

Original Article

Human Perception of Trust in AI-Assisted Communication Systems

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ABSTRACT

Artificial Intelligence (AI) has transformed modern communication systems by enabling intelligent interactions, automated content generation, personalized recommendations, real-time translation, and conversational support. The widespread adoption of AI in areas such as social media, healthcare, education, customer service, and enterprise communication depends largely on user trust. Trust in AI communication systems is influenced by factors such as transparency, reliability, explainability, privacy, fairness, and accuracy. However, concerns regarding bias, misinformation, data privacy, and lack of explainability can reduce user confidence. This study examines technological, psychological, and social factors affecting trust in AI-based communication systems. The findings reveal that transparency, reliability, privacy protection, and explainability are critical for building long-term user trust. The study concludes that trust is a multidimensional concept involving technical performance, ethical considerations, and user experience, highlighting the need for trustworthy AI systems to support effective and responsible digital communication.

KEYWORDS

Artificial Intelligence, Trustworthy Ai, Human Perception, Ai-Assisted Communication, Explainable Ai, Human-Computer Interaction, Digital Communication Systems, User Trust, Ethical Ai, Communication Technology.

1. INTRODUCTION

1.1. Background

The rapid growth of Artificial Intelligence (AI) has revolutionized the way people communicate and interact with digital technologies. AI-powered communication systems are built on the foundation of cutting-edge technologies like machine learning, natural language processing (NLP), speech recognition, sentiment analysis, and conversational intelligence, which enable efficient and intelligent communication. They are applied in various fields such as customer service chatbots, virtual assistants, online learning systems, healthcare communication apps, and enterprise collaboration tools. In contrast to traditional communication technologies, which were mainly aimed at conveying information from point X to point Y, AI-based communication systems are actively involved in the interaction process. Be able to grasp user questions, deduce the user context, analyze emotions, produce adequate responses, and self-enhance themselves via learning mechanisms constantly. This transformation has led to faster, more accurate and more accessible communication, and vastly more personalized user experiences. With the growing use of AI tools in communication, it is essential to study their influence on human communication, trust, and user acceptance.

1.2. Importance of Trust in AI Communication

Trust is a crucial element that can influence the effectiveness, acceptance and sustainability of AI-enabled communication systems. The seamless incorporation of AI into communication tools means that users have to have trust in the system to deliver accurate information, safeguard their personal data, and function reliably and ethically. Lack of trust can lead to skepticism about the credibility of the intelligence-driven recommendations, responses, or decisions that users receive, and thus diminish the value of intelligent communication technologies. Let's look at a few main points to understand the significance of trust in AI communication.

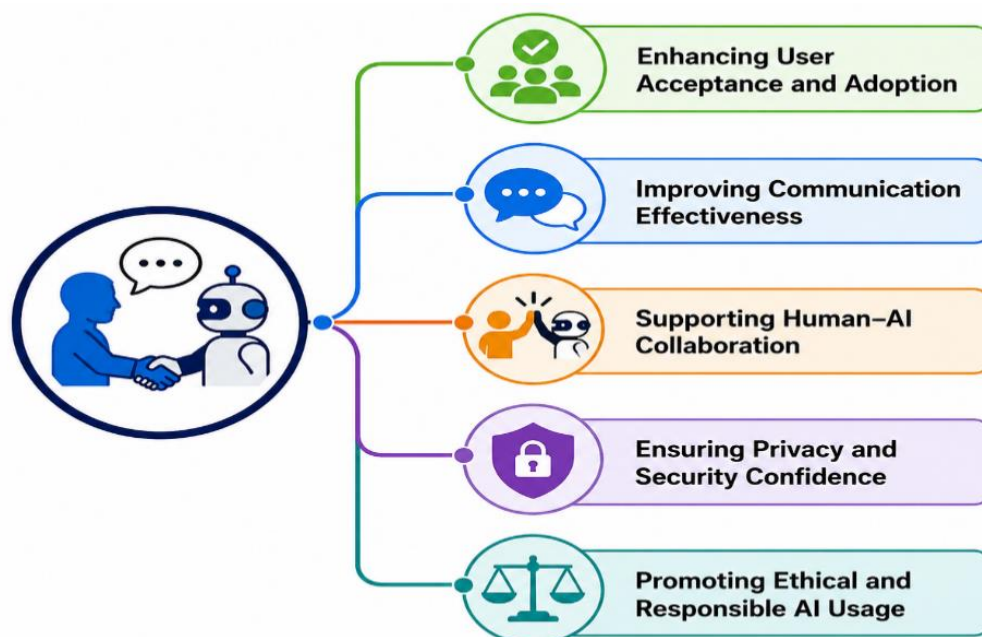


Fig 1 - Importance of Trust in AI Communication

1.2.1. Enhancing User Acceptance and Adoption

A key determinant in fostering user adoption of AI-powered communication systems is trust. If users find an AI system to be trustworthy, accurate, and useful, they will be more likely to use it frequently. The levels of trust can have a positive impact on reducing resistance to new technologies and easier integration of AI tools in everyday communication activities. Conversely, if there is a lack of trust, it can result in skepticism, decreased adoption, and even rejection of AI-driven solutions.

1.2.2. Improving Communication Effectiveness

The quality of information shared between users and AI systems, including its accuracy, relevance, and clarity, is crucial for effective communication. With trust come confidence in AI-generated answers and suggestions, without having to doubt their accuracy and usefulness while using them. If the users believe that this communication system is reliable, then the communication process will be more efficient, useful, and allow them to make better decisions, improving their overall experience.

1.2.3. Supporting Human-AI Collaboration

Collaboration between human and AI technologies is a key component of modern workplaces, educational institutions and service environments. Building trust is crucial when developing productive partnerships that allow users to fully leverage AI features and have confidence in the systems' output. A reliable AI communication system enables users to feel comfortable sharing information/Following recommendations/Cooperating with AI processes to meet shared goals.

1.2.4. Ensuring Privacy and Security Confidence

AI communication systems are frequently used to handle delicate individual and organizational data. Users are required to rely on the responsible collection, storage and use of their data. Confidentiality protection, secure data management and transparent policies are significant factors in the development of trust. Users trust that their information will not be accessed or used without their permission and with harm to them, and they are more likely to interact with the AI-based communication platforms. Users believe that their information is kept safe from unauthorized access and misuse, and thus are more likely to interact with the AI-based communication platforms.

1.2.5. Promoting Ethical and Responsible AI Usage

Ethical AI practices such as fairness, transparency, and accountability are tightly connected to the concept of trust. Fairness, transparency, accountability, and non-discrimination are some of the ethical considerations of AI that are closely linked to trust. The expectation of the users of AI communication systems is that they will work in a responsible way and give unbiased communication. By adopting ethical AI governance and ensuring transparency in decision-making processes, organisations can boost public trust and confidence. By encouraging responsible AI use, users can also help promote the use of intelligent communication technologies for sustainable and socially beneficial purposes.

1.3. Challenges Affecting Human Trust Perception

While AI-powered communication systems provide a wide range of advantages, there are still some challenges that affect the development of trust in these technologies. Lack of transparency in AI decision-making processes is one of the biggest challenges. There are many sophisticated AI models that have been designed as “black-box” systems that are hard for users to easily understand how they are generating particular decisions, recommendations or responses. If users cannot understand why the AI is taking a particular action, then there can be an increase in uncertainty, which can make users less confident in or trust the AI. Algorithmically biased and discriminating systems are another significant worry. Training sets used to train AI systems can be large, and may have historical biases or may not contain a full representation of certain groups. In turn, non-factual, inaccurate or biased results can arise from the outputs of AI which can have a negative effect on the perception of fairness and reliability amongst users. Finally, trust perceptions are also guided by data privacy concerns and data security. Personal and behavioral data are typically large amounts, which can be collected, processed and stored by AI powered communication platforms in order to enhance the quality and personalization of services offered. Consumers may be reluctant to interact with such systems if they feel their access is going to be denied, their data will be misused, or their identities will be stolen or their privacy will be violated. Further, the system's behavior can also be unpredictable, which can erode trust. Users want AI communication systems to be accurate and reliable in various scenarios. But in cases of inconsistent information, unexpected mistakes, or differing levels of performance, users trust in the systems' reliability is eroded. Another challenge is limited explainability, as users may need to be provided with explanations to confirm the AI recommendations and decisions. If users are not sure of what these outputs are, they might be reluctant to trust or use them, especially in decision making situations. Beyond that, the ethical and accountability issues are important for the formation of trust. Issues of accountability for AI mistakes, accountability for decisions, fairness in AI, and ethical oversight continue to be significant concerns in the deployment of AI. Expectations for the responsible, transparent, and ethical use of AI systems from organizations. Expectations for responsible, transparent, and ethical use of AI systems by organizations. If there is no clear accountability, it can lead to mistrust and reluctance to adopt AI technologies. All these problems illustrate that the trust in the AI-enabled communication systems is shaped by a mix of technical, social, ethical, and psychological factors. These challenges can best be addressed through clear design, fair governance, appropriate privacy safeguards, bias reduction tactics, and explainable AI systems which help to build user trust and support in the responsible use of intelligent communication tools.

2. LITERATURE SURVEY

2.1. Trust Theory in Human-Computer Interaction

Theories of trust in Human-Computer Interaction (HCI) serve as the basis for understanding the interactions between humans and intelligent systems. Early researchers noticed that people have a tendency to believe technologies which can carry out tasks accurately, efficiently, and predictably every time. Trust was seen as a psychological state of believing that a system would perform reliably in various situations. The factors identified were usability, system performance, response accuracy

and user satisfaction were found to have a significant influence on the development of trust. Through positive experiences over time, users build their confidence, which results in their increased acceptance and usage of a system. Trust is crucial in AI-powered communication systems, where users may depend on AI suggestions, answers, and choices. Hence, it is important to know about the formation of trust to design communication technologies that foster users' confidence, engagement and willingness to use them in the long term.

2.2. Explainable AI and Communication Transparency

Explainable Artificial Intelligence (XAI) is becoming one of the most important methods for building trust in the use of AI in communication systems. The traditional AI models are also known as “black boxes” that are hard to understand by users. In response, XAI offers explanations and interpretations that are easy to understand and explain for AI-generated outputs, recommendations, and responses. Studies show that educated guesses about how AI makes decisions are likely to result in a more credible and reliable system that users can rely on. Communication transparency also fosters accountability, enabling users to assess the logic and fairness of AI actions. Transparency explanations in conversational systems help to minimize uncertainty, enhance user confidence and facilitate informed decision making. This means that the need for explainability has become a key design feature of today's contemporary AI communication tools.

2.3. Privacy, Ethics, and Trust Formation

User trust in AI-based communication technologies is heavily influenced by privacy and ethical concerns. Data about the individual is often collected and processed in large quantities in modern communication systems, leading to worries about misuse of data, surveillance and unauthorized access to data. Research indicates that transparency about data collection practices and the robust security measures put in place have been found to enhance the users' trust in AI systems. Positive trust perceptions are also driven by other ethical principles, including fairness, transparency, accountability, and non-discrimination. AI systems must be decision free and respect the rights of the user. By following ethical guidelines and ensuring responsible use of data, organizations can build trust and confidence among their users, which will lead to an increase in sustainable trust between humans and intelligent communication systems.

2.4. Research Gaps and Future Directions

While there have been great strides in AI trust research, there are also some key gaps in the current literature. To date, most studies have considered specific AI applications like recommender systems, autonomous vehicles, or decision support systems, while fewer studies have explored trust in AI-assisted communication contexts. Furthermore, many research studies focus on technological aspects without taking into account the interaction between social, cultural, psychological, and organizational aspects. There is also a lack of focus on the time-varying nature of trust, especially in the context of long-term human-AI interactions. Future studies could explore trust perception differences across cultures, adaptive trust mechanisms to accommodate shifts in user behavior, and the communication dynamics involving human-AI partnerships. In addition, the establishment of

detailed ethical governance structures and common evaluation indicators for trust will be crucial in building trusted and socially responsible AI communication systems.

3. METHODOLOGY

3.1. Proposed Trust Evaluation Framework

This proposed framework for the evaluation of trust in AI-assisted communication systems aims to measure the user's trust regarding communication systems by highlighting five key factors: Transparency, Reliability, Explainability, Privacy protection, Communication quality. Altogether, these dimensions shape the experience of the user, their interaction with, and dependence on AI-driven communication technology. Assessing each of them will allow organizations to gain insight into the mechanisms of formation of trust and what could be done to enhance user acceptance and satisfaction.



Fig 2 - Proposed Trust Evaluation Framework

3.1.1. Transparency

Transparency means the degree of openness regarding the functioning, decision-making and data utilization of an AI-supported communication system. As users gain insight into how information is being collected, processed, and used, their trust in the system increases. Clear communication systems offer transparency on answers, suggestions, and automated actions resulting from AI. This openness helps to decrease uncertainty, increase accountability and helps users to make informed decisions. As such, transparency is a key component in developing a sense of trust between users and intelligent communication technologies.

3.1.2. Reliability

Reliability is the capacity of an AI communication system to carry out tasks effectively and accurately in a consistent manner over time. When users know that the system behaves reliably and doesn't make many mistakes, interrupt them, or behave inconsistently, they begin to trust it. Reliable communication platforms provide reliable communication; they perform well and respond appropriately in different scenarios. When systems consistently fail or deliver incorrect results, users lose trust and acceptance of using AI support, which in turn diminishes the utility of the technology. Repeated failures or inaccuracies can erode user trust and acceptance of AI assistance,

thereby reducing the value of the technology. Thus, reliability is regarded as one of the most critical factors that influences trust formation and long-term system adoption.

3.1.3. Explainability

Explainability is the ability of an AI system to give understandable and meaningful explanations of its decisions and/or recommendations and/or communication outputs. Advanced AI models can be intricate algorithms whose workings might not be clearly comprehensible to the user. Explainable AI techniques can overcome this by making the decision rationale understandable and easy to use. If the user can understand the reasons for a specific response or recommendation, they are more likely to trust and believe in the system. Explainability also contributes to accountability and fosters responsible AI use by users.

3.1.4. Privacy Protection

Privacy protection is about the protection of the data that users provide, as well as the secure and ethical handling of said personal data. AI-driven communication tools typically gather considerable quantities of user-generated data to enhance personalization and the quality of service. These systems are more likely to be trusted by users if organizations have robust security protocols, clear data management policies, and stringent access controls. Good privacy protection alleviates issues with unauthorised data sharing, misuse and cyber threats. With growing sensitivity toward privacy issues around the world, it is imperative to have data-safe and responsible practices to ensure trust in AI-centric communication environments.

3.1.5. Communication Quality

The efficiency, clarity, relevance, and responsiveness of user-AI interactions are all aspects of communication quality. The messages are accurate, contextually appropriate, understandable and timely as a result of high quality communication. Consistency in answers, adapting to conversational context, and showing understanding of user needs are some attributes that users are likely to trust when it comes to AI systems. Communication tends to be poor in many situations, such as when the response isn't clear, when there are misunderstandings, or when information is not relevant, which can affect user satisfaction and trust. Improving the quality of communication is essential for the development of positive user experiences and building trust in AI-powered communication systems.

3.2. Trust Measurement Model

The Trust Measurement Model offers a quantitative method for assessing how trustworthy users are with AI-powered communication systems by consolidating various trust-related factors into a unified trust score. Trust is a multidimensional concept that is affected by technological, psychological and social factors, so that the measurement of it with only one parameter is often insufficient. Accordingly, five dimensions of trust are incorporated into the proposed model: Transparency, Reliability, Explainability, Privacy Protection and Communication Quality. Every dimension has different impact on the overall perception of trust, and has a certain degree of weight in the communication environment. The overall trust score is computed as a weighted sum of the

individual trust factors in this model. The weights accorded to each factor indicate its importance in determining user trust. In systems that process sensitive information, for instance, reliability and privacy protection might be given more weight, whereas, in a communication platform that helps in decision making, transparency and explainability may be more important. The model can be fine-tuned for various AI communication applications and user needs by tuning these weights. High transparency, performance, explanations, privacy protection and communication quality score the trust in the system. Conversely, a lack of any of these dimensions can decrease the overall trust value. This weighted method allows researchers and organisations to determine strengths and weaknesses in the communication systems that include AI and focus attention on what needs to be improved to include areas where users would be most confident. In addition, it is possible to make continuous trust assessment by evaluating the trust dimensions in a periodical manner. User experiences can be recalculated to reflect the trust conditions when they change, and system capabilities can change as well. This is a dynamic assessment and it's very significant, as trust is not set in stone, it's constructed and evolves along the way based on interactions and experiences. Therefore, the proposed Trust Measurement Model provides a flexible and scalable structure, enabling the measurement of trust in real-world scenarios, system optimization, and increase in user acceptance of AI-assisted communication technologies. Describe the methods used in experimental design and data collection. Explain how experiments are designed and data is collected.

3.3. Experimental Design and Data Collection

Experiment is to gather quantitative and qualitative data from a wide range of participants that interact with intelligent communication technologies regularly. Participants come from three categories – educational institutions, business enterprises, and digital communication platforms – to get a comprehensive picture of trust-related aspects. These groups include various levels of technological exposure, communication needs, and experiences with AI adoption, offering a comprehensive view of trust building in an AI-enriched context. The user perception of the five dimensions of trust (transparency, reliability, explainability, privacy protection, and communication quality) is measured by the instrument developed for the survey. The structured questionnaire includes several sections with a five point likert scale from “Strongly Disagree” to “Strongly Agree.” The survey consists of demographic items, questions about technology use, questions about how often the user interacts with AI, and assessment items regarding trust. The participants are invited to reflect on their experiences with AI tools for communication: Chatbots, Virtual assistants, Customer Support automation, Intelligent collaboration platforms, AI messaging apps. Data is gathered using online platforms for survey data to ensure increased participation and accessibility. Respondents are briefed on the purpose of the study, procedures for the protection of data and the voluntary participation policies before participation. Ethical issues are considered and protected to ensure that privacy of participants and informed consent are maintained. Responses are then collated and statistically analysed. The participant characteristics and trust perceptions are summarized with descriptive statistics, and correlation and regression analyses are used to identify relationships between the trust factors. Reliability testing also conducted to ensure that the responses to the surveys were consistent. The survey-based approach offers a cost-effective and scalable way to

investigate the trust of various groups of users in communication systems that employ AI. The study collects data across a range of settings, reflecting different levels of trust and interactions with AI, providing a more nuanced understanding of the proposed trust framework and insights into building trustworthy AI communication technologies.

3.4. Statistical Analysis Approach

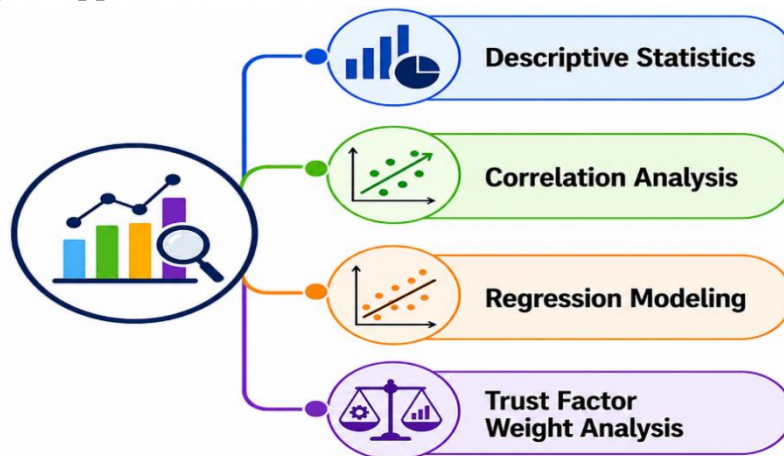


Fig 3 - Statistical Analysis Approach

To assess the proposed trust framework, several statistical methods are used to analyze the data gathered from the survey and determine the factors that affect trust in AI-supported communication systems. These techniques can be used for both descriptive and predictive analysis, allowing researchers to gain a better understanding of trust patterns, the relationships between variables, and the relative importance of each dimension of trust.

3.4.1. Descriptive Statistics

Data analysis is the first step of analyzing data, which involves summarizing and presenting the collected data in a meaningful way, using descriptive statistics. Data presented as percentages, frequency distributions, standard deviations, mean and median participant characteristics describe participant demographics, technology usage patterns and overall perception of trust. These are the statistical indicators that can be used to determine the overall response trends and variations of the users. Through descriptive analysis, a fundamental understanding of participants' perceptions of transparency, reliability, explainability, privacy protection, and communication quality in an AI-enabled communication system is gained.

3.4.2. Correlation Analysis

The correlation analysis is carried out to study the correlation between trust factors and trust score. This method assesses whether or not enhancements in one trust factor are linked with either an increase or decrease in another one. For instance, it might be found that an increase in transparency has a positive relationship to a user's trust of the service or that the protection of privacy has a significant impact on how the users perceive the quality of the communications. Correlation

coefficients offer concrete insights into the interdependence of trust factors and highlight which are most significant for user trust in AI communication technologies.

3.4.3. Regression Modeling

To explore the predictive effect of each individual trust factor on the overall trust score, regression modeling is used. This statistical technique allows the researchers to measure the effect that changes in transparency, reliability, explainability, communication quality and privacy protection have on trust in the system. Construction of a regression model allows identification of the variable that plays the most significant role in the formation of trust and the estimation of the relative importance of each variable. Additionally, regression analysis helps to validate the proposed trust framework by showing whether the dimensions chosen account for the differences in user trust among different groups of participants and communication contexts.

3.4.4. Trust Factor Weight Analysis

Each trust dimension considered within the general framework of trust is assigned a relative importance by using the Trust Factor Weight Analysis. Not all factors are equally important, so weights are determined by statistical results, expert advice or survey-based assessments. The higher the weight assigned to a factor, the more important it is to the user's perceptions of trust. The analysis aids in identifying specific areas that need improvement, and it can contribute to the creation of tailored trust assessment models for various AI communication applications. Organizations can use the most important trust drivers to focus their resources and build communication systems that deliver better to users' expectations and improve trust.

4. RESULT AND DISCUSSION

4.1. Analysis of Trust Factors

Results from the analysis of trust factors showed that the most important factors that affect user trust in an AI-assisted communication system are transparency and reliability. It was found that participants trusted communication platforms more that openly communicated how decisions were made and were able to provide clear information about system operations. Transparency helped to eliminate uncertainty and helped users understand the rationale behind AI-driven responses, recommendations, and automated actions. User's reported high levels of confidence and acceptance when they felt the system was honest, and that it told them how it worked. Reliability was also shown to be a key variable; systems that provided accurate information and stable performance and consistent responses in both communication scenarios were also consistently preferred by participants. Major factors negatively impacting the perceptions of trust were frequent errors, inconsistent outputs, or unexpected behavior of the system. The results also showed that the importance of explainability in enhancing trust relationships between users and AI technologies is paramount. More participants felt confident when a system could explain to them in a comprehensible way, what they are recommending and why. Explainable communication systems enabled users to confirm information, assess system reasoning, and have more control over their interaction. This feature helped enhance user satisfaction and minimized user scepticism about AI-

generated content. Safeguarding privacy, too, proved essential to building and maintaining trust with the passage of time. The participants highlighted the need for proper handling of data, clear privacy policies, and measures to prevent unauthorized access to personal information. When users felt their information is being safeguarded and utilized responsibly, they were more inclined to interact with AI communication platforms. Also, perceptions of trustworthiness and credibility were heavily affected by communication quality. As AI systems became more relevant, coherent, contextually appropriate, and timely, the level of trust was increased. Good communication ensured that misunderstandings were minimised and the user experience was made better, thus enhancing trust perceptions. For organisations looking to build trust with users, the development of robust, transparent, explainable, secure, and high-quality communication systems that meet user expectations and foster ongoing trust in AI technologies will be paramount.

4.2. Trust Factor Distribution

The trust factor distribution analysis presents the relative contributions of different dimensions of trust to the overall trust perception in the context of AI-assisted communication systems. The results suggest that all factors are important, but some factors have more impact on users' perceived confidence and system acceptance. The percentage contributions are based on the survey results and a statistical analysis of the trust factors, and indicate their weight and significance.

Table 1: Trust Factor Distribution

Trust Factor	Percentage Contribution (%)
Transparency	28%
Reliability	25%
Explainability	18%
Privacy Protection	16%
Communication Quality	13%

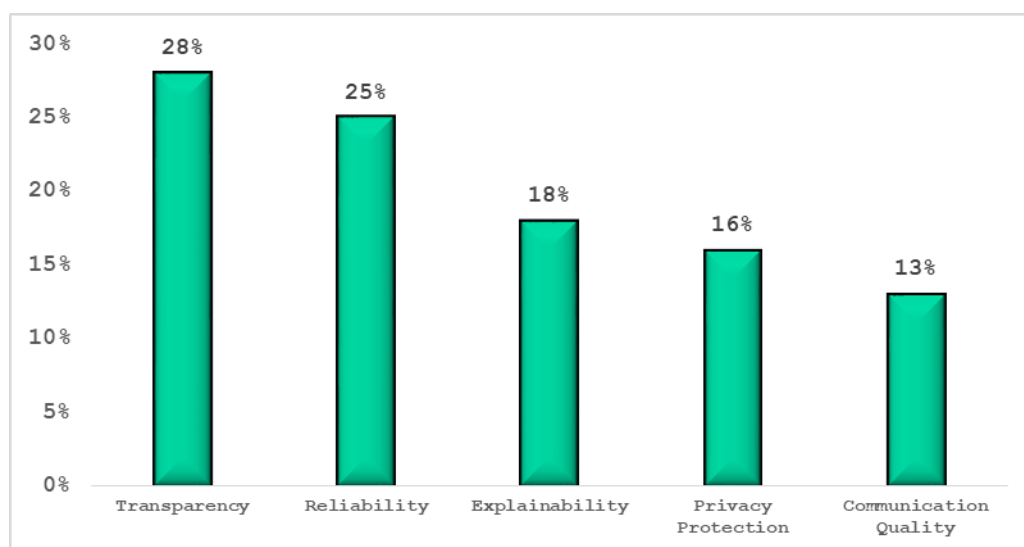


Fig 4 - Trust Factor Distribution

4.2.1. Transparency (28%)

Transparency makes up the largest share of overall trust (28% of the total trust score). This finding reveals that users are very conscious of the importance of communication tools which are transparent about the process of decision making and information handling. Participants felt more confident about AI systems that were explicit about how they work, how data is used, and how they think. Clear systems minimize uncertainty, enhance accountability, and help users grasp the rationale behind the AI's suggestions and answers. It is clear that transparency is the most important element to build and maintain trust in AI communication environments, given the high percentage contribution.

4.2.2. Reliability (25%)

Reliability is the second most important factor in the overall Trust score and accounts for 25%. Expectations for AI communication systems are that they are accurate, consistent, and reliable in their performance of the communication, regardless of the interaction. The more consistent systems were in providing accurate information, operating reliably, and reducing operational mistakes, the greater the trust expressed by survey respondents. Consistent communication channels foster trust through consistency of actions and decreases the chances of misinformation or system breakdowns. Reliability is a significant factor in this, emphasizing the trust and satisfaction of users in the reliability of the system, which positively impacts the long-term sustainability of the project. The degree of reliability is important because it builds trust and satisfaction among users over the long-term sustainability of a project and its accuracy of the system.

4.2.3. Explainability (18%)

Explainability accounts for 18% of the overall trust contribution and is a critical factor in informing users about AI decision making. Participants agreed that communication systems that provided them with understandable explanations of its outputs and recommendations were more trusted. Explainability improves user understanding of the decision-making process, and mitigates concerns around complex, "black-box" AI models. Explainable systems inspire trust, accountability, and decision-making by enabling users to understand and assess the reasoning behind AI decisions. The weighty role of explainability is a testament to its significance in today's intelligent communication landscape.

4.2.4. Privacy Protection (16%)

Privacy protection helps make up 16% of the trust framework and is an important aspect of users' concerns about data security and confidentiality. The participants highlighted the need for the proper management of personal data and the respect of transparency in data management. When users felt that their information would not be accessed, used or compromised by others, or be vulnerable to cyber attacks, they were more likely to interact with AI-powered communication systems. Effective privacy protections foster trust and the responsible use of user data. Overall, the finding suggests that data security is an essential part of maintaining trust in AI-powered communication tools.

4.2.5. Communication Quality (13%)

Communication quality accounts for 13% of the overall trust score and emphasizes the effectiveness of the communication between users and AI systems. Those who felt that systems offered them clear, relevant, context appropriate and timely responses said they trusted them more. Good communication quality creates a better user experience, as it helps to minimize misunderstandings and ensure that the information is accurate. Despite the low percentage contribution, communication quality is an integral part of trust since it has a great impact on the satisfaction of users and the perception of the competence of the system. By providing effective communication, user engagement is enhanced, and positive long-term relationships are fostered with AI-driven communication platforms.

4.3. Discussion

The results of this study help to understand the conditions that affect people's trust in communication systems using AI assistance. The findings show that users are highly interested in understanding how the AI system works and can anticipate its actions in its interactions. Transparency was one of the most impactful factors of trust as it provides consumers with transparency into decision making processes of intelligent communication technologies. Clear explanations of how recommendations, responses, and automation decisions are made, lead to reduced uncertainty for users and increased user confidence in the technology. This transparency establishes trust and enables users to feel more at ease with AI-driven communication systems. Reliability was also found to be one of the important factors that influence trust. The participants always ranked the systems with accurate information, stable performance and reliable response in various communication situations as the top choice. Reliable systems ensure positive user experiences by reducing human error, eliminating misinformation, and maintaining service quality. As the interactions become more frequent and positive, users' trust in AI-powered communication tools grows, leading to greater dependence on them over time. This research also showed that the aspect of explainability can be very important in the process of establishing trust, as it allows users to grasp the reasoning behind the AI's outputs. Systems that can offer useful explanations increase accountability, and can give users the chance to check and validate recommendations before taking action. This is especially crucial when communicating situations with consequences that have a personal, professional or organizational impact. As concerns about the collection, storage, and use of personal data have increased, the need for privacy protection has also become a foundational trust that was raised. As users grow more aware and demanding, they are expecting organizations to put in place robust security measures and transparent privacy policies to protect their sensitive information. The absence of privacy assurance can compromise a system even more if the system has the power of technology. Without privacy assurance, even the most powerful technology can not build trust. The overall results confirm the hypothesis of the multidimensional nature of the concept of trust, which is determined by a combination of technological, psychological and ethical aspects. Trust can't be gained by just having better technology or using highly complicated algorithms. Rather, the design and operation of communication systems, which are successful in relying on artificial intelligence must include transparency, reliability, explainability, privacy protection, ethical

governance, and high communication quality. This comprehensive strategy is crucial for building user confidence, boosting technology adoption, and ensuring responsible use of AI-powered communication tools across various real-world scenarios.

5. CONCLUSION

The key determinant for the successful adoption, acceptance and long-term use of AI-enabled communications systems is trust. Therefore, it is becoming increasingly important to gain insight into how users perceive and trust intelligent systems and how they develop that trust. Hence, it is becoming more and more important to understand how people perceive and develop trust in intelligent systems and to understand how this happens. The educational, health, customer support, enterprise communication, and social communication sectors have become familiar with AI-powered communication technologies. These technologies provide many benefits such as better efficiency, automation, personalization and decision support, but they will depend largely on how much users trust with technology that they interact with. Thus, research, technologists, and policymakers have identified the goal of creating reliable and trustworthy AI communication systems as a key priority. This study delved into the multi-faceted concept of trust in AI-enabled communication systems, covering five critical factors: transparency, reliability, explainability, privacy protection, and communication quality. The literature overview showed that the technical performance is not the only aspect that affects trust; there are also psychological, ethical and social aspects. Past studies highlighted the need for AI systems to be transparent, consistent, privacy-protecting, and fair and accountable. The importance of communication technologies that are technically efficient and socially trusted is further underscored by the increasing focus on Explainable Artificial Intelligence (XAI), responsible AI practices, and ethical governance frameworks. The suggested trust evaluation model provided a systematic and well-defined method to evaluate factors of trust in AI-assisted communication environments. Multiple trust dimensions were included in the framework and a survey-based analysis allowed a comprehensive assessment of the user perceptions. The results showed that transparency and reliability had the most significant impacts on building trust, suggesting that users appreciate systems that offer information on how they work and that always give them the right answer. Explainability was also noted as a key factor as it helps users understand how AI decision-making and recommendations are made. Likewise, privacy protection was identified as critical, emphasizing the growing public concerns about data security, confidentiality and responsible handling of information. Communication quality also helped to build trust; it helps make communication clear, relevant, context-appropriate, and easy to understand for the user. The study also emphasizes that trust is not an innate or fixed characteristic, but rather a dynamic process that is shaped by ongoing experiences and interactions. Trust can be built when AI systems are consistently reliable, transparent, and ethical, and trust can be undermined if AI systems make errors, are biased, breach privacy or are ineffective in communicating with users. Thus, user-centred design, clear policy management, cyber security, and explainable decision-making are key principles to use when organizations are implementing communication technologies that are based on AI. These strategies can have a profound impact on users' confidence, technology acceptance and sustainable deployment of intelligent communication solutions. For future work, it is recommended to create

adaptive trust models that are able to adapt to user changing requirements and environmental conditions. Further research into cross-cultural perceptions of trust, emotional intelligence integration, ethical reasoning skills, and real-time trust monitoring systems could give a more comprehensive understanding of human-AI relationships. Moreover, such collaboration across disciplines will be necessary as computer scientists, communication researchers, psychologists, ethicists, and policymakers are asked to tackle emerging issues of trust in increasingly complex AI systems. To sum up, reliable AI-driven communication systems play a vital role in the future of human-AI communication and digital communication. Trust requires a multi-faceted approach with technological excellence, transparency, accountability, explainability, protection of privacy, and effective communication. Developers, organizations, and governments can contribute to a more trustworthy use of AI, by focusing on these key aspects of trust, encourage responsible uses of AI and ensure that the intelligent use of communication technologies has a positive impact on people, business, and society. Trust will remain the key element for the success, acceptance, and social impact of next generation communication systems, as AI continues to evolve.

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