Trust, Transparency, and AI Adoption in Business

Enikő-Zsófia Kovács[1], Ildikó Horváth[2,3]

[1]Business and Psychology, Ecseri út 2, H-1098 Budapest, Hungary
[2] Corvinus Institute for Advanced Studies, Institute of Data Analytics and Information Systems, Corvinus University of Budapest, Fővám tér 8, H-1093 Budapest, Hungary
[3]Hungarian Research Network HUN-REN, Piarista u. 4, Budapest, Hungary, kovacs.zsofia@uzlet-pszichologia.hu, ildiko.horvath@uni-corvinus.hu

Abstract: This study examines the psychological and emotional factors influencing AI adoption in Hungarian businesses, with a focus on trust, transparency, and user engagement. It highlights the strong connection between AI literacy and trust, emphasizing the role of clear communication, ethical safeguards, and intuitive design in fostering confidence and reducing resistance. Key challenges include fear of job loss, uncertainty in AI decision making, and ethical concerns. The study proposes practical solutions such as UI transparency, targeted training, and regulatory support to promote AI acceptance. A key contribution is the interdisciplinary approach, integrating business psychology with AI adoption strategies. This perspective underscores the importance of psychological readiness alongside technological advancements. Businesses should prioritize clear AI communication, user-friendly interfaces, and continuous training. Decisionmakers should focus on human cognitive and psychological aspects and transparency. Aligning technology with governance and education will ensure responsible AI adoption and long-term success.

Keywords: AI acceptance; Change management; Business psychology

1 Introduction

Artificial Intelligence (AI) has evolved today into a fundamental part of industries and daily life. However, its successful social adoption depends not only on technical advancements but also on human trust, which is often undermined by fears, misunderstandings, and a lack of transparency. As Zerilli et al. (2022) emphasize, 'trust in machines is necessary for human-AI teams to perform smoothly and effectively' [1], but achieving this requires an understanding of human concerns.

Resistance to AI and other disruptive technologies often arises from perceived threats to established systems. Brosnan (2002) describes these reactions as 'negative affective and attitudinal responses' [17], which can obstruct user engagement. Addressing these concerns through increased transparency can enhance user confidence and acceptance. Research by Wanner et al. (2022) and others suggest that when users understand AI processes, they are more likely to integrate these systems into their workflows [4].

This study explores how understanding AI impacts trust and adoption, emphasizing transparency and human-centered design. Specifically, the research addresses the following questions:

- What are the key emotional and psychological barriers to Artificial Intelligence (AI) adoption in Hungarian businesses?
- How does understanding the underlying mechanisms of AI influence users' trust, acceptance, and engagement?
- What role do user interface (UI) design and transparency play in fostering trust and reducing resistance to AI adoption?

By answering these questions, the research advocates for human-centered strategies and presents recommendations for UI solutions that support human-AI collaboration.

The growing integration of AI into industries highlights the significance of infocommunication—the intersection of information, communication, and technology—in shaping user trust. Furthermore, research in Cognitive Infocommunications [18, 19] and Cognitive aspects of Virtual Reality [20] provides valuable insights into designing AI systems that align with human cognitive processes.

This study aims to contribute to a future where AI is not only functional but also trusted and seamlessly integrated into society.

2 AI-related Discussions and Trends in Hungary

AI adoption in Hungary is developing at a fast pace, but acceptance varies across different sectors and demographics. By analyzing publicly available data, the authors highlight the motivation, challenges, and opportunities associated with AI adoption.

The Artificial Intelligence market in Hungary is projected to reach US$350.20 million in 2024, with an expected annual growth rate of 28.48% from 2024 to 2030, resulting in a market volume of US$1,575.00 million by 2030 [10].

Regarding AI Usage in Daily Life, we can say that approximately 26% of Hungarians use AI-based applications in their daily lives. The most common uses include translation (53%), general searches (45%), and answering personal questions (35%). Notably, 78% of students use AI for school assignments [8].

Familiarity with AI Tools: 69% of the population is familiar with speech recognition and machine translation software, with 51% actively using these tools [8].

AI adoption among Hungarian enterprises remains limited, with only 3.7% of businesses integrating AI technologies—significantly below the EU average of 8% [11]. Small and medium-sized enterprises (SMEs) face significant challenges, including financial constraints and a shortage of skilled labor, as highlighted by the Hungarian Competition Authority [12]. These findings align with the European Commission's Hungary 2024 Digital Decade Country Report, which underscores that, despite Hungary's improving digital infrastructure, the integration of advanced digital technologies, including AI, remains below the EU average, particularly in SMEs. The report also highlights a need for increased investment in digital skills and workforce training to bridge the AI adoption gap [9].

AI Readiness Index: Hungarians scored 3.9 out of 10 on the 'AI Readiness Index' indicating a moderate level of AI awareness and usage [13].

Generational Differences: Generation Z leads in AI familiarity and usage, with 91% familiarity and 46% daily usage, while older generations show lower levels of engagement [14]. At the same time, consumer acceptance of AI in online shopping is continuously increasing—regardless of generational differences—indicating growing trust in AI-driven retail experiences [16].

Hungary has a strong foundation in AI research and development, supported by academic institutions and government initiatives, including leading universities and international networks that foster collaboration, knowledge sharing, and innovation in the AI field. The Hungarian Research Network (HUN-REN) funds AI research projects in natural language processing (NLP), automation, and machine learning applications. National AI Strategy: Hungary's national AI strategy emphasizes the importance of data processing and analysis to foster AI development and adoption [11]. However, the Hungary 2024 Digital Decade Country Report also points out that while Hungary has made strides in AI policy development, practical implementation still lags due to barriers in digital skills, education, and private-sector engagement [9].

These data points offer a comprehensive overview of the current state of AI adoption, usage, and acceptance in Hungary.

3 The role of Business Psychology in AI Transformation

The adoption of Artificial Intelligence (AI) in Hungarian small and medium-sized enterprises (SMEs) - Hungarian companies owned by Hungarian entities - faces significant challenges due to a complex interplay of emotional, psychological, and informational barriers. This study explores these challenges through key dimensions such as emotional barriers, trust-building strategies, and human-centered design.

To provide a comprehensive understanding of AI adoption challenges, the study draws on established theoretical models such as the Technology Acceptance Model (TAM) [21, 22] and the Unified Theory of Acceptance and Use of Technology (UTAUT) [23]. In previous years TAM was the most frequently used theory to assess user acceptance of AI technologies [2], however, these studies did not take business psychology aspects into account. TAM and UTAUT models highlight the importance of perceived usefulness, ease of use, and social influence in shaping technology adoption behaviors. While TAM primarily focuses on perceived usefulness and ease of use as the main factors influencing adoption, UTAUT expands on this by incorporating additional elements such as social influence, facilitating conditions, and performance expectancy, offering a more comprehensive framework for understanding user acceptance.

In addressing the emotional and psychological dimensions of AI adoption, scholarly works provide valuable insights into factors influencing resistance. Kim (2019) examines AI phobia and techno-phobia, offering perspectives on the roots of fear as a significant barrier to technology adoption [3]. These insights are particularly relevant within the Hungarian context, where uncertainty and perceived threats contribute to resistance. The concept of trust, central to both TAM and UTAUT frameworks, is explored through the works of Zerilli et al. (2022) and Wanner et al. (2022), emphasizing the importance of transparency and reliability in fostering user confidence [1, 4]. Further contributing to the understanding of AI adoption, Kaya et al. (2024) investigate demographic and psychological factors, including knowledge gaps that influence the willingness to adopt AI solutions [5]. These insights offer practical recommendations for addressing educational disparities and enhancing AI readiness in Hungary.

Business psychology principles provide critical aspects through which resistance to change can be understood, as AI adoption challenges traditional business models. FakhrHosseini et al. (2024) and Nagy & Hajdú (2023) discuss strategies to mitigate this fear, focusing on cultural and organizational readiness for AI implementation [6, 7].

Additionally, infocommunication research underscores the significance of human-centered design principles, such as intuitive user interfaces (UI) [24] and

transparent system operations, in overcoming emotional barriers and fostering trust. By incorporating these elements, organizations can enhance user engagement [25] and ease the transition toward AI-driven processes.

By synthesizing these theoretical perspectives and key findings from the literature, this framework offers a robust foundation for understanding and addressing the challenges of AI adoption in Hungarian SMEs. The emphasis on emotional barriers, trust-building strategies, and human-centered design ensures that the study's analysis remains comprehensive and actionable, contributing valuable insights for both academic and practical applications.

4 Methodology

This study explores AI usage patterns, recognized benefits, and emotional responses to AI technology integration through a combination of quantitative and qualitative insights. The data was collected via an online questionnaire distributed in Autumn 2024 through VOSZ (National Association of Entrepreneurs and Employers) Budapest and Pest County, a prominent organization representing businesses in the region. This strategic distribution aimed to achieve a diverse spectrum of Hungarian (Hungarian companies owned by Hungarian entities) business owners and decision-makers, facilitating an in-depth understanding of their perceptions, challenges, and experiences related to AI adoption in various business contexts.

Despite the survey being sent to 4,000 members, the response rate was relatively low, with only 59 completed questionnaires. While this sample size may not be statistically representative, it offers valuable preliminary insights into emerging trends and provides a meaningful starting point for further research efforts aimed at exploring AI adoption dynamics in Hungarian enterprises of different sizes. The questionnaire was specifically developed for this target group, with plans to create a validated tool in future research.

The questionnaire comprises 17 items designed to address the three primary research questions. It includes both Open-Ended and Closed-Ended Questions, using a Likert scale (1-10) and Multiple-Choice Answer options. This structure allows for the measurement of variability in responses, capturing both qualitative insights and quantitative trends.

4.1 Questionnaire Survey

4.1.1 Key Emotional and Psychological Barriers to AI Adoption in Hungarian Businesses (8 questions):

- What challenges do you think the company would face in introducing the use of AI tools?
- What do you think is the level of resistance among employees towards AI?
- What negative consequences might arise from using AI tools?
- What factors would motivate you to introduce AI?
- Please think about the tasks you need to perform on a monthly basis and which ones you think AI could help complete more time-efficiently. List a few of them!
- Please think about the tasks you need to perform on a weekly basis and which ones you think AI could help complete more time-efficiently. List a few of them!
- What do you think the impact of AI will be on market competitiveness?

4.1.2 Influence of Understanding AI's Underlying Mechanisms on Trust, Acceptance, and Engagement (7 questions):

- What is your opinion on the use of AI tools?
- What does Artificial Intelligence mean to you? Please check the statements that you feel are the most true for you!
- My current knowledge of using AI tools (1-10)
- How long have you been using AI tools?
- How frequently do you use AI tools?
- What AI tools have you used?
- In your opinion, what positive results can be achieved by using AI tools?

4.1.3 Perceptions, Challenges, and Educational Requirements to AI Adoption Role of UI Design and Transparency in Trust and Reducing Resistance (7 questions):

- In your opinion, what topics would need training or development for the successful introduction of AI?
- In your opinion, what positive results can be achieved by using AI tools? (Note: This question also relates to transparency and outcomes)

– What challenges do you think the company would face in introducing the use of AI tools? (Note: This question touches on implementation and UI design as well)
– What do you think is the level of resistance among employees towards AI? (Understanding resistance, which is closely linked to UI design and user experience)

The primary objective of this study is to explore emotions, acceptance levels, usage patterns, and user interface preferences regarding AI adoption in Hungarian businesses (Hungarian companies owned by Hungarian entities). The structured questionnaire enables the collection of both qualitative and quantitative insights, forming the basis for developing a validated tool in future research.

4.2 Role of UI Design and Transparency in Trust and Reducing Resistance

In addition to the online questionnaire survey, we conducted an analysis of the user interfaces (UI) of the AI applications most frequently used by the respondents. The purpose of this analysis was to identify whether specific UI elements contribute to building trust and fostering acceptance, particularly among novice AI users. The analysis focused on features such as clarity, simplicity, feedback mechanisms, and customization options that could positively influence users' perceptions. With this analysis, the authors aim to highlight advantageous UI elements and provide recommendations for their further development to enhance trust and reduce resistance to AI adoption.

5 Results

5.1 Questionnaire Survey

The demographic data of the respondents included: The survey respondents represent a diverse range of business positions, company sizes, and geographic regions in Hungary.

Position in the Company:

– Owners/CEOs: 59,3% of respondents (35 individuals)
– Managers: 25,4% of respondents (15 individuals)
– Employees: 15,3% of respondents (9 individuals)

Company Size:

- 1-9 employees: 45% of companies
- 10-49 employees: 35% of companies
- 50-99 employees: 10% of companies
- 250+ employees: 5% of companies
- Other: 5% of companies

Table 1
AI Adoption Trends by Company Size and Role

Company Size / Position	AI Usage	Main Expectations from AI	Experience with AI
1-9 employees	Limited or no AI usage in many cases	Efficiency, cost reduction, growth opportunities	Often no AI experience, some with up to 1 year of use
10-49 employees	Some AI adoption, especially in mid-size businesses	Efficiency, cost reduction, process optimization	Experience ranges from 1+ year to a few years
50-99 employees	Higher AI adoption, often seen as a strategic tool	Cost reduction, process optimization, growth opportunities, legal concerns	1+ year of AI experience, many using AI regularly
250+ employees	Highest adoption, structured and formal use	Efficiency gains, cost cutting, regulatory compliance, strategic advantage	Extensive use (1-10+ years), integrated across departments

Table 1 shows that larger companies are adopting AI more extensively and strategically, focusing on efficiency, cost reduction, and compliance, while smaller businesses are adopting it in a limited way, often due to a lack of experience and resources. The survey results also show that the acceptance and usage of AI varies across roles and positions. Owners/CEOs of larger companies are using AI extensively, reaping the benefits of efficiency, cost reduction, and business growth. Their extensive experience (1-10+ years) allows them to take a strategic approach. Managers are increasingly using AI effectively for cost reduction and strategic growth, especially in medium and large companies. Their experience is medium (1+ years), process-focused. Employees have limited or no use to AI, but benefit from increased efficiency, process optimization, and cost savings. Most have no practical experience with AI tools. Contractors are mainly

partners of larger companies, especially in contract lifecycle management, cost reduction, and process optimization. Their use of AI is structured, similar to that of managers, and tailored to specific business needs.

5.2 Key Emotional and Psychological Barriers to AI adoption in Hungarian Businesses

This section explores emotional and psychological barriers to AI adoption, including perceptions, resistance to change, and negative impact.

- Perceptions of AI: A significant proportion of respondents (86,4%) hold a positive perception of AI, seeing it primarily as a source of increased efficiency (67,78%) and cost reduction (54.2%). However, 22.03% perceive AI as a source of danger, and a smaller group (10.1%) views it as a potential legal problem1-9 employees: 45% of companies.
- Resistance to AI: Despite these positive perceptions, there is noticeable resistance to AI, with close to 68% of respondents reporting medium resistance to the use of AI tools in their businesses. This suggests a general fear of change or concern over job displacement, aligning with broader literature on emotional barriers to AI adoption (e.g., fear of automation).
- Negative Impact: Among the perceived negative effects of AI, data protection issues (near 70%) and ethical concerns (56%) are the most frequently mentioned barriers, suggesting that businesses are emotionally wary about the consequences of AI on privacy and ethical standards (Fig. 1).

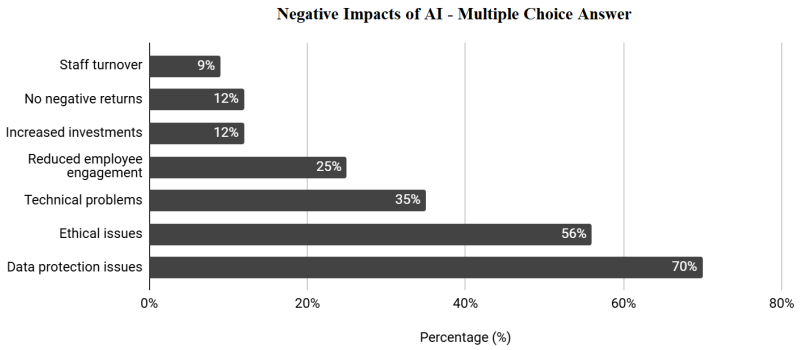

Figure 1
Negative Impacts of AI

The data highlights a significant emotional ambivalence toward AI: while there is clear recognition of its benefits, there are notable fears about its risks, particularly around data protection and ethics. This emotional tension could hinder broader adoption despite the perceived advantages, reinforcing the idea that businesses need to address these concerns to reduce resistance.

5.3 Influence of Understanding AI's Underlying Mechanisms on Trust, Acceptance, and Engagement

In this section, we analyze how the level of knowledge about AI and understanding of its mechanisms influences trust, acceptance, and engagement.

Results:

– Level of Knowledge: 46.8% of respondents report having an intermediate level of knowledge about AI, while 44.6% claim to have little to no knowledge. Only 8.5% report being able to train others in the use of AI tools (Fig. 2).

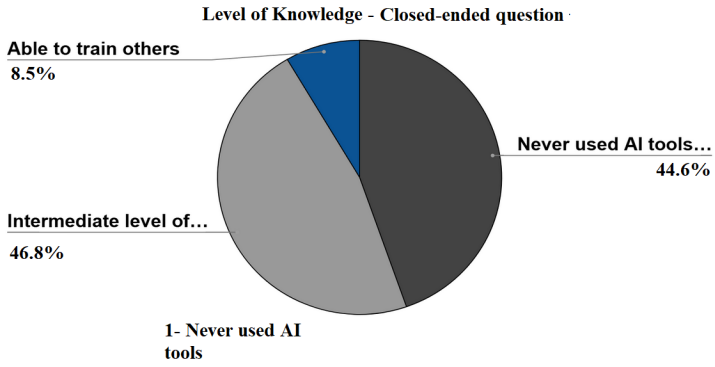

Figure 2
AI Tool Knowledge Level

– There is a strong correlation between knowledge and trust in AI. Those with higher knowledge of AI tools are more likely to perceive them as an opportunity for growth (68.4%) and strategic advantage (8.8%), compared to those with a limited knowledge who are more likely to express concerns about AI's threatening nature (22.8%). A Pearson correlation test was conducted to validate this relationship, showing a statistically significant positive correlation ($r = 0.558$, $p < 0.01$) between current AI literacy and perceptions of AI's business utility. The use of Pearson's correlation coefficient is justified due to its robustness in measuring the strength and direction of the linear relationship between two continuous variables—AI knowledge and perception—making it an appropriate statistical tool for this analysis

5.4 Perceptions, Challenges, and Educational Requirements to AI Adoption

– Challenges in AI Implementation: The most common challenges businesses face when adopting AI are the lack of expertise (88%) and lack of IT skills (79%), followed by data protection concerns (40%) and employee resistance (33%).

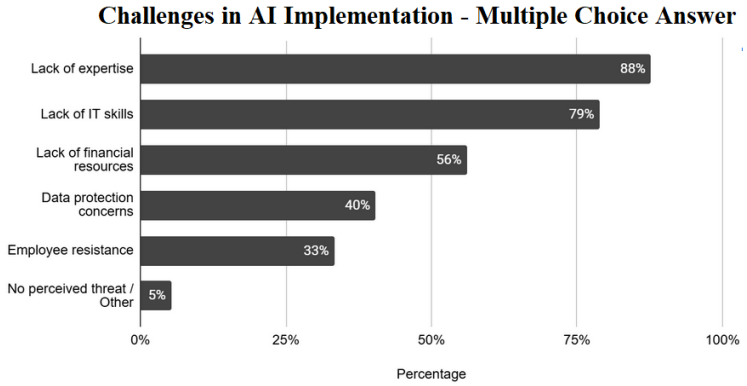

Figure 3
Challenges Faced in AI Implementation

– Learning Needs: There is a clear demand for training in AI adoption, with 51% of respondents identifying a need for immediate development. The most pressing areas for development include technical knowledge (81%) and IT systems (65%). AI resistance (30%) and change management (28%) are also notable areas for further development.

– Training Preferences: The most preferred training types are e-learning and team coaching (47%) and e-learning combined with workshops (44%).

5.5 Role of UI Design and Transparency in Trust and Reducing Resistance

In this section, the contribution of UI design was evaluated to reducing resistance and fostering trust in AI tools. The AI-based solutions used by the respondents offer various transparency features aimed at increasing user trust and fostering the acceptance of the technology. In general, tutorials supporting the use of new AI applications are available on platforms such as YouTube, Instagram, and others. Those tutorials and applicatons help to reduce potential technological anxiety among users.

5.5.1 ChatGPT 4o:

- Source Attribution: The model frequently references its sources, enabling users to verify the information provided and ensure credibility.
- Personalization Options: Users can interact with the system in ways that align with their preferences, making the AI more intuitive and user-friendly (Fig. 4).
- Interactive Feedback Mechanism: Users can rate responses, request refinements, or ask for further explanations, ensuring continuous improvement and alignment with user needs.

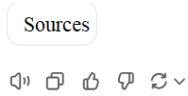

Figure 4
Example of the interactive feedback mechanism in ChatGPT-4o

Note: Elements like thumbs-up/thumbs-down ratings on answers are not just useful for improving the AI system itself, but they also communicate to users that their input matters and that they are shaping the system's evolution. This control reinforcement is particularly valuable for fostering a psychological sense of ownership and trust. These interactions send a powerful message to users: 'You are in control' – a crucial factor in encouraging acceptance and diminishing resistance to AI.

- Justification of Responses: ChatGPT is capable of explaining the reasoning behind its answers, enhancing transparency and user understanding. However, at the moment the user's control question is needed.
- Simplified User Interface: A clean, intuitive interface makes interactions seamless, reducing the learning curve for new users.
- Data Privacy and Security Awareness: The system communicates how user data is handled, not using chat history to train models by default, and allowing users to manage their data preferences building confidence in secure interactions.

5.5.2 Microsoft Copilot:

- Source Attribution: Copilot integrates with Microsoft 365 applications, providing contextually relevant information and suggestions. While it doesn't explicitly cite external sources within documents.
- Personalization Options: Deep integration with Microsoft 365 allows Copilot to customize its assistance based on user behavior and preferences, enhancing the relevance of its suggestions.

- Interactive Feedback Mechanism: Users can provide feedback on Copilot's suggestions, enabling continuous improvement and better solutions to user needs
- Justification of Responses: Copilot offers explanations for its suggestions, helping users understand the rationale behind them. For example, Excel can explain data trends or the reasoning behind a recommended chart type. The explanations for suggestions or insights typically require user interaction to trigger them.
- Simplified User Interface: Copilot is seamlessly embedded within familiar Microsoft applications, ensuring a cohesive and intuitive user experience without the need for additional interfaces.
- Data Privacy and Security Awareness: Microsoft 365 Copilot's approach to data privacy and security, including adherence to GDPR, user permission controls, and automatic data protection measures, helps build user trust by ensuring transparency, compliance, and control over shared information. However, trust can be influenced by users' concerns regarding third-party integrations and the extent of data accessibility within organizational boundaries. Microsoft emphasizes data security and privacy, ensuring that user data is handled in compliance with stringent standards, with news that can build user confidence in secure interactions (Fig. 5).

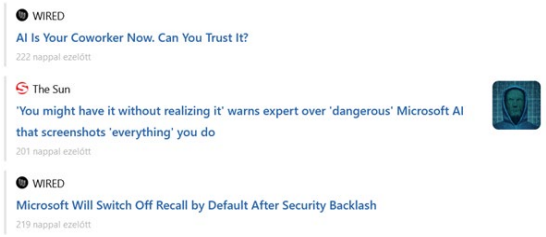

Figure 5
Microsoft 365 Copilot: Ensuring Data Privacy and Security Compliance [15]

5.5.3 Google Gemini:

- Source Attribution: Gemini provides information and suggestions within Google Workspace applications. While it may not always explicitly cite external sources, it uses Google's extensive knowledge base to offer assistance (Fig. 6).

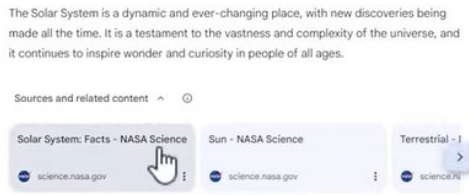

Figure 6
UI field of Google Gemini- Source Attribution

- Personalization options based on Behavioral Analysis: Gemini analyzes user interactions, engagement patterns, and preferences to refine its predictive models. This continuous learning process enables the AI to adapt to intricate user patterns, delivering highly personalized recommendations and content. However, there are no UI elements to control this function yet.
- Interactive Feedback Mechanism: Users can interact with Gemini, refining prompts and receiving costumed responses, fostering an interactive and responsive experience (Fig. 6).
- Simplified User Interface: Gemini's integration into Google Workspace ensures a user-friendly interface, allowing users to access AI assistance without leaving their familiar environment.
- Data Privacy and Security Awareness: The way Gemini apps share user data, including personal information, settings, and location with enabled extensions, can significantly impact user trust. While transparency and user consent play a crucial role in building confidence, concerns may arise regarding data security, third-party policies, and the potential visibility of shared content. Ensuring clear communication, robust data protection measures, and user control overshared information are essential to fostering and maintaining trust.

6 Discussion

The findings highlight the crucial role of user interface (UI) design and transparency in fostering trust and engagement with AI systems. One key insight is that AI tools that provide users with clear source attribution can significantly enhance trust. Conversely, ‘black box’ systems—where background processes are hidden—can foster uncertainty and lower acceptance rates. This issue is particularly relevant for AI tools used in content creation, such as image generation applications, where the mechanisms are often obscure.

Respondents expressed a strong preference for training that emphasizes transparency, underscoring the importance of UI elements that offer clear, accessible information. Providing source details not only enhances trust but also supports users' psychological need for control. Even if users do not actively verify the sources, the mere presence of this feature contributes to emotional reassurance and a greater sense of control over the system. Additionally, the speed at which AI tools deliver information can sometimes overwhelm users. Introducing transparency features helps mitigate this stress by offering a psychological 'placebo' effect, creating a sense of emotional security that enhances the overall user experience.

Table 2 provides a comparative analysis of AI assistants, highlighting differences in transparency, user interface design, and personalization. One of the most significant findings is the varying levels of source attribution and response justification across platforms. ChatGPT 4o leads in transparency by fully supporting source attribution, while Microsoft Copilot and Google Gemini offer only partial implementation. Notably, Google Gemini does not justify its responses, which may contribute to lower user trust compared to other AI models.

Table 2
Comparison of Key Features Across AI Assistants

Feature	ChatGPT 4o	Microsoft Copilot	Google Gemini
Source Attribution	✔	±	±
Justification of Responses	±	±	**X**
Data Privacy and Security Awareness	±	±	±
Interactive Feedback Mechanism	✔	✔	✔
Simplified User Interface	✔	✔	✔
Personalization Options	✔	✔	±

✓ = Available, ± = Partially Available, X = Not Available

The study also underscores the importance of interactive feedback mechanisms and UI simplicity. All three AI assistants offer some level of interactive feedback, allowing users to refine responses and improve accuracy. However, ChatGPT 4o and Microsoft Copilot provide a more streamlined user experience, reinforcing the role of intuitive design in engagement and adoption. Personalization options also vary, with ChatGPT 4o offering the most flexibility, followed by Microsoft Copilot, while Google Gemini has only partial availability.

To better understand the adoption and resistance to AI tools among Hungarian businesses, we can frame our results using the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).

According to TAM, technology adoption is driven by Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Our survey results indicate that efficiency gains (67.78%) and cost reduction (54.2%) are primary motivations for AI adoption, aligning with the PU dimension of TAM. However, resistance remains high (68% of respondents), suggesting that concerns about job displacement, ethical risks, and data security (which 70% identified as a barrier) may negatively impact PU, reducing the intention to adopt AI.

Moreover, PEOU is reflected in the role of UI design and transparency. Tools that provide source attribution and response justification—such as ChatGPT 4o and Microsoft Copilot—enhance perceived ease of use, making AI more intuitive and reducing psychological resistance. This aligns with research indicating that users are more likely to adopt technology when they can understand and control its outputs.

From a UTAUT perspective, AI adoption is influenced by Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Our findings indicate that Performance Expectancy is high—business leaders (Owners/CEOs) with more AI experience (1–10+ years) already view AI as a strategic tool. However, Effort Expectancy varies, as many respondents (44.6%) report having little to no knowledge about AI, which limits adoption. The demand for AI-related training (51%) further supports this.

Social Influence (SI) also plays a role, particularly in larger companies (50–250+ employees), where AI adoption is more structured and managers and contract partners report greater exposure to AI tools. The presence of Facilitating Conditions (FC)—such as data privacy features and corporate training—can further enhance trust and usage, as seen in Microsoft Copilot's structured integration within enterprise environments.

Thus, our results reinforce TAM and UTAUT by showing that AI adoption depends not only on perceived benefits and usability but also on organizational culture, transparency, and trust-building mechanisms. Addressing barriers such as data security concerns (70%) and ethical worries (56%) through enhanced transparency and structured AI training could improve both Perceived Ease of Use (TAM) and Facilitating Conditions (UTAUT), ultimately increasing AI adoption.

By addressing these factors, AI adoption can be optimized, leading to greater efficiency and seamless integration within enterprises.

7 Practical Considerations for AI Adoption

Based on the analysis, several practical recommendations can support businesses in overcoming emotional and psychological challenges to AI adoption:

- Enhanced Transparency Measures:

  Businesses should prioritize tools that allow users to trace the origins of AI-generated content to build trust.

- Training Programs:

  A key barrier identified in Effort Expectancy (EE) is the lack of AI knowledge among users. Interactive learning modules and workshops should be designed to clarify AI processes and address users' concerns. Training should not only cover technical aspects but also focus on individual psychological readiness and emotional acceptance.

- User-Centric UI Design:

  AI applications should feature intuitive and transparent interfaces to empower users and reduce resistance. UI design should emphasize clarity, simplicity, and user control, aligning with Perceived Usefulness (PU) and PEOU from TAM. Incorporating feedback mechanisms, such as response-based feedback systems, can enhance a sense of control over AI interactions.

- User Feedback Loops:

  Regularly collect and analyze user feedback to identify pain points and areas for enhancement. Improving these feedback loops aligns with Social Influence (SI) in UTAUT, as users become more engaged when they feel their input matters in shaping AI functionality.

- Ethical and Regulatory Compliance:

  Businesses should ensure AI implementation aligns with ethical guidelines and regulatory requirements. Establishing clear policies for data usage and privacy will help build trust and promote responsible AI adoption.

Conclusions

The integration of AI into business practices in Hungary, as in many other countries, is not just a technical challenge but a cultural shift that must be managed carefully. This study, based on survey responses from Hungarian businesses, reveals a range of emotional responses to AI adoption—ranging from enthusiasm about increased efficiency and cost reduction to concerns over ethical issues, data privacy, and job displacement. The survey, conducted in Autumn 2024 through VOSZ (National Association of Entrepreneurs and Employers) Budapest and Pest County, provided valuable insights into the perceptions of Hungarian business owners and decision-makers regarding AI. The data collected highlights the importance of emotional factors that, if not strategically addressed, can create significant barriers to AI adoption.

A key takeaway from the research is that transparency and user-friendly UI elements are fundamental in overcoming resistance and building trust. When employees understand how AI works, they are more likely to trust and engage with the technology. This understanding should be supported by clear and

intuitive UI design that demystifies AI processes and demonstrates their value to the workforce.

The findings further emphasize that businesses that invest in comprehensive AI training programs and info-communication strategies are better positioned to achieve positive engagement and acceptance. Effective AI adoption requires more than technical implementation; it involves aligning business psychology with change management frameworks to address the emotional and psychological aspects of AI integration. Moreover, the research demonstrates a strong correlation between prior knowledge of AI and trust in its applications, highlighting the importance of continuous education and awareness efforts to enhance user confidence and facilitate smoother adoption processes.

Acknowledgment

This research would not have been possible without the strategic contributions of several key partners. We extend our sincere gratitude to Kerek István, AI Business Consultant, Anita Rozgonyi, Business Trainer, and VOSZ (National Association of Entrepreneurs and Employers) Budapest and Pest County for their valuable support, expertise, and strategic insights throughout the research process.

The research presented in this paper was supported by the Hungarian Research Network (HUN-REN), and was carried out within the HUN-REN Cognitive Mapping of Decision Support Systems research group.

References

[1] Zerilli, J., Bhatt, U., & Weller, A.: How transparency modulates trust in artificial intelligence. Patterns, 2022, 3(5), 100455, https://doi.org/10.1016/j.patter.2022.100455

[2] Kelly, S., Kaye, S.-A., Oviedo-Trespalacios, O.: What factors contribute to the acceptance of artificial intelligence? A systematic review, Telematics and Informatics, 2023, 77, 101925, https://doi.org/10.1016/j.tele.2023.101925

[3] Kim, J.: Fear of Artificial Intelligence on people's attitudinal & behavioral attributes: An exploratory analysis of A.I. phobia, GSJ: Volume, 2019, 7, Issue 10, 2320-9186

[4] Wanner, J., Herm, L.-V., Heinrich, K., Janiesch, C: The effect of transparency and trust on intelligent system acceptance: Evidence from a user-based study, Electronic Markets, 2022, 32, 2079-2102, https://doi.org/10.1007/s12525-022-00593-5

[5] Kaya, F., Aydin, F., Schepman, A., Rodway, P., Yetişensoy, O., Demir Kaya, M.: The roles of personality traits, AI anxiety, and demographic factors in attitudes toward artificial intelligence, International Journal of Human–Computer Interaction, 2024. 40(2), 497-514, https://doi.org/10.1080/10447318.2022.2151730

[6] FakhrHosseini, S., Chan, K., Lee, C., Jeon, M., Son, H., Rudnik, J., Coughlin, J.: User adoption of intelligent environments: A review of technology adoption models, challenges, and prospects, International Journal of Human–Computer Interaction, 2024, 40(4), 986-998, https://doi.org/10.1080/10447318.2022.2118851

[7] S. Nagy, N. Hajdú: Consumer acceptance of the use of artificial intelligence in online shopping: Evidence from Hungary, University of Miskolc, Hungary, 2022, https://doi.org/10.24818/EA/2021/56/155

[8] B. Gaál: Hungarians lag behind in AI readiness, Budapest Business Journal, 2023, https://bbj.hu/economy/statistics/analysis/hungarians-lag-behind-in-ai-readiness /

[9] European Commission: Hungary 2024 Digital Decade Country Report, 2024, https://digital-strategy.ec.europa.eu/en/factpages/hungary-2024-digital-decade-country-report

[10] Market Insights Technology: Artificial Intelligence – Hungary, 2023, https://www.statista.com/outlook/tmo/artificial-intelligence/hungary

[11] https://digital-strategy.ec.europa.eu/en/factpages/hungary-2024-digital-decade-country-report

[12] https://www.gvh.hu/en/press_room/press_releases/press-releases-2024/gvh-the-use-of-artificial-intelligence-can-increase-the-competitiveness-of-hungarian-businesses

[13] https://xpatloop.com/channels/2024/09/survey-most-hungarians-open-to-using-ai.html

[14] https://www.publicisgroupe.hu/news/ai-readiness/

[15] https://learn.microsoft.com/en-us/copilot/overview

[16] D. Dinello: Technophobia, Science fiction visions of posthuman technology, 1. University of Texas Press, 2006

[17] M. J. Brosnan: Technophobia: The psychological impact of information technology. Routledge, 2002, https://doi.org/10.4324/9780203436707

[18] P. Baranyi. A. Csapo,G. Sallai: Cognitive Infocommunications (CogInfoCom), Springer International Publishing Switzerland, 2015

[19] I. Horváth, B. Berki, A. Sudár, Á, Csapó, P. Baranyi: Cognitive Infocommunications. In: Cognitive Aspects of Virtual Reality. Studies in Big Data, Vol. 156, Springer, Cham. 2024

[20] I. Horváth, Á. Csapó, B. Berki, A. Sudár, P. Baranyi: Definition, background and research perspectives behind ‘cognitive aspects of virtual reality’(cVR), Infocommunications Journal: A Publication of the Scientific Association for Infocommunications (HTE), 2023

[21] F. D. Davis: User acceptance of computer technology: A comparison of two theoretical models. Management Science, 984. 1989

[22] F. D. Davis: Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 319-340. 1989

[23] M. I. Ahmad, Unified theory of acceptance and use of technology (UTAUT) LinkedIn Pulse (2015)

[24] McKay, Everett N. UI is communication: How to design intuitive, user centered interfaces by focusing on effective communication. Newnes, 2013

[25] I. Horváth, B. Berki, A. Sudár, Á, Csapó, P. Baranyi: Operational Complexity and Evaluating Digital Interfaces. In: Cognitive Aspects of Virtual Reality. Studies in Big Data, Vol. 156, Springer, Cham 2024