutation as a neutral or positive transformation (Холод, 2011). The theory emphasizes the irreversibility of changes in recipients' consciousness under the influence of media technologies, manipulative practices, and simulacra constructs.

Despite the significant theoretical potential of both approaches, their systematic comparison in the context of social communications remains underdeveloped. Research on the handicap principle is mainly concentrated in evolutionary biology and signaling economics, while its application in communication studies is fragmentary. The theory of inmutation is actively developing in Ukrainian social communication studies; however, comparative studies combining it with costly signaling principles are virtually absent. Thus, there is a scientific gap that needs to be filled through a conceptual synthesis of the two theories.

The purpose of the article is to identify the conceptual points of intersection between the theory of inmutation and the handicap theory and to demonstrate their heuristic potential for explaining the mechanisms of stability, reliability, and transformation of social communication in the digital age.

To achieve this goal, the following tasks are set:

1) to analyze the theoretical and methodological foundations of the theory of inmutation and its key categories;
2) to examine the evolution and contemporary interpretations of the handicap theory in the context of social communications;
3) to identify common and distinct conceptual foundations of both theories;
4) to develop synthetic models of their intersection (in particular, the category of "inmutational handicap");
5) to illustrate the heuristic value of the integrative approach through empirical cases from political, media, and digital communication in Ukraine and abroad;
6) to outline the practical significance of the proposed model for the theory and practice of social communications.

The object of the study is the mechanisms of social communication in modern information society. The subject is the conceptual points of intersection between the theory of inmutation and the handicap theory as tools for analysing the reliability and transformation of communicative signals.

Methods and Research Methodology

The methodological basis of the study is a comprehensive approach that combines the comparative-analytical method (for comparing key categories of both theories), semiotic analysis (for studying processes of change in signal meaning), and the systems approach (for modeling integrative constructs). Elements of discourse analysis were also used to interpret empirical examples.

The integration of inmutation theory with handicap principles allows for a deeper understanding of why, in conditions of «signal wars» some communication strategies lead to irreversible deformation of public consciousness, while others ensure relative stability of meaning. This synthesis opens new prospects for the analysis of media discourse, crisis communications, and digital self-presentation, contributing to the development of social communication theory as a discipline capable of adequately responding to contemporary challenges.

Results and Discussion

In accordance with the first task, the following section presents the theoretical and methodological foundations of the theory of inmutation, identifying the genesis and evolution of the concept of «inmutation» within social communication theory.

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The concept of «inmutation» emerged in Ukrainian communication studies in the early 2000s as a response to the need to describe negative, irreversible transformations of public consciousness under the influence of manipulative communication technologies. The author of the theory, О. М. Холод, first systematically introduced the term in the monograph Inmutation of Society in the Hypermarket of Consciousness (Холод, 2006), where inmutation is interpreted as a process of degradation of society's communicative code, in contrast to mutation, which is understood as a neutral or positive change.

The genesis of the concept is closely linked to the analysis of mass media and political communication at the end of the 20th and beginning of the 21st centuries. In his early works, О. М. Холод examined inmutation in the mass media as a mechanism for destroying political images and societal values. The evolution of the concept continued in the textbook Communication Technologies (Холод, 2011), where inmutation is integrated into the system of social communication technologies as one of two main scenarios of manipulation (mutation and inmutation). In subsequent studies, the theory developed further to include the analysis of «inmutation of inmutation» – a cumulative effect in which inmutated mass communication generates inmutated inmutants (individuals and society that lose the ability to adequately perceive signals). Today, the theory of inmutation forms part of a broader conceptual framework of social communications as social engineering and is actively applied in research on education, politics, television, and digital media (Василенко, 2022; Черниш, 2020; Клінкова, 2011).

The central category of the theory is inmutation – an irreversible negative change in the communicative code, behavioral scenarios, and social meanings under the influence of purposeful communication technologies. Unlike biological mutation (which may be neutral or positive), inmutation is always destructive in character and leads to the deformation of the previous meaning structure (Холод, 2011).

The key principles of the theory of inmutation are as follows:

1) irreversibility of changes – inmutation does not allow a return to the original state of the communicative code;

2) stability/instability of the signal – inmutation occurs when a signal becomes unstable due to manipulative interference, which destroys trust and leads to semantic chaos;

3) role of context – inmutation is always contextually determined: the same signal in different socio-cultural conditions may be mutational or inmutational depending on the media environment and the recipient's psychological readiness.

Other important categories include: «inmutated inmutant» (an individual whose behavior has been completely and negatively transformed), «hypermarket of consciousness» (the mass communication environment as a space of inmutational technologies), and «inmutational model of behavior» (a scenario imposed on the audience). The theory relies on semiotic and psycholinguistic approaches, viewing communication as a system of signs subject to deliberate deformation.Inmutation functions as a mechanism of meaning transformation at two levels: mass and interpersonal. In mass communication, it manifests through the systematic degradation of signal quality (fakes, simulacra, propaganda), which leads to the destruction of society's shared semantic field. The recipient loses the ability to distinguish between authentic and manipulative content, resulting in «inmutation of meaning» – the replacement of genuine meanings with imposed ones.

At the interpersonal level, inmutation occurs through micro-manipulations (gaslighting, fake news in private chats) that gradually deform personal behavioral scenarios. The result is the emergence of «inmutated inmutants» – individuals whose consciousness becomes isolated from reality and operates according to inmutational models (isolation, aggression, loss of critical thinking). Thus, inmutation is not merely a change but a mechanism of social engineering that transforms communication from a tool for exchanging meanings into an instrument of control and degradation.

The theory of inmutation has been validated by numerous empirical studies. In the field of television, describes «tele-inmutation of society» in which talk shows featuring inappropriate behavior impose inmutational models, isolating viewers from real society. In politics and media, a vivid example is Russian propaganda from 2014–2022: the systematic use of fakes and manipulations led to the inmutation of part of Ukrainian society (erosion of trust in authorities and the imposition of the image of an «enemy»). In education, Н. Кравченко (2010) and В. Василенко (2022) demonstrate inmutational processes in higher education, where digitalization and manipulative technologies degrade learning scenarios (reduced motivation and replacement of knowledge with simulacra). Psycholinguistic analysis identified markers of inmutation in Ukrainian-language press texts from 1917 – frequent sound-letter combinations signaling a crisis of meaning. Contemporary examples include the spread of conspiracy theories on social networks, which leads to mass inmutation of consciousness. All the mentioned cases demonstrate the heuristic value of the theory for analysing modern communication practices and confirm its prognostic potential regarding the risks of «inmutation of inmutation» in the digital age.

The examination of the evolution and contemporary interpretations of the handicap theory in the context of social communications constitutes the second task of this study, which is addressed below.

The handicap principle (Handicap Principle) was proposed by the Israeli biologist Amotz Zahavi in 1975 as an explanation for the evolution of «costly» signals in the animal world, such as the peacock's bright

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tail, which, although seemingly reducing survival chances, actually demonstrates the genetic quality of the individual (Zahavi, 1975). Zahavi argued that signals must be reliable, and for this they need to be costly or even wasteful, since only high-quality individuals can afford such costs without significant harm to their survival. In biology, the theory gained substantial development through the mathematical substantiation provided by Alan Grafen (1990), who showed that honest signals can be stable if their marginal cost is lower for stronger individuals. Subsequently, the concept was integrated into the broader costly signaling theory (Koh & Li, 2025; Lachmann, Számadó, & Bergstrom, 2001; Smith & Bliege Bird, 2000).

Modern theories of costly signaling significantly expand and reinterpret the classical handicap principle. V. Fraser (2012) criticizes the narrow understanding of this theory and proposes a broader approach:

> *«According to costly signalling theory, signals can be reliable even when the interests of the sender and receiver conflict, if deception, although possible, is not advantageous»* (Fraser, 2012, p. 264).

The author emphasizes that the honesty of signals does not necessarily require high current costs and can be supported by the potential price of deception:

> *«I argue that both pairs of researchers are mistaken: (2) is not a reason to reject signals that remain honest thanks to punishment for dishonesty as cases of costly signalling, while (1) reflects an overly narrow focus on certain versions of costly signalling theory»* (Fraser, 2012, p. 264).

T. Getty (1998) draws attention to important mathematical limitations of classical handicap modeling:

> *«It is generally recognized that the requirement for honest handicap signalling is that higher-quality signallers pay lower marginal costs for advertisement»* (Getty, 1998, p. 127).

H. Gintis et al. (2001) apply costly signaling theory to explain cooperation among non-kin. They argue that the provision of public goods can be an honest signal of an individual's quality:

> *«We propose an explanation for cooperation among non-kin in a social group in which cooperation evolves because it constitutes an honest signal of the quality of a group member as a mate, coalition partner, or competitor, and therefore leads to beneficial alliances for those who signal in this way»* (Gintis et al., 2001, p. 103).

The researchers demonstrate the stability of such a strategy under the condition of differentiated signal costs:

> *«We show that honest signalling of underlying quality by providing a public good to group members can be evolutionarily stable and can spread in a population where it is initially rare, provided that certain plausible conditions are met, including a link between the signalling that is beneficial to the group and the signaller's underlying qualities…»* (Gintis et al., 2001, p. 103).

Thus, V. Fraser (2012), T. Getty (1998), and H. Gintis et al. (2001) show that costly signaling theory goes far beyond the classical handicap principle, focusing on the potential cost of deception, the differentiation of costs, and the social benefits of honest signalling.

Similar ideas emerged earlier in economics – in Michael Spence's job market signaling model (1973) and Thorstein Veblen's concept of conspicuous consumption (Veblen, 1994). In communication studies and the social sciences and humanities, the handicap theory has been adapted to analyze human communication, explaining why certain messages are perceived as authentic only when they are associated with tangible costs (time, resources, reputation, or risk). Modern research views it as a tool for understanding trust mechanisms in conditions of conflicting interests (Zahavi & Zahavi, 1997).

The key principles of the theory are based on the premise that a «costly signal» serves as a guarantee of honesty: a signal is reliable when its cost is differentiated depending on the sender's quality. Only an individual who genuinely possesses a certain quality (strength, competence, sincerity) can afford the costs associated with the signal. If a signal is cheap and easily faked, it quickly loses credibility due to the appearance of «cheaters». Costs act as a marker of authenticity and can be direct (financial, energetic) or indirect (reputational risk, social ostracism). A. Zahavi emphasized that a signal must be not only costly but also wasteful – it is precisely this wastefulness that makes it reliable, as a weaker individual cannot sustain it for a long time (Zahavi, 1975; Zahavi & Zahavi, 1997). Another important aspect is the strategic instability of the signal: its intensity may fluctuate depending on the sender's actual state, creating an additional verification mechanism for the receiver.

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In the digital age, the handicap theory has acquired new relevance, since online communication is characterized by low costs of information dissemination and a high risk of deception. «Costly signals» become a way to stand out amid the content stream. In social networks, examples of such signals include public admission of mistakes or criticism of one's own community (reputational costs), long-term charity marathons with transparent reporting, or the creation of content that requires significant effort (in-depth investigations, authorial documentary series, multi-hour live broadcasts). In political communication, the handicap manifests itself in risky statements that may cost votes or careers but demonstrate principles – for example, a public refusal of sponsorship from big business or support for an unpopular but consistent position. In branding, the theory explains the success of luxury brands (high price as a quality signal) and authenticity marketing strategies: brands that bear real costs for environmental initiatives (restructuring supply chains, transparent reporting) create a stronger trust signal than those that merely declare values. Digital platforms enhance the handicap effect through algorithms and visibility: a signal that withstands the test of time and audience reaction receives organic dissemination (see the application of costly signaling in political communication: Quek, 2021).

Despite its popularity, the handicap theory faces substantial criticism (Grafen, 1990; Számadó, 2011; Penn & Számadó, 2020). Many researchers consider it an erroneous hypothesis that became a «scientific principle» due to the incorrect interpretation of Alan Grafen's mathematical models (Grafen, 1990). Critics note that the honesty of signals is ensured not so much by equilibrium costs (handicap) as by the potential cost of deception and trade-off compromises; signals can be honest even without additional costs for the honest sender if deception is easily detected by other mechanisms (Penn & Számadó, 2020).

In the social sciences and humanities, the limitations of costly signaling theory are even more pronounced. First, human communication is significantly more complex than animal signalling: culture, norms, institutions, and context play a major role and can compensate for the absence of a «costly signal» (Lachmann et al., 2001; de Boer, 2025). Second, it is difficult to accurately measure the «cost» of a signal in social terms, as reputation is not always quantifiable and empirical support often remains insufficient (de Boer, 2025; Penn & Számadó, 2020). Third, new forms of deception have emerged in the digital environment – bots, deepfakes, and coordinated inauthentic behavior – which substantially complicate the application of the classical model of honest signaling (Etienne, 2021; Hynek, Gavurova, & Kubak, 2025).

Moreover, the theory risks excessive simplification: not all costly signals are honest, and some «cheap» signals can be effective due to networks of trust, social capital, or institutional support (Lachmann et al., 2001; Zollman, Bergstrom, & Huttegger, 2013; Dumas et al., 2021). The application of the handicap theory in communication studies requires its integration with other approaches – framing theory, social capital theory, and empirical studies of audience behavior (Koh & Li, 2025; Reid et al., 2020). Thus, despite its limitations, the theory remains a useful analytical tool for understanding mechanisms of trust and authenticity in contemporary social communications, especially when viewed not as a universal principle but as one of several possible signaling strategies (Penn & Számadó, 2020; Számadó, Zachar, & Penn, 2026).

Recent international scholarship in communication studies has substantially enriched the application of the handicap principle and costly signalling theory to digital environments, particularly by examining the interplay between communicative signals and public trust under conditions of low-cost dissemination and algorithmic amplification. Marsili (2025) adopts a costly signalling perspective to analyse online misinformation, demonstrating how digital platforms systematically reduce the reputational and social costs that traditionally enforce honest signalling, thereby enabling the proliferation of deceptive content and undermining the stability of meaning. This perspective aligns closely with Zahavi's original emphasis on strategic instability while highlighting novel digital-specific mechanisms of signal degradation. Parallel research on deepfakes further illustrates the erosion of trust in visual and auditory signals. Boediman (2025), in a comprehensive scoping review published in a leading communication journal, shows that deepfake technology blurs the boundary between authentic and fabricated content, leading to a measurable decline in media credibility and public trust across interdisciplinary audiences. Complementing this, Altay et al. (2025) experimentally confirm that exposure to higher proportions of false news headlines erodes overall media trust without necessarily impairing participants' ability to discern true from false information, instead fostering overconfidence in personal judgment. The Cambridge Analytica scandal (2018) remains a paradigmatic case of low-cost, data-driven signal manipulation: by weaponising psychographic profiling for personalised political micro-targeting, it exemplified how cheap digital signals can masquerade as honest ones, precipitating a broader crisis of trust in platform-mediated communication (Jeleskovic, 2024). Thorson (2024) extends this line of inquiry by demonstrating that news coverage of misinformation itself shapes audience perceptions, paradoxically decreasing trust in social media news while increasing reliance on traditional print journalism. Finally, Wirtz (2026) proposes a socio-technical process model of AI-based digital disinformation that integrates signalling theory, revealing recursive loops among algorithmic amplification, identity-verification signals, and cumulative trust erosion. Collectively, these studies underscore the continued heuristic value of the handicap principle in digital communication research while revealing its limitations in environments where «cheap» signals (bots, deepfakes, targeted data profiles) can rapidly destabilise previously costly equilibria of honesty.

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The third task of our study is to identify the common and distinct conceptual foundations of the two theories (the theory of inmutation and the handicap theory).

We single out the following common features of the theory of inmutation of society and the handicap principle (see Table 1).

Table 1.
Common features of the theory of social inmutation (Холод, 2011)
and the theory (principle) of handicap (Zahavi, 1975; Zahavi & Zahavi, 1997).

No.	Common features	Manifestation in the theory of inmutation	Manifestation in the theory (principle) of handicap
1	Focus on internal mechanisms of reliability and signal transformation	Internal mechanisms determine the reliability of the signal.	Internal mechanisms determine the reliability of the signal.
2	Signal stability/instability problem	The principle of «signal stability/instability» is one of the key ones.	«Strategic signal instability» + **costly nature** as a condition for a stable equilibrium of honesty.
3	Contextual conditioning of signal interpretation	Inmutation is **always** contextually determined.	Depends on the quality of the sender and the audience's ability to recognize the costs.
4	High relevance for modern (digital) communications	Has heuristic potential in the digital age.	Has heuristic potential in the digital age.
5	Semiotic and dynamic view of the signal	Semiotic and dynamic approach.	Semiotic and dynamic approach.

First of all, both theories focus on the internal mechanisms of reliability and transformation of communicative signals. They explain why signals become or cease to be stable and authentic under conditions of possible deception or manipulation.

An important common element is the problem of signal stability/instability. In the theory of inmutation, the principle of «signal stability/instability» is one of the key principles. In the handicap theory, a similar role is played by «strategic instability of the signal» and the costly nature (costliness) as a condition for a stable equilibrium of honesty. Thus, both theories view the signal not as a neutral carrier of information, but as a dynamic entity that can be destroyed or strengthened by internal mechanisms.

Another shared feature is the contextually determined interpretation of the signal. Inmutation is always contextually conditioned, while the handicap also depends on the sender’s quality and the audience’s ability to recognize costs.

Finally, both theories demonstrate high relevance for contemporary social, and especially digital, communications. They are applied to the analysis of «signal wars» the crisis of trust, fakes, deepfakes, and manipulations in social networks and political communication. We emphasize the heuristic potential of both approaches precisely in the conditions of the digital age.

Therefore, the common conceptual platform of both theories is a semiotic and dynamic view of the communicative signal as an entity whose stability depends on internal rather than merely external mechanisms.

At the same time, it is necessary to acknowledge the differences between the theories. Below we present Table 2, which outlines the distinctive conceptual characteristics of the theory of inmutation of society and the handicap principle (costly signaling) across seven aspects.

Table 2. Distinctive conceptual characteristics
theories of social inmutation (Холод, 2011)
and the theory (principle) of handicap (Zahavi, 1975; Zahavi & Zahavi, 1997).

No.	Aspect	Inmutation Theory	Handicap theory / expensive signaling
1.	The nature of	Irreversible negative (destructive)	Positive mechanism for ensuring

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No.	Aspect	Inmutation Theory	Handicap theory / expensive signaling
	change	transformation of communicative code, values, and behavior	honesty through costs
2.	Direction of action	Destruction of the previous structure of meaning (degradation)	Protection/stabilization of the honest signal (prevention of falsification)
3.	Source of the theory	Ukrainian communication studies, social engineering,	Evolutionary biology → economics → social sciences and humanities
4.	Key mechanism	Targeted manipulative intervention leading to «inmutation of inmutation»	Differentiated signal cost (costly / wasteful) depending on the quality of the sender
5.	Result for the recipient	The emergence of «inmutated inmutants» – loss of critical thinking, isolation from reality	Increasing confidence in the authentic signal (stable equilibrium)
6.	Assessment of the phenomenon	Always destructive (negative)	May be evolutionarily/strategically beneficial
7.	Attitude towards deception	Deception is the cause of inmutation (fakes, simulacra)	Cheating is a threat that costly signals block.

Table 2 highlights the key differences between the two theories across seven main aspects.

First, the nature of change in the theory of inmutation is regarded as an irreversible negative (destructive) transformation of the communicative code, meanings, and behavior. In contrast, the handicap theory treats change as a positive mechanism for ensuring honesty through costs (costly signaling).

Second, the direction of action of the theory of inmutation is aimed at destroying the previous structure of meaning, i.e., at the degradation of the communication system. In opposition to this, the handicap principle operates in the direction of protecting and stabilizing the honest signal, preventing its falsification.

Third, the origins of the theories differ significantly. The theory of inmutation emerged within Ukrainian communication studies and social engineering, whereas the handicap theory has interdisciplinary roots – originating in evolutionary biology, later adapted in economics, and spreading to the social sciences and humanities.

Fourth, the key mechanism of the theory of inmutation consists of purposeful manipulative intervention that leads to «inmutation of inmutation». In the handicap theory, the main mechanism is the differentiated cost of the signal (costly or wasteful signaling), which depends on the sender's quality.

Fifth, the result for the recipient in the theory of inmutation manifests itself in the emergence of «inmutated inmutants» – people who lose critical thinking and become isolated from reality. In contrast, the handicap theory leads to increased trust in the authentic signal and the establishment of a stable equilibrium of honesty.

Sixth, the evaluation of the phenomenon is fundamentally different: inmutation is always assessed as a destructive and negative phenomenon, whereas the handicap can be evolutionarily or strategically beneficial.

Seventh, the attitude toward deception is also opposite. In the theory of inmutation, deception (fakes, simulacra) is the direct cause of inmutation. In the handicap theory, deception (cheating) is viewed as a threat that costly signals successfully block.

Thus, the table demonstrates the fundamental opposition between the destructive, manipulative nature of inmutation and the protective, stabilizing mechanism of the handicap principle.

The fourth task of our study was to develop synthetic models of the intersection of the two analysed theories (the theory of inmutation and the handicap theory) in the form of the category «inmutational handicap».

The inmutational handicap is proposed as a new synthetic concept that combines the key mechanisms of both theories. On the one hand, the handicap theory (Zahavi, 1975; Zahavi & Zahavi, 1997; Grafen, 1990) explains how «costly» signals ensure the honesty of communication through high costs that are difficult or impossible for false senders to fake. On the other hand, the theory of inmutation (Холод, 2011) describes the irreversible negative transformation of the communicative code, social meanings, and behavioral models under the influence of manipulative technologies, which leads to the deformation of recipients' consciousness and the emergence of «inmutated inmutants».

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In the synthetic model, the inmutational handicap acts as a mechanism in which irreversible negative transformation (inmutation) itself becomes a «costly investment» or strategic handicap. Changing the communicative code, behavioral scenarios, or social meanings requires significant resources (time, reputation, social capital, psychological costs, or the risk of exposure), making such inmutation a reliable and difficult-to-falsify signal. At the same time, a costly signal (handicap) can act as a catalyst for inmutation: when an actor performs costly signaling (for example, public admission of mistakes, large-scale charity campaigns, or risky political statements), it provokes a deep, often irreversible change in the audience's perception – from trust to a radical reassessment of values or, conversely, to further deformation of consciousness.

Thus, the inmutational handicap combines two logics.

1. Inmutation as an internal handicap – an irreversible negative change in the communicative code becomes a costly investment that signals the «authenticity» of manipulative influence or the reality of a meaning crisis. Falsifying such inmutation requires excessively high costs, making it a stable signal in «signal wars».

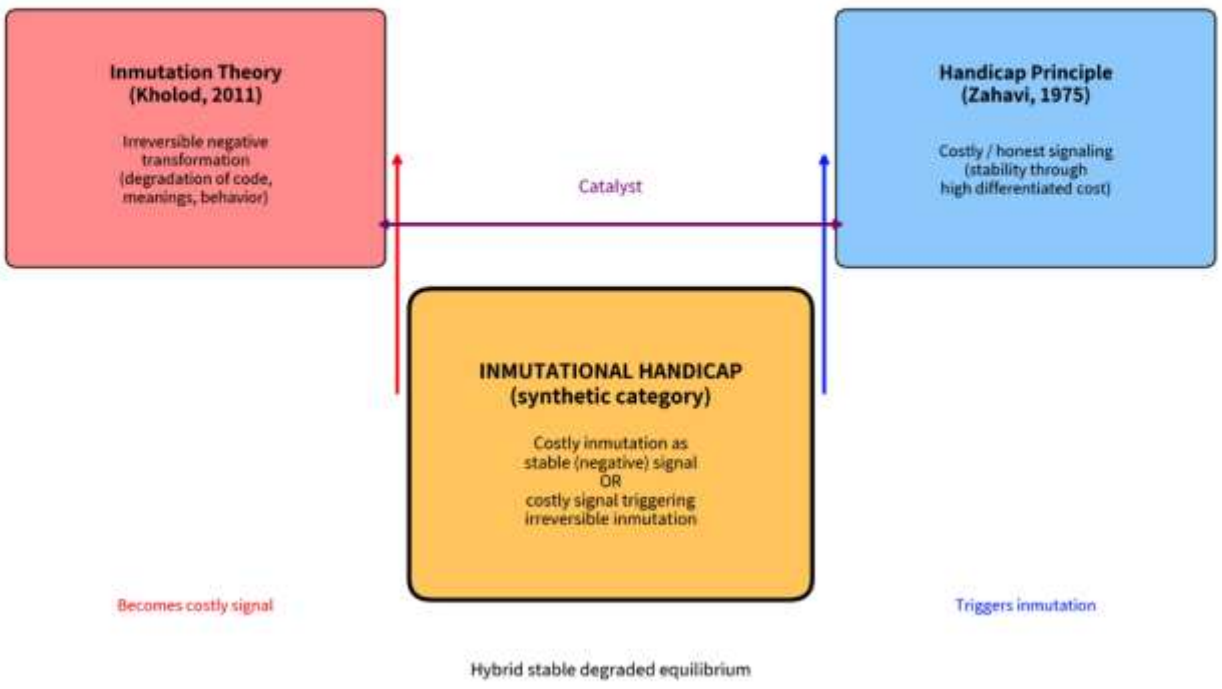
2. Handicap as a catalyst for inmutation – the performance of a «costly» signal (costs to reputation, resources, or risk) triggers a chain of irreversible transformations in the audience's consciousness, leading to the cumulative effect of «inmutation of inmutation».

3. Hybrid form – «inmutational handicap» as an independent category, where the costs of the signal simultaneously represent costs for the irreversible deformation of the communicative field. Examples include prolonged disinformation campaigns with large resource investments (which destroy trust in traditional institutions) or, conversely, acts of radical transparency that come at the expense of reputation but change societal norms of perception.

The proposed synthetic category of «inmutational handicap» can be further clarified as a dynamic interaction between two complementary mechanisms: the destructive, irreversible transformation described by inmutation theory and the stabilizing, costly-signaling logic of the handicap principle. In this model, inmutation does not merely degrade meaning but acquires the properties of a costly signal (high resource, reputational, and psychological investment required to sustain large-scale manipulative campaigns), while a genuinely costly signal, in turn, can catalyse irreversible inmutational changes in the audience's communicative code. The result is a hybrid equilibrium in which degradation itself becomes difficult to falsify and therefore functions as a stable (though negative) indicator in «signal wars».

To visualize this interaction, the following schematic model is proposed (see Figure 1).

Figure 1. Schematic model of the "inmutational handicap"
as dynamic interaction between inmutation and handicap mechanisms



Description of the model:

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– Left block (red): Inmutation Theory (Холод, 2011) – irreversible negative transformation and degradation.

– Right block (blue): Handicap Principle (Zahavi, 1975) – costly / honest signaling through differentiated high cost.

– Central orange block: INMUTATIONAL HANDICAP – the synthetic category where costly inmutation becomes a difficult-to-falsify stable signal, and costly signals catalyse irreversible inmutation.

– Bidirectional purple arrow: «Catalyst».

– Downward arrows show the two main directions of interaction, leading to a hybrid stable degraded equilibrium.

For a more formal representation, the model can be expressed as:

IH = f(S, C, IM)

where:

– (S) – communicative signal,

– (C) – cost of the signal (handicap component),

– (IM) – degree of inmutation (irreversible negative transformation),

– (IH) – inmutational handicap, in which (C(IM(S))) exceeds the falsification threshold, turning inmutation into a relatively stable (negative) signal;

– f = «функція» (математичний зв'язок, який перетворює S, C та IM на IH).

The formula is interpreted as: Inmutational Handicap (IH) = f(S, C, IM), where IH is a function of three variables – the communicative signal (S), the signal cost (C), and the degree of inmutation (IM).

This visual and formal model clearly demonstrates the mutual reinforcement of the two mechanisms and overcomes the main limitations of each theory taken separately: the handicap principle gains an explanation of negative irreversible effects in the socio-humanitarian sphere, while inmutation theory receives a tool for assessing the «cost» and stability of manipulative signals.

The proposed category makes it possible to overcome the limitations of each theory taken separately: the handicap theory gains a tool for explaining negative and irreversible consequences in the socio-humanitarian sphere, while the theory of inmutation acquires a mechanism for assessing the «cost» and stability of manipulative signals. The integrative approach opens prospects for the analysis of digital communications, political discourse, crisis situations, and media manipulations, where traditional «cheap» fakes are giving way to more complex, resource-intensive forms of influence.

This synthetic model of the «inmutational handicap» demonstrates, in our view, the heuristic potential of combining the biological-economic theory of honest signals with the communication theory of negative transformation, offering a new lens for understanding the mechanisms of trust, authenticity, and deformation in modern information society.

Within the framework of the fifth task of the study, it is planned to illustrate the heuristic value of the integrative application of the theory of inmutation of society and the handicap principle through specific empirical cases of political, media, and digital communication both in Ukraine and in the international context.

Below we illustrate the heuristic value of the integrative application of the theory of inmutation of society (Холод, 2011) and the handicap principle (Zahavi, 1975; Zahavi & Zahavi, 1997) through three specific empirical examples. The integration of the approaches presented below allows for a deeper understanding of the dynamics of modern communication: inmutation explains destructive, irreversible processes of destroying meanings and trust through manipulation, while the handicap principle explains the mechanisms of protecting authenticity through costly signals that are difficult to fake.

Example 1. Political communication in Ukraine is represented by the speeches and addresses of President Volodymyr Zelenskyy during 2022–2025 in the international context. During the full-scale war, Zelenskyy actively addressed the parliaments of the world (USA, United Kingdom, Germany, EU, etc.), using emotional, contextually adapted speeches with allusions to the audience's historical traumas (Pearl Harbor, the Berlin Wall, Churchill) (Henley, 2022).

> *«For deputies in London, he evoked Churchill and Shakespeare. For the US Congress, he recalled Pearl Harbor and the events of 9/11. For the Bundestag, it was the Berlin Wall; for Canadian legislators – their large Ukrainian community. Members of the European Parliament in Brussels were reminded of Ukraine's place in the family of nations on the continent.Each of Volodymyr Zelenskyy's addresses to Western legislative bodies contained historical references carefully selected to appeal to the audience; each was met with standing ovations. If he gained domestic fame as an actor and comedian, it was the talent of the Ukrainian president as an orator that brought him international recognition»* (Henley, 2022).

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From the perspective of the handicap principle, the described signals are classic costly signals: the president risks his personal safety (remaining in Kyiv under shelling), political capital, and reputation by making direct, sometimes critical appeals («Is this too much to ask?») to the US Congress (Bowden, 2022, March 17; PBS, 2022).

> *«Members of the House of Representatives highly appreciated the President's speech and responded to the shocking footage of the war presented by Mr. Zelenskyy's team in a pre-prepared media package that accompanied his address»* (Bowden, 2022, March 17).

> *«A video of Zelenskyy, dressed in a green military T-shirt and sweater, was projected onto large screens in the Canadian parliament. He thanked Canada for its humanitarian and military support and called the country a faithful ally. «Please close the sky, close the airspace» he said. «Please stop the bombing. How many more cruise missiles must fall on our cities before you do this?»«* (News Desk, & Gillies, 2022).

Such costliness makes the signals reliable – they are difficult to imitate for a leader who does not bear real costs. This behavioral model of the President of Ukraine stabilizes trust among the international audience and creates an equilibrium of honesty.

However, integration with the theory of inmutation reveals the other side: Russian propaganda attempts to inmutate these signals through fake narratives («Zelenskyy is an actor», «he does not represent the people»). Inmutation acts as an irreversible destructive transformation, destroying the previous structure of meaning («hero-leader») and generating «inmutated inmutants» – a part of the audience that loses critical thinking and perceives reality through the prism of simulacra (in the sense of the term used by Baudrillard, 1981; Бодрійяр, 2004). The integrative approach demonstrates how Zelenskyy's costly signals counteract inmutation, restoring the stability of meanings in «signal wars».

Example 2. Media and digital communication is exemplified by the deepfake video featuring «Zelenskyy's call for capitulation» (Балачук, 2022, March 3; Detector Media, 2022, March 3). At the beginning of Russia's full-scale invasion, a deepfake video spread in which Volodymyr Zelenskyy allegedly called on Ukrainian servicemen to lay down their arms. The video quickly spread on social networks and even appeared on hacked Ukrainian television channels (Allyn, 2022; Twomey et al., 2023; Wakefield, 2022).

> *«In Twitter, a fake video appeared again in which Russian President Vladimir Putin announces peace. Meanwhile, this week Meta and YouTube removed a fake video in which the President of Ukraine speaks about capitulation to Russia… The unconvincing fake of President Zelenskyy was ridiculed by many Ukrainians.*
> *Volodymyr Zelenskyy appears at a podium calling on Ukrainians to lay down their weapons. His head looks too large for his body and more pixelated than his voice, and the voice sounds deeper.*
> *In a video posted on his official Instagram account, the real President Zelenskyy called it a «childish provocation».*
> *However, the Ukrainian Center for Strategic Communications warned that the Russian government may well use deepfakes to convince Ukrainians to surrender»* (Wakefield, 2022).

From the perspective of the theory of inmutation, the quoted description is a classic example of manipulative intervention that leads to «inmutation of inmutation»: the fake destroys the communicative code, transforms the meaning of the signal («the president defends the country») into its opposite, causes demoralization, panic, and loss of critical thinking in the audience. The result is the emergence of «inmutated inmutants» isolated from reality, which intensifies the crisis of trust in the digital space.

The handicap principle explains why the signal was quickly debunked: authentic signals from the authorities (Zelenskyy's official addresses, statements of the General Staff) had high costliness (real political and military responsibility), whereas the deepfake was «cheap» and easily recognizable (quality, contextual inconsistency) (Simonite, 2022). The integrative approach demonstrates heuristic value: inmutation destroys stability, but costly signals (official communications, rapid fact-checking) restore the equilibrium of honesty.

Such equilibrium is especially relevant in the digital age, where deepfakes are becoming a mass tool of «signal wars».

Example 3. Digital political communication is identified as a key element of Russian propaganda and information-psychological special operations (IPSO) aimed at undermining international support for Ukraine throughout 2022–2026. According to the Atlantic Council, in 2023 Russia significantly expanded its global information operations, using social networks, fake websites, and coordinated campaigns to erode trust in Ukraine and weaken Western assistance (Atlantic Council, 2024). A vivid example is the use of the hashtag #istandwithputin on the network.

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«On March 4, 2022, the hashtag #istandwithputin became a trend in various regions, resulting in more than 300,000 mentions from approximately 106,000 user accounts. By identifying the most frequently retweeted posts with the hashtag and the accounts that retweeted them, DFRLab found that a significant portion of #istandwithputin mentions came from a small number of accounts that were widely retweeted» (Digital Forensic Research Lab, 2023).

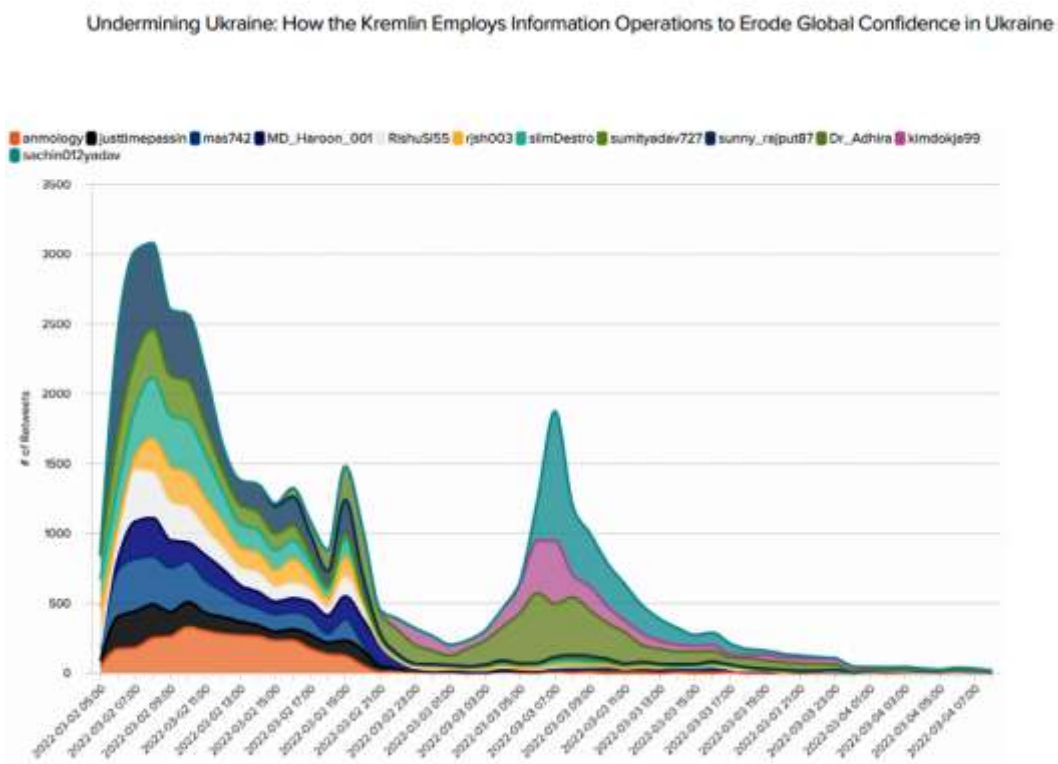

Figure 2. Graph 1 of the frequency of retweets by accounts that amplified the hashtag, shown over time. Source: Content via DFRLab (Atlantic Council (Digital Forensic Research Lab), 2024).

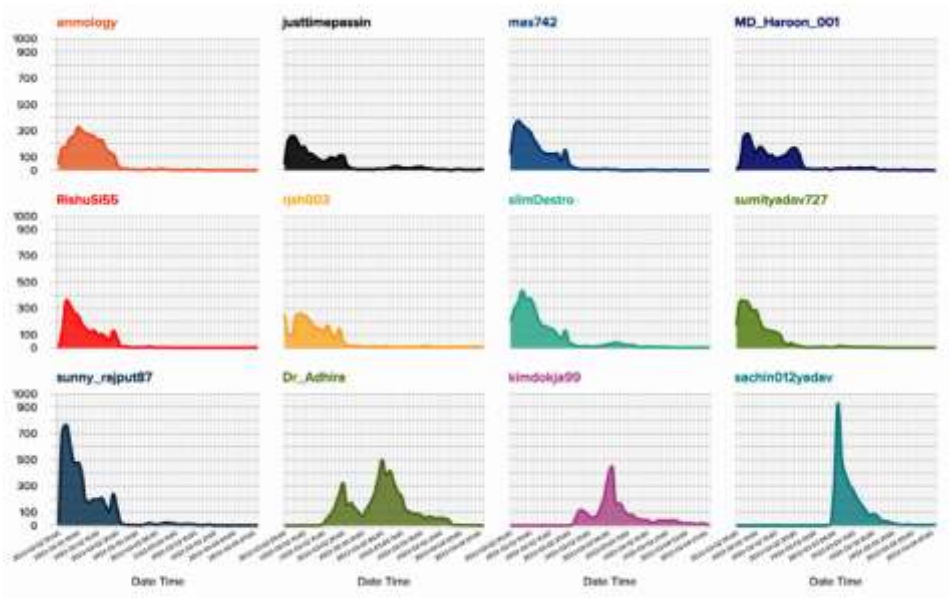

Figure 3. Graph 2 of the frequency of retweets by accounts that amplified the hashtag, shown over time. Source: Content via DFRLab (Atlantic Council (Digital Forensic Research Lab), 2024).

The analyzed operations included not only traditional propaganda but also adaptation to modern platforms, particularly TikTok and Telegram, with a focus on the Global South. In 2024, Russian propaganda continued to evolve, actively employing deepfakes, fake news websites, and network bots to discredit democratic institutions and weaken support for Ukraine (Antoniuk, 2025; Eaglestone, 2024; Field, 2022; Meaker, 2023; Rossoliński-Liebe, & Willems, 2022; Henley, 2022; Tropynina, 2023).

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«The analysis of the presence of pro-Ukrainian and pro-Russian narratives in the information space showed that approximately 20% of Ukrainians regularly encounter hostile propaganda messages. Residents of the South most frequently encounter pro-Russian narratives. In addition, a noticeable link was observed between the specifics of the region and the dominant pro-Russian messages within it» (Tropynina, 2023).

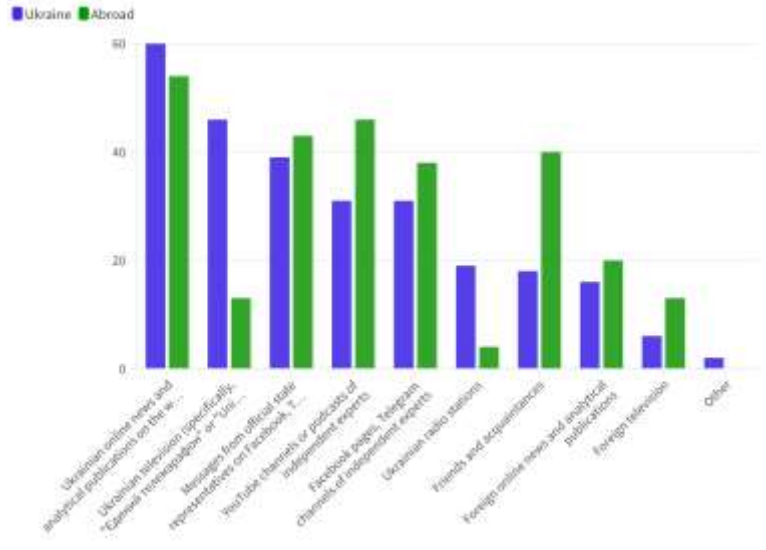

Figure 4. Indicators of the presence of pro-Ukrainian and pro-Russian narratives in the information space (Tropynina, 2023).

As S. Bond (2024) notes and O. Belogolova et al. (2024) confirm, such tools have become a distinctive feature of Russian influence operations aimed at exploiting societal divisions and undermining trust in official sources of information. The evolution of the mentioned methods can be traced from classical «troll factories» to high-tech deepfakes and generative artificial intelligence. T. Pantsulaia (2026) emphasizes that Russian disinformation, beginning with the aggression against Ukraine, has gradually spread to the European political space, transforming into a hybrid tool of influence that combines technological innovations with traditional propagandistic narratives. T. Pantsulaia (2026) warns about institutional weaknesses and fragmented governance of European media:

«Europe's response to Russian disinformation is overly focused on reacting to individual narratives rather than addressing the conditions that facilitate their spread. A more effective approach would prioritize closing regulatory gaps between member states, treat media literacy as a long-term investment in security, and develop early warning systems capable of detecting and contextualizing AI-generated disinformation before it shapes public opinion. The experience of Georgia in 2008, Ukraine since 2014, and numerous European democracies underscores the need for a more strategic and coordinated response. Without addressing institutional weaknesses, fragmented media governance, and the politicization of information security, Europe risks preparing for the wrong battle» (Pantsulaia, 2026).

Thus, digital technologies have become an integral part of Russia's IPSO (information-psychological operations) strategy, enabling the Russian authorities to effectively influence public opinion both in Ukraine and beyond its borders, thereby creating a long-term threat to international solidarity.

Russian propaganda systematically employs fakes, deepfakes, bots, and manipulative narratives on Telegram, TikTok, and X (Twitter) to discredit assistance to Ukraine and spread narratives about «corruption» «the loss of Western support» or «Ukrainian Nazis». Examples include fake videos about «protests in Ukraine» deepfakes of officials, or manipulations of real events (Bond, 2024; Rehan, T., 2025).

The signs of the functioning of the theory of societal inmutation are explicated in the effective description of processes of targeted manipulative intervention that lead to the irreversible degradation of the communicative code. The meanings «assistance to Ukraine = protection of democracy» are transformed into the messages «a waste of money» or «interference in someone else's war». The mentioned manipulations on the part of the political leadership of the Russian Federation generate a crisis of trust, polarization, and «inmutated» recipients, especially in the digital environment, where contextual interpretation is easily distorted.

Although Russian IPSOs are the largest-scale example, similar mechanisms are used by other actors in information wars.

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The handicap principle complements the analysis by asserting that authentic signals of support (military assistance, leaders' visits, sanctions) are costly, they require real financial, political, and reputational costs from Western countries. It is precisely for this reason that they stabilize honesty and counteract deception. Cheap signals (fakes, bots) are easily inmutated but do not withstand verification by costly signals.

We believe that an integrative approach reveals the heuristic value of combining (intersecting) the provisions of the theory of societal inmutation and the theory (principle) of the handicap. The mentioned approach explains not only destruction (inmutation) but also the conditions for restoring stability (handicap), which is critically important for analysing «signaling wars» in social networks, the crisis of trust, and the fight against disinformation both in Ukraine and beyond its borders.

The integration of the two theories allows moving from the description of individual phenomena to a systemic understanding: inmutation captures the destructive dynamics of the digital age (fakes, deepfakes, manipulations), while the handicap principle identifies the protective mechanisms of authenticity. Together, they provide, in our view, a powerful tool for analysing and countering manipulations in political, media, and digital communication, emphasizing why costly signals remain the most reliable barrier against the inmutation of society.

Application of Semiotic and Discourse Analysis to Empirical Cases

To operationalize the integrative theoretical framework, semiotic analysis was employed to trace processes of meaning transformation in communicative signals, while elements of critical discourse analysis were used to uncover manipulative strategies, lexical frames, and shifts in semantic fields. In Example 1 (Zelenskyy's addresses to world parliaments, 2022–2025), semiotic analysis identified multimodal markers of costly signaling: the consistent visual index of military attire (green T-shirt as an icon of personal risk), intertextual historical allusions (Pearl Harbor, Berlin Wall, Churchill) functioning as culturally anchored signifiers of shared trauma, and paralinguistic features (emotional tone, strategic pauses) that index sincerity and high reputational cost. Discourse analysis revealed how these signs stabilized the «hero-leader» narrative, counteracting attempted inmutation by Russian propaganda frames («actor», «not representative»). In Example 2 (the 2022 deepfake video calling for capitulation), semiotic analysis explicitly isolated key markers of inmutation: (1) visual anomalies (disproportionately enlarged head, pixelation around facial contours, unnatural lighting gradients indicating synthetic generation); (2) auditory-textual mismatch (deeper, artificially modulated voice timbre contrasting with Zelenskyy's authentic timbre and prosody in official recordings); and (3) contextual-semantic incongruity (the call to «lay down arms» directly inverting the established discursive position of resistance). These markers demonstrated irreversible deformation of the communicative code, transforming the sign from «authentic defender» into its opposite and generating demoralization among recipients. In Example 3 (Russian IPSO campaigns 2022–2026), discourse analysis highlighted recurrent manipulative patterns: lexical repetition of delegitimizing frames («corruption», «waste of money», «Ukrainian Nazis»), hashtag co-optation (#istandwithputin as a bot-amplified counter-narrative), and narrative hybridization that blended real events with fabricated elements. Semiotic analysis examined cumulative signal instability created by coordinated bot networks and deepfake amplification, leading to the emergence of inmutated semantic fields in target audiences, particularly in the Global South and southern regions of Ukraine. This combined methodological application provided empirical grounding for the synthetic category of «inmutational handicap», illustrating both the destructive mechanics of inmutation and the stabilizing potential of costly signals in real-time «signal wars».

The sixth task of our study involved carrying out the procedure of outlining the practical significance of the proposed model for the theory and practice of social communications.

The integrative model of «inmutational handicap» (Холод, 2011; Zahavi, 1975; Zahavi & Zahavi, 1997) possesses, in our opinion, significant heuristic potential for the theory and practice of social communications in the digital age. It offers a new conceptual toolkit for understanding the mechanisms of the crisis of trust, «signaling wars» and countering disinformation by combining the destructive logic of inmutation with the protective dynamics of costly signaling.

For the theory of social communications, the model fills an existing lacuna by demonstrating how the irreversible negative transformation of the communicative code (inmutation) can be interpreted as a «costly signal» in hybrid information operations. This approach allows moving from a descriptive analysis of fakes and deepfakes to a systemic explanation of their stability and effectiveness (Twomey et al., 2023; Rehan, 2025). The theoretical value lies in the synthesis of the biological-economic theory of honest signals with the communicativist concept of social engineering, which opens prospects for interdisciplinary research on media discourse, crisis communications, and digital self-presentation (Atlantic Council, 2024; Bond, 2024).

In the practical dimension, the model provides clear guidelines for countering information-psychological operations.

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First, in political communication, it explains why costly signals (risky appeals, transparent charitable actions, public admission of mistakes) become the most effective barrier against the inmutation of public consciousness. An example is the communication strategy of the President of Ukraine V. Zelenskyy in 2022–2025, where high reputational and physical costs ensured the stability of trust among the international audience despite attempts at inmutation through deepfakes (Allyn, 2022; Wakefield, 2022).

Second, for media and platforms, the model recommends algorithmic differentiation between «cheap» and «expensive» signals: fake campaigns with low cost (bots, trolling) easily inmutate meanings, whereas resource-intensive fact-checking campaigns and transparent verification mechanisms restore the stability of the communicative code (Detector Media, 2022; Pantsulaia, 2026).

Third, in the field of media literacy and education, the model can serve as a basis for developing educational programs that teach the recognition of inmutation markers (irreversible deformation of meanings) and the evaluation of signal cost as an indicator of authenticity. This position is particularly relevant for countering Russian IPSO operations in 2022–2026, where the combination of deepfakes and coordinated campaigns on TikTok, Telegram, and X creates a cumulative effect of «inmutation of inmutation» (Antoniuk, 2025; Tropynina, 2023).

The practical application of the model also includes recommendations for state authorities and journalists: prioritizing costly signaling in crisis communications, establishing institutional mechanisms for the early detection of inmutational campaigns, and integrating the principles of the «inmutational handicap» into communication security strategies. The proposed model not only explains the contemporary challenges of digital communication but also offers effective tools for preserving the stability of societal meanings and restoring trust in the conditions of information warfare.

Conclusions

The theory of inmutation and the theory of the handicap principle (costly signaling), despite significant differences in their origins, nature, and direction of action, demonstrate considerable heuristic potential in their mutual intersection for the analysis of contemporary social communications. The theory of inmutation (Холод, 2011) effectively explains the mechanisms of irreversible destructive transformation of the communicative code, social meanings, and behavioral patterns under the influence of manipulative technologies, while the handicap principle (Zahavi, 1975; Zahavi & Zahavi, 1997) reveals the conditions of stability and authenticity of signals through their costliness and strategic instability.

The proposed synthetic category of «inmutational handicap» makes it possible to overcome the limitations of each theory taken separately. It demonstrates how irreversible negative transformation (inmutation) can itself act as a «costly investment» – a signal that is difficult to falsify in «signaling wars» while costly signaling, in turn, is capable of triggering chain inmutational processes in the audience's consciousness. Such an integrative approach enables a comprehensive explanation of both destructive processes (the spread of fakes, deepfakes, and coordinated disinformation) and the mechanisms of restoring trust through authentic, resource-intensive signals.

The empirical analysis of cases of the political communication of President V. Zelenskii, Russian information-psychological operations, and deepfakes in 2022–2026 confirms that the integration of the two theories provides a deeper understanding of the dynamics of digital communication: inmutation captures the destruction of the shared semantic field, while the handicap principle identifies the conditions under which authentic signals counteract such destruction.

The practical significance of the «inmutational handicap» model lies in its application for the development of communication security strategies, media literacy programs, algorithmic differentiation between «cheap» and «expensive» signals, as well as for forecasting the risks of «inmutation of inmutation» in the context of hybrid information wars. Thus, the synthesis of the theory of inmutation and the theory of the handicap opens a new perspective for the development of the theory of social communications as a discipline capable of adequately responding to the challenges of the digital age, where the struggle for the stability of meaning becomes a key factor of societal resilience.

Statement

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Conflict of interest

There is no conflict of interest.

Ethics

The material presented in this article meets all the points and requirements put forward by the Ethics Commission of the Editorial and Publishing Department of the public organization «Scientific and Educational Center «SUCCESSFUL».

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Теорія інмутації та теорія гандикапу:
шляхи перетину

Анотація

Актуальність. У цифрову епоху інтенсивна медіатизація суспільного життя та стрімкий розвиток цифрових платформ спричинили глибоку кризу довіри до комунікативних сигналів. Соцмережі, медіа й політичний дискурс перетворилися на арену «сигнальних війн», де масово

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поширюються фейки, дипфейки й симулякри. Традиційні моделі комунікації вже не здатні пояснити механізми стабільності й трансформації значення в умовах інформаційного перевантаження. Актуальним є концептуальний синтез теорії інмутації (Холод, 2011) і теорії гандикапу (Zahavi, 1975).

Мета. Виявити концептуальні точки перетину теорії інмутації та теорії гандикапу (costly signaling) і показати їхній евристичний потенціал для аналізу надійності, стабільності й трансформації соціальної комунікації в цифровому середовищі.

Методи. Дослідження базується на порівняльно-аналітичному методі, семіотичному аналізі, системному підході й елементах дискурс-аналізу. Проведено теоретичний синтез концепцій та емпіричну ілюстрацію на реальних кейсах.

Результати. Визначено спільні риси теорій (проблема стабільності/нестабільності сигналу, контекстуальна зумовленість) і ключові відмінності (негативна незворотна трансформація vs. позитивний механізм чесності). Запропоновано синтетичну категорію «інмутаційного гандикапу». Її евристичну цінність продемонстровано на конкретних кейсах. Ідеться про звернення Президента В. Зеленського до світових парламентів (2022–2025), російський дипфейк про «капітуляцію» (2022) і глобальні інформаційно-психологічні операції РФ з використанням ботів і дипфейків (2022–2026).

Висновки. Синтез теорій заповнює наукову лакуну в комунікативістиці та пропонує нове бачення для розуміння «сигнальних війн». Категорія «інмутаційного гандикапу» має важливе практичне значення для комунікаційної безпеки, медіаграмотності й ефективної протидії дезінформації в цифрову епоху.

Ключові слова: теорія інмутації, теорія гандикапу, costly signaling, інмутаційний гандикап, соціальні комунікації, цифрові комунікації, чесний сигнал.

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