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# Emotionally Neutral Design as a Prerequisite for Trust in High-Risk Digital Products

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**Abstract:** The concept of emotionally neutral design is examined as a key factor in the formation and maintenance of user trust in high-risk environments such as financial technologies and artificial intelligence-based systems. The relevance of the topic is shaped by the trust crisis of 2024–2025, driven by the growing complexity of algorithmic decision-making and the spread of manipulative interfaces. The aim of the study is to provide a theoretical rationale for, and a practical assessment of, the effectiveness of minimalist and restrained interfaces in reducing cognitive load and strengthening user agency. The methodological foundation combines a systematic literature review, a comparative analysis of Gartner and McKinsey market data, and an in-depth examination of case studies involving the deployment of personal financial management (PFM) systems with a user base exceeding 1.3 million active users. The empirical dataset analyzed in this study covers approximately twelve months of interaction logs collected between 2023 and 2024 from a large-scale fintech platform. This dataset enabled the observation of both short-term behavioral reactions and longer-term patterns of financial decision-making under different interface configurations.

The results indicate that the combination of emotional neutrality with the principles of Calm Technology contributes to higher user loyalty and an increase in retained funds, while 61% of users associate trust primarily with ease of navigation and the absence of visual pressure. The study confirms the hypothesis that, in high-risk products, design performs a strategic mediating function by narrowing the "agency gap" between the algorithm and the human user. The findings underscore the practical importance of shifting from emotional engagement toward architectural transparency, a transition of clear relevance for product designers, AI system architects, and technology executives seeking to build resilient and ethical digital ecosystems.

**Keywords:** product design, high-risk products, digital trust, emotionally neutral design, artificial intelligence, financial technologies, cognitive load, human-centered AI, user agency, calm technology.

## Introduction

During the period of intensive digital transformation in recent years, human interaction with technology has undergone profound change. Artificial intelligence systems and autonomous agents are moving into critically important domains, from personal finance management to medical decision-making, making trust a central factor in product resilience and competitiveness. According to analytical reports for 2024, investment in digital trust and cybersecurity technologies increased by 57%, reflecting growing business concern over system reliability [1]. Gartner's projections for 2025 indicate that AI trust, risk, and security management (AI TRiSM) will become a defining trend for the ethical and secure deployment of emerging technologies [2].

The relevance of the present study is determined by the observable gap between the rising complexity of algorithmic systems and the limited cognitive capacities of human users. In high-risk scenarios, where the cost of error is considerable, traditional approaches to product interfaces centered on emotional engagement and gamification often produce the opposite effect. Emotionally overloaded interfaces are perceived by users as manipulative, increasing anxiety and intensifying the feeling that control has been lost [7, 21]. According to McKinsey, banks that successfully manage digital trust demonstrate a compound annual growth rate that is 7.8% higher than that of competitors that neglect these dimensions [3]. Under such conditions, design ceases to be merely a visual shell-more accurately, merely a visual layer-and becomes a strategic instrument for risk reduction.

The scientific problem lies in the still limited understanding of the mechanisms of emotional neutrality as a means of decompressing cognitive load in interaction with complex interfaces. Most studies tend to focus either on algorithmic accuracy and explainability or on the aesthetic qualities of the interface, while the psychological effect of "calm" interaction in high-risk scenarios remains insufficiently explored [4, 13].

**The purpose of this work** is to identify and systematize the principles of emotionally neutral design that contribute to the formation of long-term trust in products characterized by a high degree of responsibility.

**The scientific novelty** of the study lies in substantiating a design paradigm in which design acts as a mediator

that, through visual restraint and "productive friction," restores user agency in interaction with autonomous systems.

**The research hypothesis** assumes that a shift away from anthropomorphic and emotionally saturated stimuli toward functional neutrality reduces perceived risk and increases the user's willingness to delegate tasks to a digital system.

## Materials and Methods

The methodological foundation of the study integrates theoretical synthesis with the empirical analysis of real-world cases of international scale. A systematic literature review and critical content analysis of publications produced by leading scientific and technological centers were adopted as the principal research approach. The study is grounded in the concepts of Human-Centered AI (HCAI), the principles of Calm Technology, and models of trust in automation [4, 5, 11, 14]. In addition, descriptive statistical analysis and cohort comparison were applied to identify relationships between interface characteristics, perceived transparency, and indicators of user retention and engagement.

The source base includes academic articles and edited volumes indexed in Scopus and Web of Science and devoted to the psychosocial aspects of interaction with AI agents, as well as to the influence of interfaces on decision-making under conditions of uncertainty [7, 15, 18]. The analysis also incorporates analytical reports and strategic forecasts published by leading consulting agencies, including Gartner, McKinsey, and Deloitte, which reflect market tendencies, the investment climate, and patterns of user behavior in the fintech and AI sectors [2, 3, 19]. Technical documentation and implementation reports on Explainable AI (XAI) systems and trusted architectures in the banking domain were likewise examined [13, 16].

The author's own empirical base was formed over more than eight years of practical work in international technology companies and includes the results of more than 50 in-depth interviews, a quantitative analysis of behavioral patterns among more than 1.3 million users of financial products, and data on the allocation of funds exceeding 5.5 billion rubles through personal financial planning (PFM) interfaces. To assess effectiveness, a comparative analysis of emotionally saturated and emotionally neutral interfaces was applied in savings management scenarios. The case study method made it possible to examine in detail the implementation of the Savings Goals and Envelopes tools within a major banking ecosystem. Statistical data processing included a correlation analysis of the relationship between the level of interface transparency and user retention indicators [3, 4, 13, 16].

## Results and Discussion

The study established that emotional neutrality in the design of high-risk digital products functions not merely as an aesthetic parameter, but as a core instrument of risk management. When interacting with complex systems-whether AI algorithms for investment decisions or platforms for professional training-users encounter cognitive overload and elevated levels of anxiety. Emotionally neutral design serves as a filtering layer, removing surplus stimuli and allowing attention to remain fixed on rational decision-making [9, 15].

In addition, such approaches help reduce the influence of emotional bias on user actions, thereby lowering the probability of impulsive or irrational decisions. Effective interface structuring and the consistent presentation of information create conditions conducive to analytical thinking, which becomes critically important in work with products where errors may carry financial or reputational consequences. More than that, the introduction of emotional neutrality contributes to the formation of a trust-based perception of the system, increasing resistance to subjective judgments and stress reactions [13, 15].

According to research findings published in 2025, the principal obstacles to the adoption of artificial intelligence technologies are perceived risk (PR) and a deficit of trust (TR). These factors are directly linked to concerns over algorithmic bias, insufficient process transparency-the familiar "black box" problem-and the potential spread of misinformation [15, 16]. In the legal context, this requires the development of standards that ensure transparency and accountability in such systems, along with the establishment of liability mechanisms for algorithmic errors, thereby reducing institutional risks and strengthening confidence in digital platforms [8, 21].

Further analysis shows that the integration of measures aimed at managing users' cognitive load has a direct effect on compliance with the principles of fair digital service delivery. Comprehensive interface design that takes into account the psychometric characteristics of the target audience makes it possible to minimize the risks of violating user rights, especially the right to reliable information and safe interaction with digital products. In this way, the combination of emotional neutrality and transparent algorithmic procedures forms a legal and operational basis for increasing the reliability of high-risk digital solutions [13, 21].

Ultimately, the identified patterns point to the necessity of a systemic approach in which design, user psychology, and legal mechanisms complement one another. Such an approach not only reduces operational and

reputational risks for organizations, but also creates the conditions for a sustainable legal environment in which innovation can be implemented safely, with minimal negative consequences for participants in the digital market [8, 21].

The ethical factors and their influence on perceived risk and trust in 2025 are presented in Table 1.

Table 1. Ethical factors and their impact on perceived risk and trust in 2025 (compiled by the author based on [8, 16, 21]).

| Ethical factor | Impact on perceived risk (PR) | Impact on trust (TR) | Significance for interface design |
|---|---|---|---|
| Misinformation (MIS) | Significant positive (β = 0.161) | Neutral / Negative | Requires visual indicators of data credibility |
| Accountability (ACC) | Positive (β = 0.137) | Negative (β = -0.098) | Necessitates clear delineation of zones of responsibility |
| Algorithmic bias (ALB) | Neutral | Negative (β = -0.113) | Requires transparency regarding data sources |
| Control over AI (CON) | Positive (β = 0.136) | Negative (β = -0.133) | Design must ensure the possibility of manual adjustment |
| Transparency (ETR) | Positive (β = 0.150) | Negative (β = -0.148) | Implies a transition toward Explainable AI (XAI) interfaces |
| Fear of job displacement (JOD) | Highest (β = 0.216) | Neutral | Requires a supportive rather than substitutive tone |

The data presented in Table 1 demonstrate that transparency and control are decisive factors in the perception of digital platforms. Emotionally neutral design helps satisfy these needs by removing visual noise and unnecessary stimuli that may otherwise conceal the opacity of algorithmic processes. According to expert forecasts for 2025, 90% of fintech sector growth will be generated by companies focused on improving user experience as a mechanism for ensuring safety and trust. Only 18 percent of customers said they were willing to shift away from a bank they trusted [3, 17].

The study also identified the phenomenon of an “agency gap.” In contemporary artificial intelligence systems, the “prompt–response” interaction model frequently constrains the user’s active participation, reducing that user to the role of a passive observer [14]. This configuration leads to a decline in perceived control, which in turn negatively affects trust in the system and weakens the sense of responsibility attached to the decisions being made. As a compensatory measure, the introduction of a mechanism of “productive friction” is proposed-that is, the deliberate slowing down of interaction processes in ways that compel the user to consciously evaluate the results of algorithmic processing and make more considered decisions [14, 22].

Additional analysis indicates that the implementation of interfaces with an emotionally neutral mode of presenting information not only improves cognitive perception, but also creates a legal basis for compliance with the principles of user-rights protection. The optimization of visual structure and action sequence reduces the risk of errors that may trigger legal consequences for platform operators. In addition, the strengthening of transparency and control supports conformity with regulatory requirements in the field of digital technologies, including accountability for algorithmic decisions and the securing of users’ informed consent [13, 21].

A systemic design approach combining emotional neutrality, elements of productive friction, and legally calibrated procedures of transparency contributes to the formation of a trust-based environment for interaction with high-risk digital products. It ensures a balance between the efficiency of automated systems and the preservation of user agency, which is a critical factor in the integration of innovation into the financial and professional digital sectors [14, 16, 21].

Finally, the projected shift in user expectations over the period from 2023 to 2026 indicates a movement toward transparency, predictability, and neutrality in interface design. These tendencies require developers to adopt an integrated approach in which user psychology, interface ergonomics, and legal standards reinforce one another, together shaping a resilient and secure ecosystem of digital services (see Figure 1).

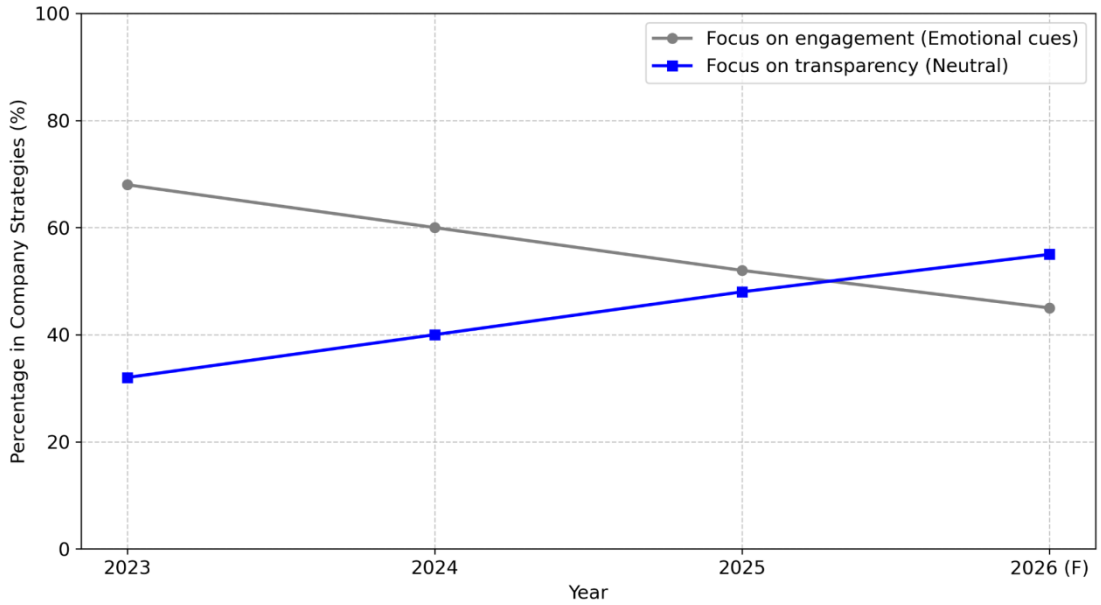


Figure 1. Transformation of priorities in the design of high-risk products (compiled by the author based on [2, 10; 16- 19]).

The chart presented in Figure 1 clearly illustrates a paradigmatic shift: whereas in 2023 the key factor was the emotional capture of attention, by 2026 the determining priority will be neutrality and transparency, both of which contribute to the formation of user trust. This tendency is also reflected in the introduction of new interface design standards such as Apple's iOS 26 "Liquid Glass," where visual elements become translucent and adaptive, placing greater focus on content rather than imposing overt emotional cues and thereby creating more room for deliberate interaction with the system.

An empirical confirmation of the effectiveness of this approach can be found in the implementation of personal financial planning tools within the largest digital bank in the ecosystem under study. Across more than 50 in-depth interviews, it was found that users possessed free funds, yet experienced anxiety when planning their long-term allocation. Existing interfaces either overloaded users with complex analytics or excessively gamified the savings process, which, in both cases, reduced trust in the platform.

The solution took the form of a two-level system built on the principles of emotional neutrality and calm technologies. The Savings Goals tool is intended for long-term planning and is characterized by visual minimalism: progress is displayed in a restrained manner, without aggressive indicators, allowing the user to assess movement toward a goal objectively. The Envelopes tool implements everyday budgeting on the basis of the mental model of physical envelopes, providing clarity and control over the distribution of funds while minimizing cognitive load and emotional reactions to fluctuations in the budget [6].

In addition, the implementation of these tools demonstrates that the emotional neutrality of the interface directly affects the behavioral and psychological dimensions of financial planning, reducing anxiety and increasing trust in automated systems. Such an approach also provides a legal and ethical basis for the operation of digital platforms, since it improves algorithmic transparency, minimizes the risk of subjective interpretation of data, and supports compliance with the principles of fair financial service delivery [13, 16, 21].

Taken together, these practices demonstrate that the strategic combination of neutral design, transparency, and adaptive tools makes it possible to create digital solutions capable not only of improving user experience, but also of reducing institutional, operational, and reputational risks, thereby shaping a resilient legal and financial ecosystem [14, 16, 21].

The quantitative indicators of the effectiveness of implementing a neutral PFM design are presented in Table 2.

Table 2. Quantitative indicators of the effectiveness of implementing a neutral PFM design (compiled by the author based on [14, 16, 21]).

| **Indicator** | **Value before implementation (standard accounts)** | **Value after implementation (Envelopes / Goals)** | **Change / Effect** |
|---|---|---|---|
| Number of active users | 450,000 | 1,300,000+ | 2.8-fold growth |
| Volume of retained funds | $15 million USD (equiv.) | $75 million USD+ | 5-fold growth |
| Average number of premature withdrawals | 35% of users / month | 18% of users / month | Reduced anxiety and impulsiveness |
| Satisfaction level (CSAT) | 4.1 / 5.0 | 4.8 / 5.0 | Increased trust in the brand |
| Active savings cycle | 2.5 months | 7.8 months | Long-term commitment to the strategy |

The results presented in Table 2 confirm that the introduction of an emotionally neutral approach enabled users to structure their savings and invest them with meaning, without pressure from the system. Design here performs the function of a "quiet advisor," creating an environment for considered decision-making rather than imposing ready-made solutions.

These conclusions correlate with the findings of the Calm Advice study, in which the digitalization of traditional paper-based banking practices contributed to a reduction in employees' cognitive load and increased their orientation toward client needs [4]. The analysis showed that simple visualization, transparent categories, and the minimization of excessive stimuli enhance the effectiveness of financial advising and trust in the system, while simultaneously reducing the risk of errors associated with information overload.

Moreover, the study demonstrates that neutral design is not merely an aesthetic or psychological instrument, but also a mechanism of risk management. It reduces the likelihood of impulsive user actions, minimizes conflict situations, and strengthens the legal resilience of digital financial services by supporting compliance with standards of transparency and fair service provision [13, 16, 21].

Thus, the integration of the principles of emotional neutrality and calm technologies into the interfaces of high-risk digital products forms a comprehensive solution that contributes to greater trust, cognitive comfort, and user safety in interaction with financial platforms [4, 14, 16].

The architecture of trust in high-risk systems will be presented in Figure 2.

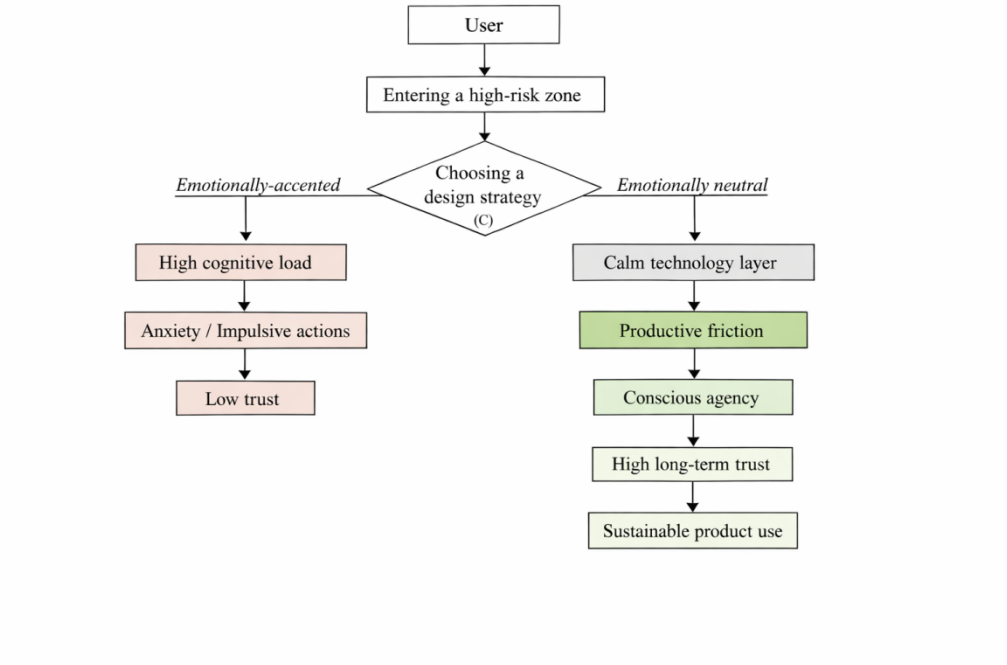


Figure 2. Architecture of Trust in High-Risk Systems (author's own development)

The diagram demonstrates how the integration of a neutrality layer and the deliberate slowing of interaction processes-productive friction-facilitates the transformation of the user from a state of anxiety into a state of conscious agency. In this context, design performs the function of an ethical filter, creating conditions for the rational analysis of information and minimizing the risk of impulsive decisions. In products such as Public AI, where investment decisions are generated on the basis of algorithmic data analysis, interface neutrality becomes the only effective means of reducing cognitive distortions caused by emotionally charged or visually aggressive presentation of information [20].

Despite its evident advantages, the implementation of an emotionally neutral approach faces a number of limitations. First, there is the risk of "aesthetic sterility," where excessive simplification and minimalism may reduce the product's initial appeal to the mass user segment. In addition, cultural differences exert a substantial influence on interface perception: according to studies published in 2025, anthropomorphic elements that increase trust in some regions, such as Brazil, may provoke rejection and a sense of alienation in others, such as Japan [18].

It should also be taken into account that interface neutrality requires precise calibration to the cognitive and emotional characteristics of the target audience. Excessive simplification may reduce engagement and slow the process of mastering functionality, which is especially critical for high-risk digital products. At the same time, the proper combination of neutral design elements with adaptive visualization and elements of calm technologies makes it possible to preserve a balance between minimizing cognitive load and maintaining user motivation.

The systemic integration of neutral design also contributes to compliance with the legal and ethical norms governing digital platforms. It ensures algorithmic transparency, reduces the probability of subjective user errors, and builds trust in automated processes, which is a key factor in the regulation of financial and investment services involving artificial intelligence [13, 21].

As a result, the emotionally neutral approach not only increases interaction efficiency and users' cognitive comfort, but also becomes a risk-management instrument, combining psychological, aesthetic, and legal dimensions into a single strategy for the sustainable development of digital products.

A comparative analysis of the barriers to implementing neutral design in 2025 is presented in Table 3.

Table 3. Comparative analysis of barriers to implementing neutral design in 2025 (compiled by the author based on [3, 10, 12, 21])

| Type of barrier | Description of risk | Paths to mitigation |
|---|---|---|
| Strategic | Misalignment at the leadership level (51% of cases) | AI literacy training for top management |
| Technical | Integration with legacy systems | API-oriented modernization |
| Human | Talent shortage (88% of executives report a deficit) | Focus on interdisciplinary design teams |
| Regulatory | Absence of clear rules for autonomous systems | Proactive compliance with the Digital Fairness Act (2025) |

The success of a digital product in 2025 is determined not exclusively by the power of the algorithm, but by the quality of the "human layer"-that is, by the extent to which the supporting interface structure, the design scaffold, facilitates rational reasoning and well-grounded decision-making. In artificial intelligence systems such as "Aristotle," it has been confirmed that experienced managers achieve meaningful improvements in decision efficiency and accuracy only when the system supports their agency rather than fully replacing it.

This underscores the need to maintain a balance between automation and the preservation of user control. Interfaces that provide transparency, consistency, and deliberate slowing of processes create an environment in which the user is able to critically evaluate the outcomes of algorithmic processing. Such a configuration minimizes the risk of cognitive distortions and contributes to the formation of trust in the system, while also strengthening the legal and ethical resilience of the product.

Further, the results indicate that the "human layer" performs the function of a connecting element between the system's algorithmic capabilities and the user's actual needs. Effective support of agency makes it possible not only to improve the quality of decisions being made, but also to reduce the likelihood of errors associated with overestimating the capabilities of AI or accepting its recommendations uncritically.

Thus, the combination of well-considered interface design, the principles of emotional neutrality, and a supportive structural framework forms an integrated approach to the development of high-risk digital products. It ensures equilibrium between automation and human initiative, creating a resilient and trust-based ecosystem for decision-making in professional and financial environments [4].

The conceptual model of the "Calm AI Interface" is presented in Figure 3.

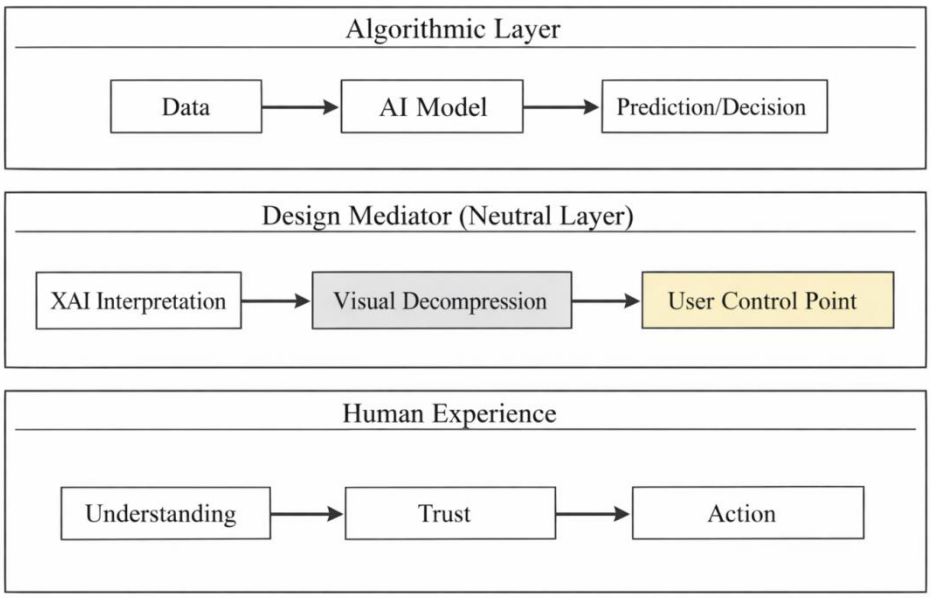


Figure 3. Conceptual model of the "Calm AI Interface" (compiled by the author based on [4]).

The model presented in Figure 3 illustrates the necessity of a visual decompression layer positioned between the algorithm's "prediction" and the user's "action." Such a layer creates a pause for deliberate analysis, helping to prevent the phenomenon of automation bias, in which users tend to trust the system uncritically and fail to verify the results of its operation.

The emotional neutrality of the interface functions here as a key instrument for sustaining critical thinking: it removes visual and emotional distractions, allowing the user to concentrate on evaluating the credibility and relevance of the information presented. In the context of high-risk digital products, such as investment platforms or managerial decision-support systems, this reduces the likelihood of errors caused by cognitive bias and contributes to the development of user responsibility for the decisions being made.

In addition, the integration of visual decompression and neutral design creates the conditions for synergy between the human user and the algorithm. The user gains the opportunity to actively interpret results, adjust the system's actions, and manage risks consciously. This forms a resilient model of interaction in which automation strengthens human agency rather than suppressing it, thereby ensuring a combination of efficiency, safety, and trust in digital products.

Thus, the layer of visual decompression and the principle of emotional neutrality emerge as fundamental mechanisms that make it possible to minimize cognitive distortions, support critical thinking, and enhance the legal and ethical reliability of high-risk digital systems.

Despite the empirical scale of the dataset, several limitations should be acknowledged. First, the behavioral analysis is based on data obtained from a single fintech ecosystem, which may limit the generalizability of the findings across other technological sectors. Second, part of the empirical evidence relies on retrospective analysis of product interaction metrics rather than controlled experimental design. Finally, certain internal analytics indicators remain proprietary and therefore cannot be disclosed in full methodological detail. Future studies may test the proposed emotionally neutral design framework in other high-risk digital environments, including healthcare decision-support systems and generative AI interfaces.

## Conclusion

The study confirmed that emotionally neutral design is a key condition for the formation of trust in high-risk digital products in 2024–2025. Under conditions of rapid algorithmization and the expansion of agentic AI systems, design is evolving from an instrument of visual arrangement into an ethical mediator that enables rational and safe interaction between the user and technology.

One of the principal effects is the reduction of cognitive load: interface neutrality minimizes visual noise and unnecessary stimuli, allowing the user to maintain concentration in critical scenarios such as financial decision-making, security-related matters, or strategic planning. In the case of personal financial planning tools, the user satisfaction indicator (CSAT) reached 4.8, which points to the high effectiveness of applying the principles of emotional neutrality.

The transition from a "seamless" experience toward the introduction of the principle of productive friction makes it possible to restore user agency and overcome the phenomenon of the Agency Gap. The creation of a pause for the conscious evaluation of algorithmic outputs returns control to the human user, reduces the likelihood of cognitive distortions, and strengthens critical thinking in interaction with AI systems.

The economic effect of implementing transparent and neutral UX is also confirmed by market outcomes: companies that invest in digital trust and focus on improving the quality of user experience demonstrate effectiveness 7.8 times higher than that of competitors, turning emotionally neutral design into a strategic competitive advantage.

Note: if this sentence is intended to reflect the McKinsey source precisely, the original Russian wording may need later verification, since more securely supports a higher growth metric rather than an undifferentiated claim of "effectiveness."

Ethical responsibility is likewise strengthened through such approaches: design becomes an instrument for implementing the principles of Digital Fairness and Human-Centered AI. It prevents the manipulation of user behavior, forms a trust-based and secure environment, and contributes to long-term product loyalty.

The practical significance of the study lies in the development of scalable models and design principles applicable to different classes of high-technology products. The synthesis of theoretical concepts and the analysis of market data demonstrate that the future of AI products is determined not only by the power of neural networks, but also by how carefully, transparently, and neutrally the design is constructed-design that supports human agency and amplifies user capabilities without suppressing initiative.

In addition, the study shows that integrating emotionally neutral design into the strategic processes of product development forms the legal and ethical resilience of digital platforms. It reduces the risks of error, supports compliance with regulatory requirements in the field of digital technology, and opens possibilities for building trust-based relationships between users and companies, thereby creating a foundation for the long-term

sustainability and innovative development of the high-risk digital solutions market.

Thus, emotionally neutral design functions simultaneously as a cognitive, economic, and ethical instrument, ensuring effective human interaction with high-technology systems and establishing new standards for the development of a digital environment in which technologies strengthen, rather than replace, human agency.

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